

**ADOPTION AND IMPLEMENTATION OF INTEGRATED PERSONNEL AND
PAYROLL DATABASE IN KENYA GOVERNMENT MINISTRIES**

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DECLARATION

This research project is my original work and has not been presented for award in any other University.

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This research project has been submitted for examination with my approval as the University Supervisor.

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DEDICATION

I dedicate this work to my family.

ACKNOWLEDGEMENT

I am thankful to my supervisor Mr. Joel Lelei who saw me through the research process. I appreciate his guidance and encouragement.

ABSTRACT

The purpose of this study is to establish drivers for adoption and factors affecting implementation of Integrated Payroll and Payroll Database (IPPD) in Kenya Government Ministries. This was necessitated by the fact that use of IPPD in the public service is undergoing challenges especially providing accurate data for human resource and payroll management. The Government is currently grappling with issues of huge public sector wage bill, ghost workers and public officers who are appointed but do not report to their work stations. IPPD is seen as the system to provide reliable information on public service numbers, wages and allowances, capacity gaps and guide in development of a comprehensive pay reform strategy for the public service. The study was based on the several theories including Technology Acceptance Theory and descriptive survey research design was employed. The study focused on 19 central Government Ministries. Questionnaires and interview schedules were used to collect primary data. The respondents were Directors of Human Resource Management who supervise implementation of IPPD. Data was analyzed using descriptive statistics, regression and correlation. The study findings established that the key drivers contributing to IPPD implementation are elimination of manual operations, availability of accurate and reliable data, information demanded from the system by other Government departments and supportive top management. The findings also revealed that the implementation of IPPD is not affected by drivers identified in Kenya ICT master plan whose foundation is infrastructure, human capital development and infrastructure for information sharing. However, there is need to support implementation of the IPPD through provision of necessary infrastructure to ensure the system is decentralized and available to Human Resource Officers in the Ministries. The study concluded that IPPD has led to improvement in reporting but implementation of all modules is necessary instead of focusing only on employee data and payroll. Further work should be carried out on effect of IPPD in Human Resources and Payroll Management.

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ACRONYMS

EY	Ernest and Young
HRIS	Human Resource Information System
IFMIS	Integrated Financial Management Information System
IPPS	Integrated Payroll and Personnel System
IPPD	Integrated Personnel and Payroll Database
ICT	Information Communication Technologies
IT	Information Technology
MDAs	Ministries Departments and Agencies
OAG	Office of the Accountant General
PFMRS	Public Finance Management Reform Strategy

CHAPTER ONE

INTRODUCTION

1.1 Background

Adoption and implementation of large integrated information systems in Governments is complex and challenging. Governments in the region are implementing Integrated Financial Management Information System (IFMIS) and Integrated Payroll and Personnel System (IPPS) and adoption and implementation of these systems have been ongoing for the last decade with large financial commitments. Most of these systems commonly referred to as eGovernment systems are developed and supported through donor funded programmes (World Bank, 2014).

With the emergence of information and communication technologies (ICTs), it is possible to develop and implement and decentralize the systems from central Government to locations closer to the citizens. While the benefits of ICT in the Government cannot be disputed, there are several concerns about its success as well as the strategies to be adopted in implementation as documented in Gichoya (2005).

Kenya is implementing a human capital management information system known as Integrated Personnel and Payroll Database (IPPD). Government HR functions dictates that IPPD system contain important and necessary modules which includes organizational management dealing with the development and maintenance of organizational structures, the personnel cost planning and control which deals with monitoring of expenditures against approved personal emolument budgets, Personnel administration which deals with maintenance of employee data to ensure compliance with the terms and conditions of service and payroll management (DPM, 2015).

Implementation of IPPD type systems require patience and the full project life cycle from definition of objectives, system specifications, system procurement, configuration, testing, pilot installation and rollout can take several years to complete. Countries in the region have therefore experienced challenges implementing systems and none of the Countries in the East Africa region have a fully institutionalized IPPS (IPPS Uganda, 2015).

1.1.1 Adoption of Information Systems

Adoption of information systems in public sector follows a sequence of developmental stages such as entry, use and institutionalisation. Venkatesh et al. (2003) explain a user's intentions to use system and the subsequent user behavior and provides a tool for managers to assess the likelihood of success of system introduction and to understand the drivers of acceptance in order to design interventions, which include, training. The author noted that there are users who may be less willing to adopt and use new systems.

There are several good or "best" practices to consider when adopting systems. These include; careful assessment of the current environment, including the political and power dynamics, fiscal priorities, the state of budget accounts, ICT infrastructure, and human capital. Whether the objective is to improve the quality and integrity of financial information, improve the efficiency of budget execution, or something else, clearly lay out what you want to achieve and secure top-level commitment (Ernest and Young, 2015).

There are factors that encourage or reinforce successful adoption of ICT projects. Drivers are the factors that encourage or reinforce the successful adoption of ICT projects. Some of these are vision and strategy, government support, external pressure and donor support, rising citizen expectations, technological change, modernization, and globalization. DeLone and McLean (1992) introduced a comprehensive taxonomy of factors contributing to the success of information systems and categorized success measures into six major categories: system quality, information quality, use, user satisfaction, individual impact, and organizational impact.

1.1.2 Factors Affecting System Implementation

There are factors that are the active elements present in society, which help overcome the potential barriers. Some of these are effective project coordination, change management and good practice. Barriers can be considered as those occurrences that hinder ICT implementation. Some of these factors for failure include infrastructure, finance, poor system design, lack of compatibility, skilled personnel, leadership styles, culture, and bureaucracy and attitudes

While discussing factors for success and failure, it is necessary to clarify the “opposite” effect of most factors. This means if the presence of a factor encourages success, the lack of it encourages failure. Examples are proper infrastructure and motivated staff. The converse is true such that if presence of a factor causes failure, its absence will cause success (examples are bureaucracy, poor project and change management). Factors for success are occurrences whose presence or absence determines the success of an ICT project. They can be drivers or enablers as described by (Mugonyi, 2003). Their absence can cause failure and their presence cause success.

1.2 Integrated Personnel and Payroll Database

The years 1994 and 1995 were characterized by intensive consultations in search of an effective payroll administration system. The Integrated Payroll and Personnel Database (IPPD) initiative was mooted to help address the challenges of manual payroll administration. It is a computerized system that was introduced in 2004 to replace manual and semi-manual human resource and payroll processes. Before Implementation of IPPD, the processes were cumbersome, causing salary delays, inaccuracy in determining staffing levels and leading to poor accountability of funds (DPM reports, 2014).

The system is unique for Government human resources and payroll data processing. To undertake pay reform, competency analysis, staffing norms, and many critical processes of HR management and payroll, IPPD is the system. However, in the latest past, there have been concerns about “Ghost workers” in Government payrolls, employee absenteeism from their work stations, officers in the payroll but with no job assigned, and a ballooned wage bill. This has called for more focus than before on operations of the IPPD to address concerns listed above. Many countries in the region do not have full functional IPPD, with all the modules working, since these countries have addressed simpler aspects of employee information and payroll.

The Government recognizes the benefits derived from using IPPD in conducting its business and operations and over the last decade has devoted considerable resources to support its redevelopment which involves improving the in-house developed software, as well as training and building the capacity of public servants. In 2014, DPM started work to introduce Government Human Resource Information System (GHRIS) a new version of IPPD. Currently,

the IPPD embrace processes and procedures aimed at gathering, storing and processing information for effective and efficient decision making. The system is decentralized in all the ministries and counties and has modules that address staff establishment, payroll, leave management and discipline (DPM 2015).

Government HR functions dictates that IPPD system contain important and necessary modules which includes organizational management dealing with the development and maintenance of organizational structures, the personnel cost planning and control which deals with monitoring of expenditures against approved personal emolument budgets, personnel administration which deals with maintenance of employee data to ensure compliance with the terms and conditions of service, payroll management which accurately calculates employee's earnings in a given period of time taking into account the available budget and the terms and conditions of services and authorizations which deals with issues of system security (World Bank IFMIS manual, 2014). IPPD therefore lacks key modules although GHRIS is planned to include performance management, leave management and improved establishment module (DPM, 2015).

When acquiring systems like IPPD, Governments have the choice to either buy or develop in-house. In order to make the best decision, the following criteria are explored to decide the best option; the richness of the required functionality, the volatility of the functional requirements, and the Governments capacity for software engineering and maintenance (EY 2013). Kenya IPPD is developed in-house. Although the system has been in operation for over ten years, the system has shortcomings. In 2014, the Government rolled out the capacity assessment assignment with IPPD providing source information. The assignment main objective was to explore the deployment of personnel, distribution of personnel in public service, determination of optimal number of staff and elimination of "ghost workers" in Government (Capacity Assessment Project, 2014). The IPPD system could not provide information on professional qualifications, correctly show stations where officers are working and their specialization among many other data elements. A biometric exercise was rolled out to collect additional employee data to fill the gaps and covered the entire civil service.

The public service has about 200,000 public servants and including teachers, the size of the public service is about 500,000 employees (DPM, 2015). The Civil Service has nineteen Ministries and most of these ministries/departments have field operations and large segment officers are transferred from headquarters to the field offices and vice-versa. Therefore IPPD manage large volume of data, many transactions and should work efficiently in the decentralized environment.

1.3 Research Problem

With availability of stable internet and connectivity using fiber technology an increasing array of public services are being brought online every year. A service delivery plateau is being reached in many countries around the world. This situation calls for an urgent need to take stock on the use of ICT in the MDAs and County Governments and to identify areas which have significant ICT resources gaps or surpluses (Davis, 1989). The role of ICT in public service delivery is accordingly being revisited to enable effective inter-organizational linkages and consolidation of Government systems.

Globally, the political and managerial focus is in developing e-services, with consideration being given to cross-organizational coherence focusing towards coordinated services offering one-stop shops to citizens and businesses. In this regards Kenya has introduced Huduma Centres which is a success story. Advances in technology have ushered in an era of new thinking about increasing integration in service delivery based on shared aims of infrastructures, data and business processes. Developed countries have advanced use of human resource systems and world class institutions are using Enterprise Resource Systems for the management of personnel and payroll. These human resource systems tend to be comprehensive and integrated with the planning, staffing, development goals and objectives of their organization (Gachoya, 2005).

A case study on Personnel and Payroll Records and Information Systems in Tanzania (World Bank/International Records Management Trust Partnership Project, 2002) highlights use of personnel and payroll information in management of records. Thirteen case studies were conducted and supplemented by findings derived by global discussion forum of senior officials and records and archives professionals. The knowledge gathered through the studies provided basis for the development of assessment tools to measure the quality of personnel and payroll

information systems in relation to clearly defined functional requirements and benchmarks. The case studies were undertaken in India in the state of Uttar Pradesh and at the central government level, Burkina Faso, Tanzania and Chile. The studies highlighted the challenges affecting implementation of personnel and payroll systems and recommended approaches that include integrated systems for public sector.

Marie (2009) looked at the implementation of the Integrated Financial Management System (IFMIS) and explored cases of success and factors that contributed to this success and whether success lead to reduced corruption and improved Public Financial Management. This work was done through Transparency International focusing on; benefits and challenges of the system, experience with implementation and issues to consider in designing and implementing the system. This study focused on several developing countries and gave examples in Africa. Sierra Leone is cited, where the introduction of IFMIS and subsequent improvement of record management systems helped uncover anomalies in personnel records of 2,000 civil servants, leading to 16% of the subset employees being immediately suspended from the payroll as a result of the exercise

The study concluded that emerging Information and Communication Technologies can play an important role in fighting corruption in public finance systems by promoting greater comprehensiveness and transparency of information across government institutions. As a result, the introduction of Integrated Financial Management Systems (IFMIS) has been promoted as a core component and in many cases a driver of public financial reforms in many developing countries. But experience shows that in spite of the considerable amount of resources allocated to such schemes, IFMIS projects tend to stall in developing countries, as they face major challenges of institutional, political and technical approaches. IPPD projects have similarly stalled and where functional, focus is on the minimum functionality.

A study was conducted on implementation of integrated financial management information system and its effect on cash management in Eldoret, West District Treasury, Kenya (Odoyo, 2014). The study investigated the effect of IFMIS on cash management practices in the public service. This was necessitated by the fact that use of IFMIS in the public service is undergoing challenges with many users experiencing problems with certain complicated features of IFMIS

coupled with security, flexibility and reliability issues that have an impact on efficient cash management in the public service. The study was based on the contingency theory and descriptive survey research design was employed. The study focused on 70 staff and top management at the Eldoret West District treasury. The findings showed that a reliable system is basically one that is accurate, timely, complete and consistent in collection of information and the infrastructure which supports the IFMIS is supposed to be secure from destruction, corruption, unauthorized access and breach of confidentiality so that there is efficient cash management. Findings revealed that the implementation of IFMIS has not been a success as a result of the top down management exhibited in most of the public services.

Stella (2014) carried out a study on the effect of integrated financial management information system on the performance of public sector organizations. The study was conducted in the Ministry for East Africa, Commerce and Tourism. The target population comprised of 94 staff working in the finance, accounts, procurement and audit departments. The purpose of the study was to determine the effect integrated financial management information system on the performance of public sector organizations. The study focused on the effect of integrated financial management information system on financial reporting in public sector organizations and the effect of the system on financial transaction processing, control and governance in public sector organizations. The study found that in terms of the effect of IFMIS on financial reporting in public sector organizations, there was a statistically significant positive correlation between IFMIS and improved financial reporting. Concerning the effect of IFMIS on financial transaction processing in public sector organizations, the relationship between IFMIS and improvements in financial transaction processing was statistically significant. Regarding the effect of IFMIS on financial control and governance in public sector organizations, there was a significant positive correlation between IFMIS and better control and governance.

The Government recognizes the benefits to be derived from using computerized information systems in conducting its business and operations and over the last decade has devoted considerable resources to support the development of e-Government related systems in MDAs, involving acquiring infrastructure, developing application-software, as well as training and building capacity of public servants in their use. Initially the effort was directed at supporting

the management of human resources and payroll processing systems but, over time, it has expanded to also cover overall information processing and systems management in the whole public service. It is worth noting that the Government has created an ICT agency and a fully-fledged e-government Directorate (eGovernment report, 2014).

Governments in the region have faced challenges implementing IPPD type systems as documented in World Bank Reviews for Kenya, Uganda, Tanzania, Rwanda (World Bank Reports, 2015). It is documented that many countries have been developing these systems for the last ten years. Why has it taken these countries many years to develop and implement information system yet the systems are commercially readily available.

While developing countries may have similar characteristics, the Kenyan context presents various challenges that affect the successful implementation of IPPD. Although a global trend, the increasing deployment of Information Technology (IT) in a developing country like Kenya will remain a source of concern for all stakeholders and especially clients who fund these investments when there are no results. The concern arises particularly from the alarming rate of IT project and business failure (Hendrickson, Massey & Cronan, 1993).

The systems continue to be developed piecemeal and after several years a new strategy is developed with huge funding demand. As stated earlier, Government undertook capacity assessment of its public workforce and IPPD could not provide information required and a biometric registration exercise was undertaken across Government. The system functionality is questionable since as indicated the system has information gaps, only processing is decentralized in the Ministries and real time sharing of data is not possible. Information sharing is through email or manual data transfer indicating there are limitations and therefore need to investigate what are the drivers for adoption and factors affecting implementation.

Several studies have been done on implementation of Integrated Financial Management Information System (IFMIS) but few studies have been done on IPPD implementation. Based on the statement of problem and objective of study, the study will address the following questions

about IPPD: What are the drivers for adoption of IPPD and what are the factors affecting successful implementation of IPPD?

1.4 Objective of the Study

The objectives of the study are to:

- (i) Establish drivers for adoption of Integrated Personnel and Payroll Database in Kenya Government Ministries
- (ii) Factors affecting implementation of Integrated Payroll and Payroll Database in Kenya Government Ministries.

1.5 Value of the Study

The study will show how factors, and the order in which such factors account for successful implementation of IPPD. The paper is thus relevant to many Governments implementing eGovernment systems. There are also other interest groups since these systems are heavily funded from both development partners and Governments.

The research will help draw attention of policy makers to the need to imbibe project management principles for successful implementation of systems. Particularly address concerns why these systems take too long to get fully institutionalised. The research will also bring to the fore, the need for policy makers to understand the factors that contribute to problems related to roll out of eGovernment systems. It will also be of interest to Government in the sense that additional emphasis will be placed on implementation methodology.

Research is an ever continuous process. As the research benefits from previous studies conducted by other professionals, any future research will benefit from this study either in advancing in the same research or in any related research phenomenon. The scholars and academicians may also use this project for further research and the findings will be an eye opener to researchers who desire to seek further knowledge in the area of eGovernment.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

A review of relevant literature reveals that little attention has been given to research into implementation of IPPD type systems in public sector. The development partners have however documented process and progress in implementing these systems in the review reports of the programmes they fund. Although the programme documents and review reports contain relevant information regarding IPPD type systems and implementation challenges, these reports remain internal. Additionally, technical reports mainly focus on strategy for developing and implementing these systems. Hence, there is a need to conduct further empirical research to better understand the challenges confronting Governments in the adoption and use of IPPD.

2.2 Theoretical Review

As a basis for understanding the study related to adoption and implementation of IPPD, several theories related to development and implementation of information systems are discussed. These theories include Technology Acceptance Model, Unified Theory of Acceptance and Use of Technology, Theory of Reasoned Action, DeLone and McLean (1992) Information Systems Success Model and Theory of Planned Behavior.

2.2.1 Technology Acceptance Model (TAM) Theory

This research utilized the Technology Acceptance Model (TAM) since it is an information systems theory that models how users accept and use a technology. The model suggests that when users are presented with a new technology, a number of factors influence their decision about how and when they will use it, notably; perceived usefulness and Perceived ease-of-use. Perceived usefulness was defined by Fred Davis as "the degree to which a person believes that using a particular system would enhance his or her job performance". Perceived ease-of-use was defined by Davis as "the degree to which a person believes that using a particular system would be free from effort" (Davis 1989).

The TAM has been continuously studied and expanded the two major upgrades being the TAM 2 (Venkatesh & Davis 2000 & Venkatesh 2000). A TAM has also been proposed in the context of payroll systems with an inclusion of the effects of trust and perceived risk on system use (Venkatesh & Bala 2008). The study will provide an intensive, descriptive and holistic analysis of IPPD implementation in Kenya. Several researchers have replicated Davis' original study (Davis, 1989) to provide empirical evidence on the relationships that exist between usefulness, ease of use and system use (Subramanian & Szajna 1994).

Venkatesh and Davis extended the original TAM model to explain perceived usefulness and usage intentions in terms of social influence (subjective norms, voluntariness, image) and cognitive instrumental processes (job relevance, output quality, result demonstrability, perceived ease of use). The extended model, referred to as TAM2, was tested in both voluntary and mandatory settings. The results strongly supported TAM2 (Venkatesh & Davis 2000).

TAM has been widely criticized, despite its frequent use, leading the original proposers to attempt to redefine it several times. Criticisms of TAM as a "theory" include its questionable heuristic value, limited explanatory and predictive power, triviality, and lack of any practical value, as for IPPD, its practical means user acceptance is a factor for system implementation promoting activities such as end user computing by managers. TRA has been used in ICT adoption and use research as a fundamental theoretical framework, and it also has been combined with other theories and models. Both attitude and subjective norm were found to be important determinants of peoples' intentions to adopt and use ICTs and thus adoption of IPPD.

Furthermore, the independent attempts by several researchers to expand TAM in order to adopt it to the constantly changing ICT and systems environments has led to a state of theoretical chaos and confusion" (Benbasat & Barki 2007). This is a necessary basis to evaluate current and potential actions that Government may undertake to support IPPD implementation hence adoption of TAM theory has to be tested.

2.2.2 Unified Theory of Acceptance and Use of Technology (UTAUT)

Unified theory of acceptance and use of technology (UTAUT) is a technology acceptance model formulated by Venkatesh and others in "User acceptance of information technology: Toward a unified view". The UTAUT aims to explain user intentions to use a system and subsequent usage behavior, in this research the UTAUT theory is used to illustrate acceptance and use of technology in Government. The theory holds that four key constructs: performance expectancy, effort expectancy, social influence, by citizen and facilitating ideal conditions; i.e. the system tools. The first three being direct determinants of usage intention and behavior, and the fourth a direct determinant of use behavior.

The theory was developed through a review and consolidation of the constructs of eight models that earlier research had employed to explain information systems usage behavior (theory of reasoned action, technology acceptance model, motivational model, theory of planned behavior, a combined theory of planned behavior/technology acceptance model, model of personal computer use, diffusion of innovations theory, and social cognitive theory). Subsequent validation by Venkatesh et al. of UTAUT in a longitudinal study found it to account for 70% of the variance in behavioral intention and about 50% in actual use and thus test the pattern as regards implementation of IPPD.

2.2.3 Theory of Reasoned Action (TRA)

The theory originates from social psychology, and it is a special case of the Theory of Planned Behavior (TPB) (Ajzen, 2010). Fishbein and Ajzen (1975) developed TRA to define the links between the beliefs, attitudes, norms, intentions, and behaviors of individuals. The theory assumes that a person's behavior is determined by the person's behavioral intention to perform it and the intention itself is determined by the person's attitudes and his or her subjective norms towards the behavior. The subjective norm refers to "the person's perception that most people who are important to him think he should or should not perform the behavior in question" (Ajzen, 2010).

2.2.4 DeLone and McLean (1992) Information Systems Success Model

The model introduced a comprehensive taxonomy of factors contributing to the success of information systems. The authors examined the literature on IS success and categorized success measures into six major categories: system quality, information system quality, information, quality, use, user satisfaction, individual impact, and organizational impact. These factors are included in the study. All these categories are listed as factors of IPPD implementation.

2.2.5 Theory of Planned Behavior (TPB)

Similar to TRA, is a well-established social psychology theory that also states that specific salient beliefs influence behavioral intentions and subsequent behavior (Ajzen, 1991). Compared to TRA, TPB added another construct, Perceived Behavioral Control (PBC), which can be defined as “one’s perceptions of his/her ability to act out a given behavior easily” (Ajzen, 1991). Many studies in ICT adoption and use research have used TPB as their theoretical framework (Hsu & Chiu, 2004; Liao, Chen, & Yen, 2007). Similar to studies using TRA, these studies also found significant relationships between attitude, subjective norm, perceived behavioral control and behavioral intention. The study will investigate the behavior of users towards implementation of IPPD.

2.3 Drivers for Adopting Information Systems

Drivers are the factors that encourage or reinforce the successful implementation of ICT projects. Some of these are listed below vision and strategy, Government support, external pressure and donor support, rising consumer expectations, technological change, modernization, and globalization. The drivers affecting implementation of the systems can be categorized into two factors for success and factors of failure.

There are technological limitations associated to systems implementations which include poor network reception, slow internet connection, incomplete system modules and integration problems. Technical constraints differ from infrastructural in the sense that the latter do not entail technological limitations of systems (Segars & Grover 1993). Instead they focus on the availability and accessibility of ICTs. Technical barriers comprise of technology and system related barriers. There are barriers that can slow system implementation. (Almamy, Airi & Anja,

2013) listed eight barriers in their electronic Journal of Information Systems in Developing Countries. The barriers included political and leadership, social cultural, infrastructure, technical, education, economic, security and safety and legal and regulatory processes.

2.4 Factors affecting System Implementation

System implementation depends on several factors among these include system functionality, completeness of system modules, management of system changes, maintenance of the system, capacity building initiatives, disaster recovery and recurrent costs. The recurrent costs include ICT equipment, services and networks. Factors for success are those occurrences whose presence or absence determines the success of an ICT project. They can be drivers or enablers as described by (Khaled 2003). Their absence can cause failure and their presence can cause success.

The best way to achieve maximum systems implementation is to have all the factors for success with no occurrence of the factors for failure. However, in real world that is not the case. Given such a situation, an action to increase the chances of success is required. Clockwork (2004) suggests a framework for implementing e-Government projects. The framework consists of five stages: examine national e-readiness, identify and prioritize themes, develop a program of action, apply to target groups, implement solutions – the final stage of the framework, is to implement the solutions. A key factor in this implementation is to ensure that the organization is ready and in place to realize the new activities and corresponding changes.

The success of system implementation greatly depends among other factors on good infrastructure that enables the availability and accessibility of system. Availability refers to the presence of infrastructure that delivers ICT services while accessibility denotes the freedom to use such services with minimum or without limitations. Rangaswamy & Nair (2010) underscore that the success of systems implementation requires large infrastructural investment.

2.5 Empirical Review

The Government of Rwanda since 2008 developed and implemented an Integrated Personnel and Payroll Information System (IPPIS). This is an in-house developed solution. The IPPIS replaced the legacy payroll system with added functionalities to assist in human resource management. Detailed user manuals and high-level technical documentation were written and modeled using internationally accepted standards.

In 2014 the Government got assistance from the World Bank to improve the system functionality. This requirement was necessary as a result of changes in the operational environment and also changes in the standard Governmental procedures related to human resource management (Rwanda's PFMRS 2013, 2014). Schwalbe (2007) said "Just as Information Technology Projects have poor track record of meeting projects goals, they also have poor record in meeting budget goals". (Adams et al, 1992) replicated the work of Davis (1989) to demonstrate the validity and reliability of his instrument and his measurement scales.

The main problem, with the implementation of the IPPIS being implementation of all modules which include Career Development and Succession Planning, Job Evaluation, Grievance Management, Disciplinary Process Management, Employee Contract Management, Organization Structure and Talent Management which were not initially planned in the initial design.

To address this problem and to ensure the identified requirements are integrated, the Government sort assistance of a consultant to work with MDAs, and developed a detailed requirement analysis which involved all stakeholders, documented all workflows and processes, identified and documented business interfaces with external systems, defined the expected input and output for business processes.

In 1999, the Tanzania's Government through the Public Service Management started implementation of a HR and payroll system. In 2010, a business process review was conducted and presented to stakeholders that additional system development was necessary to improve the system functionality. Upgrading of the Lawson system was carried out under many challenges including lack of donor support that had initially supported development of the system. Several reviews of the IPPS identified that the system do not meet the basic requirements for managing

both HR and Payroll data. The reviews identified weak implementation strategy that made the system centralized at the Ministry of Public Service. Since then, this has changed and the system decentralized in MDAs (PSRP reports 2006, 2007, and 2010). Adopting information systems could be impeded by laws and regulations but also poor system support.

The integrated personnel and payroll information system and integrated financial management and information system have been able to enhance accountability and transparency in the management of government resources. More so, the Ministry of Finance observed in 2013 that the (IPPIS) has enhanced efficient personnel cost, planning and budgeting as personnel cost was based on actual verified aim and not estimates (Idris, Adaja & Audu , 2015).

Uganda has been implementing an integrated payroll and personnel system (IPPS) since 2009. The current Oracle database, licenses and operating system have never been updated since 2009. The system was reviewed in 2015. Results from the review indicate that the system data is incomplete; there are inaccuracies between actual payroll data and the IFMIS system. Human Resource Officers are not aware of actual payments made and whether they tally with the figures computed in the IPPS Payroll. IPPS currently has no alternative Business Continuity & Disaster Recovery Capability; DRS Server has no functional storage as it was taken to replace storage at the production site which had crashed with no replacement as yet, DRS is not connected to the network therefore replication is not working and no back-ups stored in offsite location (Uganda IPPS, 2015).

In 2004, the Government of Malawi made a decision to develop a new Human Resource Management Information System (HRMIS). The short to medium term objectives of the new system were to Control Civil Service establishment and hence control the wage bill, to maintain Civil Service job records, maintain up-to-date personnel records, maintain training records and to maintain Industrial / Labor relations records. Implementation of this system has never covered all the modules and integration with IFMIS has never been achieved. In June 2008 the Government decided to review implementation progress of the system. Terms of Reference covered a comprehensive and objective assessment of the HRMIS to ensure that it met the original Government requirement specifications and best international accounting practices. The

review was also to assess the compatibility of HRMIS with IFMIS. By 2015 only the establishment, payroll and employee data modules of the system were fully functional (Malawi HRMIS).

2.5.1 Summary of Literature Review

It has been illustrated that in the region, there are challenges implementing IPPD systems. Among the challenges include lack of adequate design to roll out the system. Governments depend on external support to resolve configuration problems and that support is always needed necessary to adopt best practices. Where countries chose to develop the system in-house, it becomes increasingly difficult to measure the level of success. Periodic training is crucial for officers to understand complex systems like ERP. On the positive side, the systems bring significant change in the way the payroll and establishment are run and managed. In addition, human resource employees need to have basic IT skills to manage HR and payroll processes of their employees. Emerging information technology cannot deliver improved organizational effectiveness if it is not accepted and used by potential users. Technology Acceptance Model (TAM) is a useful measurement for an information management system among practitioners and academics. TAM is consistent with Everett Rogers (1983) theory on diffusion of innovation where technology adoption is a function of a variety of factors including relative advantage and ease of use.

2.6 The Conceptual Framework

Independent variable

Dependent variable

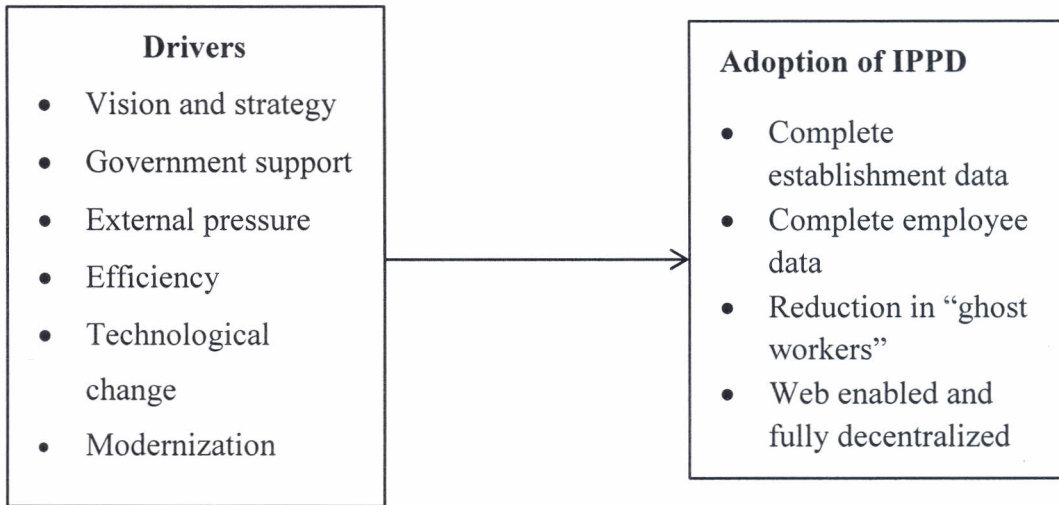


Figure 2.6: Conceptual framework

CHAPTER THREE

RESEACH METHODOLOGY

3.1 Introduction

This chapter covers research design, target population, data collection and data analysis technics.

3.2 Research Design

The research design for this study is descriptive survey method. A descriptive survey attempts to describe a subject often by creating a group of problems, people or events through the collection of data and tabulation of frequencies on research variables or their interaction as indicated. This approach will provide insights, into factors that contribute to success or failure of ICT projects. It will show the relationship between the adoption of good practices during implementation and the resultant level of success.

3.3 Population of the Study

The target population of this study consisted of all the nineteen central Government Ministries (State House, 2015). The list is attached in Appendix III. This was a census survey.

3.4 Data Collection

The study used a questionnaire for primary data collection from nineteen Directors of Human Resource Management in the Ministries. The officers are responsible for management of the IPPD and directly supervise the system. The questionnaire has three sections. Section A contains demographic data; Section B collects data on drivers; while Section C focusses on factors affecting implementation of IPPD. Questionnaire is attached in Appendix II.

3.5 Data Analysis

The process of data analysis involved several stages; the completed questionnaires were checked for completeness and consistency, and then coded. Following this, analysis was done. For demographic data, analysis was done using frequency and percentages. As for drivers for adoption and factors affecting implementation of IPPD, mean and standard deviation was used. Results of this analysis were used to generate explanatory tables, charts, and graphs.

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter provides an analysis of data collected from eighteen central Government Ministries on adoption and implementation of IPPD in Kenya. The analysis was done by analyzing questionnaires collected from Government Ministries. A total of 19 questionnaires were distributed and all the 18 were completed having been filled. This constituted 100% which according to Mugenda Mugenda (1993) a response rate of more than 80% is sufficient for the study. Data collected was sorted and analysed using statistical package for social sciences (SPSS) software. The results are presented in the Tables and figures to highlight the major findings. They are also presented sequentially according to the research questions of the study. Mean scores, standard deviations and regression analysis was used to analyse data collected. The raw data was coded, evaluated and tabulated to depict clearly the results of adoption and implementation of IPPD in Kenya.

4.2 Demographic Characteristics

The study sought to establish the information on respondents employed in the study with regards to the gender, age, and duration of service. The bio data points at the respondent's appropriateness in responding to the study questions required for the study to be completed.

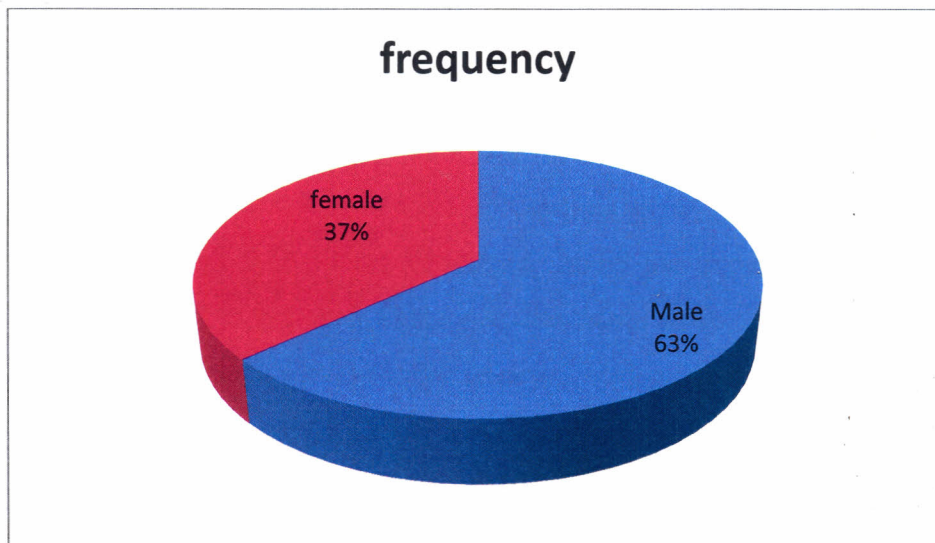
4.2.1 Gender of Respondents

The respondents were asked to show their gender, this was expected to guide the researcher on conclusions regarding the degree of congruence of responses with the gender characteristics on adoption and implementation of IPPD in Government Ministries. The results of the study are presented in the figure below.

Table 4.1: Gender of respondents

	Frequency	Percent	Cumulative Percent
Valid Male	12	63.2	63.2
Female	7	36.8	100.0
Total	19	100.0	

Figure 4.1: Distribution of Gender



The results as shown in the figure 4.1 show that majority of the respondent were male at 63% while female at 37%. The results indicate majority of the operators and managers of the IPPD are male.

4.2.2 Respondents' Age Group

In this area of study, the researcher sought to know the age category of the respondents. This was expected to guide the researcher understand whether adoption of the IPPD is affected by age of the worker. Results of the analysis are shown in Table 4. 2 and over 62% of the officers (16) are over 36 years. Therefore majority of the officers working on IPPD are mature and senior officers.

Table 4.2: Distribution of Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	26-30	1	5.3	5.3	5.3
	31-35	2	10.5	10.5	15.8
	36-40	4	21.1	21.1	36.8
	41-45	4	21.1	21.1	57.9
	46-50	5	26.3	26.3	84.2
	over 50 years	3	15.8	15.8	100.0
	Total	19	100.0	100.0	

4.2.3 Period Served in the Organization

The respondents were asked to indicate the number of years they had worked in the Ministry. This was expected to help the researcher know the experience of officers in managing the system. From Table 4.3 and Table 4.4, the mean is 9.79 years this is a good indicator that majority of the officers serving in the Ministry have experience in undertaking IPPD activities.

Table 4.3: Duration in the Ministry

		Duration (years) in the Ministry	Duration (years) supporting IPPD system
N	Valid	19	19
	Missing	0	0
Percentiles	25	6.00	5.00
	50	10.00	6.00
	75	13.00	10.00

Table 4.4 Duration (years) in the Ministry

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 4	1	5.3	5.3	5.3
5	2	10.5	10.5	15.8
6	3	15.8	15.8	31.6
7	1	5.3	5.3	36.8
8	1	5.3	5.3	42.1
9	1	5.3	5.3	47.4
10	2	10.5	10.5	57.9
12	3	15.8	15.8	73.7
13	2	10.5	10.5	84.2
15	1	5.3	5.3	89.5
16	1	5.3	5.3	94.7
17	1	5.3	5.3	100.0
Total	19	100.0	100.0	

4.4 Drivers Affecting System Implementation

The study in this aimed at identifying the drivers contributing to adoption and implementation of Integrated Personnel and Payroll system in Kenya. The Drivers were rated with the extent on using the scale i.e. No extent **(1)**, little extent **(2)**, moderate extent **(3)**, great extent **(4)**, and very great extent **(5)**. Analysis was done by calculating means and standard deviation scores. The results of the analysis are shown in Table 4.5.

The Table represents the descriptive statistics on adoption of IPPD in Kenya. The results shows that elimination of manual operations, availability of accurate and reliable data, demanded information from the system by other Government departments on regular basis and supportive top management are the key drivers for IPPD implementation with means of 4.95, 4.84, 4.53 and 4.42 and standard deviation of 0.23, 0.37, 0.61 and 0.51 respectively.

Table 4.5 Drivers Contributing to the Adoption of IPPD in the Ministry

Drivers		Mean	Std. Deviation
Governance structure	Availability of Governance structure to ensure successful oversight and delivery	3.32	.820
	Supportive top management	4.42	.507
E-Government strategy	Supportive eGovernment strategy	1.58	.507
Infrastructure	Adequate connectivity and infrastructure to support the system	3.37	1.065
	Stable internet, network connectivity to all locations where users of the system exist	3.32	.885
	Decentralized system available in the Ministry	2.84	1.167
External pressure	Demanded information from the system by other Government departments on regular basis	4.53	.612
Efficiency	Need for quality of service delivery	2.42	.902
Adequate Budget	Adequate budget and well managed	1.74	.562
Data availability	Availability of accurate and reliable data	4.84	.375
System Intervention	Elimination of manual operations	4.95	.229
Training	Availability of ICT skills in the Ministry	2.74	.562
Technological Change	Demand within Ministry for new technology	2.16	.602
Modernization and globalization	Trends in regional countries regarding processing of HR and payroll data	2.32	.885
	Valid N (listwise)		

The respondents disagreed that availability of supportive eGovernment strategy, adequate budget which is well managed, technological change demand within Ministry for new technology, modernization and globalization trends in regional countries regarding processing of HR and payroll data have significant contribution in adoption and implementation of the Integrated Payroll and Personnel Database with mean of 1.58, 1.74, 2.16 and 2.32.

The respondents were neutral on Governance structure, adequate connectivity and infrastructure to support the system, stable internet, network connectivity to all locations where users of the system exist and decentralized system available in the Ministry, need for quality information, and training.

4.5 Factor Affecting Implementation of IPPD in Ministries

The study aimed at identifying the factors affecting adoption and implementation of Integrated Personnel and Payroll system in Ministries. The factors were rated with the extent using the scale i.e. No extent (1), little extent (2), moderate extent (3), great extent (4), and very great extent (5). Analysis was done by calculating means and standard deviation scores. The results of the analysis are shown in Table 4.6

The results from the respondents in Table 4.6 show that reduced cycle times leading to increased accuracy accessing and removing of employees from the payroll, efficient management of payroll amendments, user satisfaction showing no duplication of multiple departments capturing and maintaining the same information and availability of accurate up to date information is the most important factors with mean of 4.68, 4.89, 4.84 and 4.74 with standard deviation of 0.478, 0.315, 0.501, 0.452 respectively.

The respondents were not in agreement that availability of basic ICT skills in the Ministry, application security adequate to meet additional demands of increased user base, avoiding many steps for having to inform multiple departments of desired changes, and communication strategy for IPPD user concerns were important factors. This is reflected in the mean 2.84, 2.21, 2.79, 2.05 and standard deviation 1.015, 0.772, 0.787, 0.780 respectively

Table 4.6 Factors affecting the implementation of IPPD in the Ministries

Factors		Mean	Std. Deviation
Business process management	Improvement of key system business processes	3.47	.697
Process capability	Reduced cycle times and increased accuracy accessing and removing of employees from the payroll is in the payroll has been facilitated	4.68	.478
	Efficient management of payroll amendments	4.89	.315
Capacity building initiatives	Availability of basic ICT skills in the Ministry	2.84	1.015
Data accuracy	Competencies in functional and technical skills	2.79	.787
	Availability of accurate up to date information	4.74	.452
Security	Physical security is implemented and maintained	3.53	.772
	Application security is adequate to meet additional demands of increased user base	2.21	.787
User satisfaction	No duplication of multiple departments capturing and maintaining the same information	4.84	.501
	Avoids many steps for having to inform multiple departments of desired changes	2.79	.787
Cross functional team	Existence of a functional team specializing in core areas of the system	3.63	1.012
Communication	Communication strategy for IPPD user concerns	2.05	.780
User attitude	User willingness to use the system	4.79	.535
Maintenance Planning	Resources in place to maintain the system	3.79	.855
	Support for hardware replacement and redundancy	2.84	.602
Support Planning	Adequate tools in place to manage support analysis, escalation, problem tracking, and resolution	2.16	.688

4.6 Discussion

From the study findings it was established that the key drivers contributing to IPPD implementation are elimination of manual operations, availability of accurate and reliable data, demanded information from the system by other Government departments on regular basis and supportive top management.

From Kenya ICT master Plan (National ICT masterplan, 2014), the three foundations that have been identified as key in introduction and implementation of systems are human capital and workforce development, integrated ICT infrastructure which is necessary for the successful implementation of other foundations and pillars since it seeks to provide the integrated infrastructure backbone required to enable cost effective delivery of applications and services to Kenyans, businesses and other stakeholders and finally integrated information infrastructure which involves provision of more and better information.

The study did not agree with the three foundations of the master plan. This was investigated and found that the IPPD is used as standalone in the Ministries and therefore not decentralized in the departments. For that reason, infrastructure was not found as important. Capacity issues are not highly rated since the system have been under implementation for several years and therefore capacity gaps are not seen as a challenge.

The study noted the standardized nature of system implementation foster interoperability among the ministries and the key department the Directorate of Personnel Management who demands monthly updates from the system. This standardized reporting provides users with reports needed by the management.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents summary of findings as discussed in chapter four and interpretations of the data analysis, conclusions and recommendations based on the findings.

5.2 Summary of Findings

The research was conducted in all the 19 Ministries. The study targeted drivers and factors influencing implementation of Integrated Personnel and Payroll Database. The main objective was to establish and investigate adoption and implementation of the Database in Government Ministries.

The Database is critical system for public service delivery since processing of employee information is based on the system. The current Kenya's devolved system the size of the public service, deployment and competencies among public servants is important for planning and management of Human Resource. The Government just concluded capacity assessment and plans are underway to conduct retrenchment. To undertake such exercise, data is important and IPPD is the system that provides the data. The Government is already constrained with demands for higher salaries and promised to be effected after development of a public service pay policy.

An IPPD is necessary to ensure policy implementation on HR management, standardized reporting framework especially in provision of much required data and information at national level for consolidation of national statistics.

One important foundation for ICT growth i.e. infrastructure was shown as not key yet Ministries must adopt decentralized approaches to diversify delivery channels and make back-office work more efficient. The internet is the most powerful and popular means of delivering the IPPD system. Mobile digital telephony and messaging technology is now very popular and therefore could be used to transmit changes that take place every month. Diversifying delivery channels extends the services to as many users as possible and creates competition between channels,

improving the quality of delivery. Infrastructure was seen as not important since the system is not decentralized within the Ministry but the system has to be decentralized to allow HR officers use the system at their work stations.

For effective installation of IPPD, network infrastructure with national coverage is important to ensure that IPPD reporting is possible from all the Ministries and county Governments including remote locations since Kenya is a devolved Government. A number of Ministries have internet problems and do not have ideal LAN connectivity. Ministries have responsibility for their ICT investments and the national Government is committed to undertake major connectivity projects in all the counties. One of the major projects is to connect counties on the National Fibre Network. The National Government has connected 29 Counties and 18 are yet to be connected on the fibre network. Despite this achievement reliable connectivity still remains a challenge to many county Governments. The issue of internet infrastructure is on central government agenda and greatly supports implementing including roll out of information systems.

5.3 Conclusion

The drivers Governance structure, Vision and strategy are important for successful adoption of ICT systems. In absence of these drivers systems may never be institutionalized although ICT infrastructure remains the key foundation necessary for the successful implementation. The factors user satisfaction, data accuracy, management of amendments, and reduced cycle times are important but dependent on internal factors key among these the willingness of the institution to use the system.

The remit of this foundation is the provision of more and better information from the public sector and ensure that there is maximum access to information on HR and that this information is readily available when needed.

5.4 Recommendation

The outcome from implementation of IPPD in a decentralized environment, riding on internet connectivity, is timely for provision of accurate human resource information needed by management to make informed decisions. The process is to ultimately automate processes for personnel, establishment and payroll management and empower MDAs take decisions through

the system that affect their employees. These decisions are the changes that take place in HR management.

A fully decentralized system within the Ministry will result in improved establishment control; better management of entry and exit from the payroll; reduced number of invalid personnel records; reduced opportunity for payroll fraud; and up to date Human Resource information.

Adequate budget is necessary since implementation and management of the system across Government is a costly exercise that cannot be solely financed by locally generated resources and external financing is needed.

Need to address the issue of integrating IPPD, Payroll and Pension is widely discussed and seems the next work stream around IPPD implementation. Integration means that an interface of the IPPD would provide employee data to the Payroll and Pension databases using one platform and a single common database and the employee information and termination modules of IPPD providing real time data sharing with the pension database. Payroll amendments processed using IPPD system payroll module and shared payroll data with IFMIS.

5.5 Limitations of the Study

The study covered only the central Government Ministries. A study should be done on implementation of the system in all the counties. It is important to investigate whether counties are using the system or have developed their own and whether county system is fully integrated with the IPPD. Due to the time limitations the study was not able to investigate recurrent costs for supporting the system especially in all the counties although the respondents felt budget allocation was not an important factor.

5.6 Suggestions for Further Studies

Finally further studies should focus on the integrating IPPD and pension system in the Government. This will help policy makers truly integrate workforce pay and plan accurately for pension payments.

Secondly the effect of IPPD on human resource and payroll management should be studied since there could be shortcomings in the area of system functionality. In addition use of mobile

telephony to effect changes that take place in administration of the systems should be explored especially response to employee leave requests and attendance related issues. This will cut time lost by employees moving around looking for answers.

Is the Government using IPPD optimally or should Government continue redeveloping IPPD or acquire an off the shelf IPPD is another area of study especially now that most governments are acquiring ERPs. The government has the choice to either buy or develop in-house but to truly make the best decision, the richness of the required functionality; the volatility of the functional requirements, and governments capacity for software engineering and maintenance are important points to consider. Open source software works in much the same way as proprietary software systems provided by commercial software firms should government use open source software.

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APPENDICES

APPENDIX I: QUESTIONNAIRE

SECTION A: RESPONDENT INFORMATION

1. Indicate your gender Male Female

2. Job Title

3. Duration (years) in the Ministry

4. Duration (years) supporting IPPD system

5. What is your age bracket

18-25 years

26-30 years

31-35 years

36-40 years

41-45 years

46-50 years

over 50 years

SECTION B: DRIVERS CONTRIBUTING TO ADOPTION OF IPPD

To what extent did each of the following Drivers contribute to the adoption of Integrated Personnel and Payroll Database (IPPD) in the Ministry?

Tick to indicate extent for each of the following Drivers using the scale at the top of the table.

DRIVERS		1 No extent	2 Little extent	3 Moderate extent	4 Great extent	5 Very great extent
Governance structure						
1	Availability of Governance structure to ensure successful oversight and delivery					
2	Supportive top management					
eGovernment strategy						
2	Supportive eGovernment strategy					
Infrastructure						
3	Adequate connectivity and infrastructure to support the system					
4	Stable internet, network connectivity to all locations where users of the system exist					
5	Decentralized system available in the Ministry					
External pressure						
6	Demanded information from the system by other Government departments on regular basis					
Efficiency						

DRIVERS		1 No extent	2 Little extent	3 Moderate extent	4 Great extent	5 Very great extent
7	Need for quality of service delivery					
Adequate Budget						
8	Adequate budget and well managed					
Data availability						
9	Availability of accurate and reliable data					
System Intervention						
10	Elimination of manual operations					
Training						
11	Availability of skills in ICT					
Technological Change						
12	Demand to use new technology					
Modernization and globalization						
13	Trends in regional countries regarding processing of HR and payroll data					

SECTION C: FACTORS AFFECTING IMPLEMENTATION OF IPPD

To what extent did each of the factors affect the implementation of Integrated Personnel and Payroll Database (IPPD) in the Ministry?

Tick to indicate the extent for each of factors using the scale at the top of the table.

Factors		1 No extent	2 Little extent	3 Moderate extent	4 Great extent	5 Very great extent
Business process management						
1.	Improvement of key system business processes					
Process capability						
2.	Reduced cycle times and increased accuracy accessing and removing of employees from the payroll is in the payroll has been facilitated					
3.	Efficient management of payroll amendments					
Capacity building initiatives						
4.	Availability of basic ICT skills in the Ministry					
5.	Competencies in functional and technical skills					
Data accuracy						
6.	Availability of accurate up to date information					
Security						
7.	Physical security is implemented and maintained					
8.	Application security is adequate to meet additional demands of increased					

	user base					
User satisfaction						
9.	No duplication of multiple departments capturing and maintaining the same information					
10.	Avoids many steps for having to inform multiple departments of desired changes					
Cross functional team						
11.	Existence of a functional team specializing in core areas of the system					
Communication						
12.	Communication strategy for IPPD user concerns					
User attitude						
13.	User willingness to use the system					
Maintenance Planning						
14.	Resources in place to maintain the system					
15.	Support for hardware replacement and redundancy					
Support Planning						
16.	Adequate tools in place to manage support analysis, escalation, problem tracking, and resolution					

APPENDIX II: LIST OF GOVERNMENT MINISTRIES

1. Ministry of Interior and Coordination of National Government
2. Ministry of Devolution and Planning
3. The National Treasury
4. Ministry of Defence
5. Ministry of Foreign Affairs
6. Ministry of Education
7. Ministry of Health
8. Ministry of Transport and Infrastructure
9. Ministry of Information, Communication and Technology
10. Ministry of Environment and Natural Resource
11. Ministry of Water
12. Ministry of Land, Housing and Urban Development
13. Ministry of Sports, Culture and the Arts
14. Ministry of Labour, Social Security and Services
15. Ministry of Energy and Petroleum
16. Ministry of Agriculture, Livestock and Fisheries
17. Ministry of Industrialization and Enterprise Development
18. Ministry of East Africa Affairs, Commerce, and Tourism
19. Ministry of Mining