



# **Information Technology-Business Alignment for Business Process Efficiency at the Central Bank of Lesotho**

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## **DECLARATION**

“I declare that the Field Study hereby submitted for the degree Magister in Business Administration at the UFS Business School, University of the Free State, is my own independent work and that I have not previously submitted this work, either as a whole or in part, for a qualification at another university or at another faculty at this university. I also hereby cede copyright of this work to the University of the Free State”

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## **ABSTRACT**

The Central bank of Lesotho is faced with a problem of unclear IT-business alignment in its payment systems business area. The study is intended to help find the causes of this lack of alignment and to also recommend ways to achieve clear IT-business alignment.

The study is focused on those business units and stakeholders within the bank who either work with payment systems, implement or benefit from services provided through payment systems as well as the bank's management.

In an attempt to deal with the primary objective of finding ways to align business processes and IT to improve performance and efficiency of payment systems, the research on previous literature on factors that affect IT-business alignment is conducted and the research on the CBL case is carried out in contrast to the literature findings.

Findings and recommendations on the research are drawn as a response to the primary objective of the study. The factors that impact of IT-business alignment are established from the research results and recommendations are made on ways to align IT and business in the payment systems area.

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## **LIST OF ABBREVIATIONS AND ACRONYMS**

ACH	Automated Clearing House
CBL	Central Bank of Lesotho
CMA	Common Monetary Authorities
IT	Information Technology
NPS	National Payment Systems
PAL	Payments Association of Lesotho
RTGS	Real-Time Gross Settlement System
SAM	Strategic Alignment Maturity

# CHAPTER 1: INTRODUCTION AND BACKGROUND TO THE STUDY

## 1.1 Introduction

The Central Bank of Lesotho (CBL) is a financial institution and a government-owned entity with 300 employees. The Central Bank serves as a banker for both the Lesotho government and commercial banks operating in Lesotho. Another role of the institution is to regulate the banking industry and also to advise the government.

Performance issues impact on how an entity delivers services to its stakeholders through its various strategic business units. The business units have to work in a way that each unit's role is complementary to the next unit. The various business units include Information Technology (IT), Financial Markets, Finance, Research, Audit, Supervision, and Operations (Central Bank of Lesotho, 2014).

Central Bank's IT department is made up of three divisions, namely, Infrastructure and Operations, Business Solutions Division, and Enterprise Architecture and Governance Division. The respective offices all function interactively through a common goal of executing some of the Bank's strategic objectives and they report to the same Director of IT. Each IT division has its own mandate that is pursued through the divisional objectives, which are all reported and appraised by the director's office. The divisional roles overlap to a large extent, and most of the work carried out is born from other departmental needs and goals. A typical example of a project would be whereby a certain department has a project and they request a new IT system in order to perform a function. One IT division will carry out a business process analysis and mapping, while the other will implement a system following the process mapping. Finally, the third office will set up the necessary infrastructure for the successful implementation of the project.

Auditing is carried out annually by the IT-audits section of the Audit department, and this is done as a way of assessing the compliance of the IT department to the Bank's policies and international best practices where necessary. Recommendations are made

and sometimes followed and executed by both the IT office and the Bank's management.

The role and benefits of IT from a business perspective at the Central Bank of Lesotho are not very clear to all stakeholders, and not all departments benefit equally or utilise the information technology to drive their strategic objectives. Automation has not yet been fully achieved in some business areas, and there are still some grey areas as far as strategic alignment is concerned. There are currently no formal frameworks or governance structures to determine how IT functions are to be rolled out and integrated into the business. There are policies that guide how some of the work functions are performed but not necessarily with the aim of aligning business and IT.

Major projects are undertaken each year, and these projects force IT and business to come together, as they generally originate from other business units but requiring IT solutions for successful implementation. The Central Bank has an office called National Payment Systems (NPS) which handles the payment operations oversight in Lesotho's banking industry. There are three payment streams supported by the IT department, originating from the Operations and Finance departments. Operations department are the custodian of the Automated Clearing House (ACH) and the Real-Time Gross Settlement System (RTGS) which process or clear low-value transactions and high-value transactions cleared and settled by the latter (Central Bank of Lesotho, 2014). The third payment stream is designed for international cross-border and regional SADC transactions, for which a SWIFT system is used. Central Bank transaction statistics showed that RTGS had an average of 7 000 transactions per month, ACH had 29 000 and regional SADC had transactions 3 700 per month (Central Bank of Lesotho, 2014). The commercial bank transactions which still get processed through the same systems usually get higher, since the banks deal with individuals.

The Central Bank has a dual role in the payment systems operations; one is that of the industry regulator through NPS and Payments Association of Lesotho (PAL), while the second role is that of a participant together with the commercial banks in the industry. The participant role is that of effecting payments on behalf of institutions and individual

clients, while the regulator runs the clearing house for payment processing and hosting of accounts and funds for the banks. The two offices which deal with the two roles are the Banking division for participants and the NPS on the regulation – both offices fall under the Operations department.

The ACH is used to process EFT and cheque transactions which are less than R100 000 per item, while the RTGS is used for large values, from R100 000 and above. The RTGS also serves as a settlement agent in which all the financial institutions and the government hold accounts. It is a bank for commercial banks and the Lesotho government. There is interdependence between the low-value transaction ACH and the RTGS; the former is used as a clearing agent, whereby transactions from one institution are separated and routed to different destination banks through a switch. The process is called clearing. The latter holds accounts, and this is where the ACH eventually sends all the updates on money which came in and out of each bank on a given business day. The accounts are updated in the RTGS with final figures at the end of each day in order to reflect the net effect on each bank account after transacting. Whether each bank has sent and received low- or large-value transactions, at the end of each business day, the accounts are updated to show the net effect, and the value separations are done to control volumes and for statistical purposes.

The regional SADC clearing house that the banking industry of Lesotho is a member of is currently operates between the common monetary authorities (CMA) countries which use the South African rand (ZAR) as their local currency. The CMA countries are South Africa, Lesotho, Namibia and Swaziland. The business model is in its initial stages, as the ultimate plan is to introduce a clearing house for the entire SADC community. The CMA clearing made for an easy start, as there is no foreign exchange required. Funds from one CMA country to another get initiated domestically (by a local bank to its local clearing house) and then the money is routed to the regional clearing house, where it is then forwarded to the destination country's clearing and eventually reaches the destination or receiving bank in another country.

For transactions that require foreign currencies because they are being sent or received from other countries which do not use the South African rand, a system called SWIFT is used. The Central Bank holds reserves for foreign currencies, and as such, they can send and receive money. There is also the issue of foreign exchange involved in order to show net results in local currency.

From the Central Bank's secondary role, challenges are around backend integration of both systems and business requirements. Another challenge is that of separating the two roles in order for a simplified business model which is understood by all internal stakeholders. Clarity on how the business requirements overlap and the extent to which they differ sometimes present problems in terms of accounting, financial reporting, business process management and reconciliation including maintenance of the Central Bank's clearing accounts.

Challenges to the various payment streams in Lesotho's financial institutions is that they are all interlinked, as they affect bank accounts residing in one system holding all the stakeholder funds. There are many processes involved, and this presents issues of complexity and efficiency. How each business model is designed per stream and how they relate affects the level of service offered to customers. The industry, through PAL, is always trying to optimise processes and comes up with faster and more efficient ways for payment processing. For instance, recent developments in cheque processing resulted in clearing processes being reduced from seven business days to one-day clearing. This was done by implementing electronic cheque clearing whereby cheques are scanned at the banks, and only images and transaction details are sent to the clearing house as opposed to the traditional process of collecting physical cheques and taking them to the clearing house for sorting and recording.

PAL is a newly established body which is run by the management of all the banks including the Central Bank, with the intention of having the clearing functions managed independently of the Central Bank (Central Bank of Lesotho, 2014). Currently, all payment operations and systems regulation are done jointly by PAL and the Central Bank.

## **1.2 Problem Statement**

The problem in this study is that there is no efficient IT-business alignment in payment systems at the Central Bank of Lesotho.

The following questions have been raised by the situation mentioned in the problem statement:

- (i) What are the best ways to align information technology and business processes?
- (ii) What is the cause of inadequate IT-business alignment at the Central Bank of Lesotho?
- (iii) What are the best ways to stream line payment systems operations?

## **1.3 Objectives**

The objectives of this study were divided into primary and secondary objectives.

### **1.3.1 Primary Objective**

The primary objective is as follows:

- The primary objective research and recommend ways to achieve IT-business alignment in payment systems at the Central bank of Lesotho.

### **1.3.2 Secondary Objectives**

Secondary objectives of the study included the following:

- Establish what factors affect IT-business alignment
- What techniques can be used to streamline payments business processes for efficiency



## **1.4 Research Methodology**

This was a descriptive study following a quantitative research using non-probability sampling. The data collection method used was a survey using questionnaires and results were analysed using non-parametric tests.

## **1.5 Demarcating the Research Area**

This research was intended for investigation on how to align business processes and information technology to improve efficiency and performance. The target audience for study was the entire employee group at the Central Bank of Lesotho. Focus was on the field of Strategic Management using information technology as a strategic driver for business performance.

## **1.6 Outline of the Study**

Chapter 1: Introduction and background to the study

Chapter 2: Literature review

Chapter 3: Research methodology

Chapter 4: Research results

Chapter 5: Findings and recommendations

## **1.7 Conclusion**

The study focused on IT-business alignment in order to improve business performance and obtain value out of information technology at the Central Bank of Lesotho. The proposal paves a way for the study to establish how alignment can be achieved and what factors have an impact on it. The given preliminary literature review covers a wide variety of factors, causes and remedies for successful alignment implementation. The areas covered include communication, common focus, employee engagement and business unit integration. The next chapter will be a literature review.

## **CHAPTER 2: LITERATURE REVIEW**

### **2.1 Introduction**

The preceding chapter provided an introduction and background to the study. This chapter will focus on literature pertinent to this study. The chapter will deal with views from various authors on what IT-business alignment is, how it can be achieved, and why it fails in some cases. The study is focused mainly on alignment in the context of business process management and efficiency in payment operations.

IT-business alignment is defined as the degree to which IT objectives and plans, support and is supported by the business mission, objectives and plans (Kurti, Barolli & Sevrani, 2014:80). The goal of strategic IT-business alignment as explained by Tarafdar and Qrunflesh (2010:107) is to enable the deployment of IT applications, infrastructure and skills to support business processes. The expectation is that a business employs an IT strategy that is in line with the overall business strategy. Synergies between IT and other business units become crucial to the successful alignment process. The strategic alignment model consists of two types of integration between business and information technology domains: strategic fit and functional integration (Reksoatmodjo, Hartono, Djunaedi & Utomo, 2012:143). Strategic fit focuses on the business strategy to address both internal and external areas of focus, whereas functional integration is focused on the internal structures and the rationale for design and redesign of critical business processes.

### **2.2 IT-Business Alignment**

IT-business alignment, as a strategic weapon, can be applied by linking both the external market and the firm's performance objectives, internal integration of resources, leaders understanding emerging technologies and stages of organisational architecture maturity, and leadership possessing business and technology knowledge as well as

creativity to define a vision for alignment (Weiss & Thorogood, 2011:31). The target of the proposed IT investment, its impact on the boundaries of the business and the roles of the various stakeholders from both business and IT should be clearly defined. It should also be noted how such an investment impacts on the overall organisational strategy.

In the theory of enterprise design, De Vries (2013:113) defines an enterprise as a socio-technical system that comprises independent resources of people, information and technology which must interact with one another to support a common goal. Enterprise initiatives fail due to lack of coherence and consistency amongst various parts of the enterprise. The IT-business alignment model, according to De Vries (2013:115), is aimed at answering three questions: Why should the enterprise use the proposed approach? What should be aligned? How should it be aligned? The two proposed approaches to answering the aforementioned questions are execution and operation approaches. The former is intended to avoid disjointed IT developments that result from new strategic initiatives, while the latter looks into communication and people as a key attribute to the alignment process. The result of coordination through communication are business organisation, intellect-organisation and document organisation.

## **2.3 The Three Dimensions of IT-Business Alignment**

Dimensions of IT-business alignment are used to classify the critical success factors.

### **2.3.1 Human Dimension**

#### *2.3.1.1 IT Knowledge of Business Executives*

IT skills and knowledge of business executives become crucial for successful alignment, as IT executives have to go beyond the technical skills of the IT function (Kurti, Barolli & Sevrani, 2013:85). Business executives also need to understand what IT is about, as investments in information technology are usually costly and involve high risks. Business executives have to be able to analyse and come to weigh options when selecting emerging technologies. According to Kurti et al. (2013:86), lack of knowledge by management can lead to poor decisions when evaluating IT investments, which will

later impact on business objectives being met. When it comes to aligning IT operations to business processes, managerial participation begins with business process awareness.

### *2.3.1.2 Commitment of Top Management*

Commitment from top management translates to proactive cooperation, provision of necessary resources for IT plans implementation and buy-in for organisational change process (Kurti et al., 2013). When top management is committed, functional managers are also inclined to commit, and this influences the behaviour of users. Top management can also manage change brought about by IT projects which can be characterised by increased enthusiasm and positive support for IT efforts (Kurti et al., 2013).

Top management can also show commitment through its participation in the implementation of business process management as a way of ensuring continuous process improvement. Each process of business intended to perform a particular function has to be managed by a process owner from the top management team who will be responsible for the entire process value chain that goes through various functions (Manfreda, Kovacic, Stemberger & Trkman, 2014:36). The ownership of processes ensures that there is alignment between such processes and the IT services which support them.

### *2.3.1.3 Business Skills and Knowledge of IT Executives*

Complex business processes lead to the requirement for increased collaboration between IT executives and business executives and across all functional areas. The greater the level of IT managerial resource between IT and business, the greater a manager's engagement in the IT-business alignment process (Almajali & Dahalin, 2011:4). Almajali and Dahalin (2011:4) further emphasise the importance of information exchange between IT executives and business managers, as this promotes a common vision which increases the successful alignment between IT and business. IT executives need to understand the business objective as they too form part of the

business management team. A common vision can only be achieved where all managers participate in the formulation of the business strategy and its objectives. According to Kurti et al. (2013:87), lack of business knowledge by IT managers can be inhibiting the business' ability to use IT effectively. It is also important that business does not view IT as being only technically focused without regard for business.

When drawing from the strategic level need for more collaboration, even at an operational level, knowledge management and sharing becomes critical, as the business units benefit from forming collaborative networks (Cao, Thompson & Triche, 2013:5566). Collaborative networks help the entire business achieve information technology and business alignment through knowledge sharing, which, in turn, enables business units to have a common view of business processes and requirements. With a common view on business processes, the task-technology fit can best be realised, thus improving business process efficiency.

#### *2.3.1.4 Leadership Skills of IT Executives*

Strategic relevance can be achieved through IT efforts by creatively participating in implementation and realisation of business objectives. Demonstration of leadership qualities and the role of IT in driving innovation for delivering organisational goals can help achieve IT-business alignment. Kurti et al. (2013:88) indicate that it is critical that IT managers bring understanding and convince top management of the value IT adds to the business. Such leadership helps gain approval for IT investments. Navedo-Samper et al. (2013:139) view leadership role from an employee alignment perspective whereby perceptions of employees guide their attitudes and positive reactions; hence, they cooperate in the attainment of business goals.

Huang (2012:52) follows a contingency model of strategic alignment which considers two factors: perceived IT importance and IT management sophistication. Management sophistication is often reflected in the evolution of IT roles ranging from traditional and strategic to integrated (Huang, 2012:52). A significant formalisation of planning, control, organisation and integration shows that IT management evolves from data processing

to strategic IT orientation and finally integrated into business strategy. Increased sophistication may lead to strategic alignment and improved performance.

The perceived importance of IT can be a result of the social impact of IT managers on how business executives perceive IT (Huang, 2012:52). Business executive perception of IT affects the successful linkage between IT and business when a firm has to adapt to business environmental conditions. Senior management has to understand how IT impacts on the competitive environment and strategy of the business.

#### *2.3.1.5 Knowledge and Skills of IT Teams*

The quality of IT staff is critical to organisations looking to align their technical initiatives with business objectives. Skills and knowledge of IT personnel should be able to keep up with changes and advancements in information technology (Kurti et al., 2013). People in IT should be able to put forth appropriate proposals for technical implementations and also be sophisticated enough to communicate with top management. Top management and IT executives should also be supportive in providing the necessary recruitment and training process. Even a highly skilled IT team will not meet organisational objectives if they are not provided with necessary information related to business needs and objectives. Knowledgeable staff is also perceived positively by management and the rest of the organisation, which improves their morale and performance (Kurti et al., 2013). Knowledge also has to do with the task-technology fit in which tasks used to perform a business process and the technical tools used to perform those tasks are analysed for effectiveness (Cao et al., 2013:5567).

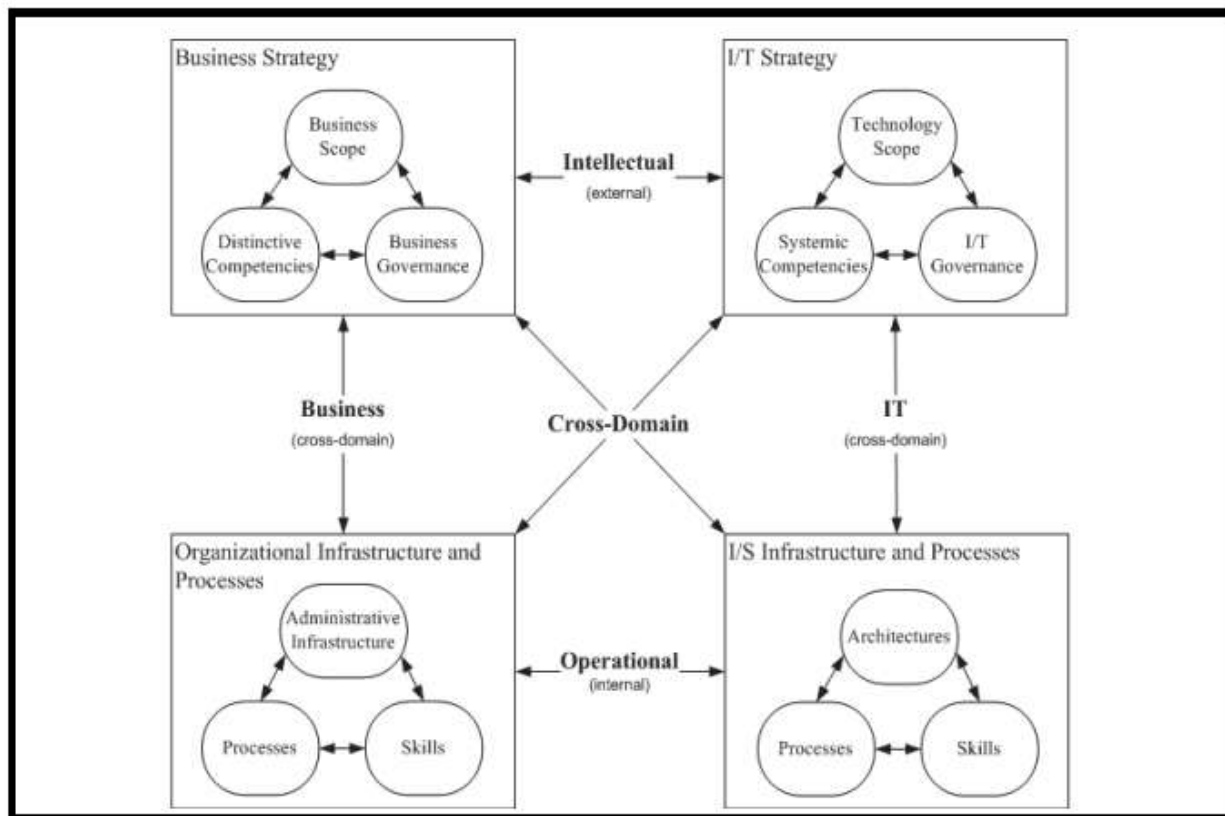
### **2.3.2 Intellectual Dimension**

#### *2.3.2.1 Aligning Business Goals and IT Goals*

A clear understanding of business goals and IT goals and processes to support those business goals are important for any business pursuing successful alignment (Kurti et al., 2013:85). IT strategies should be mapped to one or more business objectives.

### 2.3.2.2 IT Success

Strategic Alignment Maturity (SAM) model, which is used to drive success in IT-business alignment, consists of six constructs: communication, measures, IT governance, partnership, IT scope, and architecture (Rigoni, Dwivedi & Hoppen, 2012). SAM may also be defined as the management framework to enable successful implementation of business and IT through strategy, organisational infrastructure and processes (Reksoatmodjo et al., 2012).



**Figure 2.1: Strategic Alignment Model**

The history of IT projects implementation success gives reliability to the IT unit and improves confidence and complementary perceptions from other business units (Almajali & Dahalin, 2011:5). Top management also provides more support to IT

investments and initiatives if it is positive that IT yields mutually beneficial results. Figure 2.1 illustrates that from an operational perspective, the alignment process can best be achieved when there is a link between the organisational infrastructure and processes that are in line with the IT infrastructure and processes for improved business process efficiency in achieving business operation objectives.

## **2.4 Other Factors Affecting IT-Business Alignment**

### **2.4.1 Communication**

The communication factor is necessary for the alignment process, and it is considered successful if information from the sender to the receiver is well understood by the receiver. Leadership, support from senior management and good working relations also form part of effective communication (Navedo-Samper et al., 2013). Knowledge and information that is passed properly between management and employees also affects the attitude and eagerness of employees to participate and make a success of the alignment process through achievement of business goals. To curb resistance from both users of IT services and IT employees, intentions and goals have to be effectively communicated such that they are understood by those who receive the information. To foster cooperation, people need to understand their roles and what is required of them.

At an operational level, business units have to have a common perspective on what business processes are in place to achieve operational objectives, and these ultimately will support the overall business objectives. It is a management role to communicate what processes are needed to support a particular function, and through IT processes management will help effect that business process.

### **2.4.2 Structure and Processes**

Structures and processes are mechanisms through which organisational activities take place. The concern, in this case, is how an organisation prepares for IT in terms of strategy, IT benefits delivery, and IT structures (Almajali & Dahalin, 2011). To understand the nature of the alignment, there should be a clear distinction between the IT strategic alignment and the IT structural alignment whereby the former focuses on



the relationship between IT strategy and the business strategy. The latter focuses on the relationship between the business and the IT structures (Schwarz, Kalika, Kefi & Schwarz, 2010).

Compatibility and authority also form part of the organisational structure which determines the extent of decentralisation, complexity and formalisation of processes (Gerow, Gover, Thatcher & Roth, 2014:1161). Since business processes are executed through both organisational structure and work process structures, the design for both structures can impact on the business process performance (Lee, Sung, Song & Choi, 2015:455). A structure builds administrative hierarchy and affects coordination within the departments and across various departments. An example of this, as given by Lee et al. (2015:456), is the impact on the business process performance depending on the degree of departmentalisation whereby the time taken to perform administrative tasks before work can move between departments affects performance.

### **2.4.3 Governance**

IT governance is one construct through which the role of IT in organisations can be effectively defined, and how each IT function can best meet business objectives is of utmost importance. The way in which certain functions are performed and how they are ranked in terms of priority as well as how they can be improved upon are all focused on governance (Rigoni et al., 2012).

A possible cause of the gap between IT and business has been divided into four problem areas by Almajali and Dahlin (2011:258). The four areas are leadership issue, structure and process issue, the service quality issue, and values issue. These four areas are drawn from the governance role of IT and business managers. The relationship between IT and business leaders' impact on the integration process and an appropriate structure and process need to be in place to facilitate successful integration of business strategy and IT plans. Quality in terms of stakeholder satisfaction with IT initiatives also helps bridge the gap. Without business leaders believing that IT is a crucial part of business, their initiative will hold no value in business. Marrone and Kolbe (2011:370) also indicated that implementations of a governance framework such as ITIL

also helps in bridging the IT-business alignment gap as some of the aforementioned problems are dealt with. A framework defines the structure, quality and adoption of technical services in an organisation.

Business process excellence in the context of IT governance initiatives can be achieved through implementation and measurement of IT outputs in support of non-IT business functions and processes (Debreceeny & Gray, 2013:163). This is driven through the IT capability maturity model in which the ideal status being targeted is the optimised processes which are clearly defined, fully documented, and they are repeatable. Repeatable processes improve efficiency, as they can be reused across business domains.

#### **2.4.4 Environmental Turbulence**

The degree of uncertainty, instability, unpredictability and complexity in the external environment (Gerow et al., 2014) can impact the extent to which IT-business alignment can be achieved. Factors such as the intensity of information and transformative industry behaviour also form part of the environment.

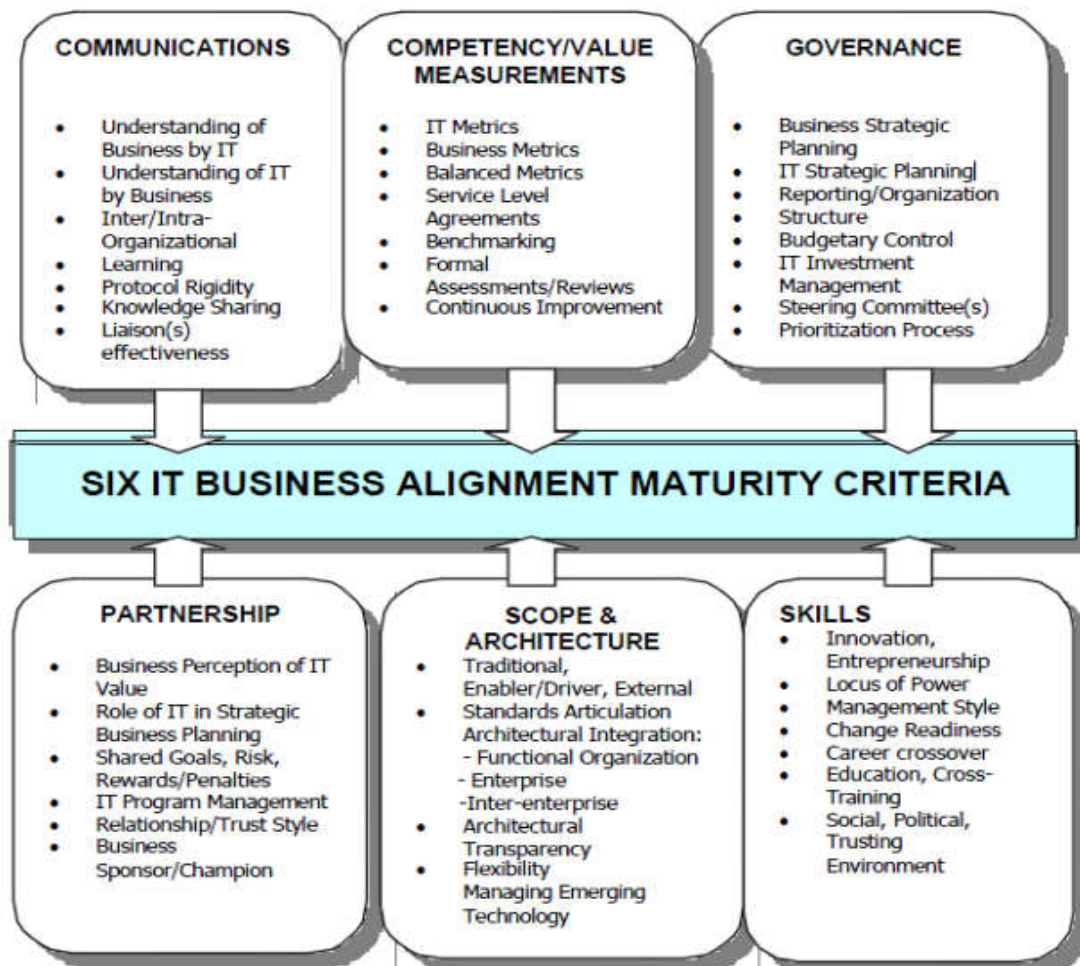
#### **2.4.5 IT Investments**

Although IT investments are determined by other factors such as top management commitment and perceptions of proposed IT projects, how much an organisation spends on strategic alignment between IT and business can inhibit or enable the process. Performance can be impacted on by the amounts spent on recruiting and retaining skilled staff, adequate infrastructure and projects. IT investments create, maintain and improve capabilities necessary to effect alignment (Gerow et al., 2014).

### **2.5 The Strategic Alignment Model**

According to Elmorshidy (2013:822), there are six criteria for the strategic alignment model, which is used to implement IT-business alignment. The six areas are summarised in Figure 2.2. Each criterion has a list of factors which affect the alignment process, and these factors have also been mentioned in other parts of the literature

review. The criteria are as follows: communication, competency, governance, partnership, scope, and skills. These may also be used to evaluate an organisation's efforts towards the alignment process.



**Figure 3.2: Six business alignment maturity criteria**

The strategic alignment model may also be used to analyse and evaluate the current IT-business alignment status as different organisations begin the process from different stages. Knowledge about the present state enables the organisation and its management to identify which areas need attention for successful alignment effort. There are different maturity levels determined by attributes of the maturity criteria.

The maturity model has five levels which can each help identify where an organisation is. Level 1 is the IT-business managerial role efficiency. Level 2 is employee alignment, level 3 is IT-business alignments, level 4 is IT effectiveness, and level 5 is a firm's agility (Navedo-Samper, Ferrer, & Rivera-Ruiz, 2013:136). The first level is considered an independent variable, while level 2 to 5 are dependent. The higher the level, the more likely the organisation will achieve competitive advantage and operational excellence.

The aforementioned model has an impact on the IT process maturity model and the operational strategy, whereby the question that management should be able to answer is "How is management's awareness of this process communicated to the IT organisation of this process?" (Debreceeny & Gray, 2013:158). The question in itself is used to address the communication criteria on the strategic alignment model. Again it has to be established which IT processes and tool can be used to perform an identified business process with required efficiency.

## **2.6 Payment Systems**

When it comes to payment systems, factors that affect the effectiveness and efficiency of payment processing vary from rate of adoption, type of technology and skills needed to keep services running. Neyer (2014:130) indicates that the cost of technology and the availability of a technically sophisticated workforce can impact on the rate of adoption and successful implementation of payment systems. Farrow (2012:15) also puts emphasis on the importance of payment systems integration patterns whereby the payments transaction architecture plays a role in successful integration with already existent systems. A more efficient process design depends on how well different components incorporate the functionality between different business capabilities (Farrow, 2012:21).

In comparison to drivers of adoption for the use of the RTGS system, Neyer (2014) points out that the cost of technology depends on the relative cost of capital and the availability of skilled staff. This is the case where managerial commitment in terms of providing the necessary financing and recruiting the staff with the right skills becomes crucial to the proper implementation of a system. The quickest adoption was in areas

where objectives included speed, ambiguity and around-the-clock availability. The belief that a system can meet these objectives makes it easier for management to make the necessary investments.

Understanding of payment processes and procedures regardless of the type of system also impacts on the success of each payment solution meeting the prescribed objectives. Knowledge of integration patterns and how systems collaborate with already existent systems is also important. This is where the knowledge of business by IT staff becomes critical (Neyer, 2014).

## **2.7 Benefits of IT-Business Alignment**

### **2.7.1 IT Business Value**

IT business value is defined as the organisational performance effects of IT on business processes at different organisational levels (Wagner, Beimborn & Weitzel, 2014:247). IT business value helps in distinguishing between the following three variables: organisational performance, IT utilisation, and IT flexibility. Business understanding of IT positively influences IT utilisation, and this creates value for business (Wagner et al., 2014). Utilisation, on the other hand, increases performance and effectively aligns IT initiatives with business objectives, thus resulting in maximised value for stakeholders.

### **2.7.2 Performance**

Gerow et al. (2014:1161) evaluate three types of firm performance, namely, financial performance, productivity, and customer benefit. Financial performance refers to the organisation's ability to gain higher profits through a higher competitive advantage. Secondly, productivity is a measure of the contribution of various input processes into output (Gerow et al., 2014:1161). Finally, the total benefit received by stakeholders from the utilisation of a particular IT service offering is known as customer benefit. IT-enabled business performance helps organisations obtain value out of their IT investments, and they are only successful through effective IT-business alignment. There should also be a measurable outcome in order to truly depict the evidence of success (Schwarz et al.,

2010). Schwarz et al. (2010) go further to point out that an IT-enabled business process leads to business process performance and, finally, to organisation-wide performance.

### **2.7.3 Efficiency**

Efficiency in business processes can best be recognised through the value chain analysis where at each step of the value chain, the output of one process serves as an input of another process (Tallion, 2012:13). Some business processes have their cycle going through multiple business units, meaning that they impact across the entire business, for instance, a procurement process whereby from placing an order, delivery of procured goods, invoicing and payment issue involve different units in one firm. There is a general consensus that processes are interconnected, and value obtained in one process can spill over into another, and linkages between these activities can be enhanced using strategic drivers such as IT (Tallion, 2012:14).

## **2.8 Conclusion**

Success in businesses integrating their IT functions into their strategic plans and mapping IT plans into the business objectives follow different paths. There are many factors that affect and enable IT-business alignment. Communication between business and IT has been described as one of the most influential factors. Knowledge and understanding of each other's worlds also help bridge the gap between the technical team and the rest of business. Strong leadership from both IT and business help set direction and drive the alignment process. Skills and knowledge of human resources on either side are also critical to the success of obtaining value from IT by business.

In addition to the foregoing factors, there are other factors to take into consideration such as environmental factors, financial resources and relations between staff. Perceptions of past failure or successes may also affect future efforts to derive value from IT. IT in its traditional nature is a reactive process for solving business problems, but the new rules of alignment suggest that all business units be part of the proactive strategic planning.

Amongst the benefits of proper alignment, i.e. efficiency in finance, efficiency and productivity can be realised. Business value driven by IT and innovation at lower costs and faster turnaround times are amongst the advantages of seeing all business units as equal partners to the attainment of business goals and operational objectives. Business process efficiency also has a direct impact on productivity, and there is also efficiency in the application and use of IT in performing business processes. IT is used in this context to help business perform complex processes with greater efficiency while improving performance across the entire value chain. The next chapter will discuss the research design and methodology used in this study.

## **CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY**

### **3.1 Introduction**

The foregoing chapter focused on literature about IT-business alignment and the factors that affect it. These factors also formed part of the secondary objectives of this research. This includes factors and causes of inadequate alignment process which impact on the process efficiency in payment systems operations. The literature included various factors ranging from the strategic, operational and organisational structure-related factors which all have a role in successful IT-business alignment processes.

In this chapter, research design was meant to respond to the secondary objectives as stated in Chapter 1. The methodology followed in researching the factors that affect IT-business alignment in the area of payment systems at the Central Bank of Lesotho will be defined in this chapter. The methodology also helped build up towards the following chapter where results were analysed and recommendations made on answering one of the secondary objectives about recommending the best ways to align business and payment systems.

### **3.2 The Nature of Research**

This research followed a descriptive study which was aimed at investigating factors that affect the operational efficiency of payment systems and how they can best be aligned to business needs. The idea, in this case, is to describe the segment of operations at the Central Bank of Lesotho, the behaviour or nature of how the business of payment operations merge to the IT utilisation in order to meet objectives and operational efficiency. The design process is a basis for the research to be conducted with the intention of providing answers on why the current status exists and how it can be improved on where necessary.

Descriptive study, for the purposes of this research, allows for a systematic approach to analysing the aspects of IT-business alignment in a payment systems environment. The



expectation is that at the end of the research, objectives of the study can be met and any questions raised by the research can be answered.

### **3.3 Research Design**

The type of research in this study was quantitative, which, according to Goertz and Mahoney (2015:960), follows a cause-and-effect approach. When looking at the secondary objectives stated in Chapter 1, the study is aimed at determining factors that affect IT-business alignment and causes of lack of alignment at the Central Bank of Lesotho. A quantitative method can be characterised by a collection of data that can be analysed numerically and the use of statistics for both analysis and presentation of results (Acaps, 2012:6). The advantages for quantitative research are that it presents verifiable data, numeric estimates are possible, data can be comparable between different groups within a population, and it presents relatively uncomplicated data analysis (Acaps, 2012:6). The research followed is a non-experimental study aimed at investigating the aspects of business operations and IT alignment drawing from the objectives set out in Chapter 1 and the literature review in Chapter 2.

Data collection in this context of this study was focused on using a representative sample from a population of 300 Central Bank of Lesotho employees. From this sample, responses to test the hypothesis were drawn.

### **3.4 Methodology**

#### **3.4.1 Sampling**

Non-probability sampling was used, and it included 50 people who were identified as stakeholders to payment systems and services. Sampling is defined as the technique of selecting the representative part of the population for the purpose of determining the characteristics of the entire population (Ermason, 2015:165). The choice of 50 people at CBL was guided by their role as stakeholders in the payment systems environment. The sample was made of groups of stakeholders including: services providers, payment services recipients and management.

## **3.5 Data Collection Methods**

### **3.5.1 Questionnaires**

To collect data about information mentioned in Chapter 2 which related to secondary objectives, questionnaires were circulated amongst the entire Central Bank of Lesotho population. Sekaran and Bougie (2013:147) have described questionnaires as a form of survey which has a set of questions circulated amongst respondents to answer. Electronic questionnaires were found to have been useful in this case, as they reached all respondents simultaneously, and people could respond at their own time without having to have them ready for collection because responses were sent directly back to the researcher. The sampled group of people was identified as generally computer literate by virtue of having access to payment systems, and all employees have access to email and the Internet; hence, the electronic questionnaires were seen as a viable option.

Questionnaires were divided into sections which cover the different factors which affect IT-business alignment in the area of payment systems as prescribed by the secondary objectives. The other parts covered questions around various ways to improve operations through finding out what causes the present state of operations.

A guideline to a properly structured questionnaire, as given by Sekaran and Bougie (2013:151), is as follows:

- To avoid double-barreled questions, the questionnaire was divided into two questions per point where necessary.
- Ascertaining that respondents interpreted questions and therefore given an honest response to avoid ambiguity.
- Respondents were not led into giving expected answers which would cause bias.

- Biased questions were avoided because they can force a respondent to answer in a way anticipated by the researcher.
- Questions were structured in a short, simple way to make it easy for respondents to interpret.

### 3.5.2 Questionnaire Structure and Areas of Research Covered

**Table 3.1: Question areas covered and relevance to research**

<b>QUESTION AREAS COVERED</b>	<b>RELEVANCE TO RESEARCH</b>
1. Knowledge of IT managers of business operations	Human dimension factor
2. Knowledge of IT staff of business operations	Human dimension factor
3. Knowledge of managers of IT operations	Human dimension factor
4. The extent of communication between business and IT	Factors affecting alignment
5. Ease of adoption of payment systems by business	Factors affecting alignment
6. Availability of IT governance	Structure and processes
7. Skills of IT personnel	Human dimension factor
8. Commitment of top management	Human dimension factor
9. Stability of IT environment	Factors affecting alignment
10. Stability of payment systems	Factors affecting alignment

### **3.6 Data Analysis**

Quantitative data was analysed by following data and quantifying it and classifying into numbers (McCusker & Gunaydin, 2015:359). Data was quantified using a 5-point Likert scale which was used to investigate and measure how employees at CBL felt about the statements made on the research question. The possible responses were as follows:

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

Dependent and independent variables to the problem statement were identified with the intention of testing the variables against the dependent variable and to see how the results compare to the problem statement and the literature prescriptions.

The following activities were conducted in order to analyse data for results:

- The researcher drew up frequency distribution tables for all variables.
- The researcher went totaled appropriate descriptive statistics.
- No variable comparison due to the non-parametric test for the statistical data which is described as a simple method used for tests that are not based on probability sampling to analyse ordinal data (Fagerland, 2012:4).

Computer software was used for data analysis, with little human intervention to ascertain results accuracy. Frequency tables and charts which present results were then drawn including with cross-tabulation information.

### **3.7 Ethics**

Based on the guidelines of Sekaran and Bougie (2013:162), the following conduct was adopted for behaviour and ethics in this research:

- Permission was requested, and approval was granted by the Director of Administration at the Central Bank of Lesotho to have access to the Bank's information and to also approach employees through questionnaires.
- Informed consent was requested from all employees as part of the research population and a clear explanation of why they were to fill in questionnaires was given.
- All information given by the Bank and its employees has been treated with strict confidentiality.
- All questionnaires were filled in and completed anonymously.
- Research findings and results were intended to be shared with the Central Bank of Lesotho management at the end of the research.

### **3.8 Conclusion**

To sum up this chapter, what has been described is a quantitative non-experimental research approach using questionnaires as a data collection method. This is a descriptive study in which an investigation was carried out into ways in which IT-business alignment can be achieved in the area of payment systems operations at the Central Bank of Lesotho. Also under study are factors which affect the alignment between information technology service offerings and the payment systems.

Data collection through the use of electronic questionnaires conducted amongst the 50 employees at the Central Bank of Lesotho will ensure that distribution is done quickly and responses are received in time. The analysis of results obtained from this chapter will be analysed and presented in the chapter that follows.

## **CHAPTER 4: RESULTS**

### **4.1 Introduction**

The previous chapter discussed the research design and methodology employed in this study. This penultimate chapter focuses on the results of the research conducted on the sample of 50 employees. Only 33 out of 50 responses were received, and these formed 66% of the sample. The 50 participants were spread across several departments which are made up of stakeholders in the Bank's payment systems operations. The list included payments operators, users of the payment systems, stakeholders who receive services from payment operations and managers of these departments including the governors of the Central Bank.

The questionnaire was structured such that the responses ranged from 1 to 5, and the list of options was as follows:

1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly Agree

The response criteria are categorised in such a way that response numbers 1 and 2 represent a varying degree of negative responses to a research question, while response numbers 4 and 5 represent a varying degree of positive responses. Response number 3 is neutral, meaning the respondents neither agree nor disagree with the research question.

## 4.2 Research Results

Research areas covered by the questionnaire are presented below, and each area has a set of questionnaire statements with a statistical table and figure of results showing responses for each area. Results are shown in both numbers and percentages for each response criteria. There are also a total number of respondents and standard deviation per question.

### 4.2.1 Research Question 1: The Extent of Communication between Business and IT

The first area of research is intended to address communication as a factor that affects business process efficiency in the payment operations. The research results are presented in the form of figures ranging from 4.1 to 4.6.

	Strongly disagree	disagree	Neutral	Agree	Strongly agree	Standard Deviation	Responses
All Data	3 (9.09%)	11 (33.33%)	8 (24.24%)	9 (27.27%)	2 (6.06%)	3.5	33

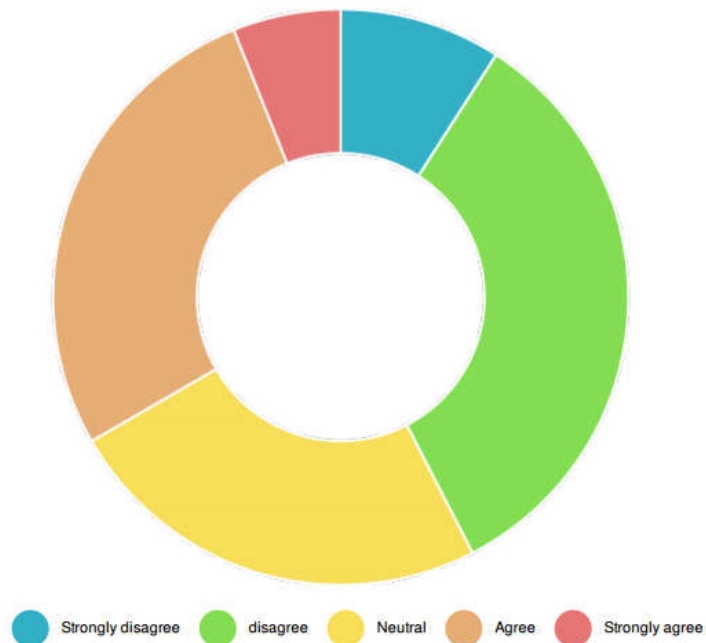


Figure 4.1: Payment operations are clearly documented and accessible to me

## **Results Interpretation**

Figure 4.1 shows that 33.3% of the respondents disagree that payment operations are clearly documented, while 9.09% strongly disagree that payment operations are documented clearly. This means that 14 out of 33 respondents feel that documentation is not adequate. Furthermore, 24.24% of the respondents were neutral, whereas 27.27% agree that documentation was clear and adequate. Only 2% strongly agree that there is proper documentation of payment operations.

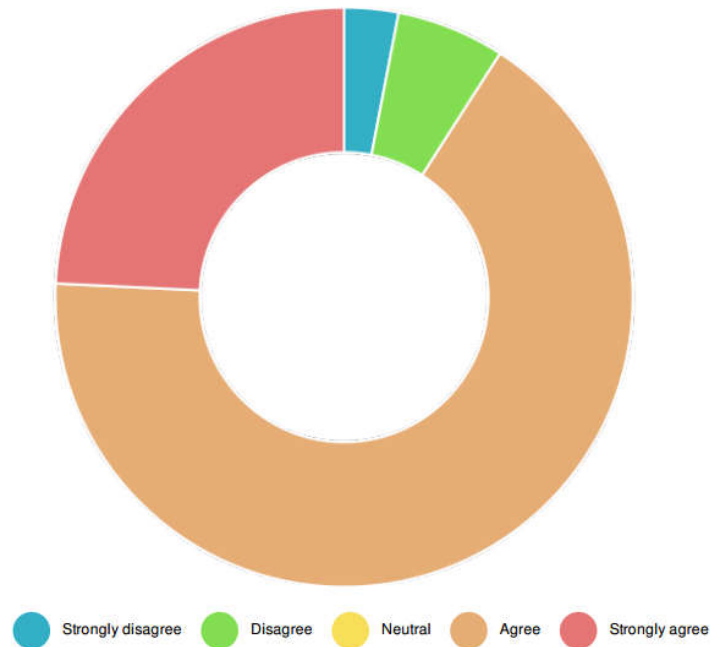
According to the above results, the most frequent response of 33.33% is that CBL employees do not agree that payment operations are clearly documented and accessible to them. Moreover, there is another 9.09% of the respondents who strongly disagree, which means that a total of 42.42% of the respondents do not believe that payment operations are clearly documented and accessible to them.

## **Link to Theory**

According to theory, for business units to have a common understanding of business processes, there has to be clear documentation. Debreceeny and Gray (2013:163) further emphasise that business process excellence can be achieved with proper documentation and knowledge sharing. In the above instance, only 42.42% of the respondents agree that payment operations are clearly documented and accessible. With the majority of employees feeling that payment operations are not clearly documented and accessible, the challenge presented is the risk of missing the crucial alignment between business and IT operations. It is also very likely that IT initiatives may not be in line with the payment operations. Business processes become more efficient when they are understood by all stakeholders, and they are fully documented in order to identify those areas of business that use the same processes.



	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Standard Deviation	Responses
All Data	1 (3.03%)	2 (6.06%)	0 (0%)	22 (66.67%)	8 (24.24%)	8.19	33



**Figure 4.2: I am aware of availability of different payment systems at CBL**

### Results Interpretation

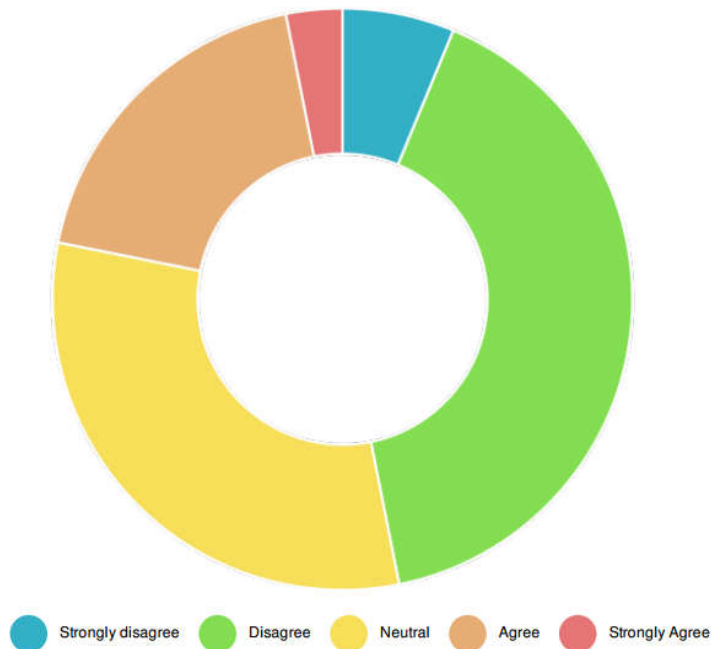
The results presented in Figure 4.2 highlight that 24.24% of the respondents strongly agree that they are aware of the different payment systems available at the Central Bank. Further, 66.67% of the respondents agree that they also are aware of payment systems offered by the Central Bank. In contrast, only 6.06% disagree and 3.03% strongly disagree with the statement in Figure 4.2 about awareness of the payment systems offered.

As shown by the results above, the majority of the respondents are aware of the availability of different payment systems at the Bank. The percentage of respondents who agree with the statement is 66.67% and 24.24% strongly agree, which sums up to 91.91% of the sample population.

## Link to Theory

Referring back to the literature by Cao et al. (2013:5566), knowledge management and collaboration between business units ensure that all parties are on the same page as far as business operations and processes are concerned. Businesses have been said to focus on answering the question about the extent of awareness of the business process and how they are being communicated to IT and the other business units in order to get greater efficiency.

	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Standard Deviation	Responses
All Data	2 (6.25%)	13 (40.63%)	10 (31.25%)	6 (18.75%)	1 (3.13%)	4.59	32



**Figure 4.3: Operational objectives are communicated to me and other staff members**

## Results Interpretation

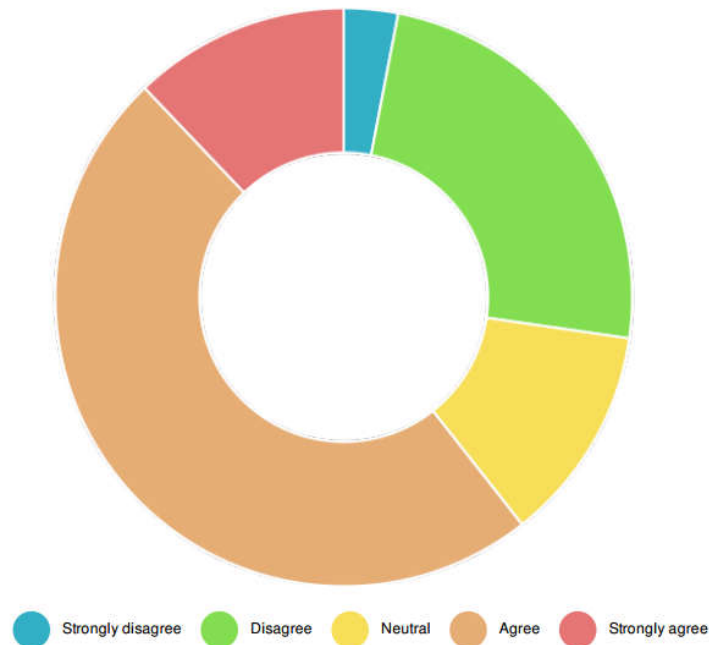
When responding to the statement about communication in Figure 4.3, 6.25% of the respondents strongly disagree, 40.63% disagree, 31.25% are neutral, 18.75% agree, and 3.13% strongly agree. The most frequent response of 40.63% shown by the result

in the figure is that people disagree with the statement that operational objectives about the payment systems are clearly communicated. The other number, which shares the negative result to the statement, is the 6.25% of the respondents who strongly disagree with the statement. The overall negative results are 46.88%. Only 18.75% and 3.13% are positive and agree with the statement.

### **Link to Theory**

Dahalin (2011:4) stresses the importance of information exchange between IT managers and business managers, as the managers' engagement is critical for the alignment process. IT executives need to understand the business objectives in order to streamline their IT operations to meet those of business. The collaborative network which was referred to by Cao et al. (2013:5566) also builds on the need for knowledge sharing and communications. Without all parties knowing what each business unit is trying to achieve, IT can work hard on implementing processes and systems which do not add value to business operations and processes. Communication also has to move down the structures from the executives to line managers and their staff, as it informs how they plan their operations for process efficiency. According to Navedo-Samper et al. (2013:140), effective communication stems from good working relations between business leadership and employees, and this makes it easy for employees to participate in the achievement of business goals. CBL employees believe objectives are not communicated to them, and that can lead to business objectives not being met because the current processes can easily be misaligned with the objectives.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Standard Deviation	Responses
All Data	1 (3.03%)	8 (24.24%)	4 (12.12%)	16 (48.48%)	4 (12.12%)	5.2	33



**Figure 4.4: I know how payment systems and services offered by CBL differ**

### Results Interpretation

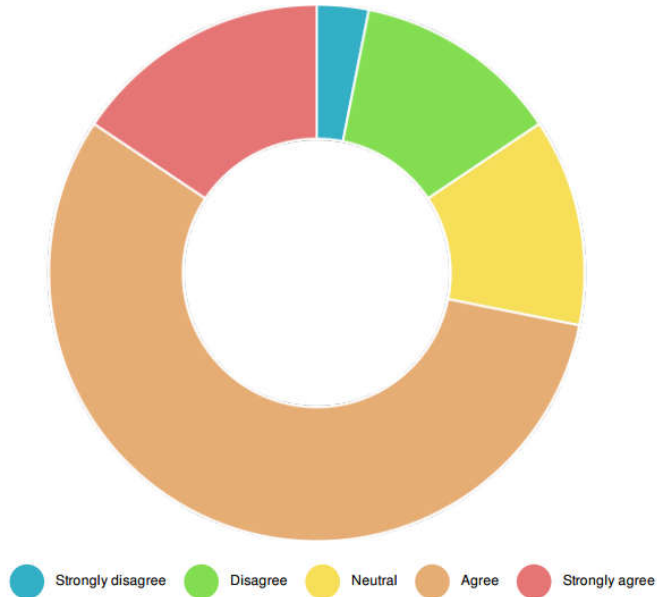
When looking at the statistics table, which is part of Figure 4.4, it is evident that the most frequent response out of the 33 responses is 16, which forms the 48.48% who agree that they know about how payment systems and services thereof differ at the Central Bank of Lesotho. Further, 12.12% strongly agree with the statement, and this means that in total, 60.6% of the respondents agree with the statement in question 1.4.

### Link to Theory

The results above are consistent with theory in that knowledge sharing leads to an understanding of business processes and operations by all. Employees are aware of various payment systems and how they differ, and this is consistent with what Debrecey and Gray (2013:163) say about the implementation of clearly defined and

fully documented processes to ensure that everyone is aware of services provided by such processes.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Standard Deviation	Responses
All Data	1 (3.13%)	4 (12.5%)	4 (12.5%)	18 (56.25%)	5 (15.63%)	5.95	32



**Figure 4.5: I am aware of how payment systems benefit me at CBL**

### Results Representation

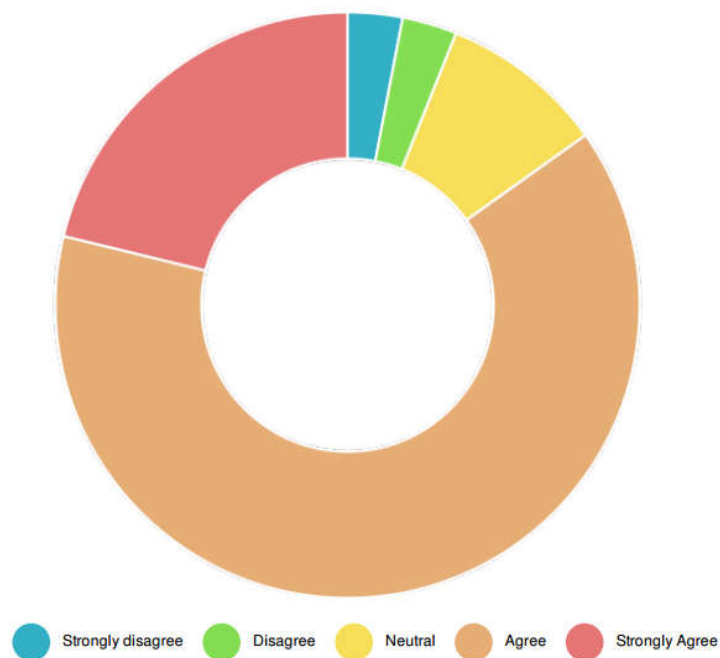
On the question of whether CBL staff are aware of how payment systems benefit them, Figure 4.5 reveals that 56.25% of the respondents said they agree, 15.63% strongly agree with the statement, while 12.5% of them were neutral. On the other hand, the other 12.5% disagrees with the statement, and 3.13% strongly disagrees.

Based on the statistics shown above, the most frequent response is that of respondents who agree with the statement in Figure 4.5. A total of 71.88% of the respondents form a part of the positive response to the statement that they are aware of how payment systems benefit them.

## Link to Theory

Almajali and Dahlin (2010:258) state the possible gap between business and IT as, amongst other things, the service quality issue. According to the responses to the question about whether CBL employees know how payment systems benefit them, the majority agree with the statement. This is in line with the literature which highlight that the relationship between IT and business impacts on integration between IT and business processes, which ultimately results in the success or failure of IT business alignment.

	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Standard Deviation	Responses
All Data	1 (3.03%)	1 (3.03%)	3 (9.09%)	21 (63.64%)	7 (21.21%)	7.53	33



**Figure 4.6: Communication about payment operations has positive impact on services**

## **Results Interpretation**

According to the results in Figure 4.6, 63.64% of the respondents agree with the questionnaire statement, while 21.21% strongly agree. In addition, 9.09% responded neutrally, while the rest of the respondents have a tie of 3.03% for disagree and strongly disagree options respectively.

Evidence presented in the figure and the results given above show that 84.85% majority of the respondents are positive that communication about payment operations has a positive impact on services provided.

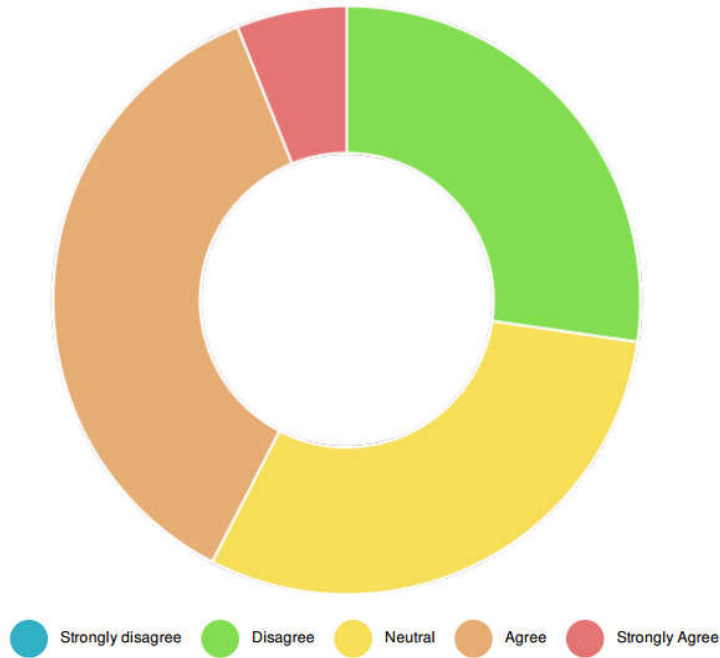
## **Link to Theory**

De Vries (2013:113) indicates that the design of an enterprise is a system which is made up of people, information and technology which interact to perform a business process to support a common goal. Effective communication that forms part of the aforementioned interaction leads business operations and processes which are understood throughout the value chain and having a common perspective to a positive impact on operations and therefore services to stakeholders. Having the majority of the respondents agreeing that communication has a positive impact on services links directly to the theory above.

### **4.2.2 Research Question 2: Knowledge of IT Staff about Business Operations**

Results depicted in Figures 4.7 and 4.8 are about the responses to research question 2, which addresses research about whether IT staff has knowledge about business operations.

	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Standard Deviation	Responses
All Data	0 (0%)	9 (27.27%)	10 (30.3%)	12 (36.36%)	2 (6.06%)	4.72	33



**Figure 4.7: IT staff know and understand payment operations**

### Results Representation

Figure 4.7 reveals responses for question 2.1. Two of the respondents (6.06%) strongly agree that IT staff know and understand payment operations. Additionally, 36.36% of the respondents agree, 30.3% of them are neutral, and 27.27% of them disagree. None of the respondents felt they strongly disagree. Only 6% of the respondents strongly agree with the questionnaire statement.

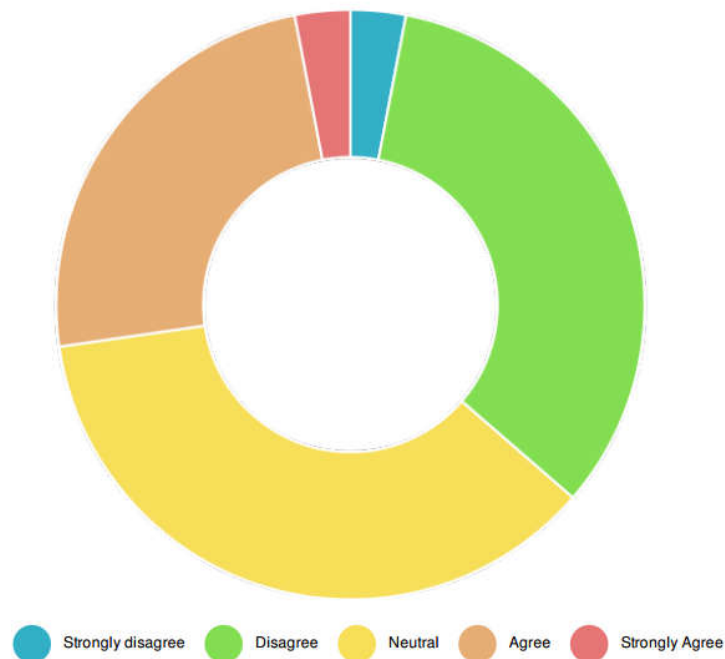
### Link to Theory

IT understanding of business is another result of effective communication and knowledge sharing in an organisation (Neyer, 2014). Knowledge of payments business processes, integration and how systems collaborate are critical to payment systems



process efficiency. From the aforementioned responses, it has been shown that the IT staffs at CBL knows and understand payment operations.

	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Standard Deviation	Responses
All Data	1 (3.03%)	11 (33.33%)	12 (36.36%)	8 (24.24%)	1 (3.03%)	4.76	33



**Figure 4.8: IT staff are highly trained and have payment systems skills**

### Results Interpretation

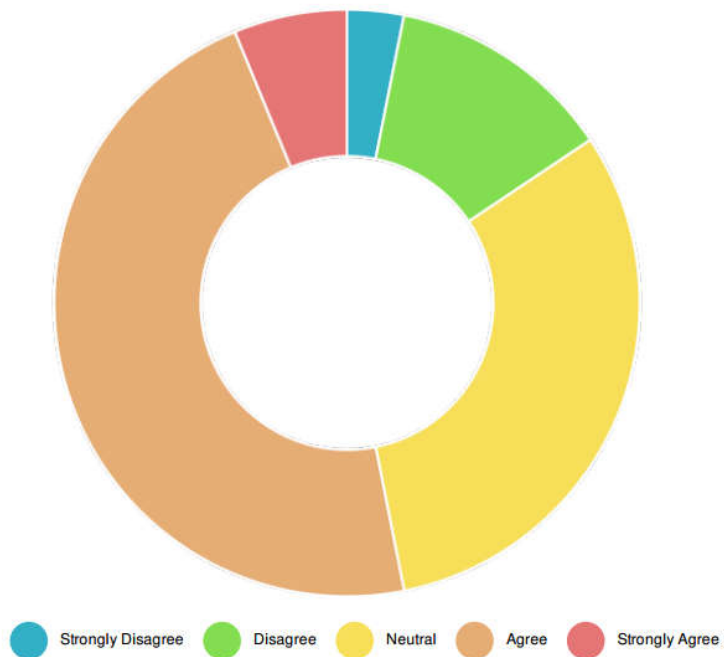
Respondents' perception on whether IT staff is highly trained and has skills in payment systems can be described by the following results in Figure 4.8: 36.36% remained neutral, 33.33% disagrees, 24.24% agrees, 3.03% strongly disagrees, and another 3.03% strongly agrees.

Based on these results, it can be deduced that the 36.36% majority of the respondents are not clear as to whether the IT staff have training or skills in the payment systems area. The second largest number of the respondents is the 33.33% who disagree that IT staff has the payment systems skills.

## Link to Theory

Payment systems efficiency depends on the rate of adoption, type of technology and skills needed to keep operations running (Neyer, 2014:130). The level of skills within the IT team affects the efficiency of the payment process and services. The higher the skills, the higher the chances of having an efficient process, as the underlying technology are also efficient. The task-technology fit is achieved in this manner.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Standard Deviation	Responses
All Data	1 (3.13%)	4 (12.5%)	10 (31.25%)	15 (46.88%)	2 (6.25%)	5.31	32



**Figure 4.9: IT staff understand and can participate in the payment process design**

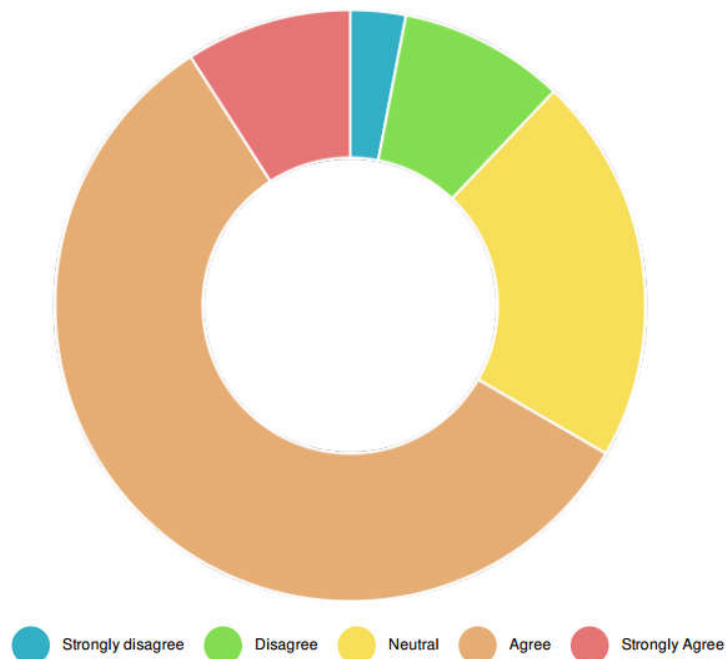
## Results Interpretation

Responses to the statement in Figure 4.9 reveal that 46.88% of the people agree, and 6.25% of them strongly agree that IT staff understand and can participate in payment process design. Thirty-one per cent of the respondents are indifferent to the statement, having chosen to remain neutral. In contrast, 12.5% disagrees and 3.13% strongly disagrees. The majority of the respondents are those that agree with the statement, and they make up 53.13% of the respondents. The standard deviation is 5.31.

## Link to Theory

As the theory by Cao et al. (2013:5566) suggests, collaboration between IT and business helps improve understanding of business process, and that make them more efficient.

	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Standard Deviation	Responses
All Data	1 (3.03%)	3 (9.09%)	7 (21.21%)	19 (57.58%)	3 (9.09%)	6.5	33



**Figure 4.10: IT staff work together with business whenever there are changes in payment systems**

## **Results Interpretation**

IT and business collaboration during changes to payment systems has been presented in Figure 4.10 with varying results. The figure indicates that 57.58% of the respondents agree, 21.21% are neutral, 9.09% of them strongly agree, another 9.09% of them disagree, while yet another 9.09% of the respondents strongly disagree. Results are spread over a range of responses with a standard deviation of 6.5.

The above results show evidence that a greater number of the respondents feel that business and IT work together on changes in payment systems. This is supported by the 57.58% and 9.09% of the respondents who agree and strongly agree.

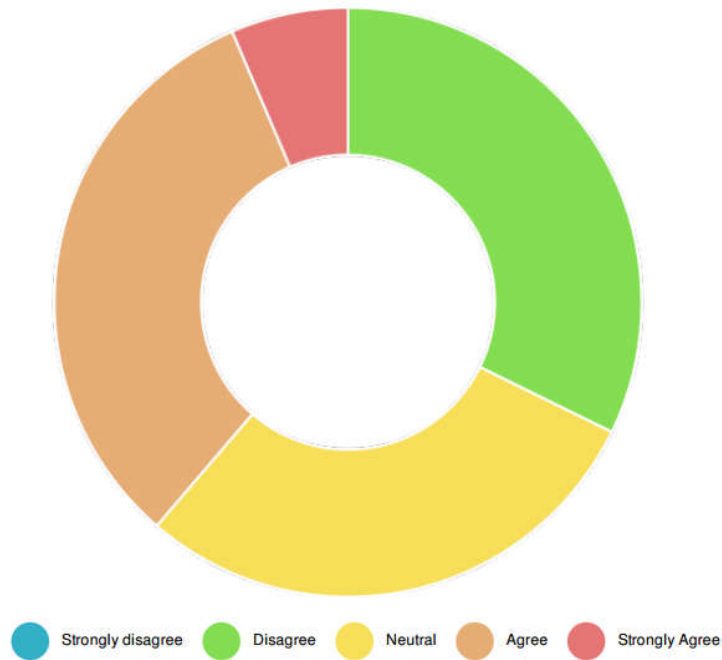
## **Link to Theory**

Collaborative networks, as explained by Cao et al. (2013:5566), help entire businesses have a common view of business processes which help in the change management process. Task-technology fit required between IT and business make processes more efficient.

### **4.2.3 Research Question 3: Commitment of Top Management**

Figure 4.11 to 4.17 deal with research results to research question 3 about the commitment of top management to the efficiency and success of payment operations.

	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Standard Deviation	Responses
All Data	0 (0%)	10 (32.26%)	9 (29.03%)	10 (32.26%)	2 (6.45%)	4.31	31



**Figure 4.11: It is easy to obtain top management support in payment operations**

### Results Interpretation

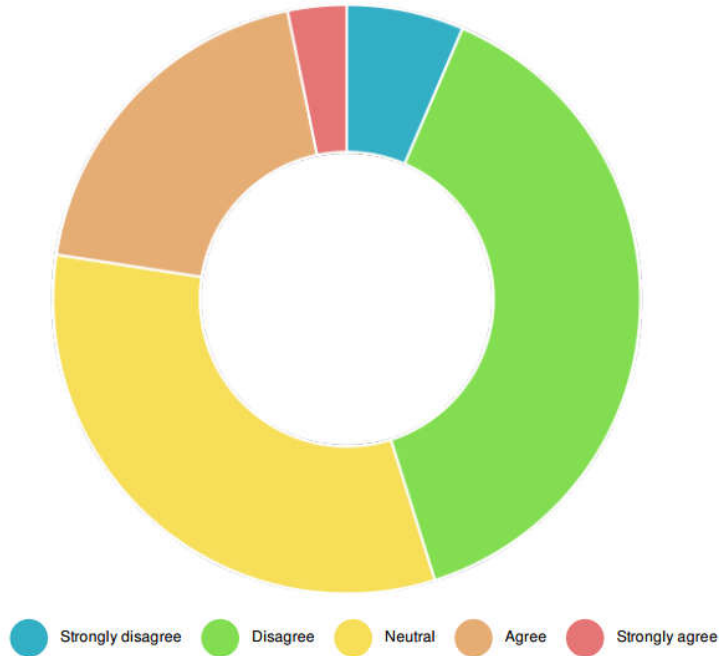
Figure 4.11 shows results about how respondents feel about top management involvement and support in payment operations. In this case, there is a tie of 32.26% of the respondents who agree and those that disagree. Nine of the respondents (29.03%) are indifferent regarding whether management supports payment operations, while 6.45% of them strongly agree.

There is a split decision on whether top management is accessible and available to support payment systems initiatives. The results reveal that 32.26% of the respondents feel that it is difficult to obtain managerial support, while another 32.26% and a further 6.45% of them agree that management is accessible.

## Link to Theory

Participation by top management in the implementation of business process management can show a degree of commitment (Kovakic et al., 2014:13). According to Kurti et al. (2013:66), if top management is committed, then there will be proactive cooperation and provision of necessary support and resources which will aid in successful business processes and operations. Lack of commitment may lead to compromised processes and deficiencies.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Standard Deviation	Responses
All Data	2 (6.45%)	12 (38.71%)	10 (32.26%)	6 (19.35%)	1 (3.23%)	4.31	31



**Figure 4.12: Top management engages with staff to review progress after payment process implementation**

## Results Interpretation

In the research on whether top management engages with staff to resolve payment-related issues, the respondents expressed their views in various ways as shown in Figure 4.12. For example, 3.23% of the respondents strongly agree with the statement in the figure, while 19.35% of them agree. Furthermore, 32.26% is neutral, whereas 38.71% and 6.45% disagrees and strongly disagrees respectively.

## Link to Theory

Almajali and Dahalin (2011:4) bring out that the more management engages with staff, the more the alignment between IT and business. An IT process will only be used effectively by business if there is more information exchange between managers and employees from both IT and business.

	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Standard Deviation	Responses
All Data	1 (3.33%)	6 (20%)	14 (46.67%)	8 (26.67%)	1 (3.33%)	4.86	30

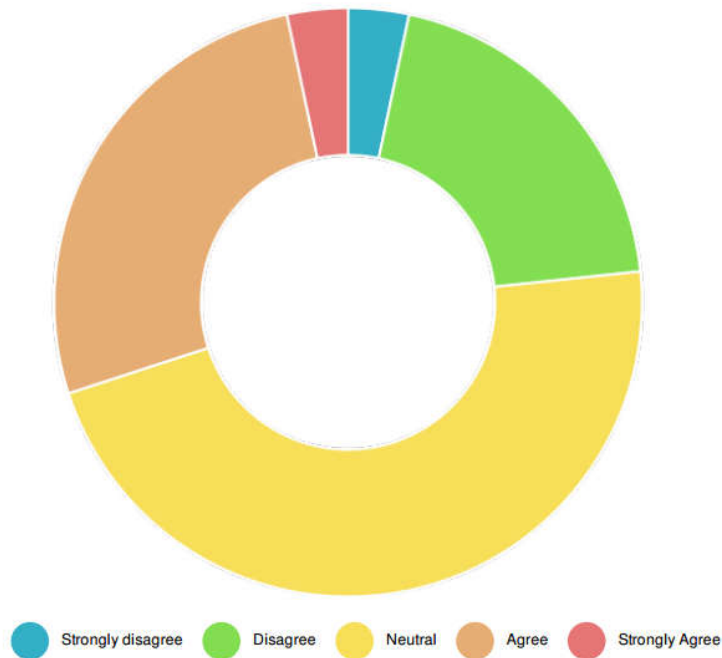


Figure 4.13: Top management is aware of and understands payment operations

## **Results Interpretation**

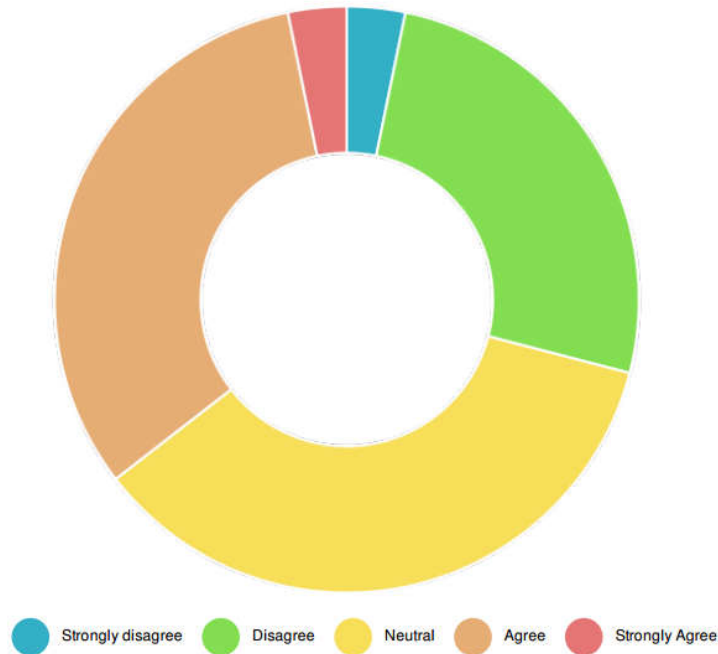
The results represented in Figure 4.13 are a question of whether top management is aware of and understands payment operations. In this case, a large number of the respondents, 46.67%, remained neutral. Those that agree with the statement constituted 26.67% of the respondents, and 3.33% of them strongly agree with the view.

## **Link to Theory**

According to Kurti et al. (2013:86), managerial participation begins with business process awareness. If managers are aware of business processes and which business objectives they support, they will likely make good decisions around process improvement and efficiency. Lack of knowledge will impact negatively on business processes which support various objectives. The majority of the employees at CBL are neutral as to whether management understands payment operations, meaning they do not have evidence of their knowledge of these operations.



	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Standard Deviation	Responses
All Data	1 (3.23%)	8 (25.81%)	11 (35.48%)	10 (32.26%)	1 (3.23%)	4.35	31



**Figure 4.14: Management acts quickly to help resolve problems which hinder payment operations**

### Results Interpretation

Respondents in Figure 4.14 indicate that 35.48% are neutral as to whether management acts quickly to resolve problems related to payment systems operations. In addition, 32.26% of them respondents agree that management does get involved, and 3.23% of them strongly agree. Further, 25.81% disagrees with the statement, and 3.23% strongly disagrees.

It is evident from these results that the majority of the respondents neither agrees nor disagrees that management acts quickly to resolve payment systems-related problems. The overall percentage of people who responded positively to the statement is 35.49%, which is almost similar to the number of people who are indifferent. On the other hand,

29.04% responded negatively. Results, in this case, are spread throughout the response criteria with a standard deviation of 4.35.

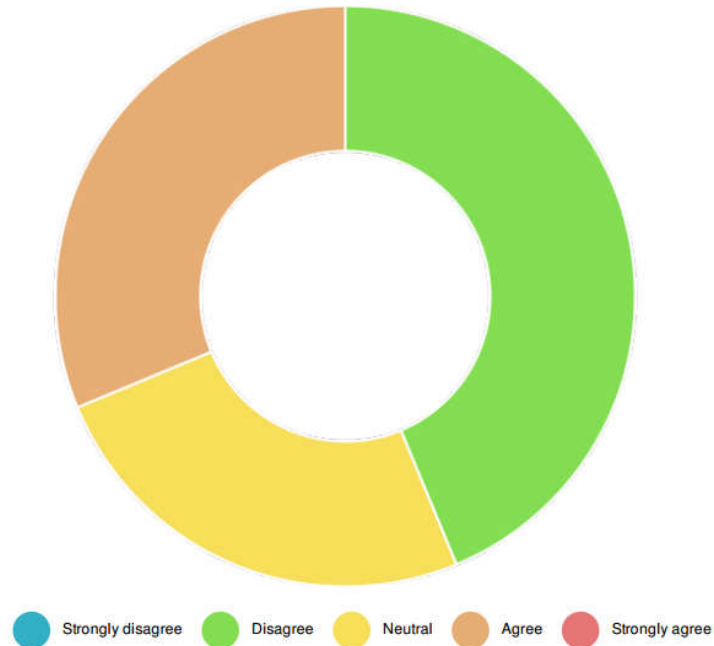
### Link to Theory

How quickly management responds to problems around payment systems also determines their level of commitment, which, in turn, affects the eventual success of operations.

#### 4.2.4 Research Question 4: Stability of the IT Environment

The fourth research question addresses the stability of the IT environment at the Central Bank of Lesotho and how it impacts the payment operations. The results and interpretation of this area of research are presented by means of Figure 4.15 to 4.17.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Standard Deviation	Responses
All Data	0 (0%)	14 (43.75%)	8 (25%)	10 (31.25%)	0 (0%)	5.57	32



**Figure 4.15: Payment systems are always available**

## **Results Interpretation**

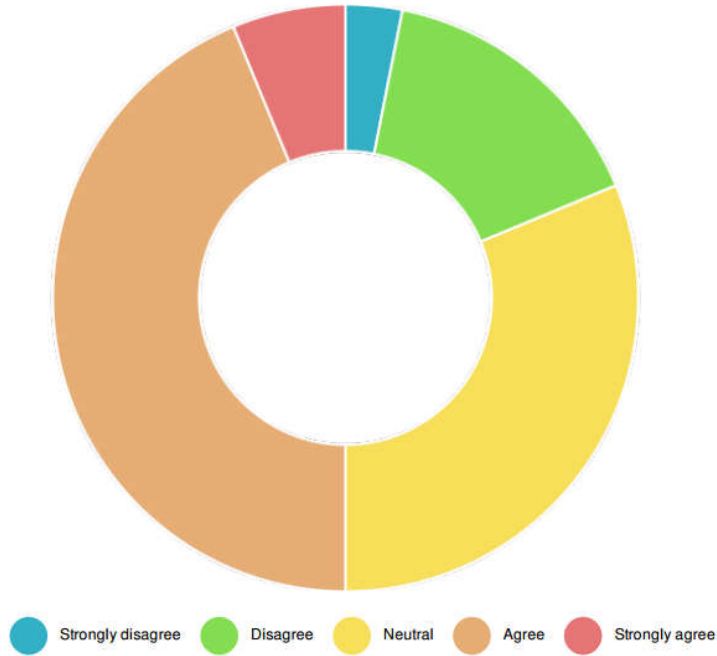
On the issue of availability of payment systems, 43.75% of the respondents disagree with the statement that payment systems are always available, 31.25% agrees, while 25% is neutral. The results to this question are spread out across the criteria of answers with a standard deviation of 5.57.

The most frequent response to the statement is that respondents disagree that payment systems are always available, and this is represented by the majority of 43.75% of the five response options.

## **Link to Theory**

According to Gerow et al. (2014:1161), there are three types of performance: financial, productivity and customer benefit. Payment systems downtime negatively affects performance in that business can be prevented from efficiently providing payment services while customers on the other hand are not benefiting and these may also affect the financial performance of the business.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Standard Deviation	Responses
All Data	1 (3.13%)	5 (15.63%)	10 (31.25%)	14 (43.75%)	2 (6.25%)	4.92	32



**Figure 4.16: I always receive prompt IT support on payment systems**

### Results Interpretation

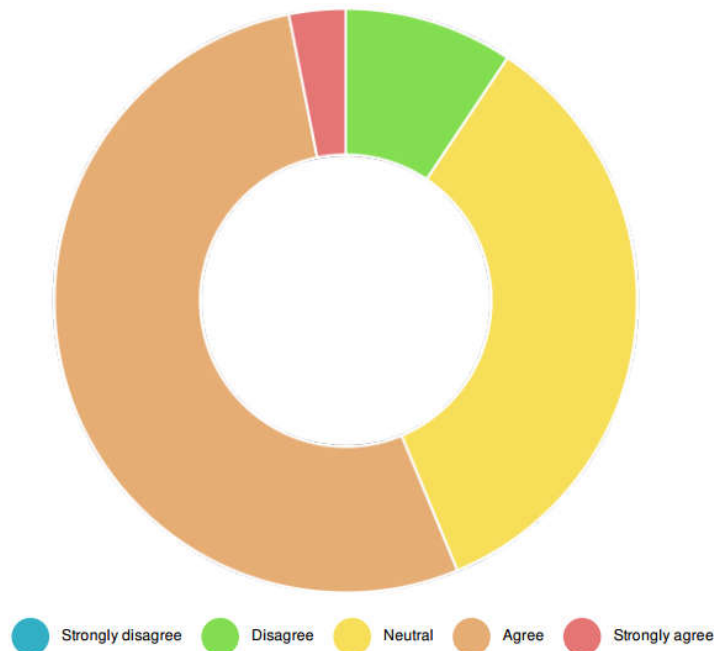
According to the results in Figure 4.16, 43.75% and 6.25% of the respondents agree and strong agree that they receive prompt IT support on payment systems respectively. Further, 31.25% responded neutrally, while 15.63% of the respondents said they disagree, and finally, 3.13% strongly disagrees.

The positive results of the respondents who either agree or strongly agree with the statement add up to 50% of the responses. It means half of the respondents feel that they receive prompt IT support, while 31.25% of them are neutral, and 18.76% of the respondents feel they do not receive prompt IT support.

## Link to Theory

The readiness of IT support shows level of service quality, and this also translates into the availability and quality of payment processes. Business also gets value from IT when the support function is always adequate. As Wagner et al. (2014:66) state, IT utilisation can be driven by business perception as to whether they obtain value from the technical services they receive, which also impacts on operations.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Standard Deviation	Responses
All Data	0 (0%)	3 (9.38%)	11 (34.38%)	17 (53.13%)	1 (3.13%)	6.56	32



**Figure 4.17: Payment systems are regularly updated**

## Results Interpretation

Respondents who feel that payment systems are regularly updated are made up of 53.13% who agree and 3.13% who strongly agree, while 9.38% disagrees with the statement. Based on these statistics, it can be observed that most of the respondents are positive about the regular updating of payment systems.

## Link to Theory

According to Majali and Dahlin (2010:258), one of the factors that affect IT-business alignment is service quality. In the aforementioned research question, the availability of IT services impacts on the quality of service IT provides to other business units. Having payment systems which are regularly updated ensures that payment operations which depend on the systems are updated and stabilised.

### 4.2.5 Research Question 5: Ease of Adoption of Payment Systems by Business

The three statements in research question 5 focused on researching the ease of adoption of payment systems by business at the Central Bank of Lesotho. The results of these are shown in Figure 4.18 to 4.20.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Standard Deviation	Responses
All Data	1 (3.13%)	5 (15.63%)	2 (6.25%)	18 (56.25%)	6 (18.75%)	6.09	32

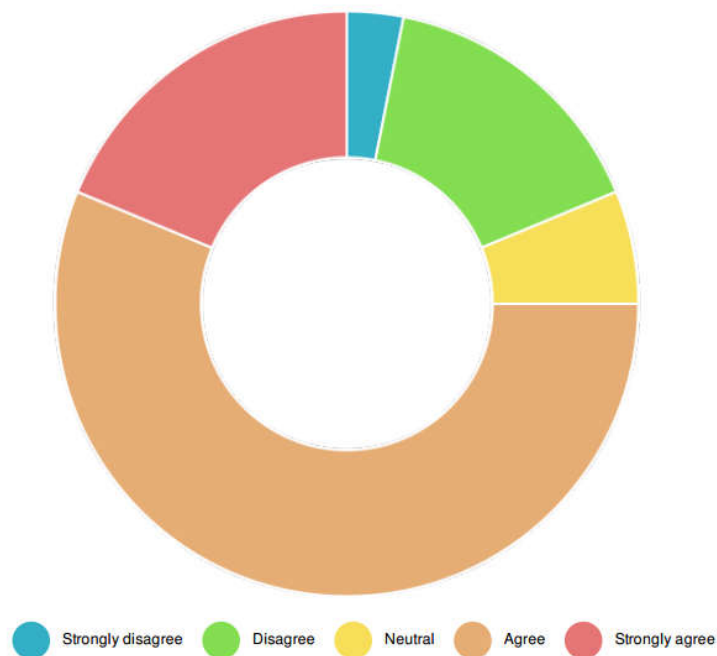


Figure 4.18: I have no problem using new systems

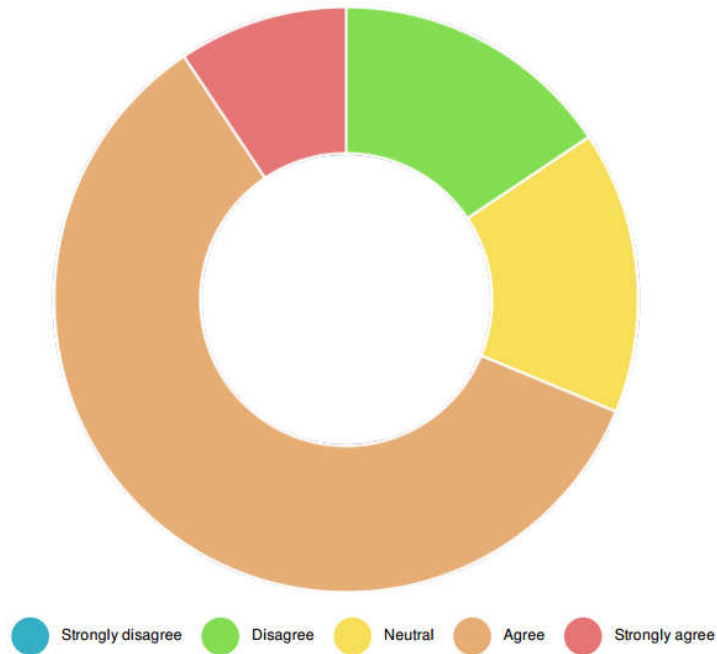
## **Results Interpretation**

Figure 4.18 shows that 56.25% of the respondents agree and 18.75% of them strongly agree that they have no problem using new systems. In contrast, 15.63% of the respondents disagree, and 3.13% of them strongly disagree with the statement, meaning that they have a problem using new systems. Further, 6.25% of the respondents are not saying whether they have a problem using new systems or not, as they are neutral.

## **Link to Theory**

Understanding of payment processes regardless of systems may affect the rate of adoption (Neyer, 2014:130). Collaborative networks to help everyone involved in a business process understand what is expected and how operations are run also help with appreciation of systems, and thus improve the utilisation of IT (Wagner et al., 2014:33).

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Standard Deviation	Responses
All Data	0 (0%)	5 (15.63%)	5 (15.63%)	19 (59.38%)	3 (9.38%)	6.56	32



**Figure 4.19: I find it easy to accept and understand changes in payment processes and operations**

### Results Interpretation

When asked about the ease of adopting payment systems, Figure 4.19 indicates that 59.38% of the respondents agree that they find it easy to accept and understand changes in payment processes and operations. Additionally, 9.38% strongly agree, 15.63% neither agrees nor disagrees, and the remaining 15.63% disagrees.

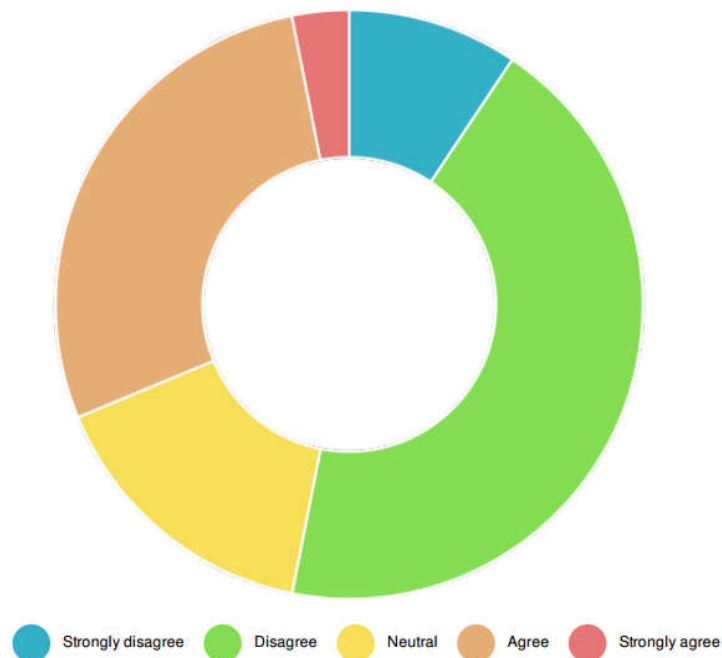
It can be deduced from this information that the majority of the respondents feel that they can easily accept a change to payment operations and systems.



## Link to Theory

Management has to engage staff, and increased collaboration will help in sharing a common view of all operations, thus helping all stakeholders understand operations and changes that occur (Navedo-Sampler et al., 2013:140).

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Standard Deviation	Responses
All Data	3 (9.38%)	14 (43.75%)	5 (15.63%)	9 (28.13%)	1 (3.13%)	4.63	32



**Figure 4.20: I always receive information and training to help me adapt to changes in payment operations**

## Results Interpretation

Regarding availability of information and training on changes in payment systems and operations, Figure 4.20 reveals that 43.75% of the respondents disagree, 9.38% of them strongly disagree, and 15.63% of them are neutral. In addition, 28.13% agrees and 3.13% strongly agrees.

Looking at the results in Figure 4.20, the most frequent response is the 43.75% of the respondents who disagree with the statement in the figure. The total number of employees who responded negatively is 53.13%; thus, a larger number of employees feel they do not always receive information and training to help them adapt to changes in payment operations.

### **Link to Theory**

Effective communication from management to employees and across business units help everyone to have the same perception about the business processes and what objectives are being targeted (Nevado-Sampler, 2013:80).

### **4.3 Conclusion**

The results of the research show that employees at the Central Bank have varying feelings that had results spread over all five response types. All the standard deviations for the research results show that people fall into all response categories.

Furthermore, results show that people feel that communication about payment operations is not adequate even though employees are aware of the availability of various payment systems. This can be linked to the theory that communication has an impact on the efficiency of payment operations.

Employees mostly disagree that top management is involved and offer support on payment operations. There are even mixed feelings about the level of knowledge and awareness of payment systems.

Employees feel that they receive payment systems support from IT, but they also feel that IT staff lack the training and skills in the area of payment systems. The IT team also works together with business to implement changes in payment systems whenever such changes occur.

Staff feels that they are willing to adapt to changes to payment operations and system. Nevertheless, they feel they lack managerial support and that they do not always get the necessary information and training to assist with adaptation to change.

## **CHAPTER 5: FINDINGS AND RECOMMENDATIONS**

### **5.1 Introduction**

Central bank of Lesotho has been facing a problem of inadequate IT-business alignment which has resulted in inefficiencies in the payment systems processes and operations. The study has set out to study ways in which to align business processes and information technology in order to improve performance and efficiency of payment systems. The primary objective of the study was to establish factors that affect IT-business alignment at the Central bank of Lesotho.

The secondary objectives are to recommend ways to streamline business processes and IT payment system.

Based on the business problem above, research has been conducted to find factors that affect IT-business alignment and the recommendations on the ways to streamline business processes and IT business systems which will ultimately help in achieving the primary objective.

### **5.2 Major Findings on Factors that affect IT-business alignment**

The findings presented in this section are based on the research results found in chapter 4. These findings also form part of the reasons why there has been a perceived problem with the IT-business alignment.

#### **5.2.1 The Extent of Communication between Business and IT**

##### **Finding**

In this case, it was found that there is some degree of communication at the Central Bank of Lesotho however not adequate. Employees are aware of various payment

systems and operations, but they feel they are not clearly communicated or accessible. Secondly, the objectives for having these payment systems and operations are not communicated to employees. The consequence of the finding as a factor that affects IT-business alignment of payment systems is that without any clear objectives, it becomes difficult for employees to understand what is expected of them and how to measure and align the payment process to business goals.

## **Conclusion**

A clear communications plan and management should be established for each project between IT and business so as to ensure that all stakeholders understand the objectives.

### **5.2.2 Knowledge of IT Staff about Business Operations**

#### **Finding**

Even though IT collaborates with business during the design of payment processes and implementation of IT solutions to support business operations, employees were not convinced that IT staff are trained and have the necessary knowledge of business processes. The implication of this situation is that if IT and business are not on the same page on how payment processes work, then IT will likely provide the wrong solutions to support operations and processes they do not fully understand. This is one of the possible causes for the perceived lack of alignment between IT and business.

#### **Conclusion**

Knowledge sharing and knowledge management initiatives should be adopted and enforced as part of operations and IT management.

### **5.2.3 Commitment of Top Management**

#### **Finding**

According to research staff felt that management is not fully involved in the improvement of payment processes. There are no reviews after implementation of payment systems in order to measure the effectiveness of such developments. Lack of engagement by management has negative results in that it becomes difficult to obtain buy-in and the necessary resources to help make payment processes more efficient.

#### **Conclusion**

Top management especially those that form part of the key stakeholders to projects between IT and business should be involved at all times.

### **5.2.4 Stability of the IT Environment**

#### **Finding**

Research shows that IT systems are supported and regularly updated, which results in a relatively stable infrastructure even though they are not always available. The stability of the IT infrastructure is critical to the stability and availability of payment operations and services.

#### **Conclusion**

IT frameworks and policies to ensure proper management and maintenance of IT systems and infrastructure should be adopted by the Central Bank.

## **5.2.5 Ease of Adoption of Payment Systems by Business**

### **Finding**

The staff at CBL generally has no problem accepting changes in systems and the business environment. Employees generally do not fear using new systems; however, they feel they do not receive enough information to help them adapt to changes. It is difficult to adapt to new systems at CBL, as there is little support to help employees to deal with changes and utilise new solutions which help improve their processes.

### **Conclusion**

A change management plan and policy should be established to manage the ease of adoption and help staff adjust to change in processes and technology.

## **5.3 Ways to streamline business processes and IT payment systems**

The response to the secondary objective on finding ways to streamline business processes and IT systems, recommendations are made below.

### **5.3.1 Communication and knowledge sharing**

According to the findings and the results given in section 4.2.1, communication and knowledge sharing help increase understanding of business processes and operations by all stakeholders. In order to streamline processes and improve efficiency, communication across all departments who work and are affected by payment systems becomes critical as it impacts on integration between IT and business processes.

### **Conclusion**

There should be metrics in place to measure and assess the impact of communication on efficiency of business process improvement and alignment to IT.

### **5.3.2 IT understanding of business operations**

IT understanding of business processes also forms part of knowledge sharing however, it goes further to highlight the importance of payment systems efficiency due to IT understanding how business processes and systems collaboration (section 4.2.2).

#### **Conclusion**

Processes should be simplified so that IT staff has a thorough understanding of business operations. The bank should train and hold workshops for IT people to help them understand various bank operations.

### **5.3.3 Commitment of top management**

As shown by results in section 4.2.3, top management involvement in the implementation of business processes encourages proactive cooperation by all. Business units obtain the necessary support and resources which aid in successful business processes and operations. Top management involvement begins with process awareness so that they know which objectives to meet. Efficiency is increased with top management participation and as such they form an important part of business process success.

#### **Conclusion**

It is critical that top management develop a methodology for guiding the involvement and participation in business and IT projects and such a methodology should form part of their work plans and deliverables.

### **5.3.4 Stability of the IT environment**

The IT infrastructure availability and stability affect the efficiency with which business processes and operations are executed. Section 4.2.4 theory according to Gerow et al. (2014:1161) indicates that stability of systems impacts three areas of performance: financial, productive and customers benefit which all depend on business process

efficiency. Improved infrastructure stability helps streamline business processes for greater efficiency.

### **Conclusion**

An IT governance framework to focus on IT services management should be established. This will include management of services, IT infrastructure availability, change management and process monitoring.

### **5.3.5 Ease of adoption of payment systems by business**

Collaborative networks mentioned in section 4.2.5, help all stakeholders to a business process implementation understand the objectives and their roles in reaching those objectives. Understanding of payment processes regardless of which system is being used affects the rate of adoption positively and hence improves process efficiency. The result is efficient use of IT to drive process success.

### **Conclusion**

The already mentioned change management, communication plans and IT governance should be used to help all stakeholders adapt to changes and also be part of the change management process.

### **5.5 Recommendations**

The study has shown that there is a need for improvement in the maturity level of IT and business alignment in the area of payment systems. In order to sum up the recommendations which follow each finding in section 5.4 have been given below.



### **5.5.1 Identify factors that affect IT business alignment**

Factors which affect IT-business alignment have been identified by the study and CBL have to be followed up by designing frameworks and implementation methodologies.

- **Communication**

Stakeholders should be identified carefully and their relevance to the IT-business processes should be defined so that they receive the necessary information about their involvement.

- **Knowledge sharing**

There should be a knowledge management framework and policy for sharing of payment systems information between IT and business to enable all parties involved to be up to date with any changes and new initiatives. Such frameworks should have senior managers accountable for driving them.

- **Top management involvement**

It should be company policy for management to be involved from each project inception and after implementation in order to help give direction to the management of IT-business alignment between IT and payments operations. Top management should also be there throughout the processes to ensure alignment to the business objectives. Top management will also help with the necessary authorisations and budgetary support for improvement of payment and IT alignment.

- **Stability of IT infrastructure**

An IT governance framework should be established so as to improve the IT services management. The governance framework will include services portfolio between IT and business, service level agreements and change management in terms of IT infrastructure. The service level agreements will ensure that expectations between IT and payment operations are clear and managed efficiently. This will also ensure

that IT and Business understand each other's operations in terms of acceptable services availability standards and support times. Services review meetings should also be held periodically to assess the effectiveness of the framework.

- **Change management**

A change management framework should be established work with all stakeholders in managing the change management process, risks and adoption. The initial step should be to establish a change control committee. Management should afford such a committee enough power to make enforceable changes. Changes should be assessed for impact prior and post implementation.

#### **5.5.2 Ways to streamline business processes for efficiency**

- **Map and document business processes**

All payment operation processes should be mapped and fully documented. Such documentation helps in communicating current operations and changes to all stakeholders including IT.

- **Communicate payment processes in line with CBL's communication plan**

Identify stakeholders and devise a communications plan to ensure people are aware and understand payment operations. Correct information about payments and operations should be communicated such that people understand their roles and involvement in the success of operations. All changes should also be communicated and updated in the documentation. Communication will help with the ease of adoption to changes by all stakeholders.

- **Identify resources required for process implementation**

CBL should identify resources required for implementation of efficient payment processes. Required resources can be skills, new technologies and financing. Both IT and business people should be trained to have the necessary skills to implement and manage IT-business processes.

- **Review processes for adequacy**

Payment operations and processes should be reviewed after implementation and annually or according to the change management plan. This will ensure that only necessary processes are maintained and the necessary changes can be identified. Both business and IT should meet to review which processes still meet payment operations objectives and which ones have become obsolete. Where changes are necessary, they should be followed up with an established change management framework.

### **5.5.3 Further research**

Due to the non-parametric testing used during data analysis, the given factors could not only be used in an attempt to explain why and what causes lack of IT-business alignment at CBL. The limitation to the study is that it could not be said to what extent each factor affects the IT-business alignment but it can only be seen as a cause.

It is therefore recommended that Central Bank of Lesotho extends the findings of this research by benchmarking the initiatives with those of other central banks in the SADC region. There should also be training into the best practices regarding the methodologies for IT-business alignment.

CBL should also implement a framework for reviewing the extent of success and relevance of the recommendations given by this study after implementation. This will help the bank to assess if adopted frameworks and methodologies are yielding expected results before committing more time and resources on them. Reviews should be done annually to assess progress or lack thereof.

## **5.6 Conclusion**

The Central bank of Lesotho has an already established operations and IT departments as part of business units intended to help achieve the banks objectives. It is important that both business units find synergy in aligning the processes to best achieve their mandate.

Based on this research factors that affected IT-business alignment have been identified and recommendations made on the objectives on the study. It is worthwhile that CBL follows through on these recommendations and take a further step by researching more by learning from more advanced institutions and their counterparts in the region.

Although there were no measures and statistics showing the level of IT-business alignment and the extent to which the identified factors affected the alignment process, the successful implementation of business processes and IT-business alignment require to be monitored and measured for success.

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## APENDIX A: The Questionnaire

**Section A.** This section deals with various factors that affect IT-business alignment and its impact on payments systems operations and processes. The responses are 1: **Strongly disagree**, 2: **disagree**, 3: **Neutral**, 4: **Agree** and 5: **Strongly agree**

1. COMMUNICATION					
1.1 Payment operations are clearly documented and accessible to me	Strongly Disagree				Strongly Agree
	1	2	3	4	5
1.2 I am aware of availability of different payments systems at CBL	Strongly Disagree				Strongly Agree
	1	2	3	4	5
1.3 Communication about the operational objectives is communicated to me and other staff members	Strongly Disagree				Strongly Agree
	1	2	3	4	5
1.4 I know how payment systems and services offered by CBL differ	Strongly Disagree				Strongly Agree
	1	2	3	4	5
1.5 I am aware of how payment systems benefit me at CBL	Strongly Disagree				Strongly Agree
	1	2	3	4	5
1.6 Communication about payments operations has positive impact on services	Strongly Disagree				Strongly Agree
	1	2	3	4	5
2. Knowledge of IT Staff of business operations					
2.1 IT staff know and understand payments operations	Strongly Disagree				Strongly Agree
	1	2	3	4	5
2.2 IT staff are highly trained and have payment systems skills	Strongly Disagree				Strongly Agree
	1	2	3	4	5

2.3 IT staff understand and can participate in payment processes reengineering	Strongly Disagree					Strongly Agree
	1	2	3	4	5	
2.4 IT staff work together with business whenever there are changes in payments systems and operations	Strongly Disagree					Strongly Agree
	1	2	3	4	5	
3. Commitment of top management						
3.1 It is easy to obtain top management support in payments operations	Strongly Disagree					Strongly Agree
	1	2	3	4	5	
3.2 Top Management engage with staff to review progress after payment processes implementation	Strongly Disagree					Strongly Agree
	1	2	3	4	5	
3.3 Top management is aware of and understand payments operations	Strongly Disagree					Strongly Agree
	1	2	3	4	5	
3.4 Management act quickly to help resolve problems which hinder payments operations	Strongly Disagree					Strongly Agree
	1	2	3	4	5	
4. Stability of IT environment						
4.1 Payment systems are always available	Strongly Disagree					Strongly Agree
	1	2	3	4	5	
4.2 I always receive prompt IT support on payment systems	Strongly Disagree					Strongly Agree
	1	2	3	4	5	
4.3 Payment systems are regularly updated	Strongly Disagree					Strongly Agree
	1	2	3	4	5	

5. Ease of adoption of payment systems by business					
5.1 I have no problem using new systems	Strongly Disagree			Strongly Agree	
	1	2	3	4	5
5.2 I find it easy to understand and accept changes in payment processes and operations	Strongly Disagree			Strongly Agree	
	1	2	3	4	5
5.3 I always receive information and training to help me adapt to changes in payment operations	Strongly Disagree			Strongly Agree	
	1	2	3	4	5

## APPENDIX B: Permission to conduct research on CBL

Monaheng Makhetha  
Central Bank of Lesotho  
P.O. Box 1184  
2014/10/29

Director of Administration  
Central Bank of Lesotho  
P.O. Box 1184  
Maseru 100


Dear Sir

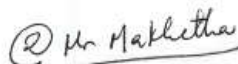
**Re: Application for permission to conduct Dissertation research based on CBL.**

I would like to request permission to conduct research for an MBA dissertation (Field Study) based on a Central Bank of Lesotho related topic and to also conduct research base on the Bank. My topic is **Information Technology –business alignment for process efficiency at the Central Bank of Lesotho** and the field of study is Strategic Management (from a business perspective and not ICT). This is research planned for the academic year 2015 at the University of Free State where I will be doing my final year of part time studies.

All questioner and survey information will be provided once the research starts. Thank you for your time in viewing this application.

Regards

  
Monaheng Makhetha

  
Approved  
Efat  
29/10/14