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WORLD MARITIME UNIVERSITY
Malmö, Sweden

**A BUSINESS CASE FOR CHANGE MANAGEMENT,
USING “CHANGE MANAGEMENT-RETURN ON
INVESTMENT”: A CASE STUDY OF THE
IMPLEMENTATION OF ISO INTEGRATED
MANAGEMENT SYSTEM AT THE TEMA PORT**

By

JOSHUA OWUSU-ANSAH
Ghana

A dissertation submitted to the World Maritime University in partial fulfilment of the requirements for the award of the degree of

MASTER OF SCIENCE
In
MARITIME AFFAIRS
(PORT MANAGEMENT)

2017

Declaration

I certify that all the material in this dissertation that is not my own work has been identified, and that no material is included for which a degree has previously been conferred on me.

The contents of this dissertation reflect my own personal views, and are not necessarily endorsed by the University.

(Signature):


.....

(Date):

19/09/17
.....

Supervised by: * *Prof. Michael Ekow Manuel*

World Maritime University

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Joshua Owusu-Ansah

Abstract

Title of Dissertation: **A Business Case for Change Management, Using “Change Management-Return On Investment”: A Case Study of the Implementation of ISO Integrated Management System at The Tema Port**

Degree: **MSc**

This dissertation is a study that explores a way of making a business case for change management, using project evaluation concepts of ROI and VOI. It examined a test case within the Ghana Ports and Harbours setting, and applied the Change management return on investment (CMROI) on a test project.

It is a well-known fact that organizations seek to develop by embarking on different projects, in order to give clients quality services. However, every project has specific value it intends to add up to the overall growth of the organization. In most cases, there exist in projects a variance between expected project benefits and actual realized project benefits (value). It is arguable that organizations, in order to ascertain project effectiveness for value, evaluate projects using rigorous financial tools like IRR, ROI and NPV. Their aim is to know how much of tangible benefits is the project bringing on board. Another evaluation is to have a holistic view of the overall value the project brings instead of the tangible aspects alone. This is the VOI concept, which many have argued that it is the new ROI, thus a call to shift to this new method. A particular reference is made in this dissertation to the originators of this latter evaluation method.

The concept in this dissertation was to apply the thought that individuals adopting and using a project (change) affects the overall value realized from a project. This is the human factor which this paper justified as the contributing factor that brings the variance between expected and realized value. This factor is an intangible that was quantified to help determine the CMROI (additional value added due to people adopting and using change). However, this intangible is affected by other factors as well as needs change

management to drive it (adoption and usage) in order to make up for the variance created by its absence.

Data was collected and processed for this test project (i.e. ISO-IMS project) employing the PROSCI framework which lays out the processes for quantifying the adoption and usage as well as the CMROI including the overall project benefits captured.

The concluding chapters examines the results and analyses them to make the case for change management more data driven and analytical. A number of recommendations are made concerning the need for further investigation in this subject.

KEY WORDS: Change management, ROI, VOI, Variance, Adoption and Usage, CMROI

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List of Abbreviations

ADKAR	Awareness, Desire, Knowledge, Ability and Reinforcement
A&U	Adoption and Usage
CMROI	Change Management Return On Investment
GPHA	Ghana Ports and Harbours Authority
ISO-IMS	International Organization for Standardization – Integrated Management System
ISO-QMS	International Organization for Standardization – Quality Management System
OECD	Organization for Economic Co-operation and Development
ROI	Return On Investment
UNCTAD	United Nations Conference on Trade and Development
VOI	Value On Investment

Chapter 1

1.0 Introduction

Many organizations exist to make profit, and in doing so there are several considerations which come to play. One of such is to increase clientele through delivering higher quality services. In order to do this, they undertake development projects that bring in this change. However, in their quest to achieve this, it is normally the case that, expected outcomes do not match actual outcomes, due to variations within the organization itself. This causes the development of the organization to stall, and intended results are not fully realized. This research, using the case study of a port, aims at studying one such cause of these variations and the effect that it has on the overall benefits of a project to an organization. Specifically, the research examines the people-side factor and the quantum of this variation in order to make a case for top level managers buy-in for change management in a port.

1.1 Background

Traditionally, ports have been seen as gateways between foreign and domestic markets (UNCTAD, 2015, p. 72). However, changes in the maritime industry regarding logistics integration and network orientation have redefined the traditional role of ports in the value chain (Rodrigue & Notteboom, 2005, p. 297). Furthermore, the role of ports has taken different forms within the supply chain. The development patterns of ports have also changed. Today, ports are seen as integral components of distribution systems and for this reason, the services that they offer are now much greater than simple cargo handling, and

include general logistics services and value-added activities (Pettit & Beresford, 2009, p. 253). Due to these changes, there are new developments in ports.

Port development is seen as a catalyst that stimulates economic activity and also creates employment. In the UK for example, it was estimated that 262,700 jobs were created as a result of the provision of maritime services according to Oxford Economics, (as cited in UNCTAD, 2013, p. 94). However, historically, the development of ports has been related to major developments happening in the shipping industry. Such global developments include the creation of the second Suez Canal and expansion of the Panama Canal, which have had impacts on ports within the region and are likely to lead to an increase in the number of ships calling at these ports (UNCTAD, 2015, p. 66). Arguably, every port has development plans which take into account global trends in the industry as well as the creation of wealth for the citizens of the country and the meeting of customer needs. This is a trend in port development across the world. According to the UNCTAD Review on Maritime transport (2013), several countries along the west coast of Africa are involved in a variety of port development projects. They include, but are not limited to, superstructure development, terminal building, quay extensions, dredging, and “dry port development projects in landlocked countries like Niger” (World Bank Group, 2015, p. 1). Kruk and Julian (2007) have indicated that in developing countries, ports constitute a key asset for economic development. In view of this, such ports need to operate efficiently and be properly structured in order to support an increase in trade and in Gross Domestic Product (GDP) by linking countries (both coastal and landlocked), productive hinterlands and consumers to global markets.

In line with the preceding position, the Republic of Ghana (and for that matter the Ghana Ports and Harbours Authority (GPHA)) has been engaged in such developments in ports. In 2012, agreements were signed for work to begin infrastructure reconstruction in the Takoradi Port. This work included reclamation (UNCTAD, 2013, p. 95). In 2016, a major port expansion project was initiated by the Government of Ghana with the GPHA to increase the port’s container handling capacity of about 1 million TEUs at the time, to 3.5 million TEUs. This major development has given rise to the implementation of other sub-projects that have the aim of supporting and upholding this major port expansion project. Example of such sub-projects are the Single-Window project, the International

Organization for Standardization (ISO) Integrated Management System project and so on (Ghana Ports and Harbours Authority, 2016).

To be successful and as part of good port management, all of the aforementioned projects need to be managed effectively and efficiently. In managing them, the port must consider its stakeholders who have invested in these projects as well as the value addition it brings to the entire port. Several teams are formed at different levels of management to help foster the deployment of these projects successfully, in recognition of the fact that in order to be the trade and logistics hub for the region (a vision of the port authority), GPHA like any port must remain competitive within the region. Hence it plans, deploys and manages these projects with the view of leveraging on new technology, procedures and ways of working that come with such development projects, to provide quality service to its customers, while maintaining a sustainable, clean and safe working environment for its employees as well as the port community.

1.2 Problem Statement

While evidence of deployment of these projects exists in GPHA, there is difficulty in realizing the full possible benefits in terms of value of these projects because of process challenges and individual and organizational lapses. Money is being invested in these projects, hence the bottom line is that it must add value to the port as a whole for the money invested. This is a basic expectation of every stakeholder. Yet this appears not to be the case in many projects; rather, it is much more likely that the value generated by projects rarely equals what was estimated. Hence there is variance between the expected value of projects and the actual value gained.

This variance exists despite the fact that each project has an aim and associated goals that it intends to achieve in order to add value to the organization. Such projects come with new processes, which challenge the old way of carrying out certain jobs in an organization and require change. Achieving the aims does not only depend on the existence of perfectly designed processes or procedures. A second important element is critical, which is the response of individual employees in the organization. Hence, though an organization may

have perfectly designed processes, technology and/or systems, if no one follows these procedures, apply these technologies or employ these systems optimally in the work context, there will be no additional value created for the organization and no sustained results, with the end result being less value returned for the money invested.

Accordingly, and irrespective of the organization, it is obvious that the bridge between a quality solution and benefit realization is the individuals embracing and adopting the required change (Creasy, 2012, p.1).

Therefore, one of the greatest contributions to this variance in project value realization as compared to the intended outcome, is the people side of change that is brought in by the said project, which also is a bridge linking the so-called perfect solution to the actual value realization of the project. The magnitude of this variance is dependent on how much of the projects results depend on how people do their jobs differently. Thus, the greater the dependence of the project outcome on people doing their jobs differently, the greater the variance in the value obtained from the value desired.

1.3 Conceptual Framework for the Study

There are two concepts generally put forward by existing literatures to find out the effectiveness of a project – the Return On Investment (ROI) concept and the Value On Investment (VOI) concept (Norris, 2003; Permuth and Andrade, 2014; Harris, Grey and Rozwell, 2001). In comparing these two concepts, Norris (2003, p. 3) suggests that “ROI is based on return, which is generated by tangible outcomes, such as conventional enhancements of productivity, cost reduction, enhanced revenues, and opening new markets”. On the other hand, he notes that “VOI measures the value of the intangible side of a project in addition to the tangible benefits ROI measures”. Gartner say VOI is the total measure of benefits derived from soft initiatives and that ROI is a component of VOI (Harris et. al., 2001, p. 2). These definitions suggest that there is a relationship between ROI as the objective quantitative aspects of project benefits and VOI as the qualitative aspects of the benefits of the same project.

It is recommended that organizations, to determine the impact of projects must evolve to a VOI model which emphasizes both qualitative and quantitative impacts on performance.

However, this evolution requires senior management buy-in to show that less-tangible assets are just as valuable as sales and productivity valuations (Permeth & Andrade, 2014, p. 5).

The question does remain as to how one can gain management buy-in in this respect. In order to gain top management, buy-in, this research seeks to examine one such project with a view to examining the basis on which a case can be made and to determine how much of the project's benefits depend on employee "Adoption and Usage" (A&U). This thus helps to find the ROI of Change Management (CMROI) of the project, which is defined as "the additional value created by a project due to employee adoption and usage" (PROSCI, 2016).

Hence, the approach taken in this study is to use PROSCI's process framework and the CMROI calculator to find and quantify employee A&U of the test project for GPHA, and thus to determine how this quantity impacts on the project management.

1.4 Purpose of the Study

This research therefore tries to make a case for change management in a different way by making it more data driven, more rigorous and also more analytical. In this regard, it seeks to create a different emphasis of how the benefits of change management are measured - from the more technical to a more human side of the equation. New ideas are introduced to help the easy to transition from ROI into VOI.

1.5 Research Questions

The following questions are raised to give direction to the research.

1. What will be the percentage of the benefits gained if no one changed the way they work?
2. How can we connect the people side of change to the ultimate results, value, outcome and benefits of change?
3. How can a quantification of "people-side benefits" be included/considered in CMROI determination?

4. Which factors impact the Adoption and Usage (A&U) portion of the project?

5. Which part of the organization will be affected most by this project?

1.6 Research Methodology

The intention of this study was that of an exploratory and descriptive research. Chapter 3 gives details of the study's research methods and activities. This study uses sequential mixed methods research approach combining both qualitative and quantitative methodologies, to find out what the ISO-IMS project is trying to achieve in its entirety, explore the factors that affect the adoption and usage of the ISO- IMS system in the port and also to determine the most affected department by the project. In discussing mixed method approach, Manuel (2011, p. 75) indicates that mixed methods research aims at what counts, and this include the tangibles and intangibles. Also the use of a mixed methods research helps to complement one method with another in order to do justice to the complex nature a research presents.

The study therefore used primarily quantitative data collection strategy and applied qualitative strategy where appropriate. The data collected were mainly primary data. It applied questionnaires as the data collection instrument with both open-ended questions as well as closed-ended questions.

1.7 Significance of the Study

This research will create a platform for a closer look at the implementation process of the ISO-IMS project. It will also open up opportunities to create a benchmark for future projects that are to be implemented at the Port of Tema.

Arguably, it can be expected that what every organization is looking for in a project is the overall tangible benefits which can be captured as ROI. However, there are some who also argue and emphasize the intangible aspects of project benefits (Harris et. al., 2001; Permuth & Andrade, 2014; Norris, 2003) giving rise to VOI, and concluding that VOI includes even ROI and other measures that ROI does not cover. Considering these two

approaches, it is obvious that there is a gap which this research fills through the use of the CMROI, to provide the bridge that connects these two approaches through change management. In other words, this study makes an academic contribution to the theory by trying to conclude that one needs to use the CMROI as means to shift the discourse from ROI exclusively to VOI.

1.8 Limitations of the Study

One key assumption was that there would be total cooperation from the Project Manager and his team of implementers. It was also assumed that the side of the project not dependent on A&U is delivered properly and has no technical issues. In other words, the tangible side of the project benefits is without any known issues (extraneous variables) that can affect the determined percentage of benefits arising from A&U. This of course may not be the real case, since errors are bound to happen. In this case, the employment of an external body to develop this system was not without problems especially as they are also prone to errors in design application. This was seen as a potential limitation to this research. It can increase the actual figure of the CMROI and hence make it an exaggeration. To reduce the effect of this limitation, the project team for the ISO-IMS was consulted throughout the study.

1.9 Format of the Study

This dissertation is laid out as follows.

Chapter 1: This is the introduction, giving a background to the whole research work and also the motivation to embark on this research work.

Chapter 2: After the introduction is this chapter, which deals with the literature review regarding the scope of ROI, VOI and Change Management in itself. It discusses the academic work done in this area to give the big picture and show how this new idea of CMROI fits into that picture.

Chapter 3: This section follows with the methods employed to undertake this research. Since this research in change management is more data driven and analytical, a framework from PROCSI which is built on the concept of CMROI was employed. In this chapter, the data collection methods are discussed and the research instruments presented.

Chapter 4: This chapter discusses the results of the research and the procedures adopted in analysing the various research questions, and presents them first in a descriptive way and then based on specific scenarios.

Chapter 5: In this chapter, the research concluded with a view to gaining management buy-in by showing the implications of the calculated CMROI on the project. It also discusses some recommendations pertaining to aspects of this research which were not covered as new areas for further research.

Chapter 2

2.0 Literature review

2.1 Introduction

In order to measure the outcome of a project, there are four major components to be considered, which according to Baratta (2009) are, realized value, project cost, decision opportunity cost and identification opportunity cost. The main project outcome measure of concern in this paper is the realized value of a project - the actual benefit experienced after implementation of a project. In his view, this is one of the most important measures, because it tells us how the project is doing overall across the organization. For many organizations, realized value is delivered over time across organizational boundaries and often not tracked for any meaningful period of time, giving rise to a situation where the estimated/expected value of a project may vary greatly from its realized value after implementation.

Accordingly, the focus for this research is tied to two main areas of project benefit evaluation which are evaluation from the perspective of Return On Investment (ROI) and Value On Investment (VOI).

2.2 Overall trends

Traditionally, project benefits have been evaluated using financial tools such as Return on Investment (ROI), Net Present Value (NPV), Internal Rate of Return (IRR) etc. Saleem, Salim & Fayoumi (2015), indicate that ROI “is the common method used to assess the benefits generated from any type of investment using financial factors”. They elaborate that ROI is the driver for most decisions made in organizations concerning investments, and it is so in concept in most organizations. Phillips (2007) adds that ROI has earned a place even in non-traditional areas like human resource development. IBM

Corporation Inc. (2002) also stresses the need to have ROI at the center of Information Technology which is also a non-traditional area for ROI. For Botchkarev and Andru (2011), ROI is a financial term that has been used for decades and defined as a concept based on a rigorous and quantifiable analysis of financial returns and costs. Currently, ROI is widely recognized and accepted in business and financial management in both the private and public sectors. This wide proliferation of the ROI method, has led to a situation where ROI is often experienced, as Botchkarev and Andru (2011) put it, as a “non-rigorous, amorphous bundle of mixed approaches, prone to the risks of inaccuracy and biased judgment”.

Value On Investment (VOI) on the other hand was a concept introduced in 2001 by the Gartner Group, a research institution (Harris et. al., 2001). It focuses on the overall value realized during and after project implementation. With this concept, there is arguably a welcoming thought of going beyond ROI to consider the overall value generated not only via the physical tangible side but more so the intangible aspects. It is “the most comprehensive tool for assessing the value of a reward and recognition program” according to Permuth and Andrade (2014). Mott and Granata (2016) agree that a VOI-driven evaluation process promotes a broader, more strategic view of project consideration and prioritization. They further argue that to focus on value instead of return promotes more meaningful accessing of the benefits from investments. With this in view, it appears that the general trend now is for organizations to consider more VOI models which consider the overall value generated from projects instead of just the foreseeable tangible aspect.

According to Permuth and Andrade (2014), companies, in recent times, are adopting this “new ROI” i.e. VOI to help in evaluating employee performance as well as recognition programs. It seems that even though the trend is moving towards VOI, there is also the question of whether it will prove to be as enduring as ROI has been. Nevertheless, the triple constraint on projects stipulated by Baratta (2016) i.e. value, scope and capability, shows clearly that the true way to measure the success of a project is by the delivered value of the project. This according to him, is the way projects will be evaluated in the future, with a focus on the delivery portion of a project, rather than its business value

which focuses on a single project, and is primarily based on a cost view. He explains that the “value triple constraint” states that the value delivered is a function of the scope of the business opportunity and of our capability to identify, decide on and deliver the business opportunity.

Hence in today’s economy, the harder-to-quantify resources or intangibles such as employee engagement, collaboration, networks etc. are the key to creating services and products that have competitive advantage (Permuth and Andrade, 2014, p. 4).

2.3 Project evaluation models reviewed

2.3.1 Return On Investment (ROI)

2.3.1.1 Definition

A conceptual definition of ROI is given by Jeffery (2006) as “a project’s net output (cost savings and/or new revenue that results from a project less the total project costs), divided by the project's total inputs (total costs), and expressed as a percentage”. According to Applied Geographic Inc. (2009), it is a calculation of the most tangible financial gains or benefits that can be expected from a project versus the costs for implementing the suggested program or solution. Using a strict business-school definition Mott and Granata (2006) say it is a dollar-for-dollar return on a project.

Major (2013), defines ROI as “a measure that investigates the amount of additional profits produced due to a certain investment”. She elaborates that businesses use this calculation to compare which of the different scenarios for investments would produce the greatest profit and benefit for the company. According to this view, ROI can have three different outcomes - positive, negative and zero. Any one of these outcomes guide the company in taking a specific decision regarding whether to either undertake a project or reject a project. Permuth and Andrade (2014) also suggest that ROI is the most common measure of financial efficiency between benefits and costs of investments. They conclude that the gains from the investments are the incremental financial benefits expected from the project, while the costs are the incremental expenditures incurred to operationalize it.

In view of the above definitions, this work can conclude that, ROI is focused on tangibles, and to be specific, the tangible/quantifiable financial/monetary benefits the project brings. It is a rigorous financial tool whose focus is mainly in the bottom line of the business i.e. profit.

2.3.1.2 Strengths of ROI

In considering its strengths, there are some views which are juxtaposed in order to gain insight in this area. According to Thorne, Hilton & Langfield-Smith (2012), ROI can be isolated into two components, which are return on sales and investment turnover. Any action taken with the sole purpose of making these parts more favourable could have adverse effect on performance in future years. However, it is emphasized that ROI encourages managers to focus on both profits and the assets required to generate profits. Another strength posited by Thorne et al. (2012) is that ROI can be used to evaluate relative performance of investment centres, even when those business units have different scales of operations.

Also as part of its strengths Agarwal (2015), states that ROI is a better measure of profitability, in that it relates the net income to investments made in a division hence ensuring a better measurement of profitability in that division. He also adds that; not only does it help in measuring profitability but also the performance of an investment division can be measured using ROI as well as the performance of the investment managers themselves.

2.3.1.3 Limitations of ROI

In Permuth and Andrade's (2014) view, while ROI estimation remains a useful tool in making the economic case for investments in projects, its measurement ability when it comes to business performance or project performance is one-dimensional, and therefore it is restricted to capturing only a limited number of factors that impact performance. They also suggest that gathering all the ROI inputs for the ROI formula is an complicated task even in the best of circumstances, and the output provides an incomplete picture of project impact.

Meanwhile, Thorne et. al. (2012), indicates a number of limitations associated with ROI which include the fact that it can encourage managers to focus on short-term financial performance at the expense of the long-term benefits of the business. This can be seen in the excessive cutting down of costs in the short-term, thus increasing the ROI in the short-term but reducing the long-term competitiveness of the business.

Furthermore, according to Kaplan Financials (2017), where ROI is a performance measure, can lead to dysfunctional decision making. Management may take decisions that affect only a divisional ROI regardless of the wider business benefit. Similarly, Agarwal (2016) argues that, ROI could influence managers to select investments with higher rates of return in line with their ROI and reject investments which have lower rates of return but which could add value to the business. A division could invest in a project to increase their ROI which may not impact the business as a whole. Agarwal notes, as indicated earlier, that ROI increases the focus on short-term goals and not long-term goals of the organization, hence possibly exposing the business to negative outcomes in the long-term.

2.3.2 Value On Investment (VOI)

2.3.2.1 Definition

According to Orr (2011), VOI is defined as the “measurement of the expected benefit of an investment”, and it considers both financial and intangible benefits. He further states that VOI is the total measure of expected benefits. It can be employed alone as a tool and it includes ROI. Harris et. al. (2001), also argue that the wealth created by investments in intangibles can be considered as value on investment instead of return on investment. They indicate that VOI is the measure of the total benefits gained from the intangible initiatives of an investment and that ROI is a component of VOI, noting that businesses focusing only on the quantifiable return on investments are missing the benefits of the overall value they will reap from the soft initiatives from the investments (Harris et. al, p.1, 2001). Phelps (2013), also states that VOI is the measure of the intangible benefits of a project or an activity and that just by its nature it includes some aspects of ROI.

Permeth and Andrade (2014) also confirm this by saying that when it comes to intangibles like recognition programs, leading companies are progressively realizing that the benefits of such intangibles go beyond short-term financial calculations.

2.3.2.2 Concept of VOI

In their conceptual development, Harris et. al. (2001), posit that most enterprises often treat soft or intangible initiatives as long-term, and not as short-term tactical investments. While these enterprises perceptively recognize the value in these initiatives, most lack a formal process for assessing the expected value from such initiatives and the process of managing them to achieve this value.

However, they conclude that VOI is achieved through initiatives that include but not limited to increased organizational competencies and that over time this value is increasingly the source of competitiveness and increased value of brand among others. They further suggest that, on one hand, since value is unique and tied closely to enterprises, it must be framed within the enterprise's strategic direction. Thus such soft initiatives require strategic drivers and alignment. On the other hand, value may be contextual and subjective and as such varies with varying perspectives.

Phelps (2013), builds her thinking about value on investment from the viewpoint of the "dreaded question" that always come up in business continuity programs. She argues that instead of trying to answer this daunting question of 'what does this project do to the company's bottom line?' one needs to consider the value addition of projects to the company instead of just the financial addition. She makes a case for the possibility of tying the finances invested to the desired and realistic company outcomes like competitive advantage, increased resilience, effective staff training etc. and thus to show that there is the need to consider the value added instead of only the money added. In her consideration, shifting to a VOI approach instead of an ROI approach provides the needed progressive framework for scoping, prioritizing, and initiating continuity projects.

However, in order to start shifting the thinking towards value on investment, one has to consider her concept of “whiteboard activities”¹ which takes into account what value is being generated by the company now, what value is the project bringing on board and what each person is doing now to add value to the overall value of the company. After determining answers to these questions, it becomes clearer which of these values must be communicated to decision makers and the company at large for buy-in.

2.3.2.3 Strengths of VOI

Permuth and Andradre (2014) observe that, as opposed to ROI, which tends to be limited in capturing the breadth of program impact, the VOI model enables a long-term appraisal of the value of the investment. While ROI may be sufficient for some tactical analyses, VOI is a robust tool for assessing the strategic potential of intangibles to change organizational dynamics like innovation over a long period of time. Harris et. al. (2001) show that VOI for enterprise performance initiatives increases competitiveness or competitive parity of enterprises. They also indicate that VOI is transformational in nature, since it helps focus the strategic direction of the enterprise and pushes the enterprise’s capabilities toward the vision which is embedded in the strategic direction. This leads to competitive advantage. Saleem et. al. (2012) point out that the VOI approach provides the needed environment to compute the level of services, knowledge, and other “soft” benefits, which cannot be measured by using the ROI methodology.

2.3.2.4 Limitations of VOI

As Phelps (2013) notes, VOI is a subjective endeavour and hence will be difficult to measure with the same precision as ROI. Furthermore, it does not directly measure an investments’ impact on the bottom line (Mott and Granata, 2016).

¹ Phelps uses “whiteboard activities” to describe activities that are done on a whiteboard. These are activities that are carried out to engage stakeholders in an exercise to brain storm on ideas and come up with all inclusive solutions.

2.3.3 Quantifying intangible benefits of project

2.3.3.1 Introduction

When you can measure what you are speaking about, and express it in numbers, you know something about it; but when you cannot express it in numbers, your knowledge is of a meagre and unsatisfactory kind; it may be the beginning of knowledge, but you have scarcely in your thoughts advanced to the state of science. *Lord Kelvin*

As indicated above, in order to enhance decision-making and give a defensible premise for actions taken, it is worthwhile trying to measure the important intangibles that exist and contribute to organizational performance. Such intangibles may be measured, arguably, in non-quantitative ways, but when they are expressed quantitatively they help to reduce uncertainty which is critical to organization development.

According to the OECD (as cited by Gyorgy, Vintila & Gaman, 2014), benefits are defined as increases in human wellbeing or utility. Zwikael and Smyrk (2012) define project benefits as “flows of value that arise from a project”. However, benefits of a project can be either tangible or intangible. Emprend Inc. (2017), notes that although they should be tied to a business goal, soft or intangible benefits are hard to measure in general as opposed to tangible or hard benefits. Such benefits of the former include but are not limited to the following: improved employee morale and engagement; increased customer satisfaction; reduced risk; increased alignment with market trends etc. They often have multiple sources and influences, thus while a project may help improve the overall employee engagement, a variety of other factors may have the same effect, making it difficult to pinpoint the impact of the project. Hartman (2017) also stipulates that when evaluating intangible benefits one has to realize that there is a reliance on informed predictions and secondary comparisons, which makes it a difficult task to perform consistently and accurately.

However, Keen (2003) states that handling intangibles can provide a big boost. Yet too often, eligible but soft potential benefits are not assessed as valid results in organizations. According to him, more than 25% of the value of enterprises is now based on intangible assets, such as brand image. Unfortunately, when business cases are devoid of analyses of intangible outcomes, projects vital to the enterprise go unfunded because intangibles cannot add to the hard ROI numbers.

In this context, it is noteworthy that Harris et. al. (2001) suggest that in late 20th century economies (leading into the 21st century), only progressive businesses recognize the value of intangibles and the potential they have to create value for businesses.

2.3.3.2 Project specific intangible

2.3.3.2.1 Employee Adoption and Usage

In every organizational setting, the acceptance of any change is largely dependent on how the individuals within the organization adopt and use the new change. It is therefore an indicator of whether a change will be effectual or not. Rogers (1995) defines adoption intention as the individual's intention to use, acquire, or purchase an innovation. It represents a continued usage of a change over time and it is a precursor of the actual usage of a change. By definition, according to him, the rate of adoption is usually measured by the length of time required for a certain percentage of the members of a system to adopt an innovation. In his work on diffusion of innovators, Rogers (1995) categorizes innovators as being early adopters, early majority, late majority and laggards when assessing how people adopt to technology. According to PROSCI (2017), a similar pattern can be followed with regards to organizational change. This simply means that different employees require different times to internalize and adopt a change to their work. Hence the speed of adoption for the employees is impacted by their own transition with respect to the change. How quickly employees adopt the change has a direct and measurable impact on the return a project delivers overall.

As Hubbard (2010) notes, if something can be observed in any way at all, it lends itself to some kind of measurement, and no matter how fuzzy the measurement is, it is still a

measurement if it is able to tell us something more than we knew before. This helps to lessen the uncertainty that it carried with it earlier. Therefore, knowing this percentage (A&U) gives us the assurance that we are able to help redeem the value which would otherwise be lost to the organization.

2.3.4 Relationship between ROI and VOI

According to Donald (2003) as cited by Saleem et. al. (2012), ROI and VOI are interconnected and dynamically interact with each other, and today's modification in VOI can drive better ROI in the future, and better ROI today can manage improvement that will guide towards complete VOI tomorrow. Permuth and Andrade (2014) use the following diagram to depict the relationship between these two evaluation models for today, tomorrow and always.

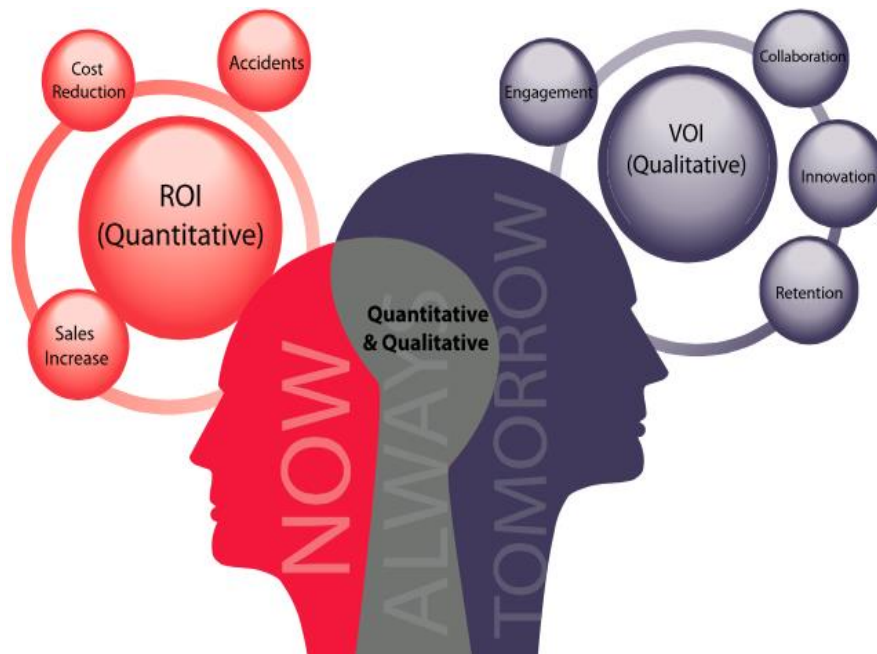


Figure 1: VOI as the new ROI

Source: Permuth & Andrade, 2014, p. 4

From Figure 1, it can be presupposed that, there is always going to be the need for both models as far as business performance is concerned. However, the trend is to increasingly recognize VOI as a surer way to evaluate projects and programs for business performance.

It is also the case that though businesses are interested in the bottom line issues to stay afloat in an ever-changing world, for sustainable business for the future, it is the overall value which counts and this will affect the bottom line but not as directly as may be perceived by businesses. The focus should therefore be on the “always” portion of figure 1, where both models meet.

2.3.5 People side of Change Management

2.3.5.1 Introduction

Nikols (2016) defines change management from four different perspectives which are, the task of managing change, an area of professional practice, a body of knowledge and a control mechanism. It is “the making of changes in a planned and managed or systematic fashion”. He concludes that the scope of such change is within an organization and as such these changes could be triggered by some external events. He also indicates that there is an aspect of the task of managing change which includes managing its impact on people. He notes, however, that for many managers, this aspect of the task of managing change is complicated due to the fact that there are two challenges they face. One challenge is helping their people cope with the change and the other challenge is the managers themselves coping.

In a more targeted definition Hiatt and Creasey (2012) view change management as “the application of processes and tools to manage the people side of change from a current state to a new future state so that the desired results of the change (and expected return on investment) are achieved”. They posit that change has occurred only when individuals in an organization begin to do their work in a new way, and that the individual shifts in behaviour is the cornerstone of change. In their view, organizational change requires individual change. In reality, this assumption may be unfounded, as individuals may not change their sentiments or activities to align with desired organizational change. Indeed, PROSCI (2006) concludes that, effectively managing the human side of change can help accelerate user adoption, increase the overall participation of employees and improve the benefit each and every employee realizes from the change, thus increasing the ROI the project delivers to the organization as a whole.

In light of this and building on these views of the people side of change management, it is easy to consider the organization-wide change and loose track of the fact that it is the collective individual change that makes the organization-wide change.

2.3.6 ROI of Change Management (CMROI)

2.3.6.1 CMROI Model

In their building of the Change Management-ROI model, PROSCI (2006), considers three main contentions that need to be engaged with. PROSCI's views are briefly presented below.

- i. The ROI delivered by a project rarely equals the expected ROI. This does not mean that the delivered ROI is always less than the expected ROI. On the contrary, there are some projects whose ROI delivered far exceeds the expected ROI.
- ii. The more people are affected by a change, the less certain the ROI. The question is put whether it is likely that the predictability of project outcomes differs between projects. The general relationship between how certain one can be of the ROI of a project and the amount of 'people change' created by that project is shown by the graph below (figure 2).

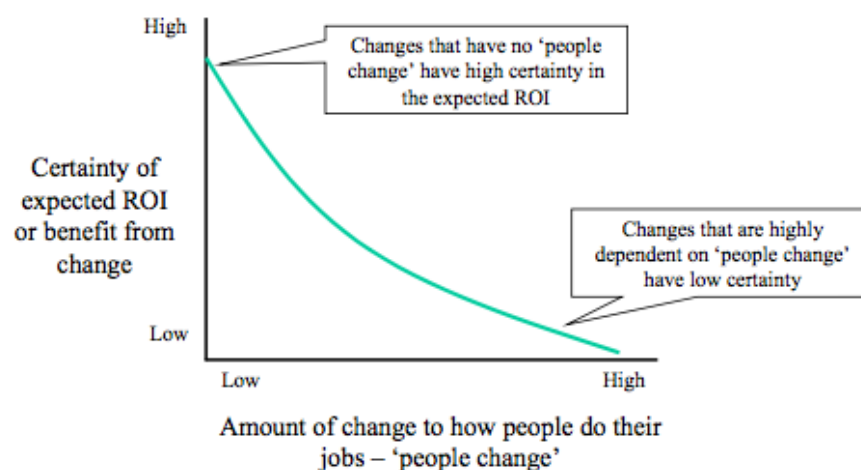


Figure 2: A graph of people change against expected ROI,

Source: PROSCI, 2016

The graph in figure 2 shows the two extreme cases of “no change to how people do their jobs” and “extraordinary change to how people to their job”. In PROSCI’s view, generally projects that fall on the right-hand side of the graph are less predictable, but such projects tend to be the types of changes that deliver the most value to the organization.

- iii. There are three human factors that create variations in project ROI. These three factors come from the analysis above, as well as an examination of the consequences of poorly managing change. They are:
- Speed of adoption - how quickly employees begin to use the new processes, systems etc. that the change brings;
 - Ultimate utilization - the participation rate of employees in the change and
 - Proficiency - how effective employees are in relation to the change.

In conclusion, PROSCI (2006) make the observation that the expected speed of adoption, ultimate utilization and proficiency contribute to the ROI that the project expects to realize.

Given, however, that effective change management enables projects to deliver on, or even exceed, these expectations and hence contributes directly to the ROI of the project, PROSCI (2006) further states that even if a project has a good solution and good project management, it is more likely to not meet its objectives if the people side of the change is not managed, thus the need for a good model of Change Management-Return On Investment.

2.4 Conclusion

2.4.1 Summary of major contributions of significant studies

On a broad scale, there is less literature on the concepts of VOI which makes it easier to identify Gartner as the source of this concept (Harris et. al., 2001). On the other hand, and as discussed previously, there is detailed and very elaborative literature available by experts in the financial sector concerning ROI. However, due to the imminent need of

organizations to sustain their businesses because they need to remain competitive, there is no doubt that studies such as those by Phelps, IBM group etc. which help to shift the focus from ROI to VOI will remain significant.

It is clear that the two measures are related/coupled and will indeed underpin the way that businesses thrive in the future. Given this, there is little doubt that there is a need to strengthen further this relationship/coupling. To that end, the need for analysing Change Management-Return On Investment will also remain high, irrespective of the kind of project one is considering. This is because, all projects are to be used by or applied to human beings and as such there will always be the issue of adoption by these humans - the actual adoption and usage of any project. The optimal adoption and usage by the people-side of projects help regain what could potentially be lost value of the project. Intangibles will remain significant as far as business performance is concerned.

Chapter 3

3.0 Research Methodology

3.1 Introduction

This chapter discusses the research methods used in this study including the research design, the setting, the population and the data collection instruments applied. It also discusses the ethical considerations in this study as well as the limitations of this research. A sequential mixed-method research approach was used combining both qualitative and quantitative methods. The researcher started with a qualitative approach and subsequently used the quantitative strategy to explore the factors that affect the adoption and usage of the ISO-IMS system in the port.

3.2 Research process

Drawing from Kothari (2004), the following research process was used to achieve the results of making a business case for change management.

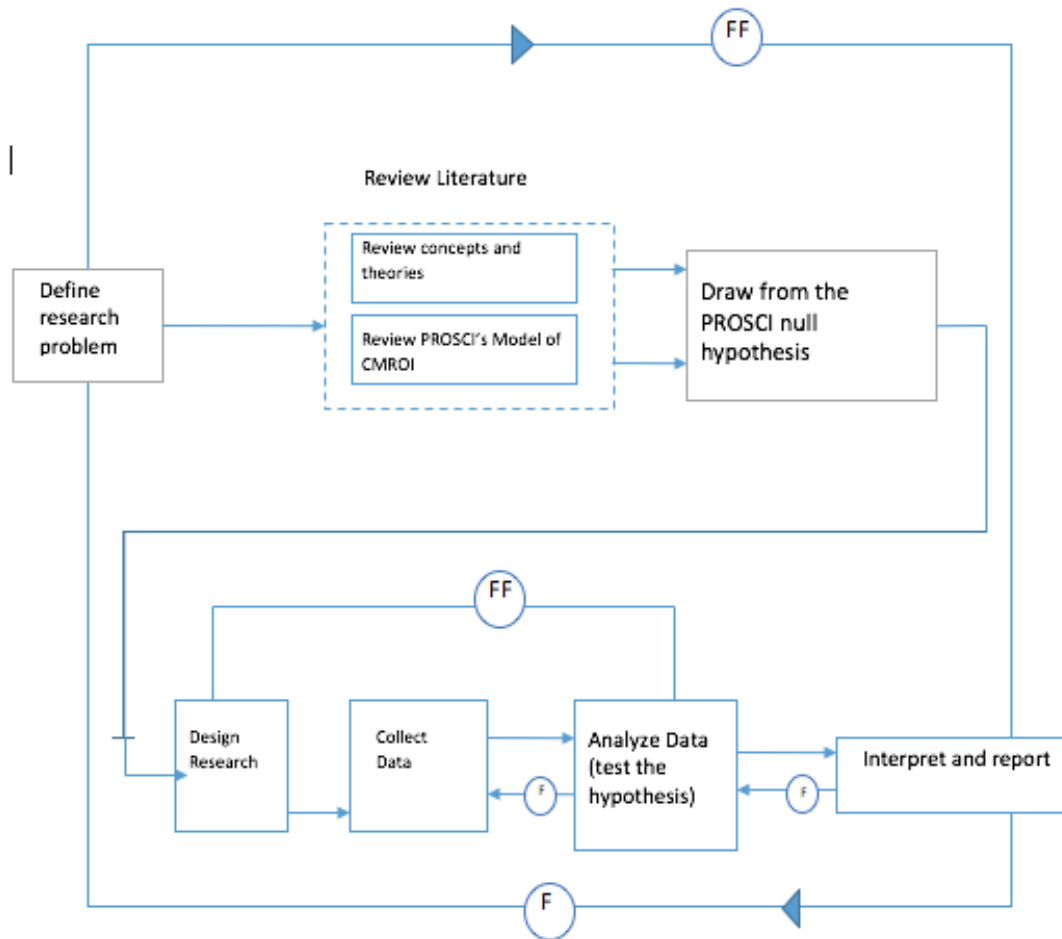


Figure 3: Process flow adopted,

Source: Kothari, 2004, p. 11

In figure 3, FF represents feed forward. This means that the preceding process becomes a check to the subsequent process and it serves the vital function of providing criteria for evaluation. F represents feedback; these reflect the case where the subsequent process becomes an input to the preceding process and thus helps in controlling the sub-system to which it is transmitted.

3.3 Hypotheses of the study

This study's hypothesis is built upon the conceptual framework in Chapter One. Given that a portion of the project benefit (value) is dependent on employee adoption and usage (A&U), null hypothesis for this work states that the value realized will be same as the value expected even if no one changes the way they work (PROSCI, 2014). For the null

hypothesis to be true there should be maximum adoption and usage even if no one changes the way they work at the port with the new ISO-IMS system in place and that there will be no variance between value realized and value expected. On the other hand, a true alternative hypothesis (falsifying the null hypothesis) proves that there is variance between value realized and value expected, because adoption and usage of this system is low. This latter outcome would mean that people will need to change the way they work with the new ISO-IMS system in place (increased adoption and usage) to reduce the variance between realized and expected values. For this to happen, there is the need to lead and manage this change in order to contribute to the overall project ROI, which gives rise to the captured value of the CMROI.

3.4 Research design and methods

According to de Vaus (2001), “research design” refers to the logical structure of an enquiry. He states that the function of research design is to ensure that the evidence obtained enables the researcher to answer the relevant question as unambiguously as possible. Based on this, the exploratory research design is used in this research. According to Kothari (2004), the main purpose of such studies is to formulate a problem for a more precise investigation or for developing the working hypothesis from an operational point of view. The major emphasis in such a study design is on the discovery of ideas and insights. Since a business case requires the developing of reasoning to convince decision makers, it was worthwhile to choose this design for this research. In order to satisfy the objectives of this work, a combination of quantitative and qualitative (mixed-methods) with explorative descriptive concept was adopted for this study, to first give room to ascertain from the project development team their expectations after implementing the ISO-IMS project, and further to check whether these expectations were met from the point of view of the users of the system. This approach helped to bring to light the variance between expected and realized values discussed in Chapter One of this study, which was the problem formulated in the beginning.

Additionally, it was imperative that the researcher use this design to help come up with some insights regarding the concept that managing the people side of change can actually

add value to the overall project ROI. This goes to say that, the independent variable in this research was the adoption and usage of the ISO-IMS, while the dependent variable was the project value realized. However, this research does not find the actual value realized but rather uses percentage of this value that is dependent on the adoption and usage with the remaining percentage amount being the one not dependent on adoption and usage. The combined percentages give us 100%, which is the total percentage value realized.

The objective of research, particularly applied research, is to academically interrogate and find a solution for a given problem. In view of this, the data available and the unknown aspects of the problem have to be related to each other to make a solution possible (Kothari, 2004, p. 7). During this research two methods were used to collect data so as to arrive at the required solution. The two methods were also applied to establish relationships between the data collected and the unknowns, and lastly to evaluate the accuracy of the results obtained. These two techniques are derived from the broader quantitative and qualitative methodological approaches. Tashakkori and Teddlie (2009) broadly define this kind of mixed-method approach as research in which the researcher collects and analyses data, integrates the findings and draws inferences by applying both qualitative and quantitative methods in a single study of enquiry. Some associated merits of the mixed methods approach according to Johnson and Onwuegbuzie (2004) are as follows:

- It can provide quantitative and qualitative research strengths
- The researcher can generate and test a grounded theory
- It can help answer a broader and more complete range of research questions because the researcher is not confined to a single method or approach.
- It gives room for one to use the strengths of an additional method to overcome the weaknesses in another method by using both in a research study.
- Applying both qualitative and quantitative research can produce more complete knowledge necessary to inform theory and practice

3.4.1 Quantitative research technique

In this study, quantitative data was transposed using the PROSCI CMROI calculator into numbers, specifically percentages, which were very objective and the result of a systematic process to obtain information and describe the relationship between variables. These variables showed the effect of A&U on the project objectives. Doing this, helped to give grounds to be able to test the prove the underlying principle of the PROSCI framework – examining what would be the effect if no one changed the way they worked after the implementation of this project. The research also sought to understand how A&U of the ISO-IMS would be affected by the environment itself. To answer this, a quantitative method was used to collect specific data, based on the PROSCI framework and the associated CMROI Calculator². The framework gives the format and procedure for analysing project benefits using the principle, while the CMROI calculator captures the respective inputs and, based on the principle, quantifies the A&U, as well as the CMROI indicating the overall captured project benefit. the researcher was able to determine what to expect - either a higher adoption and usage percentage or a lower one for the scenario analysis.

3.4.2 Qualitative research technique

Mehta (2013) states that qualitative research is used when a researcher attempts to understand a larger reality and does so by examining it in a holistic way or by examining components of that reality within their contextual setting. In this study the researcher applied this method to gain insight into the general project aim and company benefits from this project by the project team.

3.5 Research setting

The principle of maximization (Morse and Field, 1996) states that a location or setting of a research study should be where the topic of study manifests itself most strongly. On this

² Details of the PROSCI framework and CMROI Calculator are indicated in Appendix II

basis, the researcher chose the Tema Port of Ghana where he found the effect of this research to manifest strongly due to the fact that there are several new procedures, systems and technologies that have been introduced in the port over recent years. All these have come with new ways of doing the same work. Such projects are being deployed as a result of a major port expansion project and according to the GPHA's strategic direction, all these projects must be in line with the ultimate goal of making GPHA the preferred port in the sub-region. These projects may be said to have created a project bank for the Authority, which in the short to long-term needs to be managed to ensure each of these projects meet their respective set goals. Because these projects - like most projects - are highly dependent on how efficiently and diligently people change their ways of doing work and adopt the change, this setting was deemed to be the appropriate setting to conduct this study.

3.5.1 Population

The population for this research data collection was the entire Ghana Ports and Harbours Authority, Tema workforce.

3.5.2 Sampling

A sample consists of the cases, units or elements that will be examined and are selected from a defined research population, according to Boeije (2009), to reflect the population. Purposive sampling was done to arrive at two categories of participants for this research. One category was the project team of the ISO-IMS project and the second category was the Tema permanent staff of the GPHA both junior and senior staff respectively. The justification for such a sampling method was firstly, to get the quantitative data mentioned earlier and secondly the qualitative data from these two categories of participants. The main quantitative data was from the project team of the ISO-IMS project and this was used to test the hypothesis of the PROSCI framework and CMROI calculator. Some quantitative data was also obtained from the staff. The latter set of quantitative data helped determine the factors affecting adoption and usage of the ISO-IMS system and also to

ascertain which departments are affected most by this project. Qualitative data mainly was obtained from the project team regarding the aims and objectives of the project and the organizational benefits expected from the project. The questionnaires were sent to a sample of 800 staff members.

3.5.2.1 Recruitment and access

In order to recruit participants for the second category of this study, the researcher wrote formally to the GPHA's Headquarters Human Resource General Manager to request for a formal release of the permanent staff mailing list for the purposes of this study. Access was granted by the general manager from the IT department, and the mailing list was released. The list comprised of the various departments' permanent staff internal email accounts. The questionnaires were disseminated to the participants using this list.

To be an eligible respondent for the first category of participants, one had to have been part of the ISO-IMS project team. A formal request was also made to the General Manager of the Business Development Department (the project developers), to grant access to project specific data, in this case the project document information related to the objectives and expected aim of the project.

3.6 Data collection

Kothari (2004) states that the task of data collection starts after a research problem has been defined and research design has been laid out. In this study, in much the same way, this aspect of data collection was performed using an online form which users could access by scanning a QR code or clicking on a link created by the researcher and sent to their emails to access the questionnaires. On the other hand, the data from the project team had to be collected by mailing the relevant questions to the team for them to be responded to and then sent back to the researcher.

Most of the data collected for this study was primary data (as opposed to secondary data as discussed by Kothari, 2004, p. 95).

3.6.1 Data collection instruments

In general, there are various procedures or instruments of collecting data. In the mixed method research as used in this case, the instruments used mainly consist of closed and open-ended questionnaires. These different ways of gathering information can supplement each other and hence boost the validity and dependability of the data according to Zohrabi (2013). Ultimately the quantitative data was obtained through closed-ended questionnaires and the qualitative data through open-ended questionnaires. The items of the questionnaires were mainly developed based on the research objectives and research questions.

3.6.1.1 Questionnaires

Kothari (2004) states that a questionnaire consists of a number of questions printed or typed in a definite order on a form or set of forms. Normally respondents have to answer such questions on their own, since they are developed in such a way that they are easy to understand. The structure and means of dissemination of the questionnaires used for this study are briefly discussed below.

3.6.1.1.1 Structure of the questionnaires

In this study, the researcher chose to have structured questionnaires which are those questionnaires in which there are definite, concrete and pre-determined questions, and where the questions are presented with exactly the same wording and in the same order to all respondents. This standardization is to ensure that all respondents reply to the same set of questions (Kothari, 2004, p. 101). Due to the nature of the research employing both qualitative and quantitative methods, the first set of questionnaires had both open-ended and closed-ended forms of questions while the second set of questionnaires meant for the GPHA staff were in a closed-ended form. This approach was employed because it is simple to administer and inexpensive to analyse, while allowing for the collection of all

the data needed. Furthermore, the question sequence was such that it reduced the chances of them being misunderstood by respondents. It was designed such that the relation of one question to another was readily apparent to the respondent, with questions that are broader and easier to answer being put at the beginning and with increasing focus on the specifics of the project as the questions progressed.

3.7 Validity and reliability of the research instrument

Polit and Hungler (1993, p. 445), show that reliability is the degree of consistency with which an instrument measures the attribute it is designed to measure. The two questionnaires which were answered by both groups, showed consistency in responses. Reliability was ensured by minimizing sources of measurement error, like data collector bias (which was minimized by the researcher being the only one to administer the questionnaires) and standardizing conditions such as exhibiting similar personal attributes to all respondents, for example supporting respondents who had issues accessing the online forms.

According to Thatcher (2010), the validity of an instrument is the degree to which an instrument measures what it is intended to measure and performs as it is designed to perform. Content validity, according to him, refers to the extent to which an instrument represents the factors under study.

As asserted by Creswell (2014), in mixed method research, validity can be achieved by using this convergent approach, the qualitative part checking the quantitative and vice-versa. Furthermore, a close contact with the ISO-IMS project team allowed for consistently checking for clarification where there were doubts about what was actually happening in the research context.

3.8 Procedure

To be able to replicate this study by another researcher, the following outlines the specific steps taken in order to answer the research questions for this study. Each question was

logically aligned with the respective procedure of answering them. Below are the questions with their outlined steps of solving each.

Research question 1

What will be the percentage of the benefits gained if no one changed the way they work?

Steps followed

To begin, the overall benefit is split into two parts, namely 'Dependent on Adoption and Usage' and 'Independent of Adoption and Usage'. The following formula was applied to put this assumption in perspective.

$$\text{Project ROI} = \frac{\text{Expected Project Benefits} - \text{Project Cost}}{\text{Project Cost}}$$

However

$$\text{Expected Project Benefits} = \text{Independent of Adoption and Usage} + \text{Dependent on Adoption and Usage}$$

Based on the above, specific questions were asked as follows:

- i. What is the project trying to achieve in general?
- ii. How many benefits are expected to be achieved by the ISO-IMS project?
- iii. What are the expected benefits associated with the ISO-IMS project in order of importance?

This was the qualitative data was collected from the project team of the ISO-IMS project. From these questions the researcher was able to identify what the expected project value was according to the team.

After this the quantitative questions that was used based on the PROSCI process to assign specific values to these project benefits were asked, as follows:

- iv. How much does each individual benefit contribute to the overall project goal? For each benefit rate using a scale of 1 – 10.

This scale was provided in the framework as a way of quantifying the contribution of each project benefit to the main project goal. To investigate the people-side benefits contribution to these project objectives the following question was asked:

- v. How people-dependent are these benefits?

At this point the framework provides a scale of figures and percentages which are assigned to specific levels of contribution as either high, medium, low or all and none.

Where:

1. All implies all the benefits depend on adoption and usage of the change
2. High implies that not all, but most of the benefits depend on adoption and usage of the change
3. Medium implies roughly half of the benefits are dependent on adoption and usage of the change
4. Low implies a small percent of the benefits is dependent on adoption and usage of the change
5. None implies none of the benefits are dependent on adoption and usage of the change

With this data input, the framework calculates the percentage of benefits the researcher will get if no one changes the way they work.

Research question 2

How can we connect the people-side of change to the ultimate results, value, outcome and benefits of change?

Steps followed

In order to answer this part of the research question, there was the need to draw from the calculations and assumptions in question one above. Based on the question v in research question 1 above, we had shown the respective people side benefit contribution to each of the objectives. This is used based on the following formula to connect the people-side of change to the results of the change.

People side contribution to total benefit.

$$= \frac{\text{Expected Project Benefit}}{\text{(Business case baseline)}} - \frac{\text{Expected Project Benefit}}{\text{(If adoption and usage = 0)}}$$

The framework then helps to calculate the coefficient of the people-side benefits contribution of the project, which gives the percentage of the project that is tied to adoption and usage.

$$\text{People side benefit coefficient} = \frac{\text{People side contribution to total benefit}}{\text{Expected project benefits}}$$

A graph was developed with this percentage of adoption and usage to show how much was left of the project benefits that is not dependent on adoption and usage.

Research question 3

How can a quantification of people-side benefits be included/considered in CMROI determination?

Steps followed

Having found the people-side benefits contribution and the people-side benefit coefficient, the framework then helps to quantify the CMROI. It does so by subtracting the percentage of the portion of the project the researcher gets when no one changes the way they work; from the known percentage, the researcher gets if there is excellent change management. This gives us the gains over the scenario of “no change management”. The result is the figure the researcher calls the Change Management - Return On Investment or CMROI.

Research question 4

Which factors impact the Adoption and Usage (A&U) portion of the project?

Steps followed

The researcher used an online analysis tool called Netigate to collect the data. The resulting data was then analysed to determine and interpret the percentage to be used if there is no change management at all for this project. There are ten factors which were

divided into two sets of fives each reflecting each other. In each set, when one turns true the other is false and hence it helps to determine what causes the adoption and usage part of the project to either become low or high. A detailed analysis of this is outlined in Chapter 4.

Research question 5

Which part of the organization will be affected most by this project?

Steps followed

The researcher asked respondents to indicate whether they perceive their department as being affected most by the ISO-IMS project and by how much it has been affected. A closed-ended type of question was used.

3.9 Data processing and analysis

After the collection of data, this study employed the use of descriptive and scenario analysis, with the scenario analysis serving as a closing to the loop. A scenario is “a fuzzy concept that is used and misused, with various shades of meaning” (Mietzner and Reger, 2004, p. 50). According to Kosow and Gaßner (2008), it is a description of a possible future situation, with paths of development which may lead to this future situation. The researcher used this thinking and the framework to find out what possible effects would be evident when different inputs are entered into this calculator. After that the CMROI calculator was used to conduct the scenario-based analysis. To illustrate the increase in project benefits resulting from different change management scenarios, there were three main scenarios that were run, based on the PROSCI framework and these are:

- With a “no change management” scenario
- With a “minimal change management” scenario
- With a “comprehensive change management” scenario

In order to carry out such an analysis, the researcher made use of the factors affecting possible adoption and usage percentages that were generated based on the data collected from the respondents and built different scenarios with them using the CMROI calculator. This gives us the ability to enter specific variables - which are “expected adoption and

usage (with no change management)", "expected adoption and usage" and "cost of change management" - and to map these onto the three aforementioned scenarios.

3.10 Ethical considerations

Because certain specific project data required was deemed sensitive, it was required that the researcher took into account all the needed precautions in accessing them. Furthermore, since this research is one that deals with human beings responding to certain issues relating to the way they do their job, it was also necessary that issues relating to consent, confidentiality and privacy were addressed appropriately. These are further discussed below.

3.10.1 Consent

Permission to conduct the study was sought from and granted by the Human Resource General Manager of the GPHA together with permission to access and use the mailing list of all staff. Additionally, the researcher gave all respondents the consent form (see Appendix I) that came with the questionnaires/forms to be filled. Thus, the researcher ensured all responses from the respondents were voluntary and that this was understood as such by the respondents. Respondents were also fully informed concerning the objectives of the study

3.10.2 Confidentiality and anonymity

To ensure confidentiality of responses, the researcher excluded from data collection instruments, questions requiring the names of respondents. Furthermore, the researcher made it possible for respondents to answer the questions in the comfort and privacy of their homes where no one will know how they chose to respond to the questions. Additionally, after submission of the forms, respondents were not allowed to resubmit to ensure the validity of the given answers. No results were tied to a user, further ensuring anonymity. Underlying all of this was the assurance given to respondents all answers were

treated as confidential and used only for academic purposes and the purposes of this particular research.

3.11 Research limitations

There were responses to the research instruments from 87 people (86 individuals and the project team). This was deemed appropriate for the study. In spite of this, there are some limitations to this research.

The first of these is that the amount/scope of data collected (as a result of the specific context of this work – a time-limited MSc dissertation) did not allow for a detailed sensitivity analysis to determine which department was most affected by the ISO-IMS project (in answer to research question 5). Future research could explore this in more detail.

Another limitation to the study is the fact that the assignment of level of adoption and usage contribution by the project team could be biased due to individual subjective perceptions. This could be a source of error that can affect the results of the study. To reduce this error, there were further consultations with the project team leader to verify these figures given.

A third limitation could be from the fact that, as pointed out early, there is an assumption in this work and in the conceptual framework that the technical side (contributing to benefits independent of adoption and usage) was delivered without any significant errors. This could affect the results of the contribution of the benefits dependent on adoption and usage portion.

Since this research was an exploratory snapshot of the whole case, it presents a cross-sectional view of the research. An important crucial element of change uptake (Adoption and Usage) is significantly related to time but this research does not cover that. As a result, the full picture of the situation cannot be achieved.

Chapter 4

4.0 Results and Data Analysis

4.1 Introduction

This chapter is focused on the results and findings as well as the data analysis from both questionnaires that had been distributed to the two categories of respondents - the ISO-IMS team and the general staff. The data was analysed to identify, describe and explore the relationship between employee adoption and usage and overall project benefits of the ISO-IMS project in GPHA and to determine the need for a change management activity in this regard. Data will be presented in this chapter in this order: first descriptive analysis followed by the presentation of the results based on the research questions and then the scenario analysis to help strengthen the case to be made for change management.

4.2 Methods of data analysis and presentation of data

The researcher employed Netigate software to get the results of the survey and to carry out the descriptive analysis of the data. The scenario analysis was done using the CMROI calculator. This gives rise to two phases in analysing the data using these two approaches. The results are presented in graphical form with text explanations, with the view of making a case for change management investment.

4.3 Descriptive analysis

4.3.1 Demographics

Here the discussion is centred on the environment or the background of the respondents of the research. The sample size was analysed together with the departments which were

involved as well as the background of the persons who gave responses in terms of their designation and years of experience in the organization.

4.3.1.1 Sample size

There were 86 respondents who constituted the second category of participants of this research while there was only 1 response from the project team. There was only one response from the project team because they answered as a team. The whole team is comprised of 40 members who all had input into the 1 response received.

4.3.1.2 Frequency and percentages of demographic variables

4.3.1.2.1 Departments

There were 15 departments which were approached as respondents. There were no respondents from 4 departments out of this number, namely the Procurement, Legal, Materials and Medical departments. Accordingly, there were 11 departments whose responses contributed to the 86 responses that gave the distribution as shown below in the figure 4.

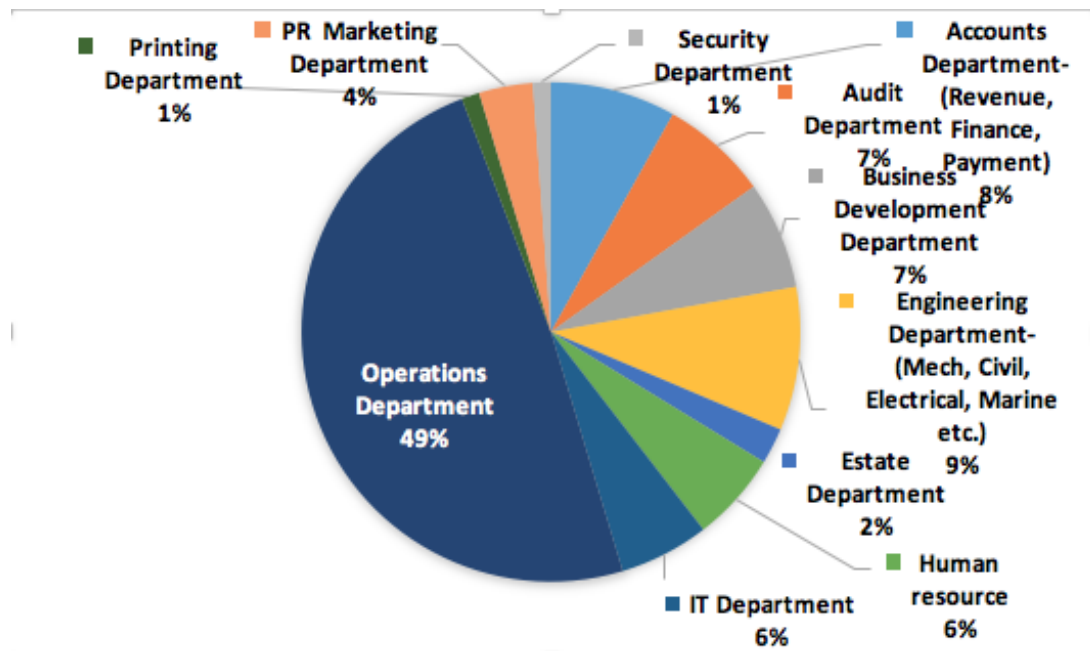


Figure 4: Departmental distribution

The department with the highest contribution to this study was the Operations Department with 49% of the 86 respondents. It is probably the case that this department is the one most affected by the ISO-IMS project since they are involved in the main processes which constitute the ports responsibilities. They are followed by the Engineering Department which is made of four main sections (i.e. Mechanical, Electrical, Marine and Civil)

4.3.1.2.2 Designation of respondents

The persons who responded to the questions were distributed according to their various designations within the organization. The distribution according to designation, indicating the share of each level of respondents' contribution to the research is indicated in figure 5.

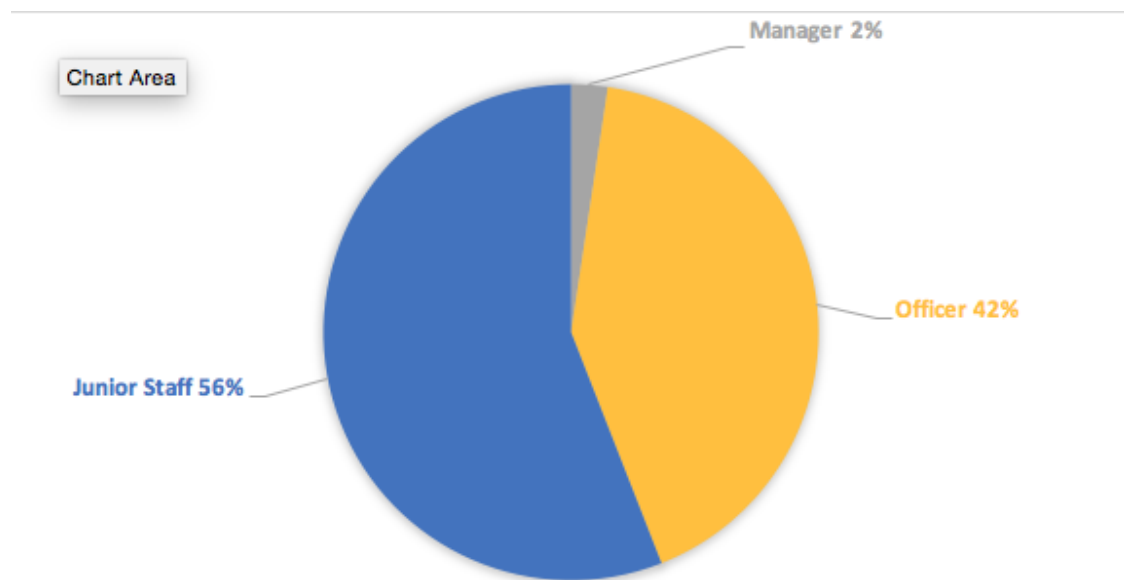


Figure 5: Respondents designation

Inferring from the pie chart above, majority of the staff who contributed to this research were the junior staff and senior staff. Since, these persons constitute the process users³ of the ISO-IMS system, it was deemed that they were an authentic source to get reliable and valid data regarding their views on the factors that affect adoption and usage of the system.

³ In the ISO-IMS system, the process owners are also the process users.

4.3.1.2.3 Years of experience

After knowing the designation, it was imperative that one considers the background that informed the specific answers given by the respondents. The working experience was therefore deemed to be of importance to help authenticate the data. Figure 6 shows the distribution of the years of experience of the respondents.

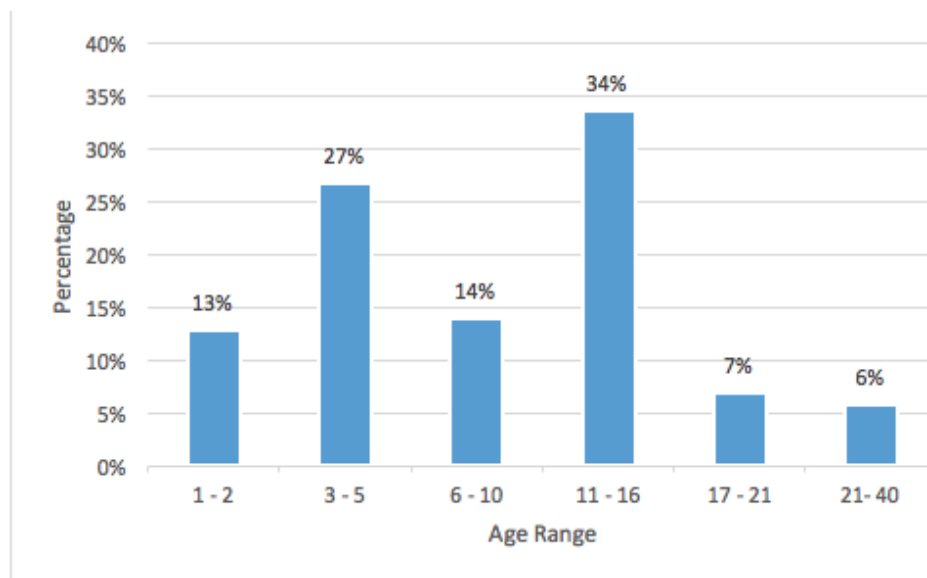


Figure 6: Number of years of experience of respondent

It can be concluded from figure 6 that participants have extensive work experience at the port from 1 year to 31 years. With the majority of the respondents having 11-16 years of experience which was 34% of the total of 86 respondents, followed by those with 3-5 years of experience having 27%. There were 6% of the respondents who have working experience between 21-40 years.

4.4 Presentation of results and findings

The findings and the results of the data collected during this research are presented according to the research questions below. This gives a logical and systematic order that helps analyse the results of this study.

4.4.1 Research Questions

- I. What will be the percentage of the benefits gained if no one changed the way they work?

As indicated in Chapter 3, for research question 1 there were three qualitative sub-questions. To answer research question 1 and to undertake a proper analysis these three sub-questions were combined with other questions giving rise to table 1 below.

Table 1: Project objectives with their respective change adoption contribution dependencies⁴

Objectives	Relevant contribution (1-10)⁴	Change adoption and usage dependency	%⁴
Focus organization on business goals.	9	Medium	50%
Avoid duplication and gain cost savings.	9	All	0%
Reduce risks.	10	All	0%
Expose conflicting objectives.	8	Medium	50%
Harmonize and optimize practices.	9	High	18%
Improve efficiency which leads to customer satisfaction	10	High	18%
Identify need for and facilitate staff training and development	8	Low	83%
Improve internal and external communication.	8	Low	83%
Identify and rationalize conflicting responsibilities and relationships to gain a structured balance of authority/power.	10	Medium	50%
Create a formalization of informal systems.	9	Medium	50%

⁴ The CMROI Calculator reverses the value of the percentage vis-a-vis the nominal contribution. This is counter-intuitive, but the approach is “hard-coded” in the calculator and thus could not be changed by the researcher. This means that a value of 0% actually means that the contribution in keeping with a nominal value of 10 is 100%. Please see Appendix II for a detailed explanation.

From table 1, the researcher deduces that there are 10 project objectives and these were rated by their relevant contributions to the overall project goal and also by the level of change adoption and usage dependency.

According to the scale, an objectives' percentage is given as a result of the how much of it being dependent on A&U of that benefit. For the first objective, it can be said that the dependency on adoption and usage of that objective was 50%, meaning that roughly half of the benefits are dependent on adoption and usage. It is noteworthy that the recommended PROSCI scale range given for that percentage was 35% – 65% and the default, which is the median is 50%. Below is the scale range that constitutes the respective percentage adoption and usage levels.

Table 2: Percentage range of change adoption and usage contribution

Change adoption and usage dependency level	% range
All	0%
High	1 % - 35%
Medium	35% - 65%
Low	65% - 100%
None	100%

Source: PROSCI, 2016

After the input of these specific data into the calculator and based on these scales, the result of the calculation is presented in graph 4 below.

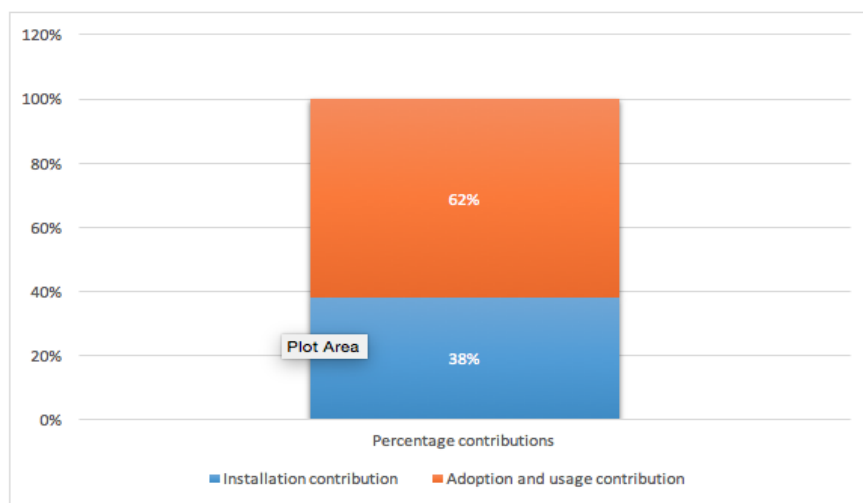


Figure 7: Percentage contributions

Installation contribution - is the percentage contribution to the total project of variables that are NOT dependent on employee Adoption and Usage

Adoption and Usage Contribution - is the percentage contribution to the total project contribution of variables dependent on employees adopting the change (and which is affected by change management).

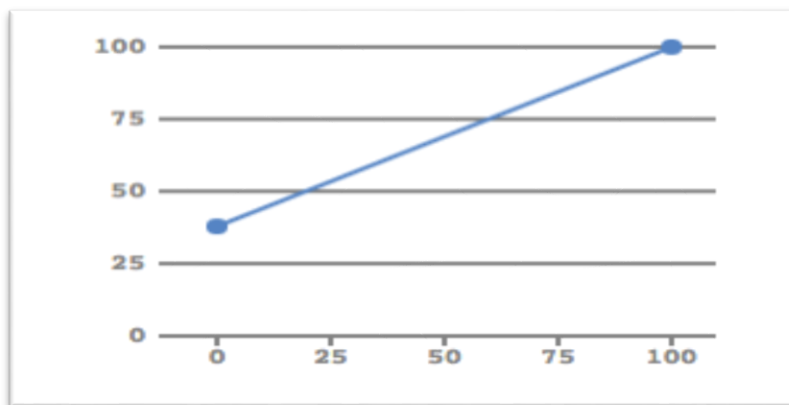


Figure 8: A graph of adoption contribution against project benefits,

Source: PROSCI-CMROI calculator, 2016

Interpretation of graphs

Figure 7 above shows that adoption contribution to the overall project benefits is **62%**. This means that, based on the CMROI calculator, the ISO-IMS project in Tema Port of Ghana has 62% of its totality of benefits depending on employee adoption and usage of the system. It also means that this is the value that can be captured with appropriate change management.

However, with no change management, Figure 9 is a snapshot from the calculator showing this scenario yielding 53% of project benefits captured.

Scenario Analysis: With no change management

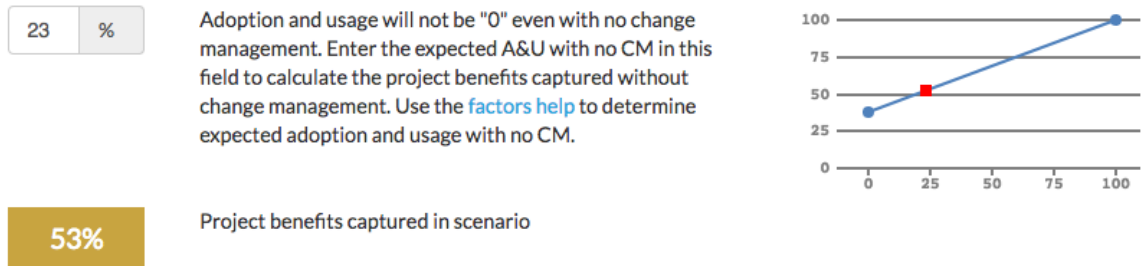


Figure 9: Adoption and usage percentage with project benefits captured,

Source: CMROI Calculator, PROSCI, 2016

Figure 9 also indicates that the remaining 47% of the project is not captured because no one changed the way they worked. In other words, without change management it is not possible to realize the full benefit from the project.

- II. How can we connect the people-side of change to the ultimate results, value, outcome and benefits of change?

The effectiveness of the ISO-IMS project, due to its nature and the fact that it requires very minimal technical aspects as compared to a highly technical IT project like installing a new network hardware system (which has very little to do with people changing the way they work), is highly dependent on how people adopt the change it brings. Therefore, the higher percentage of adoption and usage was expected.

- III. How can a quantification of people-side benefits be included/considered in the CMROI determination?

To present the results for this question, the researcher had to run the different scenarios from “no change management” to excellent or “comprehensive change management” to arrive at the CMROI. Figure 10 shows a screenshot of the calculator indicating the results obtained for a single scenario. This gives the relationship between CMROI and the people side benefit of the ISO-IMS project.

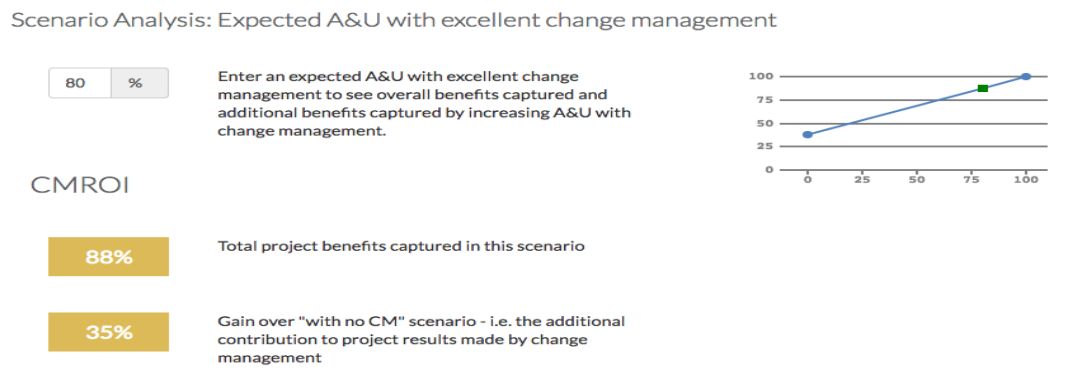


Figure 10: Screen shot of scenario of comprehensive change management,

Source: CMROI Calculator PROSCI, 2016

Interpretation of figure.

With an excellent or comprehensive change management for the ISO-IMS project, the total project benefits captured rises from 53% to 88%. This is with the view that the “no change management” scenario had an adoption and usage percentage of 23% while excellent/comprehensive change management adoption and usage is 80%. This gives us a difference of 35% showing the gain over the “no change management” scenario, hence the additional value added to the project as a result of change management being embarked on. With reference to the literature review, it was concluded that the variance caused was the result of the human-related variables which in this case is the employee adoption and usage of the project.

IV. Which factors impact the Adoption and Usage (A&U) portion of the project?

In order to present the results that help to answer this question of the research, the researcher needed to consider the factors given by the PROSCI framework. These factors are Boolean factors (meaning the outcome of one can take on only true or false, and the true/false outcome of one renders the opposite value for the other factor in the pair). This nature of the factors allows for using specific values either high or low to be put in the scenario of ‘no change management’. Below are these factors and how they are analysed to give results.

Table 3: Factors affecting adoption and usage

Expectation of Higher A&U with no CM	Expectation of Lower A&U with no CM
If people have spare change capacity	If people are at change capacity, experiencing saturation
If this is a first pass at an exciting initiative	If this is an attempt to "do over" a failed change
If the change replaces a system people bemoan	If the change replaces a beloved system
If this change is not that much of a departure from what people know	If this change is a large departure from what people know
If the culture is adoptive of change	If the culture is resistant to change

Source: PROSCI, 2016

For each of these factors in Table 3, specific questions were raised in order to have either a true or false response from the participants. The findings and subsequent analysis is indicated below.

Factor 1: If people are at change capacity, experiencing saturation or have spare change capacity

a) To find out how much change capacity is actually available in GPHA, the following issues were focused on:

- A. How the culture supports change?
- B. The history of change in the organization
- C. The availability of structures that support change
- D. The appreciation of the people of the need for the change

b) To find out how much change is happening?

Figures 11 to 18 show the questions asked to gain data in respect of these issues and the results from the 86 respondents.

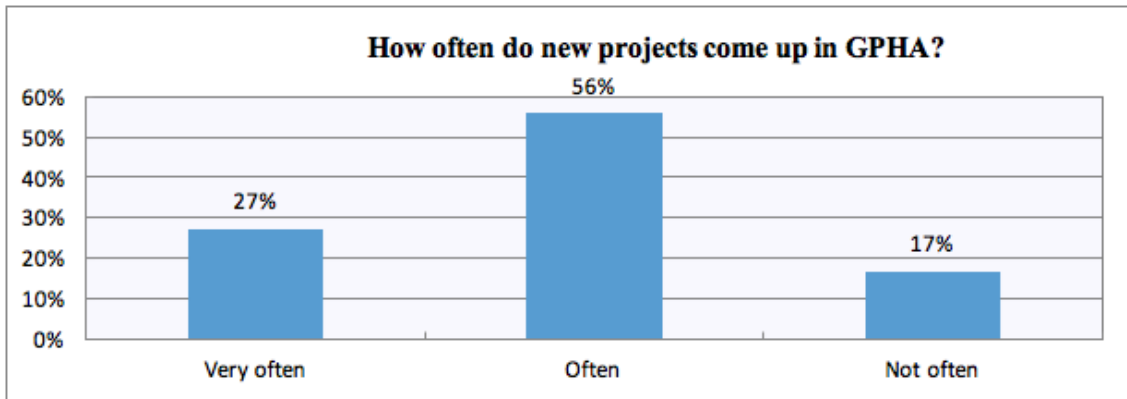


Figure 11: A graph showing responses concerning how often projects are undertaken in GPHA

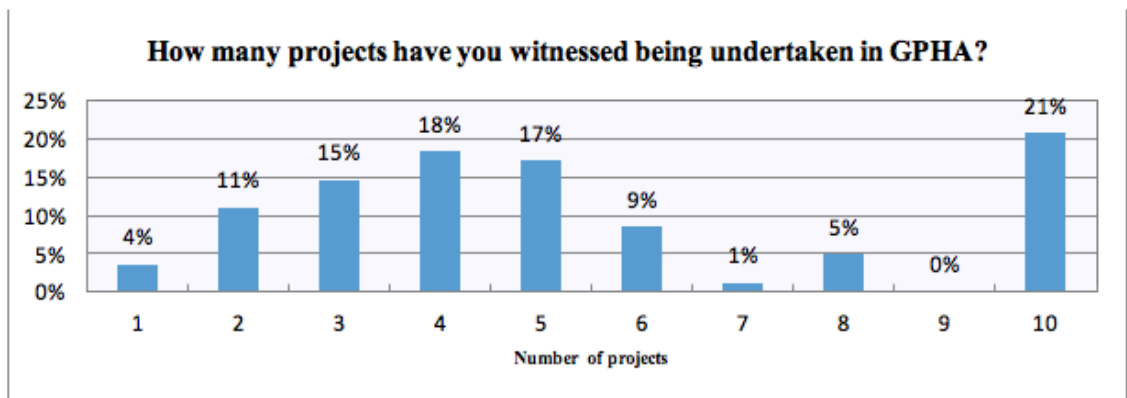


Figure 12: A graph showing responses concerning history of projects in GPHA

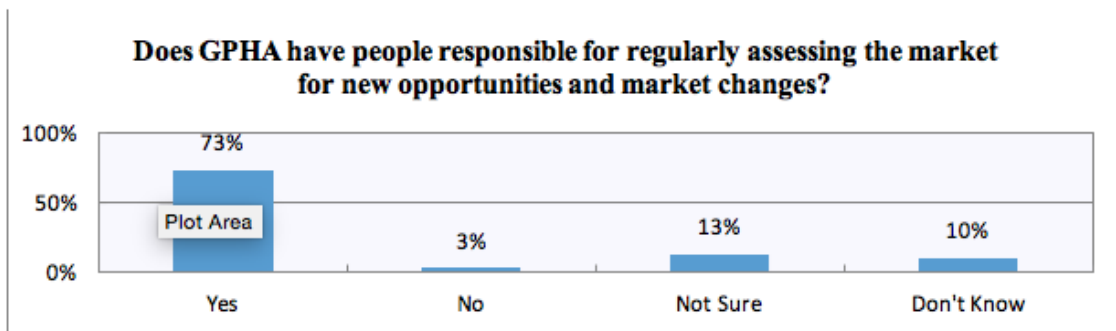


Figure 13: A graph showing responses concerning structures in terms of personnel availability for change in GPHA

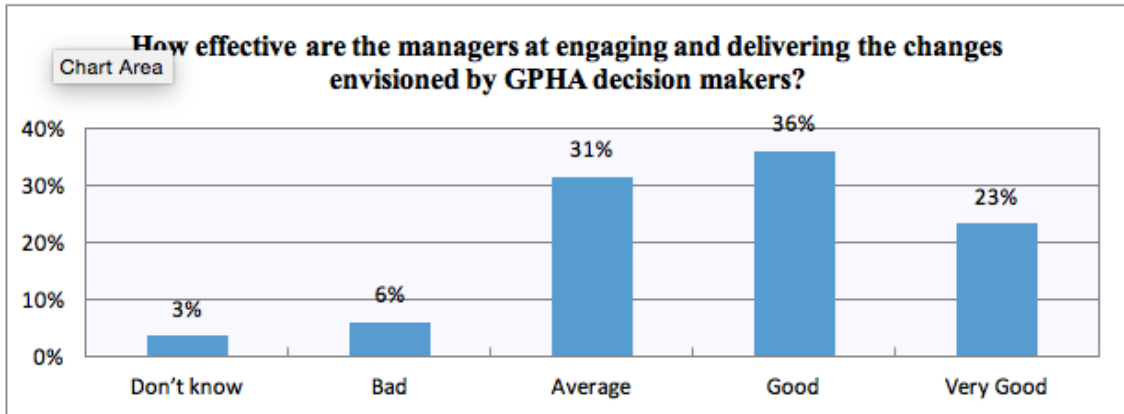


Figure 14: A graph showing responds concerning structure in terms of personnel effectiveness for change in GPHA

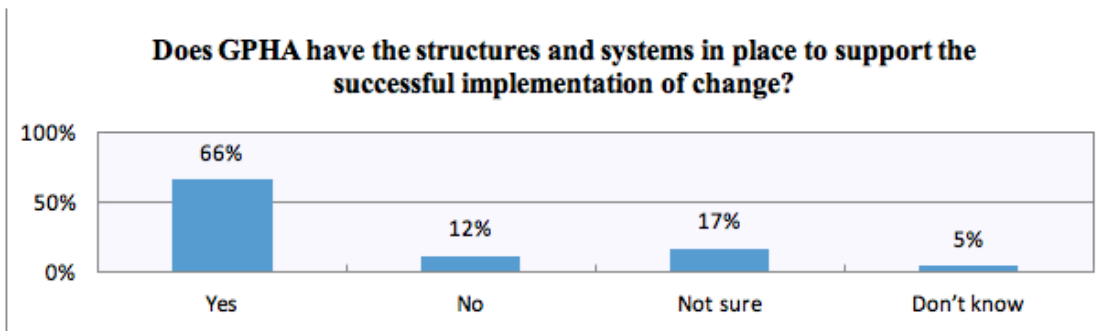


Figure 15: A graph showing responds concerning infrastructure for change in GPHA

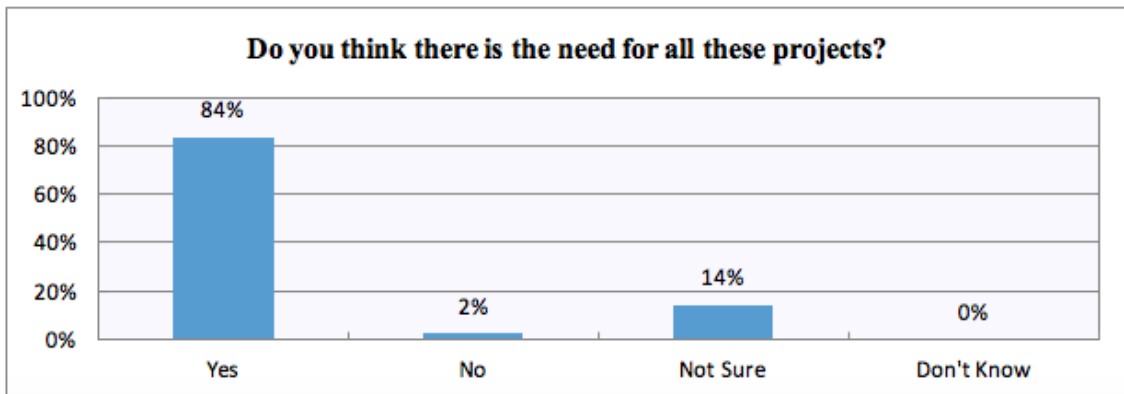


Figure 16: A graph showing responds concerning the perception of change in GPHA

Frequency of changes happening (How much change is happening)

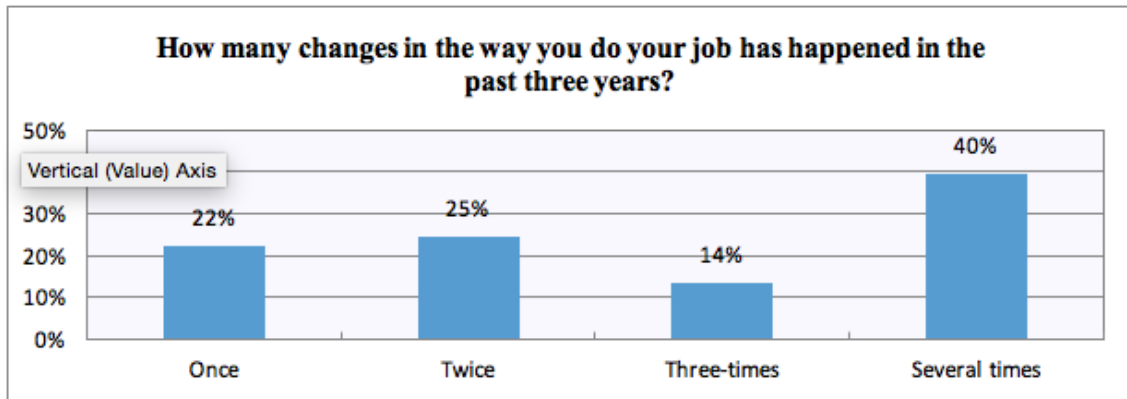


Figure 17: A graph showing the number of times changes happened in the last 3 years

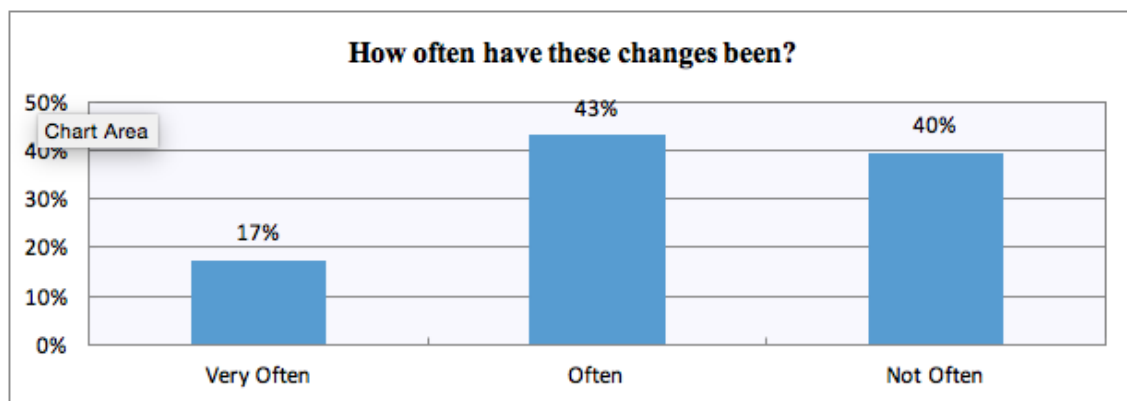


Figure 18: A graph showing the frequency of these changes within the 3 years

Interpretation of the graphs

From the graph 17 and 18 above it can be seen that to determine how much change capacity is available in GPHA and how much change is happening, there are 8 questions which helps to get the view of the general staff about these generic matters. The researcher realized that regarding the approaches taken in respect of project starting in GPHA as shown in figure 11, there are often new projects that come up but based on the history of past projects in figure 12, it can be seen there has been a maximum of 10 projects that have been seen over the years of experience of these respondents. This shows that there seems to be many changes that come in GPHA; this is confirmed by the fact that there have been several times that jobs/tasks/activities have changed due to projects as seen in

figures 17 and 18. It can also be seen that even though there are projects being carried out, the structures in GPHA are perceived to be well suited to undertake these changes, as can be seen in the answers given in figure 15. 73% of the respondents said “yes” to the question about the existence of persons who check for changes in the market while 36% was the highest for how effective the managers in GPHA are in executing change as shown in figure 14. In figure 15, 66% of respondents confirmed that there are structures available for supporting the changes that happen in GPHA. All this together indicates that there is good change awareness in the port. Additionally, it is perceived that there are good support mechanisms available to undertake the changes that come, supported by the agile nature of the managers who deliver these changes as envisioned by decision makers of the port. In the same positive vein, the perception of the general staff as shown in figure 16 (84% responding “yes”), is that there is a need for all these projects. This suggests that, in general, the port employees are aware of the fact that there is a need for change. Putting all this together one can realize that there is spare capacity for change in GPHA, hence it is reasonable to expect a higher adoption and usage percentage for the ISO-IMS project than would be the case otherwise. However, considering the other factors discussed in this work, it appears this is not always the case.

Factor 2: If this is an attempt to "do over" a failed change

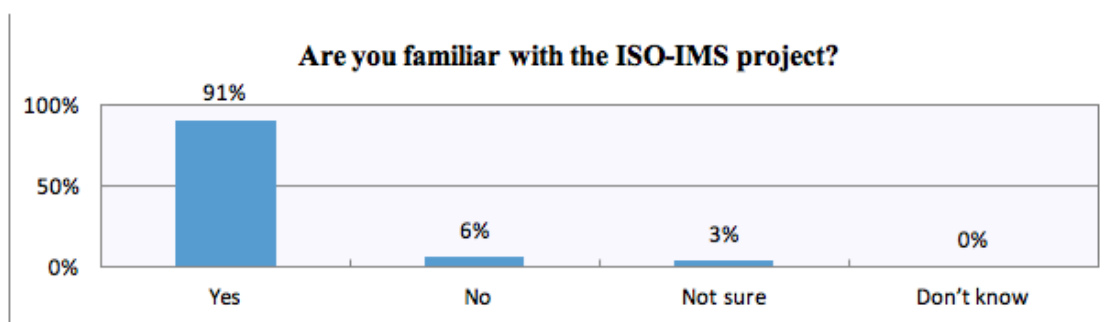


Figure 19: A graph showing change awareness in GPHA

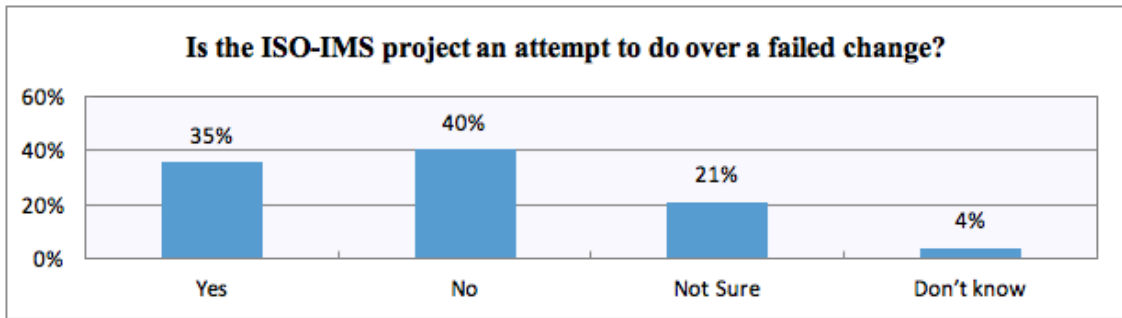


Figure 20: A graph showing response to reasoning for ISO-IMS project

Interpretation of graph.

From the response graphs in figures 19 and 20, it can be seen that the staff are aware of the ISO-IMS project. But in figure 20, 35% answered “yes”, while 21% answered “not sure” with 4% answering “don’t know”. This indicates that 60% of the respondents have views contrary to the 40% that answered “No” meaning that indeed this project may be an attempt to do a failed change. This shows that this factor turns true therefore making its counterpart in the pair, false. It can, therefore, not be concluded that it is a first pass at an exciting initiative.

Factor 3: If the change replaces a beloved system

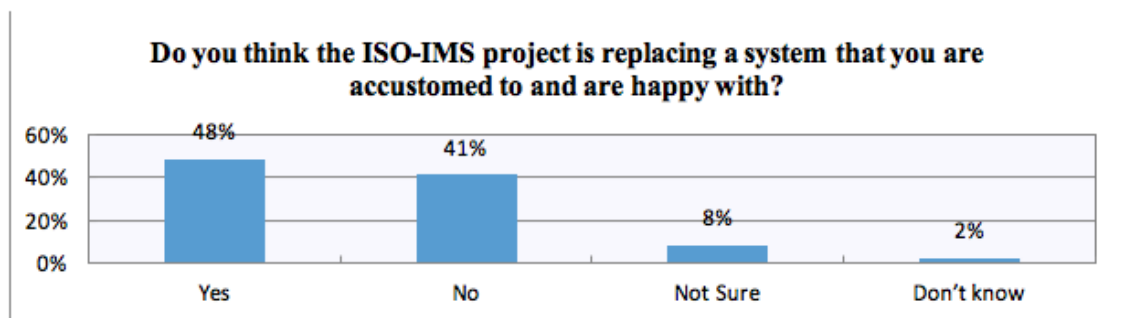


Figure 21: A graph showing response to if the ISO-IMS replaces an existing system in GPHA

When it came to this Figure 22, the tables turned here as it can be seen that the staff of GPHA consider that the ISO-IMS is replacing a system which they are accustomed to and hence it renders this factor true making the opposite false. With this in view the researcher realized that even though the staff of GPHA are aware of the system, in their view it is replacing an old system which they do not want to change from.

Factor 4: If this change is a large departure from what people know

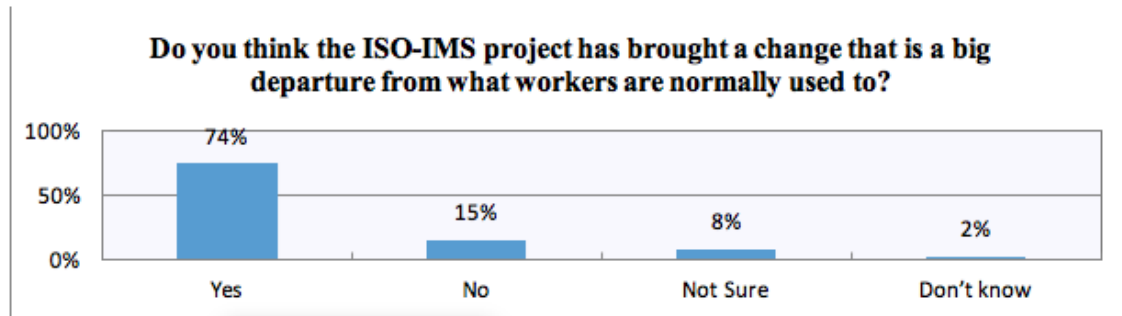


Figure 22: A graph showing response to departure of change brought by the ISO-IMS

In figure 23, the research also shows that 74% of the respondents consider that the ISO-IMS project has brought a change which is a large departure from what they are normally used to. Therefore, this also renders this factor true and makes the opposite false.

Factor 5: If the culture is resistant to change

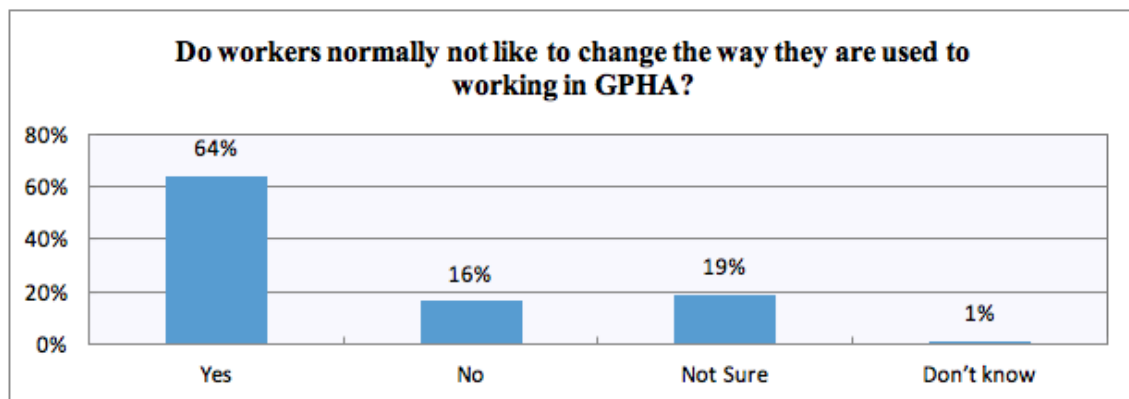


Figure 23: A graph showing response to whether there is resistance to change in GPHA

From the graph in figure 23, it can be seen that 64% of the respondents have the perception that the culture in GPHA is that of resistance to change, since workers normally don't want to change the way they are used to working.

Putting all the foregoing graphs together it can be concluded that, there are four factors that may be evaluated to be true for the low adoption and usage with no change management while there are only two factors that may be evaluated to be true for the high

adoption and usage percentage with no change management. Since the lower factors exceed the higher ones it can be said that one should expect to have a lower adoption and usage percentage from GPHA staff for the ISO-IMS project, even though a high percentage (62%) of the projects' success depends on adoption and usage. The lower factors resulting to true informs the range of figures from which the researcher can choose the specific value for the “no change management” scenario. Figures between 0% - 45% are considered as low adoption and usage percentages, and so by finding the medians the researcher arrives at **23%** as the lowest value for adoption and usage with no change management.

V. Which part of the organization will be affected most by this project?

In order to answer this question, there was the need to filter the data collected based on the department and using the questions below to identify which department had the highest responses regarding this. As indicated in the discussion regarding the limitations of this work, this portion of the research will yield more informed results if a sensitivity analysis is used. For the constraints indicated earlier, the scope was limited to what has been described in this work. Future research in this area should consider such a detailed sensitivity analysis.

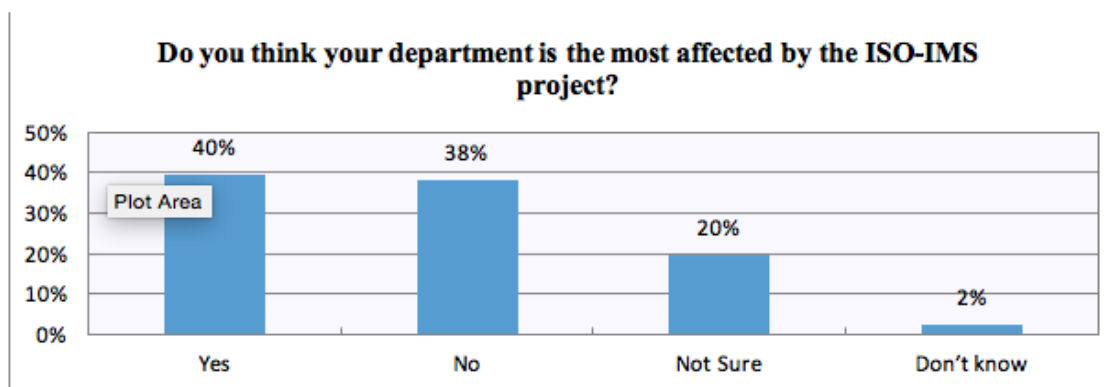


Figure 24: A graph showing respondents department being affected by ISO-IMS

5 See Appendix II for detailed explanation on how the CMROI calculator comes up with the default figures which are median.

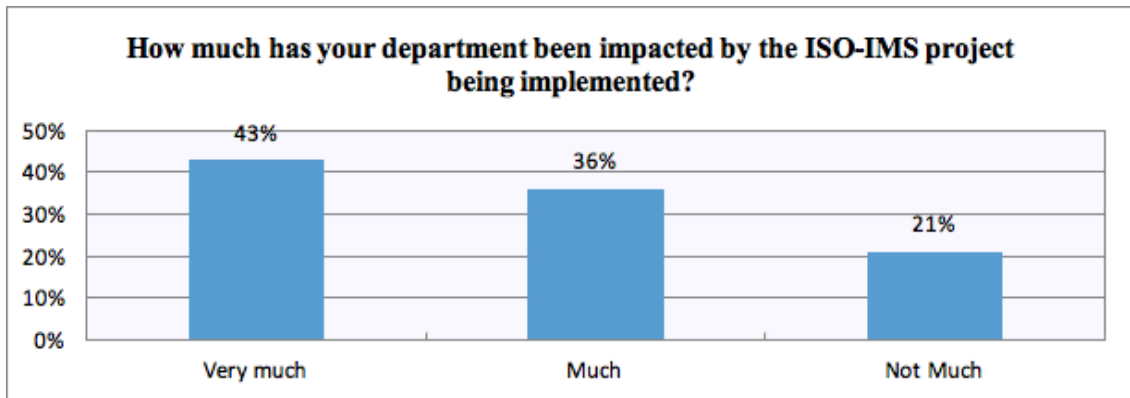


Figure 25: A graph showing the quantum of effect

Looking at the two graphs above, it seems that almost all the 11 departments have the perception that they are affected by this project very much. However, when the data is filtered based on departments, the finding is that the departments affected most are the Operations, Business Development, Engineering, Estate, IT, and Printing departments as shown in figures 26 and 27.

19. Do you think your department is the most affected by the ISO-IMS project?

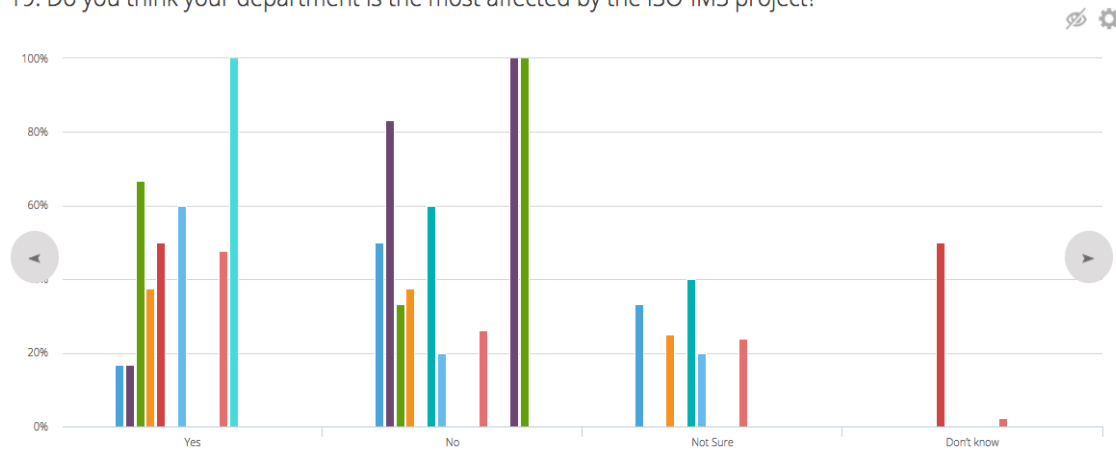


Figure 26: A screen shot showing the filtering of question in graph 18 above by departments

Source: Netigate Analysis Software, 2017

	Accounts De	Audit Depar	Business De	Engineering	Estate Depa	Human resou	IT Departme	Legal Depar	Materials D	Medical Dep
1 Yes	1 (16.67 %)	1 (16.67 %)	4 (66.67 %)	3 (37.5 %)	1 (50 %)	0 (0 %)	3 (60 %)	0 (0 %)	0 (0 %)	0 (0 %)
2 No	3 (50 %)	5 (83.33 %)	2 (33.33 %)	3 (37.5 %)	0 (0 %)	3 (60 %)	1 (20 %)	0 (0 %)	0 (0 %)	0 (0 %)
3 Not Sure	2 (33.33 %)	0 (0 %)	0 (0 %)	2 (25 %)	0 (0 %)	2 (40 %)	1 (20 %)	0 (0 %)	0 (0 %)	0 (0 %)
4 Don't know	0 (0 %)	0 (0 %)	0 (0 %)	0 (0 %)	1 (50 %)	0 (0 %)	0 (0 %)	0 (0 %)	0 (0 %)	0 (0 %)
Responses	6	6	6	8	2	5	5	0	0	0

	Operations	Printing De	Procurement	PR Marketi	Security De
1 Yes	20 (47.62 %)	1 (100 %)	0 (0 %)	0 (0 %)	0 (0 %)
2 No	11 (26.19 %)	0 (0 %)	0 (0 %)	3 (100 %)	1 (100 %)
3 Not Sure	10 (23.81 %)	0 (0 %)	0 (0 %)	0 (0 %)	0 (0 %)
4 Don't know	1 (2.38 %)	0 (0 %)	0 (0 %)	0 (0 %)	0 (0 %)
Responses	42	1	0	3	1

Figure 27: A screen shot showing the filtering of question in graph 18 above by department,

Source: Netigate Analysis Software, 2017

From figures 26 and 27, it was found that 8 departments said “yes” to this question. The highest number of responses was obtained from 6 of them with 2 being lower in response numbers. However, in order to advance this, the researcher needed the next question to confirm how much these departments are being impacted by this project. This would give a clearer picture as to how many departments are affected the most. Below is the filter of the second question.

20. How much has your department been impacted by the ISO-IMS project being implemented?

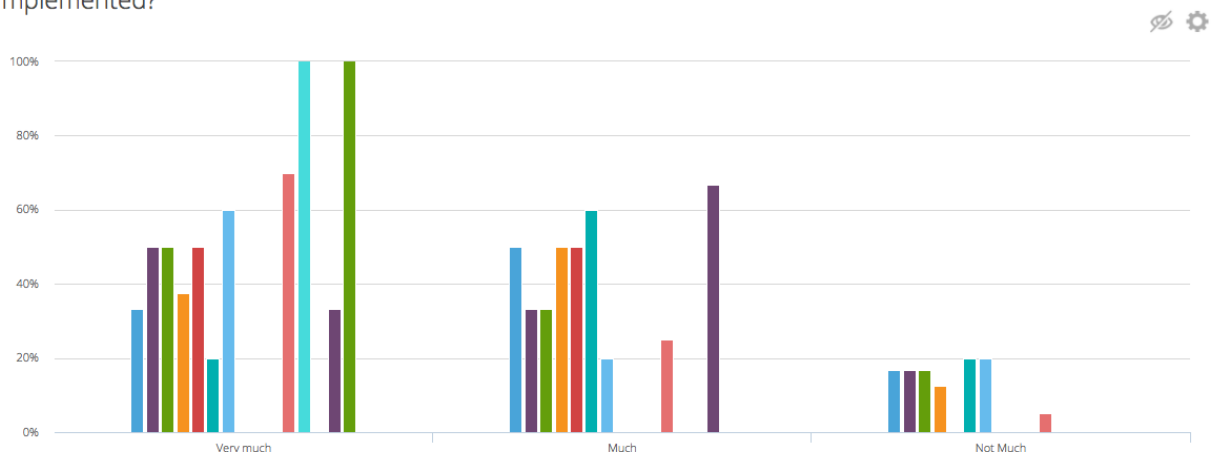


Figure 28: A screen shot showing the filtering of question in graph 19 above by department,

Source: Netigate Analysis Software, 2017

	Accounts De	Audit Depar	Business De	Engineering	Estate Depa	Human resou	IT Departme	Legal Depar	Materials D	Medical Dep
1 Very much	2 (33.33 %)	3 (50 %)	3 (50 %)	3 (37.5 %)	1 (50 %)	1 (20 %)	3 (60 %)	0 (0 %)	0 (0 %)	0 (0 %)
2 Much	3 (50 %)	2 (33.33 %)	2 (33.33 %)	4 (50 %)	1 (50 %)	3 (60 %)	1 (20 %)	0 (0 %)	0 (0 %)	0 (0 %)
3 Not Much	1 (16.67 %)	1 (16.67 %)	1 (16.67 %)	1 (12.5 %)	0 (0 %)	1 (20 %)	1 (20 %)	0 (0 %)	0 (0 %)	0 (0 %)
Responses	6	6	6	8	2	5	5	0	0	0

	Operations	Printing De	Procurement	PR Market	Security De
1 Very much	14 (70 %)	1 (100 %)	0 (0 %)	1 (33.33 %)	1 (100 %)
2 Much	5 (25 %)	0 (0 %)	0 (0 %)	2 (66.67 %)	0 (0 %)
3 Not Much	1 (5 %)	0 (0 %)	0 (0 %)	0 (0 %)	0 (0 %)
Responses	20	1	0	3	1

Figure 29: Percentage distribution of response in figure 7 by departments,

Source: Netigate Analysis software, 2017

Considering the outcomes indicated in figures 28 and 29, the conclusion can be reached that, there are in all 11 departments which are affected “very much” by this project. If the researcher juxtaposes this with the previous results, a different conclusion is reached, that the actual number of departments that are most affected must be ones whose response in this match their earlier response. Hence, it was determined that the 5 departments which are most affected as far as this project is concerned are the Operations, Estate, IT, Business Development and Printing departments. These departments happen to be the core departments that had begun the implementation of the ISO-QMS project before the implementation of the ISO-IMS. The ISO-QMS project was an initial project which considered only quality and covered few departments which were the 5 mentioned above and started before the ISO-IMS project. This suggests that to drive adoption and usage with change management, these 5 departments must be the focus to begin with.

4.5 Scenario Analysis

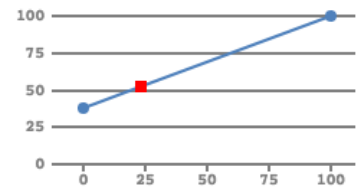
The following figures show the screen shots of the three scenarios discussed in chapter 3. They present the three situations that can happen and their respective results on the CMROI, showing the relationship between change management and value realized.

4.5.1 With no change management

Scenario Analysis: With no change management

23 %

Adoption and usage will not be "0" even with no change management. Enter the expected A&U with no CM in this field to calculate the project benefits captured without change management. Use the [factors help](#) to determine expected adoption and usage with no CM.



53%

Project benefits captured in scenario

Figure 30: Screen shot of scenario with "no change management", PROSCI, 2016

4.5.2 With minimal change management

Calculate your own scenario:

Enter an A&U amount for your scenario to see the impact on overall project benefits captured and gain over the "with no change management" scenario

45 %

Scenario A&U

66%

Overall project benefits captured

14%

Gain over "with no CM" scenario

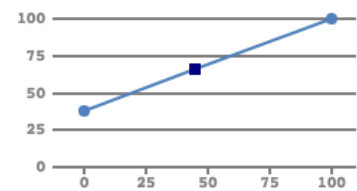


Figure 31: Screen shot of scenario with minimal change management, from PROSCI, 2016

4.5.3 With solid change management

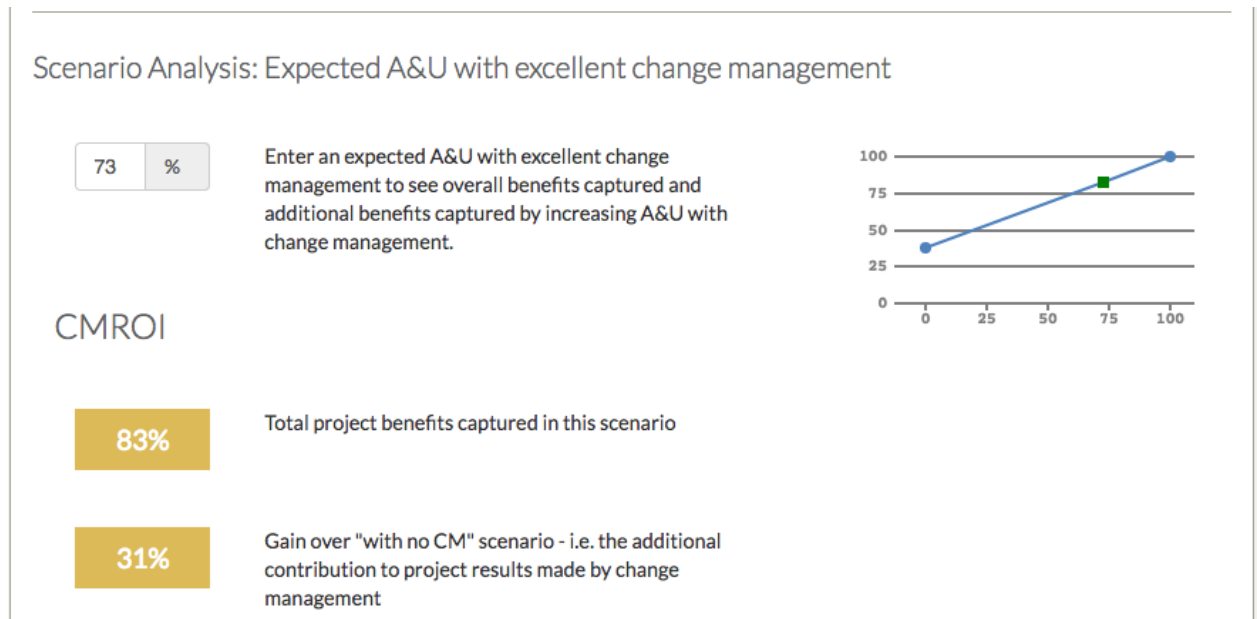


Figure 32: Screen shot of scenario with solid change management, PROSCI, 2016

4.6 Summary of results and analysis

In all there were 86 respondents who participated in this research. After collecting and analysing the data the study found that 62% of the project's benefit depends on the its adoption and usage by the workforce of the port. It was concluded that based on the aforementioned and running the 'no change management' scenario, the total project benefits captured was 53% at an adoption and usage percentage of 23%. The 23% was arrived at using the various factors that affect adoption and usage of the ISO-IMS project and considering that since a scenario where adoption and usage was completely zero cannot occur. This meant that if no one changed the way they worked the result will still be some adoption and usage but this would be minimal. However, when change management was applied to drive the adoption and usage of the ISO-IMS project, it was found out that the gains over the 'no change management' scenario was 35% which is actually the return on investing in change management (CMROI).

It was found that the departments most affected by the project are the Operations, Estate, IT, Business Development and Printing departments.

Chapter 5

5.0 Conclusion and recommendations

5.1 Purpose of the study

The purpose of this study was to make a business case for change management, using a rigorous data driven method in order to come up with an evidence that can generate top management buy-in for change management in the Tema Port of Ghana. To do so, it set out first to interrogate the connection between the intangible independent variable (i.e. employee adoption and usage) and the overall project benefits (dependent variable). This gave the grounds to connect the CMROI value to the project benefits as well and to show the effect this has on the ISO-IMS project.

5.2 Summary of study

There is a variance between expected project value and the realized value in most projects. This variance can be attributed to human factors within the organization in which the project is being implemented. In order to capture the value that is lost due to these human factors, one needs to measure or evaluate the performance of the project. To evaluate project performance, organizations have traditionally employed Return On Investment (ROI) as a financial tool. This tool, however, has been criticized as being limited in that it is mainly concerned with the tangible outcomes of projects. Accordingly, another evaluation model that takes into account the overall value that a project brings to an organization - including both tangible and intangible aspects - needs to be considered. Such a model of evaluating projects was introduced in 2001 by Gartner – the concept of Value On Interest (VOI).

Though there are some schools of thought that have concluded that ROI focuses on the quantitative aspect while VOI focuses on the qualitative aspect of projects, there is a relationship between ROI as the quantitative aspect of project benefits and VOI as the qualitative aspect of project benefits.

The relationship between these two models hinges on being able to quantify an intangible which is employee adoption and usage of the project (i.e. the human factor that affects project benefits or outcome). The principle here is that, because employee adoption and usage creates value, our way of driving this to gain the needed value is through proper/comprehensive change management.

The methodological approach taken in this research was that of mixed-methods using both quantitative and qualitative methods. The qualitative technique helped capture the relevant components of the project of interest in the study, in this case the perceived project benefits, while the quantitative technique was used to capture and quantify the relevant objectives and also find out the factors that affect the independent variable (i.e. employee adoption and usage). Additionally, this research used a two-phase analysis - descriptive analysis and scenario analysis - to be able to present the results and findings of the study based on the research questions that were asked.

5.3 Summary of findings/results

It is worth indicating specific major findings as well as the insights obtained, considering the fact that this was an exploratory type of research and therefore there are new findings and method applications

5.3.1 Employee adoption and usage contribution of the ISO-IMS project

First of all, during this study it was discussed that employee adoption and usage is an intangible aspect of every project. Due to its intangible nature it is hard to convince anyone how adoption and usage can impact the overall project benefits. However, using the PROSCI concept of splitting the project benefits into two, it became possible to

quantify this portion of the ISO-IMS project which is dependent on adoption and usage. It was found to be 62% of the total project benefits, while the portion independent of adoption and usage was 38%. This figure has some implications on the ISO-IMS project in the port. Below is the discussion of these implications.

5.3.1.1 Implications of the 62% figure as applied to the project

62% of the ISO-IMS project value depends on employee adopting and using the system, in other words people changing the way they work with this change (ISO-IMS) contributes 62% to the overall benefits of this project. This implies that, for the project to achieve its goal and be effective, employees of GPHA must change the way they work because changing the way they work will increase the benefits accruing from the project by 62%. This high figure suggests that the majority of the project's success depends on how the staff of GPHA adapt to the project's requirements and adopt any necessary resulting changes. This was expected for a project of this nature, which is not strictly technical.

The fact is that; this value is what one can help capture with change management. Therefore, the lower the adoption and usage of a project with no change management, the lower the project benefits that can be captured and similarly the higher the adoption and usage of a project with comprehensive change management, the higher the overall project benefits. Establishing mechanisms to drive this intangible variable up is, therefore, deemed critical.

5.3.2 CMROI

In order to drive this all important intangible variable discussed on the previous page, it is obvious that one uses change management to drive the adoption and usage of the ISO-IMS project in order to achieve the ultimate goal of capturing all the benefits. In other words, without change management it is highly possible to lose 62% of the project benefits. On the contrary, with good change management processes for the people-side,

this 62% can be fully realized. While undertaking this research, the value the researcher got for the CMROI was 35% if there is comprehensive change management with adoption and usage of 80%.

5.3.2.1 Implication of 35% figure as applied to the project

The CMROI figure means that there is a gain of 35% benefits for the project value when change management is carried out. This figure is a gain over the 53% project benefits seen earlier with no change management. Given this, the total project benefits that could be captured with comprehensive change management now becomes 88% which may be considered extremely beneficial for the ISO-IMS project realization. Further, it is noteworthy that 35% is the return on investment in change management, meaning, what will be the bottom line for investing in change management is 35% of the overall project benefits. This in actual fact is the value on investment because the actual returns one gets from doing change management is not tangible but rather intangible (i.e. overall project benefits).

However, this amount of 35% is towards the portion of the project dependent on adoption and usage of the system as shown in figure 33 below.

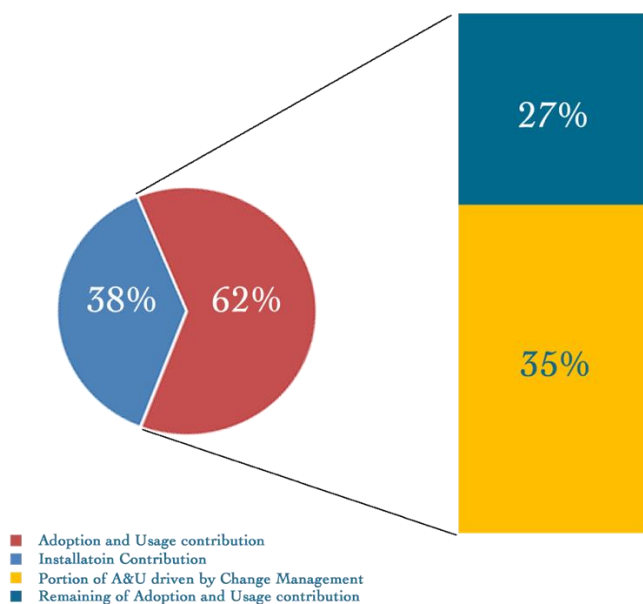


Figure 33: Blown-up diagram showing the amount driven by CM.

5.3.3 Factors affecting adoption and usage of the ISO-IMS

Considering the above conclusion, one arrives at this point where they now have to consider which factors affect adoption and usage of the ISO-IMS project so as to guide us in properly driving it to meet the overall project benefits. They are based on experience and studies done, and subsequently included in the PROSCI framework. This finding shows that there is low adoption and usage for this project in GPHA, while the success of the ISO-IMS project depends largely on high employee adoption and usage.

Even with minimal change management of small returns of 14% as seen in the scenario of minimal change management, one is able to achieve more than 50% of the total project benefits. This means that identifying these factors in the GPHA setting, gives us a direction for management to start change management since management awareness of where to start change management is key to solving the problem of low adoption and usage.

Therefore, a case (derived from this study) can be made for change management by indicating the returns on investing on change management (CMROI) and additionally giving an indication of where to start the change activity. In this regard, the use of our analysis helped to come up with 5 departments which are mostly affected by this system. Given the relatively low adoption and usage of this system (which is significantly impacted by the perceptions of staff in these 5 departments) and actions/strategies to increase adoption and usage of the ISO-IMS can begin with these departments. In other words, getting to drive change will not need to start from the whole organization at once but rather the individuals in these 5 departments can be the focus to begin an organization-wide change. This goes to strengthen the thought that at the core of organizational change is the individual change.

The fact is that, there will always be resistance to change, but how this is managed will help reduce this resistance and cause employees to embrace the change. The McKinsey Quarterly Survey of 2002 (on how to help employees embrace change) indicates that for

successful change to take place, all levels of the organizations must be involved since change is a collective matter. To drive the “change” that everyone is looking to have in GPHA, there is the need to concentrate on the change in individuals that must take place in order to amount to the overall change for the Authority.

5.4 Recommendations for future research

5.4.1 Adding of a financial aspect to the study

The CMROI calculator has an option for adding on more calculations regarding the financial aspect of the project, to be able to find out in money terms what the CMROI is. This quantifying of CMROI in financial terms could be undertaken in future research.

5.4.2 Considering longitudinal approach to the research

Considering the fact that this research is a cross-sectional approach it gives a snap-shot of the entire situation. Hence considering a longitudinal research approach will open up the opportunity to consider the element of time, which helps to better make a case for the project.

5.4.3 Conducting a complete sensitivity analysis to determine the most affected departments.

From the limitation stated in chapter 3 of this paper, conducting a sensitivity analysis for the last question of the research will require additional data to be collected which opens up the avenue to apply another model by PROSCI (the **ADKAR**⁶ model) which can help to initiate and monitor the change management activities. This could be another area of research in the future.

⁶ **ADKAR** model by PROSCI states that the people to change must have **A**wareness of the need to change, **D**esire to change, have the **K**nowledge about how to change and the **A**bility to change (to demonstrate the new attitudes, skills and behaviours required for the change) together with the **R**einforcement to make change sustainable.

5.5 Recommendations for future practice

The following are recommendations for organizational practice resulting from this study.

5.5.1 Preparing a complete benchmarking framework for GPHA

For the testing of other projects within the port, a benchmarking scheme based on the processes carried out in this research can be developed using the CMROI calculator and the **ADKAR** framework to have a holistic system that can be used by the project development team anytime. Combining the two frameworks gives a total coverage of a project - from when it is started through its implementation to completion - and helps determine how to manage the people-side of the change until the maturity of the change.

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Appendix I

INTERVIEW CONSENT FORM

This consent form outlines my rights as a participant in the study MAKING A BUSINESS CASE FOR CHANGE MANAGEMENT, USING CHANGE MANAGEMENT-ROI, ON THE IMPLEMENTATION OF ISO INTEGRATED MANAGEMENT SYSTEM: A CASE OF TEMA PORT conducted by Mr. Joshua Owusu-Ansah of the World Maritime University (WMU), Malmo, Sweden, as part of the requirements for the award of a Master of Science Degree in Maritime Affairs.

The interview will explore my insights or contributions with respect to the above mentioned topic.

It will take about 15 minutes of my time.

I understand that:

1. My participation in the study is entirely voluntary
2. I have the right/option to decline to answer any question I am not comfortable with
3. I am at liberty to end the interview at any time.
4. I may decline audio recording of this interview
5. My name and identity will remain confidential in any publications or discussions with respect to this interview
6. My name and identity will not appear on any tapes or transcripts resulting from this interview.
7. All information given by me in the course of interviews and administration of questionnaires would be disposed of after the award of the Degree.
8. All questionnaires will be shredded and disposed of, and recordings of interviews will be deleted, and no material evidence of the actual responses will be kept for any future use.

I consent to information, as outlined in the accompanying information sheet, being used for this study and other research. I understand that all information relating to volunteers is held and processed in the strictest confidence.

I HAVE READ AND UNDERSTOOD THIS CONSENT FORM. I HAVE HAD A CHANCE TO ASK FOR CLARIFICATION OF ANY AREAS THAT I DID NOT UNDERSTAND.

Signature of Interviewee:

Name of Interviewee:

Date:

Appendix II

PROCSI FRAMEWORK

The framework gives three take-aways in calculating CMROI

1. The more dependent a project's benefits are on adoption and usage; the larger contribution change management makes.

Each change has its own amount of dependency on adoption and usage. Factors like those below can impact the adoption- and usage-dependent portion of a project:

- Few employees impacted vs. many employees impacted
- Few aspects of work impacted vs. many aspects of work impacted
- Single location vs. many locations
- Small departure from current state vs. large departure from current state
- Incremental change vs. disruptive change
- Something familiar vs. something vastly different

Keeping in mind the examples above, change management will have a smaller impact (and a lower ROI) on Project A (the hardware upgrade) than on Project B (the process optimization), as more of Project B's results depend on employee adoption and usage due to the nature of the change.

2. You need to collect two pieces of data from project leaders and senior leaders to start CMROI analysis

- What is the expected benefit of the project?
- What if no employees adopted and used the system?

Not only is this data valuable, you will also find value in engaging with project and senior leaders to collect these numbers.

With these two end points, you can analyze and model the impact of change management.

3. You can now quantify the CMROI conversation with the people side benefit contribution

The framework presented below gives you an approach to discuss the contribution and value of change management concretely and quantifiably. With the people side benefit contribution and the people side benefit coefficient, you can have new conversations with project leaders and senior leaders.

$$\text{People Side Benefit Contribution} = \frac{\text{Expected Project Benefits}}{\text{(Business Case Baseline)}} - \frac{\text{Expected Project Benefits}}{\text{(if adoption and usage = 0)}}$$

$$\text{People Side Benefit Coefficient} = \frac{\text{People Side Benefit Contribution}}{\text{Expected Project Benefits}}$$

CMROI CALCULATOR

Features:

1. Add an unlimited number of projects to the calculator
2. Choose from single-benefit or multiple-benefit calculation options
3. Generate calculations in multiple currencies
4. Perform optional scenario analysis to calculate ROI with no change management or varied levels of change management

The screenshot shows the 'CMROI CALCULATOR' interface. On the left is a sidebar with 'PROJECTS' (Beta Test, Samples, View All Projects, Add a Project) and 'RESOURCE CENTER' (Learning Guide, Print Version). The main area is titled 'Beta Test Project A' and contains a 'Single Benefits Calculation' form. The form has three tabs: 'What is the project trying to achieve?', 'How people dependent are the benefits?', and 'Results and Scenario analysis'. The first tab is active. Below the tabs, there is a text input field with the value 'Full Data will allow better forecast and sales' and a currency input field with the value '\$ 12,000.00'. At the bottom right of the form are 'Save' and 'Save & Continue' buttons.

Figure 34: Screen Shot from CMROI calculator

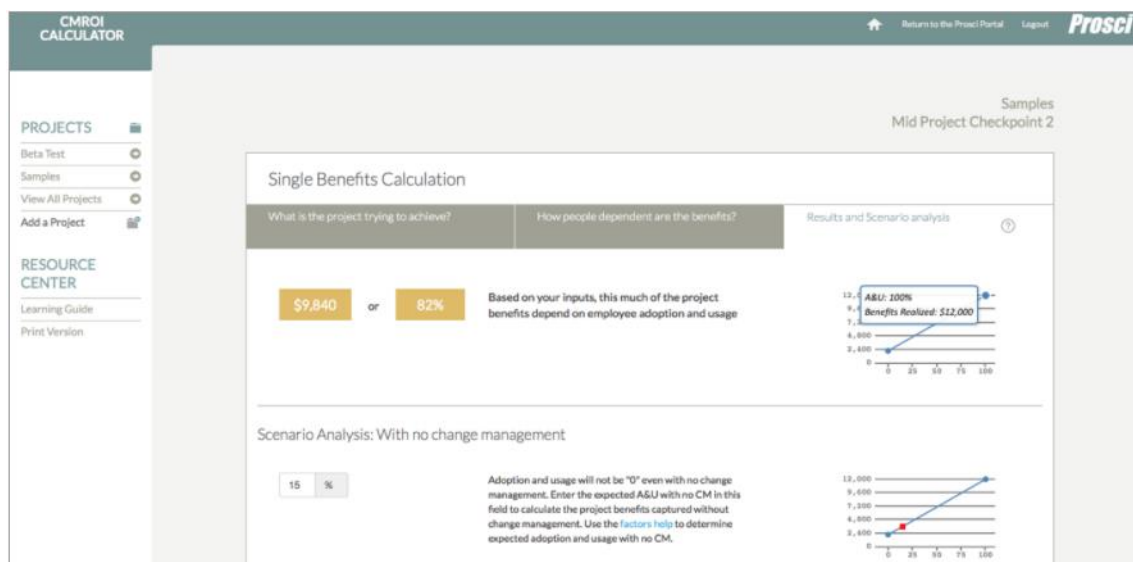


Figure 35: Analysis screen shot of CMROI calculator

DEFAULT VALUES IN THE CMROI CALCULATOR

The screenshot displays the 'Multiple Benefits Calculation' interface. It features a sidebar on the left with navigation links: 'Add a Project', 'RESOURCE CENTER', 'Intro Video', 'Learning Guide', and 'Print Version'. The main content area is divided into three tabs: 'What is the project trying to achieve?', 'How people dependent are the benefits?', and 'Results and Scenario analysis'. The 'How people dependent are the benefits?' tab is active, showing a table of benefits with qualitative and quantitative inputs.

Focus	Change adoption and usage dependencies	Estimate the percentage of this benefit if adoption and usage = C	Your Value
Focus organization onto business goals.	Medium	Recommended: 35% to 65%	50 %
Avoid duplication and gain cost savings.	All	Recommended: 0%	0 %
Reduce risks.	All	Recommended: 0%	0 %
Expose conflicting objectives.	Medium	Recommended: 35% to 65%	50 %
Harmonise and optimise practices.	High	Recommended: 1% to 35%	18 %
Improve efficiency which leads to	High	Recommended: 1% to 35%	18 %

Figure 36: Data capture with qualitative and quantitative mapping percentages of the CMROI-calculator

In the screen shot above, when the qualitative drop down list is selected on the left side of the screen this automatically selects correspondent % value which is the default. This can be adjusted by the user. The design of the calculator is such that, the highlighted portion of the radio button is the range of figures which one can choose from based on the qualitative change adoption usage dependency selected. The default by the calculator is always the median which gives the resultant % in the far right box opposite it. The selection of the minimum figure for “no change management” scenario was based on the same workings of the calculator using the median.