Aalto University
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Performance Management Framework Appraisal of the United Nations Property Management Unit (PMU)

(A Case of the Department of Field Support (DFS), United Nations Headquarters, New York USA.)

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Master's thesis

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Abstract

Purpose: The United Nations (UN) Property Management Unit (PMU) under the Logistics Support Division (LSD) of the Department of Field Support (DFS), in exercising effective stewardship over United Nations Owned Equipment (UNOE), sought to develop a Property Management Performance Management Framework. The present research was written to assess the current performance of the Property Management Performance Management Framework (PMPMF) and suggest further improvements. The scope of the PMPMF was also envisioned to be expanded to include other services with emphasis on the overall end to end processes of DFS/UN supply chain.

Design/Methodology/Approach: Both qualitative and quantitative based approaches were adopted in this study. Several Academic literatures were reviewed to develop a robust performance management framework, TOTS Canvas. KPI categorization under the TOTS Canvas includes: ***T***echnological, ***O***perational, ***T***actical and ***S***trategic (TOTS).

Findings: The research provides a novel framework for measuring the overall end to end processes within organizations with special emphasis on supply chain. The research results showed, that 91.2% of the users of the framework agree that the PMPMF has helped their missions to exercise good stewardship over UN assets. Consequently some benchmarking KPIs were identified and deemed as very significant to PMU/LSD/DFS/UNHQ end-to-end Supply Chain. These KPIs were categorized under eight sub-groupings. Other services under LSD were also identified to be included in the expansion of the current PMPMF.

Research Limitations/Implications: Future studies can be conducted to validate the TOTS Canvas in different organizational settings.The envisioned end to end processes of the United Nations supply chain is still ongoing, certain Organizational principles might not be applicable in the near future so it will be vital to conduct further researches to validate the results and findings of this present research.

Practical Implications: The thesis provides robust practical contribution applicable to mainstream supply chain performance management initiatives. This is achievable by applying the TOTS Canvas offered in this research. Practitioners and researchers who seek to identify an extensive end to end performance management involving several downstream and upstream processes can apply the TOTS Canvas

Originality/Value: To the candid knowledge of the researcher, the categorizations of KPIs have not been done in a way reflecting the TOTS Canvas. It's tested with United Nations Supply Chain and proven relevant to PMU/LSD/DFS PMPMF.

Keywords: Performance Management, Performance Measurement, Performance Management Framework, United Nations, Property Management, UNHQ, USA, Department of Field Support (DFS), Supply Chain KPIs, SCOR, TOTS Canvas

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ABBREVIATIONS

BI	Business Intelligence
COE	Contingent Owned Equipment
DFS	Department of Field Support
DPKO	Department of Peace Keeping Operations
ERP	Enterprise Resource Planning
GFSS	Global Field Support Strategy
HPSB	Headquarters Property Survey Board,
IPSAS	International Public Sector Accounting Standards
IS	Information Systems
IT	Information Technology
LPSB	Local Property Survey Board
PCIU	Property Control & Inventory Unit
PM	Property Management
PMF	Performance Management Framework
PMS	Property Management Section
PMU	Property Management Unit
PMPMF	Property Management Performance Management Framework
P&E	Plant and Equipment
PP&E	Property, Plant and Equipment
R&I	Receiving and Inspection
SAU	Self Accounting Unit
SCOR	Supply Chain Operations Reference
SC	Supply Chain
SPM	Special Political Missions
UN	United Nations

UNHQ	United Nations Headquarters
UNOE	United Nations Owned Equipment
UNP	United Nations Properties
UoM	Unit of Measurement
USG	Under- Secretary- General
VTC	Video Teleconferencing
WOC	Write-off Case
WOR	Write-off Request

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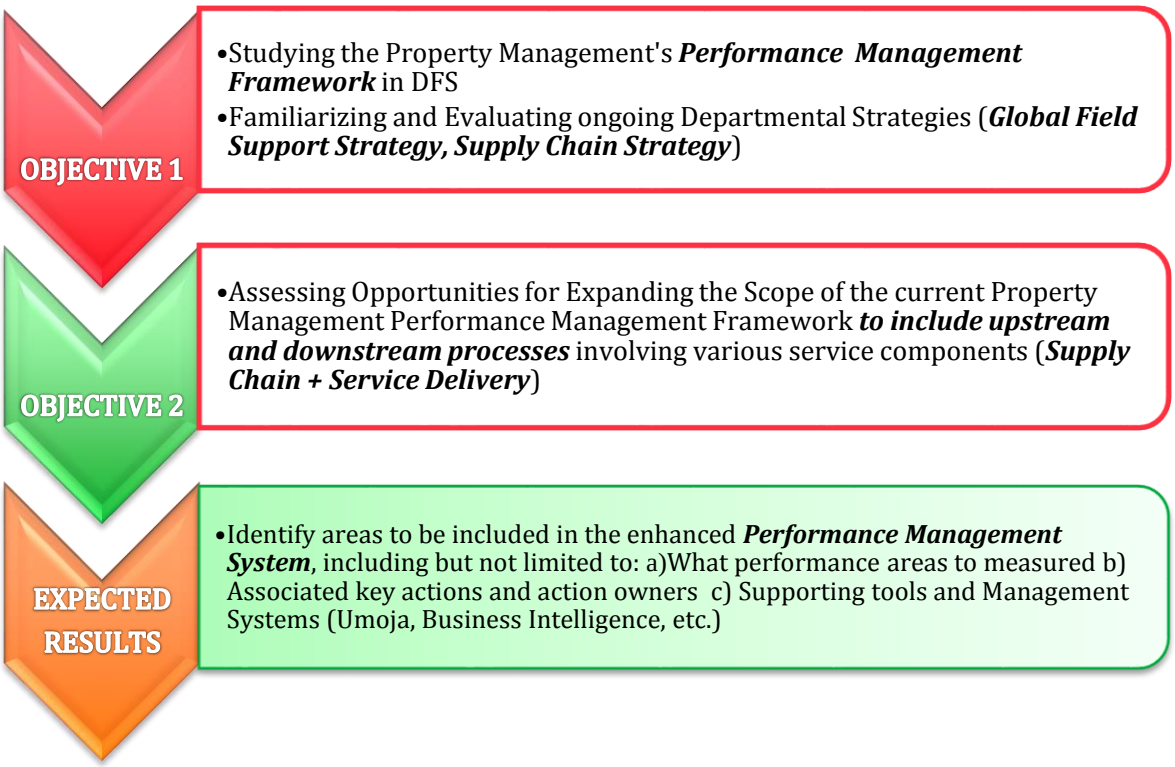

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1 Introduction

This chapter of the thesis work introduces this research with salient research introductory themes: the research background and motivation, the objectives of this research and significant research questions, the research problem and the significance of the research are all addressed under this section of the research. Lastly the full structure of the thesis is presented under this chapter of the research work.

1.1 Motivation and Research Background

The advent of performance management has penetrated almost all the diverse academic disciplines and the corporate world alike. This has further steered the development of several performance management systems and frameworks, which have the possibility of contributing to continuous improvements in organizational processes, strategies, sustainable development, assets management, developing human capabilities and generating sustainable return on investments.

Both performance measurement and performance management systems are essential triggers to achieve total quality management in manufacturing systems, supply chain processes, product development solutions, operational processes, strategic management processes, and in the development of novel services and products. Hence there is the need for organizations to continuously question what is measured, why a specific measurement is needed, appraise existing performance measurements to identify errors and ways of improving their performance management systems (Neely et al. 2002).

It is important to stress that better performance management systems and practices affect organizational inputs and outputs positively. In as much as there are several reasons why firms perform performance analysis (Hall and Hargitay, 1984) emphasized, that an important ingredient of investment decisions depend on good performance analysis. The authors emphasized that quantifying previous past performance and measuring it against certain benchmarks are important purposes of undertaking performance analysis. Also, for possible reassessments of investment decisions, organizations could resort to good performance management initiatives.

The Procurement Executives' Association (1999) in its "*Guide to a Balanced Scorecard Performance Management Methodology"* defined Performance Management as using performance measurement information to improve the overall strategy, processes, culture, systems etc. of an organization. This helps the organization to continuously prioritize its resources.

Based on the works of (Franco-Santos et al. 2007, Ariyachandra & Frolick 2008, Eckerson 2010), (Heikki Lempinen, 2013) defined performance management systems as the combination of an organization's processes, performance metrics and relevant technical architecture for the optimization of the overall development and execution of an organizations strategy. This stands to reason that there is the need for proper alignment between organizational performance management and appropriate technological advancements since it could help leads to better performance management practices in organizations' strategies.

With the growing concerns in issues pertaining to re-engineering, continuous improvement in total quality management, vigorous competition in today's market, disruptive innovations in technologies, adoption of incremental and radical transformational changes in organizational strategies, it becomes more relevant that corporations persistently review their performance management initiatives so as to be able to stay in the competition, improve their processes and minimize loss.

A study conducted by Cambridge Systematics Inc., Cambridge Massachusetts in April 2011 showed that there seems to be a strong correlation between performance management and asset management. The research concluded that asset management and performance management both operate within some basic principles and as such the two concepts run parallel. This is crucial in asserting that the effective practice of excellent performance management could lead to the effective management of an organization's assets. It is therefore necessary for organizations endeavoring to manage their assets effectively, to adapt to better performance management practices.

Corporations become very critical with financial performance measures such as ROI and return on assets. The latter reveals how profitable an organization utilizes its assets in generating revenue. This statement becomes very complicated when dealing with intergovernmental organizations like the United Nations. Since the United Nations isn't a profit oriented organization, the business methods of calculating the return of the organization's assets isn't applicable. Hence one way the organization can make sure there's better stewardship of its

assets, is to enforce better performance management systems to monitor the effective usage of assets generated by its member states and other stakeholders.

For over more than several decades, the inception of performance management seems to be the focus of many novel techniques in management accounting (Otley, 2001). Also (Neely's, 2005) work on "Evolution of Performance Measurement Research: Developments in the last decade and a research agenda for the next" reveals that performance measurements can be attributed to different fields of study. Based on the works of (Folan & Browne 2005, Nudurupati et al. 2011), Lempinen (2013) emphasized the fact that inter-organization performance measurement and management systems are on the increase and as such, merit deep research interest and focus.

Again, (Gunasekaran et al. 2001) research on "Performance measures and metrics in a supply chain environment" emphasized the growing need for performance measurements in supply chain. In the pursuit of this same study by (Gunasekaran et al. 2001& 2004), an attempt was made to develop a framework capable of assessing measuring the strategic level, tactical level and operational level performance in a supply chain. It is therefore necessary for researchers and managers to understand the growing concerns related to performance management and performance measurements to assist in making better decisions. This in return, can help manage organizational assets effectively and also transform the entire organizational processes in several positive ways.

It's essential to stress again that the field of performance management still merits greater research focus both in the academia and the corporate world. As regarding this research, the focus was on an intergovernmental organization that is making transformational changes by: promoting international peace and security, addressing climate change & sustainable development, advocating for human rights & seeing to disarmament problems, terrorism preventions, humanitarian and health emergencies, supporting gender equality, governance, food production and many more. (United Nations' Website, 2015). This intergovernmental organization was the United Nations. This then led us to the next section of the research: the research objectives.

1.2 Objectives and Research Questions

The research was written to contribute to an initiated project at the Property Management Unit (PMU) of the Logistics Support Division (LSD) in the UNHQ, New York. The LSD is within the Department of Field Support (DFS) of the United Nations Secretariat Headquarters, New

York in the United States of America. See Appendix 1 for the research work positioned at the LSD/DFS Chart.

The research seeks to evaluate the current Property Management Performance Management Framework (PMPMF) and suggest possible improvements. The study was also initiated to extend the PMPMF to involve the overall end-to-end processes of some of the work done in DFS (emphasis on supply chain). The end-to-end processes seek to cover both the downstream and upstream processes. Hence the main objectives of the research were:

1. To study the Property Management's Performance Management Framework in DFS and suggest further improvements.

2. To assess opportunities for expanding the scope of the Property Management Performance Management Framework to be included in both upstream and downstream processes involving various service components (Supply Chain and Service Delivery).

Appendix 2 shows a chart of the objectives of the research and the expected results. The research questions of the research are intended to make the thesis objectives achievable and also to help stay within the perimeters of the thesis scope. The main research questions were:

1. How can the current PMPMF be assessed and improved?

2. What are the opportunities for expanding the scope of the PMPMF to be included in both upstream and downstream processes involving various service components (Emphasis on DFS Supply Chain)?

The next section of the research continued with the research problem as part of the introductory chapter.

1.3 Research Problem

The LSD under DFS documented a "Work Plan 1" to be implemented within the timeframe 1st of April, 2015 till 30th of March, 2016. See Appendices 3a & 3b. The work plan was written with regards to an ongoing review of the structure of LSD. In view of this, the Work Plan 1 was to serve as implementation guidance to LSD Services, Sections and to equip Staff Work Plans.

Within the timeframe provided by the Work Plan (WP1), it seeks to "provide the necessary strategic policy, governance oversight and implementation of logistic support services in accordance with the peacekeeping priorities and DPKO/DFS objectives as directed by

USG/DFS." The WP contains deeper details of certain targeted goals but within the context of the study, the relevant points were pointed out.

The WP1 highlights crucial concerns for developing of strategic and operational level policies to be able to improve Contingent Owned Equipment (COE) and the United Nations Owned Equipment (UNOE) as well as other changes relevant to the United Nations Headquarters (UNHQ) global management initiatives.

One of the key related actions used in dealing with the first goal on the WP1 was to establish better performance management framework within the LSD. Two anticipated success criteria envisioned by the LSD in the UNHQ were to try and minimize concerns and observations of the Board of Directors (BODs) and other audit bodies, and also to have good stewardship of United Nations resources.

Another key related action used, as part of the other key related actions on the WP1 in making sure the second goal became achievable, was to "establish a comprehensive and robust performance management based systems contract mechanism to meet current, emerging and future peacekeeping support needs." Again, the work plan clearly stated that to be able to meet the third goal, it will be in the interest of the LSD/DFS to define a performance framework capable of measuring, monitoring and managing the end-to-end processes of the supply chain. The last key related action that also deserved great attention in order to meet the last goal on the WP1 was to "ensure adequate allocation and effective management of LSD's posts and staff resources." Based on the review of the WP1 of the LSD/DFS of the UNHQ, it was clear that the organization seeks to make persistent efforts in enhancing continuous improvements. And as such, one way to achieve this was to adopt better performance measurements and management systems.

In the pursuit of continuous improvement in the UNHQ, the BODs commented in its report captured in the Property Management's (PM) Directive for the Financial Year 2015, (See Appendix 4) that certain weaknesses were identified in the area of managing UN assets. The DFS admitted that its new end-to-end solution was geared towards ensuring the effective and efficient utilization of UN global physical resources and involve better Property Management initiatives. Hence the Property Management Unit (PMU) in the LSD was tasked with further development of robust Performance Management Framework (PMF). The PMU hence operates within these two main objectives:

- Strengthening stewardship of UNOE while gaining greater efficiencies and economies of scale through implementation of well-managed and agile supply chain across DFS.

- Asset Accountability and Financial Reporting on Property, Plant and Equipment (PP&E) and Inventory under International Public Sector Accounting Standards (IPSAS).

It is in accordance with the above problem definition that the research sought to address some of the pressing concerns tasked by the PMU at the UNHQ. The importance of the research is addressed shortly following the introductory chapter.

1.4 Significance of Research

As performance management continues to be a rich and interesting research field, it provides numerous opportunities for creative research for both the academia and corporate field alike (Otley, 2003). In the author's personal view, Strategy and Structure, Innovation and Diversity, Sustainability issues, Power and Control and finally in the Role of Culture in the Operation of Performance Management Systems, deserved further research works. Several researchers and authors like (Turban et al. 2011) continue to emphasize the relevance of business performance management and performance measurements in the field of "Decision Support and Business Intelligence Systems." It's indeed an undisputable statement that performance management systems have great significance to the academia and the business world alike.

This research therefore seeks to contribute to the academia in terms of developing a robust framework for enhancing performance management. The transfer of knowledge between the academia and the corporate world is considered a form of open innovation by (Chesbrough, 2003). This becomes very significant in the development of robust performance management frameworks. Hence the research seeks to foster such initiative among the UNHQ and its Member States, Financial Sponsors and other relevant stakeholders within and outside the UN.

Last but not least, the research seeks to serve as a basis for further research work in both the academia and the corporate sector alike by developing a framework, capable of identifying relevant KPIs for effective performance management. There seems to be ample evidences as stated by researchers such as (Neely et al. 2002, Otley, 2003, Hall and Hargitay, 2007, Folan & Browne 2005, Nudurupati et al. 2011, Turban et al. 2011 and Heikki Lempinen, 2013) that Performance Management merits further studies. The research will also provide the UNHQ with insightful observations on the performance appraisal of UNOE and other UN properties. This information can also be used by other intergovernmental organizations, NGOs and profit

oriented organizations. As the UNHQ seeks more transparency and accountability of UN properties, the research seeks to provide information on how downstream and upstream processes of UN can be incorporated into the PMPMF. The thesis structure is briefly discussed next, as part of the introductory section.

1.5 Thesis Structure

The research is segmented into seven (7) main chapters. Each chapter has several sub-divisions to provide further insights to the main chapter. Chapter one covers the introductory section covering several research themes. The chapter two captures the Literature Review and the Thesis Positioning. In this section the author synchronized several literature themes pertaining to the central objectives of the research work. This helped to align the thesis topic in the context of extant literature works. The chapter three (3) presents an overview of the case Organization, UNHQ and arising issues.

The section four (4) of the research introduces the research frameworks and theory. This section helps to present the final framework used to address the research questions. The methodology followed as a different chapter of the research work (chapter 5). It is in this section that the author explained the form(s) of research approach(s)/tool(s) used in the collection of data. The chapter six (6) of the research presents the findings and evaluation of the results. This is followed by the chapter seven (7): discussion and conclusion. This chapter presents the practical implications of the research as well as the research limitations and possibilities for future research studies. Also, the timeframe of the research can be seen from Appendix 5.

2 Review of Literature and Thesis Positioning

The literature review of the research commences by accessing the nature of performance measurements and performance management across some study fields. This was followed by a review on Property Management (PM) and other concepts that come closer to PM studies. Also, some upstream and downstream processes were discussed under this part of the chapter 2. A brief review on governance and organizational culture were discussed under stakeholder management. Last but not least, emphasis was placed on the review of BI and ERP as forms of management tools which support organizational performance. All frameworks presented under this section of the research are relevant to be considered. A model was then presented to show how the research was positioned in the context of the literature review. Consequently the chapter ends with a brief research gap that demands further studies.

2.1 Performance Measurement and Performance Management

Performance measurements have been discussed in accounting literatures, from marketing perspective, operations perspective, and many other disciplines (Neely Andy, 2002a). In trying to reach predefined goals that are connected to organizational strategic goals, managers resort to performance measurement activities. Performance measurements are making a transition to performance managements in a broader scale in companies (Lohman et al. 2004). The authors emphasized that in the development of performance measurements, performance measures should be seen as a coordination effort rather than as a design effort. The developing of performance measurements is as equally important as performance management. It therefore becomes very necessary for the UNHQ to understand that when developing robust PMPMF, the chosen measurements must effectively be managed to aid continuous improvement in UN property management.

In the IS/IT domain, there has been an increasing rate of attention in performance measurement researches both in organizations and the academia (Folan and Brown, 2005). The conceptual framework presented by the authors, showed the evolutional process of performance measurement. These evolutional processes are what eventually lead to performance management. Hence it can be asserted that without performance measurements, it's difficult to deal with the management side. (Folan and Brown, 2005) research, shows the complexities surrounding the evolutional process of performance measurement. It's evidential to state that

performance measurements are building blocks for building robust performance management frameworks. In an intergovernmental organization such as the UN, there are consistent evolutional processes which call for the effective management of its performance measurements for assessing UN Properties (UNP).

The growing concerns in performance measurements have been discussed in other study fields such as supply chain management. (Gunasekaran et al. 2001, 2004), stressed that the lack of a balanced approach and the lack of clear distinction between metrics at strategic, tactical, and operational levels present greater need for the studies of performance measures and metrics in supply chain. The improvement of supply chain and its goal achievement demands the overall process of the chain to be measured and improved, (Gunasekaran et al. 2004). This improvement demands the implementation of performance management systems. The impact of performance measures in collaborative supply chain is also emphasized by (Angerhofer and Angelides, 2005). Performance measurement and management frameworks used across the entire supply chain also help in addressing complex problems and provide different channels for identifying relevant KPIs to improve company's management processes. This provides quantitative analyses for the interdependent associations among several key performance indicators, (Cai et al. 2009). This further helps in boosting decision making in a supply chain performance. (Estampe et al. 2010) also continued to demonstrate the crucial importance of performance measurement in Supply Chain by evaluating several performance models such as Activity-Based Costing (ABC), Balanced Scorecard, etc. Hence in seeking opportunities to further expand the current PMPMF to involve both downstream and upstream processes in other service components (such as supply chain), the usage of KPIs and other performance models will be very relevant for this assignment.

In Facility Management literature, transitioning the results of performance measurements to management is one of the successful requirements that aid good foundation for performance management (Amaratunga and Baldry, 2002). Performance management serves as the gateway for providing diverse opportunities for organizations to refine and improve developmental activities. This stands to reason that robust performance management systems can be used to improve performance measurements. The following characteristics of performance measurement needs were addressed by (Bititcti et al. 2000) which was quoted by (Amaratunga and Baldry, 2002):

- Being sensitive to changes in the external and internal environment of an organization
- Reviewing and reprioritizing internal objectives when the changes in the external and internal environment are significant enough
- Deploying the changes to internal objectives and priorities to critical parts of the organization,
- Ensuring alignment at all times: and ensuring that gains achieved through improvement programmes are maintained.

These performance measurements needs become relevant when planning organizations' performance management systems, to involve both upstream and downstream performance. Measurement should be seen as a catalyst for enhanced effective management. Findings from performance measurements mostly are indicative of 'what happened' and not 'why it happened or how to manage the results'. The ability of organizations to make the transition from measurement to management will enhance effective utilization of measurement results (Amaratunga and Baldry, 2002). This stands to reason that an organization's inability to make this transition may poorly affect a level of its performance improvements.

The Procurement Executives' Association (1999) in its "*Guide to a Balanced Scorecard Performance Management Methodology"* defined Performance Management as using performance measurement information to improve the overall strategy, processes, culture, systems etc. of an organization. This helps the organization to continuously prioritize its resources. Unlike Performance management systems, performance management initiatives are able to provide meaningful feedback to an organization as a result of desired outcomes envisioned from the performance measurements (Amaratunga and Baldry, 2002). This establishes a form of correlation between performance measurement and performance management. The efficiency of management actions that can be quantified in any process can be classified as performance measurement (Amaratunga and Baldry, 2002).

The process view chart in figure 1 below, which was developed by (Kagioglou et al. 2001), illustrates the relationship between performance measurement and performance management. The authors emphasized that there is a stringent correlation between an effective performance management system and the chosen performance metrics. The development of a robust performance management will incorporate a huge factor like knowledge management especially in the engineering industry (Francisco et al. 2003). The authors used key performance indexes (KPIs) as leading indicators for their framework. This is to assert that

important KPIs are relevant when developing robust performance management systems (Gunasekaran 2001 &2004, Chae, 2009 &Grover, 2015). In determining of organizational success, emphasis must be place on how the measurements are utilized and not solely on what was measured, (Kaplan and Norton, 2001). Hence developing a robust organizational performance therefore is paramount to sustaining the success of an organization.

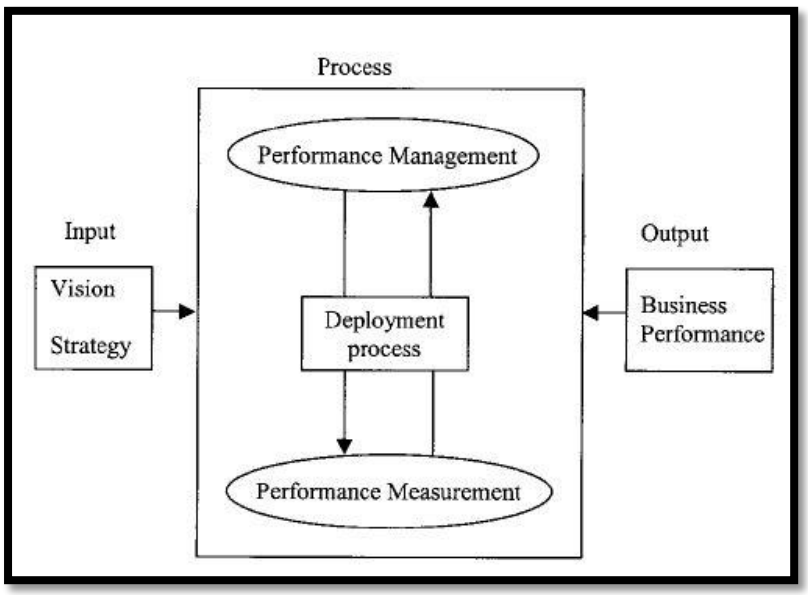


Figure 1 The Performance Measurement and Management Process Relationship (Adopted from Kagioglou et al. (2001)

In concluding this part of the research, it's relative to understand the dynamics of performance measurements and management. It can be asserted that the former is a subset of the latter however, the meaning of the terms and their usages differ in the context of how different organizations use them. Performance measurements cannot be a standalone concept; it should be linked with performance management to aid better continuous improvements for organizations and decision makers. Within the scope of this study both concepts are defined as follows:

Based on (Lohman et al. 2004) and (Amaratunga and Baldry, 2002) definitions, performance measurement can be defined as the process of quantifying the efficiency and effectiveness of an action or an activity that managers perform in order to reach predefined goals that are derived from the company's strategic objectives. Performance Management on the other hand is defined as using performance measurement information to improve the overall strategy, processes, culture, systems etc. of an organization. This helps the organization to continuously prioritize its resources. - The Procurement Executives' Association (1999).

An organization's performance measurement systems can become sustainable when it embraces a robust performance management system.

Based on (Kagioglou et al. 2001, Lohman et al. 2004 and Melnyk et al. 2014) the researcher asserts that in making a transition from performance measurements to performance management, there should be an interface called 'performance measurement and management cycle.' This is demonstrated below in Figure 2. Measurements should be connected to management and vice versa. The cycle helps to identify weaknesses and complexities in the ongoing process with focus on performance management.

Figure 2 Performance Measurement and Management Cycle

2.2 Property Management

The effective management of an organization's properties plays a pivotal role in the organizations' existence, competitive advantage and in its overall performance. This is to say profit maximization is a function of the optimum number of properties a firm manages (Brown and Klingenberg, 2006). Many firms have suffered great loss as a result of poor property management practices. Various assessments concerning property management was witnessed even in the 1980s by audit bodies as a result of poor management practice. The major criticisms made during this period were:

1. The lack of a strategic approach to property management
2. The limited recognition of the values of these assets by property users and operation decision makers (Gibson, 1994).

The relevance of property management in today's world cannot be downplayed. An attempt in trying to address property management concerns has pave the way for several frameworks to help organizations in adhering to better property management initiatives. Information,

understanding and evaluation are some of the proposed requirements for successful strategic approach to property management (Gibson, 1994).

The pressing concerns from managers, shareholders, governmental bodies and other audit bodies in today's world call for persistent improvements in organization's property management. Researchers and advocates in the property management field must resort to further research works around this field of study. Hence a sustainable performance measures and management systems can help solve the many dilemmas surrounding property management. The complicated nature of developing these measures call for better collaboration throughout the entire end-to-end processes of property management. (Ranko and Carder, 1998) assert that in order to ensure a balance between an organization's business and its property initiatives, there should be a continuous monitoring of property performance needs. Managerial actions have direct relation to property performance indicators and property performance. (See figure 3 below):

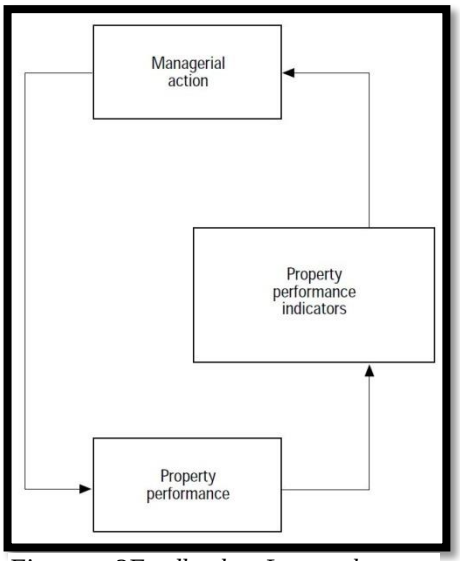


Figure 3Feedback Loop between Managerial action and Property Performance (Ranko and Carder, 1998)

(Gibson, 2000) affirms that property in its nature can be termed as a highly inflexible resource and as such the flexibility of property can be classified in terms of:

- Physical Flexibility
- Functional Flexibility and
- Financial Flexibility

Organizations must endeavor to know which specific type of flexibility so as to manage effective property management. Increase of flexibility can also be classified as one of the strategies used in corporate real estate strategies (Roulac, 2001 and Vermiglio, 2011). With regards to performance measurements and managements in property management (PM), concepts such as facility management (FM) and asset management (AM) come closer to the topic than most familiar concepts. (Vermiglio, 2011) shows how PM, AM and FM are all affected by key decision bodies - See table 1 below:

Table 1 "Key figures" that affect the decision-making process in Public Property Management (Vermiglio, 2011)

KEY VARIABLES	KEY FIGURES
Political	Short-term political needs, consensus sphere, regulatory issues, flexibility of the decision making process
Social Impact	Stakeholder perspective, accountability degree, tenant's needs, citizens expectations, buildings' role for the community
Operational	Building's life-cycle perspective, contrast definition, maintenance activity, cleaning, security, energy, savings, sunk costs, record keeping processes, complexity costs, space planning and management
Organizational	Lack of skills, Poor coordination of tasks within organization
Financial and Economic	Budgetary constraints, rebuilding costs, investment calculation, accounting systems, rental systems, depreciation impact, Transaction cost, property taxes and fiscal impacts, Equity rate of return, capital costs
Risk Level	Risk definition, Risk breakdown, level of averseness, Risk distribution during the time, Risk-shifting mechanisms
Time Effects	Low reversibility of the choices taken in the short term, subjective perspective of the problem

The overall strategy of public property management (PM) is connected to facility management (FM) and asset management (AM) issues and are all affected by the "key figures" in table 1. The figure 4 below shows how this relationship is displayed.

According to (Amaratunga et al. 2000) FM deal with built assets and the overall management of an organizations core business and services. Within this field of study which seems to be linked to property management to some extent, performance measures and managements plays a crucial role. (Amaratunga et al. 2000) agree with other researchers like (Lohman et al. 2004) that FM assessment should be geared towards a performance measurement and management.

Figure 4 Public PM overall strategy involving FM & AM, (Vermiglio, 2011)

The positioning of FM in other fields of study is partly connected to property management (Chotipanich, 2004). This is illustrated in the author's framework shown in appendix 6. Asset management according to (Kaganova and Nayyar-Stone, 2000) can be defined as:

- Strategy concerning property holdings.
- It deals with the evaluation of financial performance of each property in the context of the whole portfolio.
- It provides a rational for acquiring, holding, or disposing of individual properties, considering both financial characteristics of each property and optimal portfolio composition. Appendix 7 shows the lifecycle of real property asset.

The evolution of the term AM can be attributed to PM (Phelps, 2011). This transformation is shown in the figure 5 below. The author also asserts that even though on a country basis, the use of the terms AM and PM may differ, there had being a transformation of PM to AM which was mainly influenced by four factors:

1. Strategic focus (Vision)
2. Portfolio Intelligence (Knowledge)
3. Entrepreneurship Approach (Culture) and
4. Organizational Will (Commitment)

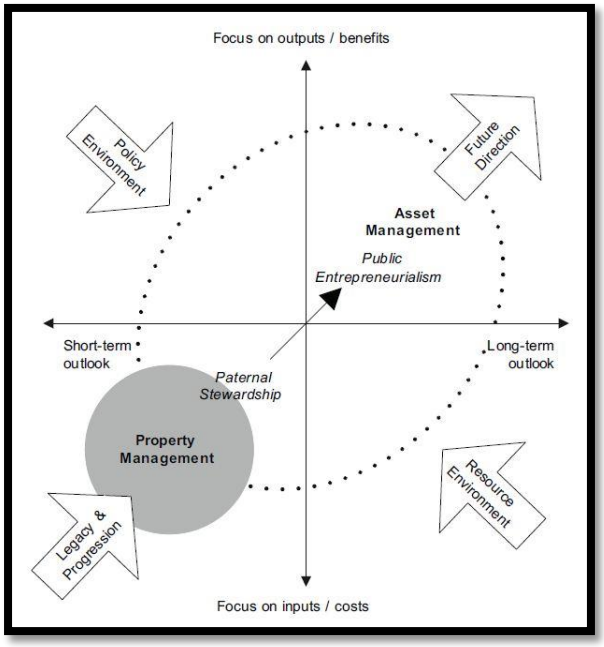


Figure 5 Evolution of AM from PM (Phelps, 2011)

In concluding this part of the review on PM, it should be noted that the effective maximization of an organization's property, is a function of its performance measurements and management. The usage of the term share similar concepts with other terms such as FM and AM. AM is much closer to PM since it evolved from PM (Phelps, 2011). In the UNHQ, AM is a subset of PM. Most of the academic literatures on PM attribute it to real estate but within the scope of our study PM includes valuable properties with its rights delineated (Wong et al. 2006).

2.3 Upstream and Downstream Processes

The making of several efforts to improve theory and measurement development results in the productivity of substantive research activities (William and Gholamreza, 1991). Upstream positioning can be considered a form of alignment in fostering effective total performance management although upstream thinking can be complicated and complex. According to (Wood, 1994) adopting upstream approach creates meaningful change that helps to bring transformational outcomes to an organization. An example of the complexities that arise between upstream and downstream processes can be seen in the work of (Crook and McCaffrey, 1997). Building performance measurements and management for an overall end-to-end process can be complicated notwithstanding it provides an effective way for evaluating an organizations performance in its entirety. (Gunasekaran et al. 2003) found out that upstream and downstream processes foster competitive advantage in the effective management of the

overall performance of an organization. Hence it's relevant for organizations to continuously enhance their performance management systems to affect the downstream and upstream processes.

The need for integration and coordination have been emphasized by researchers; in enhancing upstream and downstream processes (Klassen and Vachon, 2006, Vance, Charles M. 2006). In the strategic management of global performance management between upstream and downstream processes, the work of (Vance, 2006) becomes very essential in the scope of this research. The author provides insightful consideration points for managing strategic upstream and downstream performance management on a global scale (See table 2).

Table 2 Major Upstream and Downstream Considerations for Global Performance Management (Vance, 2006)

UPSTREAM CONSIDERATIONS	**DOWNSTREAM CONSIDERATIONS**
Strategic performance management integration and coordination	Responsiveness to local conditions
Workforce internal alignment	Sensitivity to cross- cultural Differences
Knowledge Management	Establishment of the performance management relationship
Organizational Learning	Comprehensive training efforts

Manufacturers, transportation, distribution, wholesale, retail, and end customers can all be classified as part of downstream supply chain. Downstream cost structure analysis and further opportunities for improvement can be identified by the use of performance metrics (Cirtita and Glaser-Segura, 2012). A study conducted by (Oosterhuis et al. 2012) showed that lack of effective recognition and communication between upstream and downstream parties lead to various forms of conflicts across the supply chain. It therefore becomes necessary for the performance management objectives of an organization, to be linked with both upstream and downstream processes for effective management of the entire end-to-end processes.

(Ageron et al. 2013) points out that financial issue become the main challenge for companies in setting up an upstream supply chain. Notwithstanding, is vital to stress that several factors may complicate and affect the transition of organizations involved in upstream and downstream processes. (Fang et al. 2015) identified that alliance governance structure, partner technological capacity, and the competitiveness of market environments contribute to the

change in the abnormal returns, achieved by partners engaging in upstream and downstream alliances. Both upstream and downstream processes can co-exist to promote co-creation and value creation as well as enhancing the overall performance management practices of organizations. (Fang et al. 2015) referenced (Rothaermel and Deeds, 2004) by differentiating upstream and downstream firms as the latter being dependent in utilizing the services produced by the former. From the perspective of global business management (Vance, 2006) captures the upstream part of an organization as its headquarters activities and the downstream part as an organization's local country units.

In the scope of the study organization of this research, the UNHQ has tasked the PMU to design a Property Management Performance Management Framework (PMPMF), which is being used by its missions in different countries to enhance continuous improvements in asset management. As stated earlier under the research problem, the Work Plan 1 (see appendices 3a and 3b) clearly stipulates that to be able to meet the third goal, it will be in the interest of the LSD/DFS to define a performance framework capable of measuring, monitoring and managing the end-to-end processes of the supply chain.

As one of the key objectives of the research, the UNHQ seeks to assess opportunities for expanding the scope of the PMPMF to include both upstream and downstream processes involving various service components (Supply Chain and Service Delivery). This demands various UNP across the SC and LSD services to be correctly identified, measured and managed effectively across the downstream and upstream processes.

2.4 Factors Influencing PMPMF Development

Diverse factors influence the development of a robust PMPMF in several ways. In the context of this research, three relevant factors are discussed: Stakeholder Management, Governance and Organizational Culture. These factors become relevant when planning and monitoring the end to end processes of the supply chain of an organization.

2.4.1 Stakeholder Management

Some of the stakeholders involved in the UNHQ performance accountability and transparency of UNP are: Member States, Governing Bodies, Heads of Administration, and Directors/Chiefs of Mission Support, Controller, Heads of Departments/Offices/Missions, Oversight Bodies and Management Committee etc. The complexity associated in managing these groups of stakeholders demands effective SM. Also to be able to effectively address our research questions, SM will play a pivotal role. The complex nature of managing stakeholders across

the downstream and upstream processes of UN supply chain (SC) and other service units; requires effective SM to be able to extend the current scope of the PMPMF.

Effective stakeholder management is one of the panaceas for dealing with poor organizational performance management. Stakeholder management (SM) helps to identify and address pertinent issues within and outside the confines of an organization (Wong et al. 2006) but when it comes to dealing with an intergovernmental organization such as the UN, all relevant stakeholders must be managed internally and externally.

Integrating the interests of all stakeholders, rather than maximizing the position of some segment groups can be considered as having a successful strategy, (Freeman and McVea, 2001). SM also has positive correlation with shaping a firms strategy while impacting financial performance, (Berman et al. 1999, Kaplan and Norton 2001a, 2001). According to (Kaplan and Norton, 2001a), balancing performance measures must include both financial and non-financial measures (Gunasekaran, 2001 & 2004). Alignment of stakeholder management with organizations financial and non-financial measurements can help identify certain areas of improvement in building robust performance management system.

Research conducted by (Hillman and Keim, 2001) found out that good SM relationships lead to improved shareholder wealth by helping firms develop intangible, valuable assets which can be sources of sustainable competitive advantage. Stakeholders' actions and attitudes can affect the performance of organizations (Ranko and Carder 1998, Kagaari et al. 2010, Beringer et al. 2013). It's therefore necessary to manage and integrate effectively an organization's stakeholders when building robust performance management frameworks. It therefore behooves PMU of the UNHQ to be able to effectively manage all the relevant stakeholders when seeking to expand the current PMPMF to include both downstream and upstream processes.

2.4.2 Governance

In the attempt of developing a robust PMPMF, one strategic desired capability envisioned to be provided by the performance management framework, is "to establish a governance framework to oversee the strategic transformation of supply chain management and ensure alignment with overall UN strategy and observable benefits measured, documented and reported" (DFS Supply Chain Management Strategy, 2014-2016). Also the 2014 Supply Chain Vision Strategy of the DFS stressed the need for governance (See appendix 8).

Governance is envisioned different by several schools of thoughts but in the scope of organization, (Too and Weaver, 2014) relates its definition to (Muller, 2009) as a framework for ethical decision-making and managerial action within an organization and based on:

1. Transparency
2. Accountability and
3. Defined roles

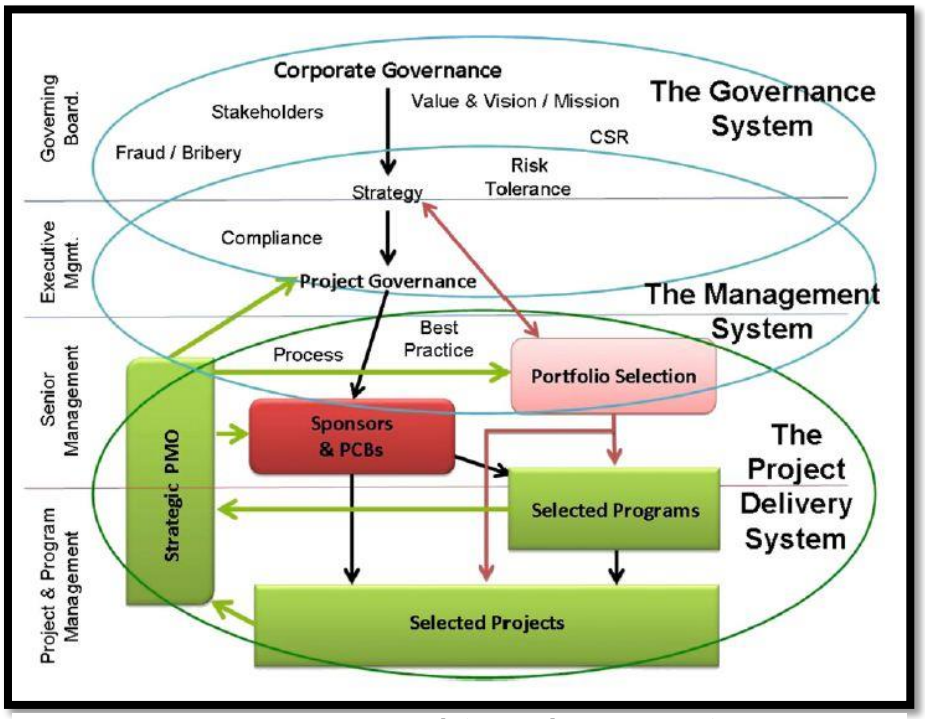


Figure 6Project Governance Framework (Too and Weaver, 2014)

Governance may share some similar concepts with management but the authors emphasized that governance is totally different from management. This is shown in the project governance framework (see figure 6), which separately positions the governing boards, executive management, senior management and project and program management from each other. The framework seeks to provide effective project outcomes through strategic governance. (Hernández-Espallardo et al. 2010) presents some applicable governance mechanisms for managing supply chain in inter-organizational governance (See Appendix 9). It's also relevant to emphasize that having a governing board can contribute to better performance outcomes (Abor, 2015) and governance models help in developing good performance management for assets (PWC, 2014).

2.4.3 Organizational Culture

An organizational culture creates an atmosphere capable of either affecting the organization's performance positively or negatively. This is to emphasize that a sustainable organizational

culture is linked with a firm's performance (Melnyk et al. 2014). In highly dynamic markets, culture influences financial performance (Homburg and Pflesser, 2000).A data survey from 383 Canadian manufacturing firms' analysis revealed that culture had an indirect effect on performance measurement systems (Jean-Francois, 2006). There is therefore the need to consider the current established culture across the UNHQ service units and other units to help improve the current PMPMF so as to be able to effectively implement the transformation (Kagaari, 2011).

2.5 Management Systems and Tools to Improve Performance Management

Several management systems and tools are utilized within and outside the organization to enhance performance management. In the context of this research, the focus will be on Business Intelligence (BI) systems and Enterprise Resource Planning (ERP) system. According to (Cirtita et al. 2012) who referenced (Wisner et al. 2008) stating novel technologies have contributed in enhancing performance metrics across the supply chain.

The importance of aligning organizations processes with ERP and BI tools are enormous. At the same time, some organizations have seen massive loss as a result of implementing these systems. According to (Chou et al. 2005, Watson and Wixom 2007) the integration of ERP systems into all facets of business is possible with ERP and at the same time, real time data is made available by ERP and BI systems. (Chou et al. 2005) adopted an integrated framework by (Monitor, 2001) showing how BI and ERP can be integrated. (See Appendix 10) Findings from (Brady and Gargeya, 2005) identified several success and failure factors of ERP systems implementation and asserted that strong or suitable organizational culture has positive impact to the success of SAP implementation is numerous organizations.

The advert of BI has become a key enabler for increasing value and performance (Watson and Wixom, 2007). Appendix 11 shows the spectrum of BI benefits. According to (Collier et al. 2008, Ranjan, 2008) BI systems:

- Leverage the large data infrastructure investments like ERP systems that firms acquire
- Have the potential to realize the substantial value locked up in a firm's data resources,
- Help understand, transform, and shape data into networked market places to achieve competitive advantage.

In concluding this section of the research, a conceptual framework is modelled showing how the research was positioned in the literature (See figure 7 below):

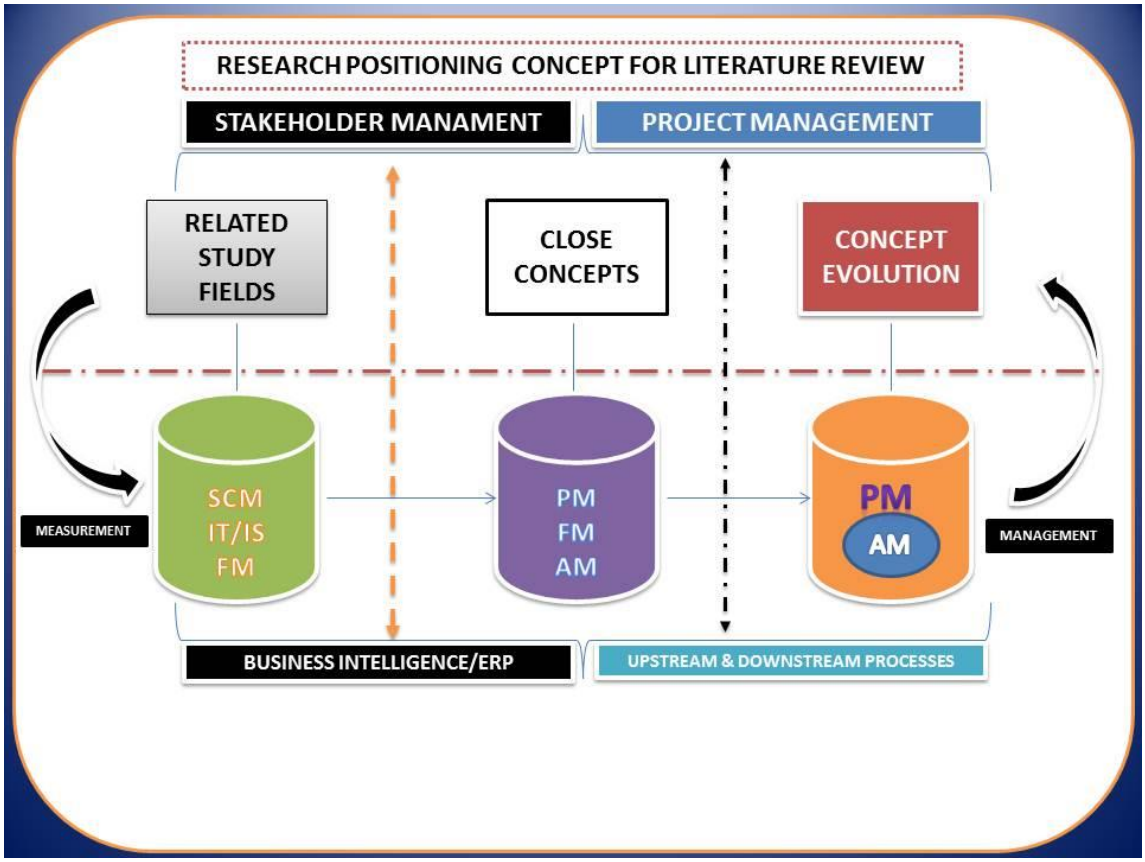


Figure 7 Research Positioning Concept

2.6 Literature Gap

(Kaplan and Norton, 2001a) assert that measurement sets the foundation for clear focus to enable effective management. Extant studies show that diverse measurement and management systems exit but less attention has been given to the transition of measurement systems to incorporate effective management initiatives (Gunasekaran et al. 2001). The research contributes to this transition by adopting the TOTS Canvas developed in this thesis. Again, most extant studies reveal that Property Management (PM) is related to the management of real estates but PM can also be considered as anything valuable with its rights delineated (Wong et al. 2006). The research contributes to the fact that performance measurements should be geared towards management. Within the UNHQ, PM extends beyond real estates. This is expounded further as part of the Chapter 3. The research consequently develops a robust performance management framework (***TOTS Canvas***) capable of helping organizations and researchers to identify relevant KPI categorizations for effective decision making and research works.

3 Case Organization (UNHQ, NY USA)

This chapter of the research provides an overview of the case organization, UNHQ, at the New York, USA. This research is written as part of the researcher's work at the Logistics Support Division (LSD) at the Department of Field Support (DFS). Appendix 2 shows the work chart at the DFS. Also, this chapter captures a summary of the current PMPMF and the ERP system used within the UN Secretariat.

3.1 Department of Field Support (DFS)

The provision of dedicated support to peacekeeping operations, special political missions and other field presences are the main responsibilities of DFS. Since its inception in 2007, the department has been providing rigid support to help UN field missions to promote peace and security by assisting in the areas of:

- Budget and Finance
- ***Logistics***
- Information, Communication and Technology (ICT)
- Human Resources and
- General Administration

The Department of Field Support (DFS) has five (5) main offices:

1. Offices of the Under-and Assistant Secretaries-General
2. Field Personnel Division
3. Field Budget and Finance Division
4. ICT Division
5. ***Logistics Support Division (LSD)***

DFS and the Department of Peacekeeping Operations (DPKO) share services of the Office of the Chief of Staff. Appendix 12 shows the chart of DFS-DPKO Offices with shared capacities for integration, as of 03.02.2015 (United Nations Website, 2015a)

3.2 Logistic Support Division (LSD)

As a key component of DFS, LSD provides logistical support functions to peacekeeping, peacebuilding and political missions around the world. The department is also responsible for the implementation and monitoring of logistical policies and procedures in peacekeeping. There are several other divisions within LSD (United Nations Website 2, 2015b).

In all matters related to Logistics and Supply Chain (SC), the LSD is further responsible for strategic planning, risk and performance management, providing oversight and technical advice to UN:

1. Member States
2. Clients and
3. Partners

This involves all aspects of SC modularization activities and working closely with the Procurement Division of the UN to provide specific global contracts that directly affect UN Member States. The LSD also works with integrated operational teams of the DPKO and the Department of Political Affairs (DPA) to ensure that logistic supports to field operations are delivered effectively and in an efficient manner. The table 3 below shows the derived roles and services provided by LSD:

Table 3 Derived Roles and Services provided by LSD

LSD DERIVED ROLES	LSD SERVICE DELIVERY
• **Strategic Planning** • **Policy Development** • **Service Delivery, management of logistics and global supply chain** • **Oversight and Performance Management** • **Ensure optimal support to Member States and Secretariat partners** • **Contract establishment, management and administration** • **Resource utilization in operationally effective and efficient manner**	• Rations • Fuel • General Supplies (Uniform/ office/ security/ weapons) • Engineering (Power, constructions, water, waste management, defence stores, rentals/ leases) • Medical (Pharmaceuticals/ equipment/ TCC Medical) • Ground Transport (Passenger Vehicles, Logistical and Specialized Equipment and Road and Workshop Safety) • Aviation (contracts and LOAs) • Strategic Movements (personnel and COE) • COE (MOUs, CMMRB, verification and assist claims) • Property Management • Logistics Planning and Coordination • Aviation Safety • Environmental Management

The above service delivery units will be assessed to find possible opportunities to be included in the expansion of the PMPMF.

3.3 Property Management Unit (PMU)

PMU is under the Logistic Support Division (LSD) at the UNHQ, New York. The unit provides policy guidance and access the performance of DFS field missions using standard KPIs. Property Management functions include:

- Asset Management (AM)
- Fixed Assets Management (FAM)
- Property Control and Inventory Management (PCIM)
- Receiving and Inspection (R/I)
- Property Survey (PS) and
- Property Disposal (PD)

Apart from AM and FAM, PMU functions cover the rest of the PM functions listed above. The two main objectives of PMU are:

- Strengthening stewardship of UNOE while gaining greater efficiencies and economies of scale through implementation of well-managed and agile supply chain across DFS.

- Asset Accountability and Financial Reporting on Property, Plant and Equipment (PP&E) and Inventory under International Public Sector Accounting Standards (IPSAS)- (DFS Directive, 2015)

PMU and COE are different units under one section in LSD. See Appendix 13 for PMU and COE Organization and Staffing Chart. Figure 8 below shows the PMU work practice at the UNHQ.

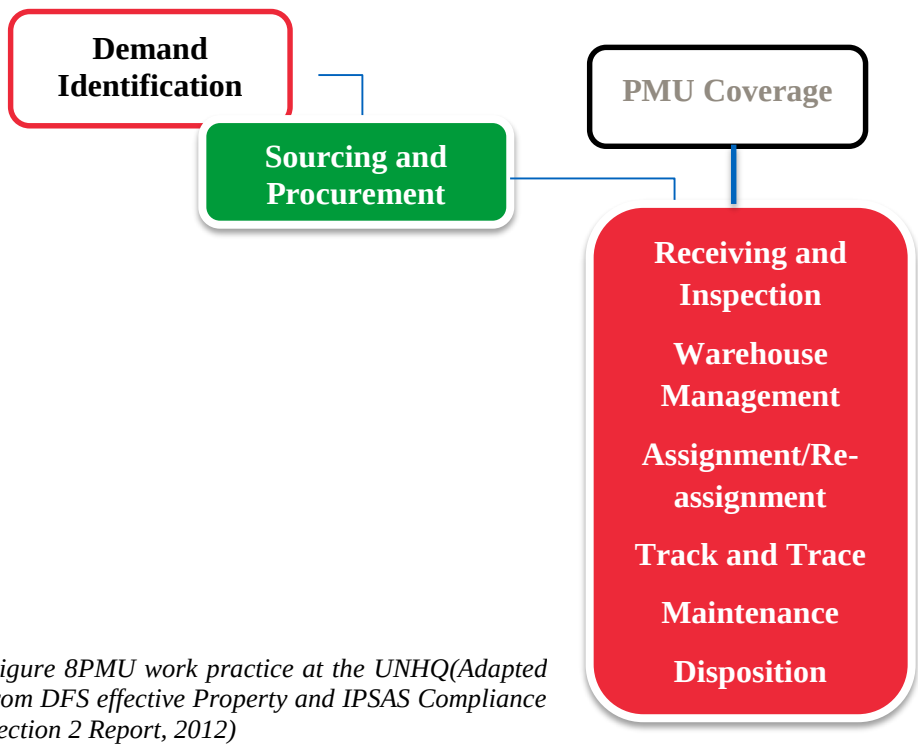


Figure 8PMU work practice at the UNHQ(Adapted from DFS effective Property and IPSAS Compliance Section 2 Report, 2012)

3.4 UNHQ ERP System

The UNHQ initiated a project to retire its in-house built ERP system Galileo. The new ERP solution undergoing full implementation is called Umoja (Extension 1 completed). "*Umoja Extension 2 is expected to complete the Umoja functionalities to support end-to-end supply chain, all the way from force planning/management, demand/supply analysis, quality management and integrating those with the materiel management modules already in Umoja Foundation. Umoja Extension 2 is due to be scoped and designed by end-2015, developed and tested in 2016/17 and deployed in 2017/18.*" Appendix 14 shows some of the weaknesses identified with Galileo.

3.4.1 Umoja

The word Umoja is a Swahili word which is translated "unity". As an Enterprise Resource Planning (ERP) solution, Umoja is designed to facilitate and streamline information among business functions at the UNHQ Secretariat. The ERP system was designed to become the new central administrative system to replace several fragmented legacy systems at the UN (United Nations Website, 2015c). The expected benefits for Umoja Extension 2 are showed in table 4 below (*Project Initiation Document for Migration of Peacekeeping Entities to Umoja Foundation Supply Chain and Decommissioning of Galileo, Proposal 02.03.15 KH*):

Table 4 Expected Benefits for Umoja full Implementation

Expected Benefits / Opportunities
1. Demonstrates DFS's commitment to Organization's strategic goal by mainstreaming peacekeeping entities into a unified UN secretariat-wide platform for managing and reporting; 2. Integration of peacekeeping entities to a global system i.e., direct link between finance, procurement, logistics, human resources, grant and project management, etc.; 3. Enables IPSAS accounting and reporting for all Peacekeeping using a single, integrated system and single instance of data with reduced manual intervention/error; 4. Complements the development of DFS Supply Chain Management Strategy road map by providing a global secretariat-wide context and system/infrastructure support pillar; 5. Provides peacekeeping with an opportunity for review and streamlining of business processes to best practices, process re-engineering, sharing of a common data, and possibly policy changes; 6. Improves visibility of information from all locations globally, improved access to data and improved potential for business analytics by HQ and easier access to reports by key stakeholders e.g. Member States; 7. Provides a solid basis for the design and deployment of Umoja Extension 2 to proceed;

8. Lowers risks for the transition to the Umoja Extension 2 by enabling a gradual 2-stage transition i.e., from existing Umoja/Galileo system first to Umoja Foundation and then eventually to Umoja Extension 2;
9. Opens up potential for benefits realization via having fewer IT systems and environments to support;
10. Avails DPKO/SPMs to enhanced functionalities under Umoja, e.g., automated classifications of materiel, improved functionalities for managing expendables, stock reservation to facilitate acquisition planning, integrated stock availability check before issue/procurement, improved functionality for warehouse management, improved business intelligence and a robust performance management framework for the end-to-end material management.

3.4.2 Umoja Business Intelligence (UBI)

The ability to conduct complex and real-time analyses of critical data, a practice known as *Business Intelligence* is one of the transformative benefits of Umoja to UN (United Nations Website, 2015d, Chou et al. 2005, Watson and Wixom 2007). The UBI module "is a robust reporting and data visualization platform". The platform allows users to improve work efficiency results by searching, viewing and analyzing variety of metrics, reports, and KPIs. The platform was also designed to support strategic planning and decision-making. The inception of Umoja supports the digitalization era by minimizing or avoiding research-based clerical tasks (United Nations Website, 2015d).

The UNHQ ERP system covers several data covering range such as procurement, financial processes and other areas. Some of the functional areas include: *Supply Chain*, Funds Management, FI/General Ledger, Accounts Receivable, Accounts Payable, *Fixed Assets*, *Real Estate*, Project Systems and Grants Management. The KPI measurements, under the Property Management Performance Management Framework (PMPMF) are supported by the roll out of Umoja.

3.5 Current Property Management Performance Management Framework

According to Melnyk et al. (2014), a metric does more than just a performance measure notwithstanding performance measure can be quantified and at the same time verified. From a business perspective, a metric becomes very critical while a measure is very informative. The current PMPMF used at the UNHQ New York, consist of the PM specific KPIs and IPSAS specific KPIs. These KPIs are used to support the main objectives of the PMU. All UN missions' property management performances are assessed using these sects of KPIs.

The KPIs are integrated into Umoja, which automatically generates performance management reports for each UN missions for assessment and continuous improvement of UN properties in DPKO/SPM. The table 5 below shows the various Plant and Equipment (P&E) classes as well as five commodity groups for IPSAS implementation in DFS.

Table 5 IPSAS Plant and Equipment (P&E) Classes and Commodity Groups

Five Commodity Groups	**Five P&E Classes**
Vehicles	Buildings
Prefabricated Buildings	Communication and IT Equipment
Network Equipment	Furniture and Fixtures
Satellite Communication System	Machinery & Equipment
Generators	Vehicles

Property, Plant and Equipment are defined as:

1. All tangible items under the control of the UN
2. Held for use in the production of goods and services
3. For administrative usage
4. Serviceable life expectancy greater than 12 months

The general category of Property, Plant and Equipment in the UN consists of:

a. Real Property
b. Plant and Equipment (P&E)

As at the time of the research, the set of KPIs did not factored into consideration real properties. Also, the scope of financial inventory comprised: bottled water, rations and fuel. The current KPIs, used by PMU to assess UNHQ mission performance (property management) covers:

1. The timely recording and effective quality assurance on financial data for acquired and received property
2. Effective Accounting and Control of Non Expandable Property (NEP)
3. Enhancement of Control and Risk Management on NEP loss and theft
4. Ensuring the Accuracy of IPSAS Financial Reports on Assets
5. Establishing an efficient and effective framework for the Write Off and Disposal Process
6. Monitoring the count of Expendable Property (EP) in stock
7. Assessing stocktaking, stock control procedures and order lead time
8. Evaluating NEP based on life expectancy and obsolescence

9. Factoring Surplus into Missions' Acquisition Plans
10. Ensuring the effective and efficient care and maintenance of NEP property in operational ready state
11. Assessing Efficiency Ratios and Commodity Distribution Strategy

Each of the above categories has KPIs with target days of completion and appropriate level of tolerance rates with respective unit of measurement (UoM). An example of the KPIs related to the timely recording and effective quality assurance on financial data for acquired and received property is shown in table 6 below:

Table 6 KPIs for Process R&I (DFS SOP, 2015)

KPI: Title	KPI: Formula	UoM	Target	Tolerance Rate	Business Need
R&I Process Timeline	Average R&I process timeline calculated in days	days	15	5	Evaluate the time needed to process R&I activities
R&I checked By PCIU	Percentage of R&I reports checked by PCIU	%	100%	5%	Utilize the Galileo error-proofing function on the financial information linked to the acquisition of UNOE

The addition of transparency to financial and operational processes, tracking and reporting of UN properties are some of the objectives of the KPIs. This enables accountability, management and productivity. The measurements of KPIs points towards specific processes that require review and continuous improvement. Quarterly reports are generated using Umoja to assess missions' property management performances. This quarterly activity is carried out by PMU.

3.6 International Public Sector Accounting Standards (IPSAS)

The adoption of IPSAS by UN has identified five (5) major envisioned benefit categories. These include:

- Alignment with best practices
- Improved stewardship of assets and liabilities
- Availability of more comprehensive information on costs
- Improved consistency and comparability and
- Increased transparency and accountability.

Some of the major stakeholders involved in the realization plan of IPSAS include: Member States, Governing Bodies, Heads of Administration, and Directors/Chiefs of Mission Support, Controller, Heads of Departments/Offices/Missions, Oversight Bodies and Management

Committee. A detailed list of IPSAS envisioned benefit and KPIs are shown in Appendices 15 and 16.

3.7 DFS Supply Chain Focus

In view of the second objective of the research: To assess opportunities for expanding the scope of the Property Management Performance Management Framework (PMPMF) to be included in both upstream and downstream processes involving various service components (Supply Chain and Service Delivery). This section of the research provides an overview on how the PMPMF covers some aspects of DFS downstream supply chain (SC) and how the research seeks to extend the PMPMF to include the upstream supply chain functions. This is to emphasize that the PMPMF needs to be assessed and extended to cover the overall end-to-end processes of DFS SC. This is where all the various sub-topics addressed under chapter 2 (Literature review) become very crucial especially with regards to United Nations global SC, (Vance, 2006).

3.7.1 Functions of DFS SC Processes (SCP)

DFS SC has three main functions. It comprises planning, execution, and monitoring and control. Each of these functions has four (4) sub-groups. The Planning section includes: Demand Planning (DP), Acquisition Planning (AP), Inventory Planning (IP) and Resource and Capacity Planning (RCP). The Execution section also includes: Sourcing and Purchasing (SP), Transport and Inbound Logistics (TIL), Warehousing (W) and Transport and Outbound Logistics (TOL). Lastly the Monitoring and Control (MC) section deals with: Category Management (CatM), Contract Management (CM), Track and Trace (TT) and Inventory and Asset Management (IAM). The figure 9 below shows the three main functions of DFS SCP and areas where the current PMPMF covers (indicated with a red-ticked mark). The PMPMF has KPIs that covers (IP) under the planning section (1/4). Under the execution section, the KPIs also covers the TIL, W and TOL (3/4) and TT & IAM (under monitoring and control section-2/4). The entire end-to-end processes for DSF upstream and downstream SC concept can be seen as well from figure 10 below.

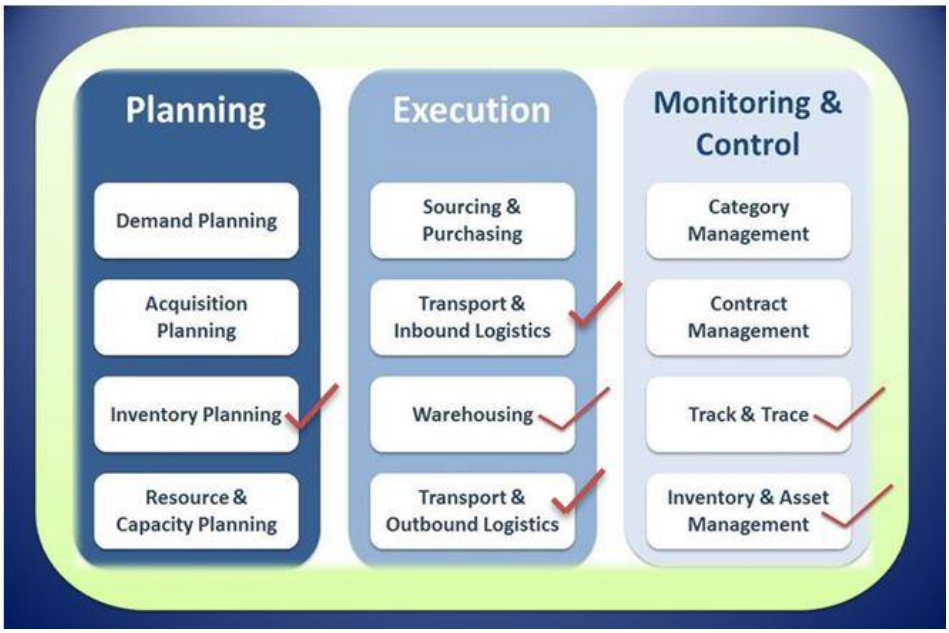


Figure 9 The three main functions of DFS SCP and PMPMF Coverage (Adapted from DFS SCM draft, 2014)

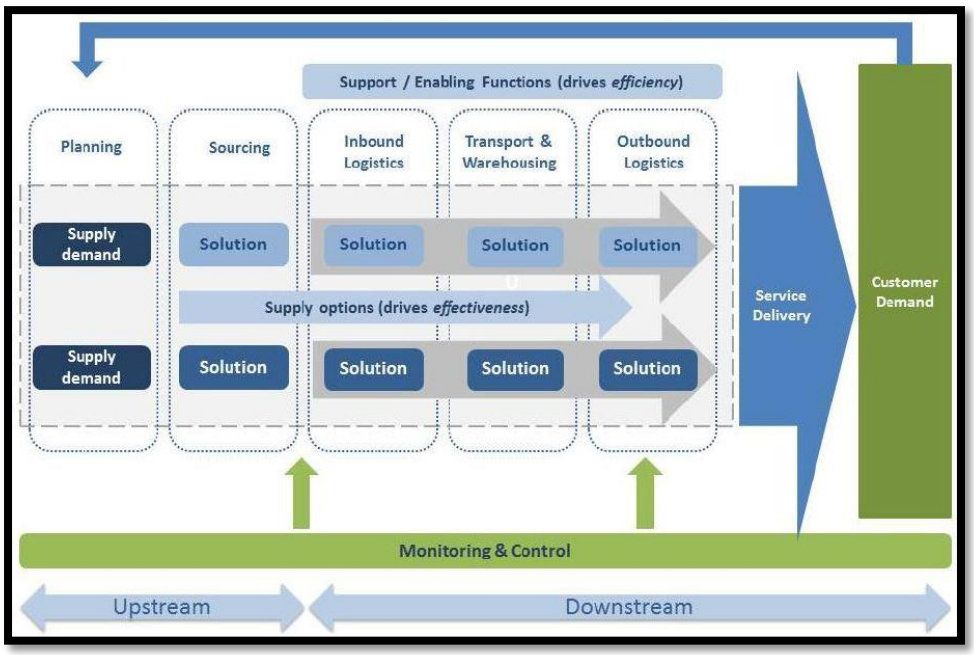


Figure 10DSF Upstream & Downstream SC concept (DFS SCM Draft, 2014)

Supply Chain functions with regards to DFS SCP can be grouped as downstream and upstream functions. The upstream functions are performed based on UN strategic and advisory roles. These functions are envisioned to be performed globally by the UN. Also the downstream functions of the UN SC are performed at the local level. Table 7 below shows the SC functions performed as part of upstream and downstream functions.

Table 7UN Upstream and Downstream SC functions (Adapted from DFS SCM Strategy, 2014)

Upstream SC Functions	**Downstream SC Functions**
Global Demand Planning	Warehousing
Acquisition and Inventory Planning	
Strategic Sourcing	Inbound Logistics
Resource and Capacity Planning	Outbound Logistics
Category Management	
Performance Monitoring	Transportation
Control and Quality Assurance	Associated Information flow (Track and Trace)

4 Research Framework and Theory

This chapter of the research presents the conceptual framework for the research based on (Gunasekaran et al. 2001 & 2004) framework. The concept of benchmarking was briefly explained to be relevant to PMU/LSD/DFS/UNHQ New York. The research framework and theory development for the research was based on substantive review of literature that can be applied in mainstream supply chain performance management, individual, group, organizational or societal level to promote performance management (Myers, 2013).

In view of the first objective of the research, a survey was designed and administered online to UN missions; as a result of a thorough review of the current PMPMF. The second objective of the research assesses opportunities for expanding the scope of the Property Management Performance Management Framework to include both upstream and downstream processes involving various service components (Supply Chain and Service Delivery-Emphasis on SC). (Gopal and Thakkar, 2012) summarizes several supply chain measures done by other researchers (see appendix 19).

Practitioners and researchers in mainstream supply chain uses performance metrics and measures as one of the main tools in enhancing the effective management of an end to end supply chain. The application of certain key performance indicators (KPIs) have strong reflection on the strategic impact, tactical impact as well as the operational impact of an organization's end to end performance management processes (Gunasekaran et al. 2004).

The nature of the assumed roles of PMU/LSD in the DFS of the UNHQ only makes it impossible to consider the operational metrics and measures in the supply chain and other service deliveries of the UN. Rather, the strategic and tactical level KPIs are of most relevant to PMU in exercising stewardship and accountability over UNOE. Hence it's vital to stress here that for the upstream part of SC, the focus will be on inventory planning and resource and capacity planning. The downstream part of the SC which will be relevant to the PMU will also factor into account Sourcing and Purchasing as well as Contract Management. This is simplified in table 8 below:

Table 8 SC end to end Research Focus for Scope Expansion

Upstream SC Functions -Research Focus	**Downstream SC Functions -Research Focus**
Planning:	***Execution:***
Demand Planning	Sourcing and Purchasing
Acquisition Planning	Contract Management
Resource and Capacity Planning	

4.1 Supply Chain Framework (Gunasekaran et al. 2001 and 2004)

A framework adopted from (Gunasekaran et al. 2001 and 2004) serves as the foundation for this research (See Appendix 17). The categorization of performance metrics and measures help organization to understand better how financial and non-financial metrics can be effectively utilized. This helps to complement relevant frameworks in several mainstream studies (Dahlgaard and Setijono, 2007). The framework presented by (Gunasekaran et al. 2001& 2004, Cai et al. 2009 and Chithambaranathan et al. 2015) categorized both financial and non-financial performance metrics into strategic level, tactical level and operational level. This categorization is beneficial to both supply chain practitioners in the academia and industrial sector (Chae, 2009).

Benchmarking was also emphasized and adopted as an approach to improving an organizations performance management. As emphasized by (Grover, 2015), the achievement of an organization's long term objectives can be enhanced through an effective benchmarking process.

4.2 Tactical-Operational-Strategic (TOS) Level and Technological Level

Tactical level, Operational level and strategic levels have been used by researchers such as (Gunasekaran et al. 2001 & 2004) to categorized KPIs. This section emphasized on this categorization and furthermore includes technological level as an additional level. An organization might include the latter level under strategic level but extant studies hasn't really

treated this as such hence this present study emphasize the growing concerns of technology as a separate level.

4.2.1 Tactical-Operational-Strategic (TOS) Levels

Tactical level of classifying performance metrics helps management to best identify relevant KPIs needed to support organizational decision making. Resource allocation across the supply chain is handled at the tactical level. This also helps to affect the performance level undertaken at the strategic level. A well planned operational objective facilitates the success of tactical level initiatives. Tactical level objectives can be done both at the upstream and downstream parts of the supply chain but it's relevant to stress that tactical decisions are mostly done at the upstream section. Forecasting accuracy is an example of the performance KPIs implemented at the tactical level.

According to Gunasekaran et al. (2004), key performance indicators at the operational level measures:

- Ability in day to day technical representation
- Adherence to developed schedule
- Ability to avoid complaints and
- Achievement of defect free deliveries.

An end to end performance management across an organizational process links operational level and tactical level to the strategic level. KPI measurements at the strategic level help top management at the upstream part of the end to end performance management; to exercise good oversight over the effective utilization of assets. Gunasekaran et al. (2001 and 2004) further emphasized that measurements at the strategic level may involve tasks such as:

- Benchmarking lead time against industry norms
- Quality Assessment
- Cost-Saving Initiatives and
- Supplier Pricing against market

As mentioned earlier, PMU's objectives given by the UNHQ emphasize to a greater extent strategic level metrics followed by tactical level performance metrics. The operational level KPIs become more relevant at the mission levels and regional levels.

4.2.2 Technological level (Relevance of IT in Performance Management)

Information Technology (IT) over the years has been utilized to improve organizational performance. The right choice of technology can have a strong impact on an organizations end to end performance management across the supply chain (Daekwan et al. 2006, Subramani, 2004 and Aho, 2012). The technological level metrics can also be adopted at both the upstream and downstream parts of the supply chain (Grover, 2015). This level also relates to activities carried out at the tactical, strategic, and operational levels. Hence with the ***T***echnological level (T), ***O***perational level (O), ***T***actical level (T) and ***S***trategic level (S), the first initials are used to develop the ***"TOTS"*** Canvas. Based on Gunasekaran et al. (2001 and 2004) research, TOTS model (see figure 11 below) is used as the main framework to address the research questions.

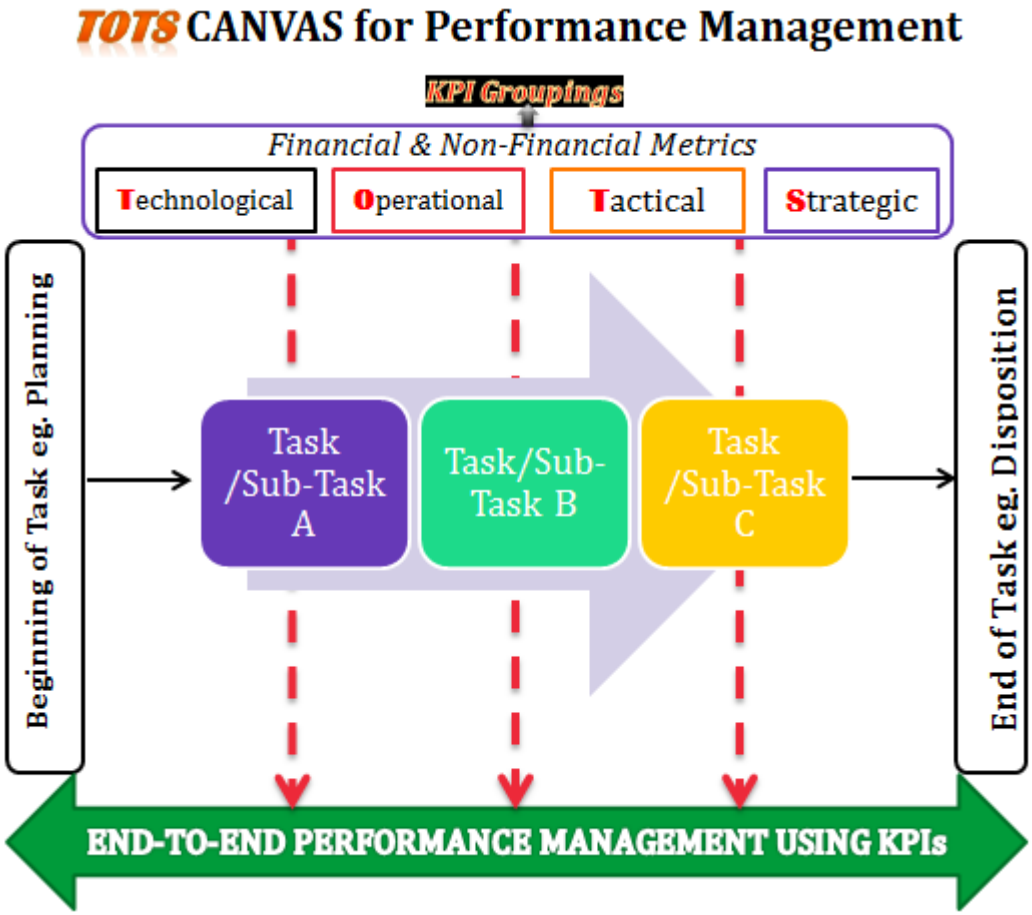


Figure 11 TOTS Canvas (Based on Gunasekaran et al. 2001 & 2004)

4.3 Benchmarking

The comparison with best-novelty practices outside one's organization can be referred to as benchmarking. Benchmarking can help improve performance management practices in an organization if the process of benchmarking offers continuous measurements (Christopher, 1998 and Togar, 2004). The act of benchmarking facilitates value creation and enhances beneficial performance for relevant stakeholders involved at the upstream and downstream ends of the supply chain (Togar, 2004). The achievement of an organization's long term objectives can be enhanced through an effective benchmarking process (Grover, 2015).

5 Methodology

The chosen methodological approach adopted is discussed under this section of the research. The methods of research processes used, the data collection and analysis are all addressed under this chapter of the research. Both qualitative and quantitative research techniques were used for this research.

5.1 Research Methods

To understand the in-depth context within which the PMPMF could influence actions and better decision making, both qualitative and quantitative research techniques were adopted (Myers, 2013). The table 9 below shows examples of both qualitative and quantitative research methods.

Table 9 Examples of Qualitative and Quantitative Research Methods (Myers, 2013)

Qualitative research: A focus on text	Quantitative research: A focus on numbers
Action research	Surveys
Case study research	Laboratory experiments
Ethnography	Simulation
Grounded theory	Mathematical modelling
Semiotics	Structured equation modelling
Discourse analysis	Statistical analysis
Hermeneutics	Econometrics
Narrative and metaphor	

A structured questionnaire was designed and discussed with PMU staff. To avoid disclosure of respondents' identities, the researcher agreed with PMU staff to send the survey electronically. All the respondents were UN staff at various UN missions across the world. Other academic literatures and industry best practices were considered to identify relevant KPIs vital to PMU (Gunasekaran 2001&2004, Chae, 2009, Grover, 2015, See also Appendix 21).As part of the participatory research (action research), the researcher also partook in several VTC meetings organized by PMU /UNHQ with UN field missions (SPM and DPKO).

The electronic survey sent to the various UN missions was to help identify:

- The extent to which the PMPMF has helped missions to exercise good stewardship over UN assets

- The most relevant challenges that UN missions face in exercising stewardship over UNOE
- Whether missions receive sufficient resources to carry out PM duties
- Whether missions experience difficulties in using the BI tools to carry out PM tasks.
- If there is effective coordination between procurement sections/units and asset/commodity managers in various UN missions to determine demand forecast
- Areas of weaknesses in the current PMPMF

5.2 Data Collection and Analysis

The face-to-face interviews conducted were to help identify which sections/units/office under LSD, could be added to PMPMF to help expand the scope of the current framework of PMU. The level of observations and participations involved in the VTC meetings was to help understand to some extent, UN specific mission performance with regards to the PMPMF. An electronic survey (see appendix 18) was also sent out to UN missions as part of the data collection techniques. A link to the survey was sent to the appropriate UN missions. Consequently the developed KPIs were achieved as a result of reviewing academic researches and industry best practices (Gunasekaran 2001&2004, Chae, 2009, Grover, 2015, See also Appendix 21). The researcher, by virtue of working at DFS also developed some KPIs which were mentioned in the TOTS Canvas. All the KPIs were validated as being vital to PMU by the heads of PMU/UNHQ (Grover, 2015).

Out of the 40 respondents received from the survey, 34 were completed successfully. See figure 12 below for the respondents by continent. The survey consisted of 18 closed questions and 10 open questions.

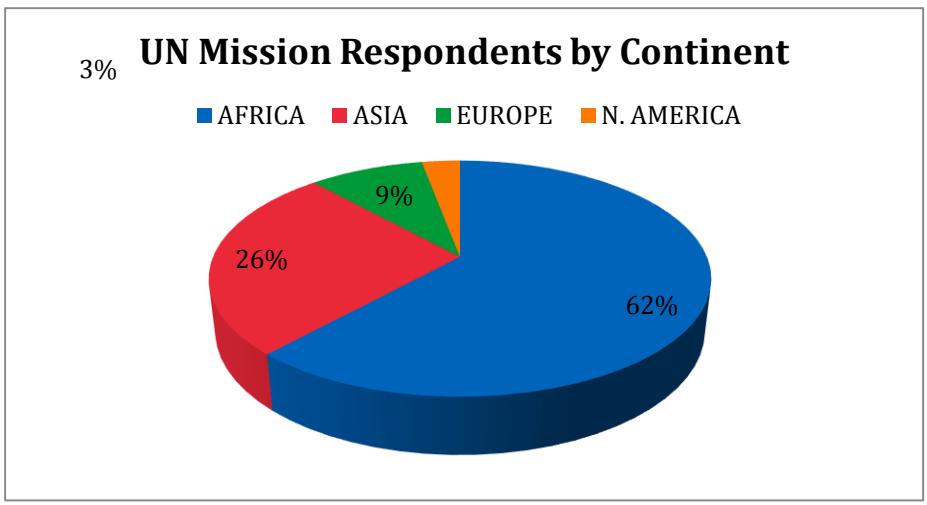


Figure 12 Respondents by continent

All the respondents were UN staffs. The respective functions/positions for the respondents include: Property Management (PM) Officer (PMO), Chief of PM Section, Chief of PM Unit, and Property Management Assistant (PMA). Majority of the respondents were PMA (34.38%) whiles few were PMOs (9.38%). About 31.25% of the respondents were Chief of PM Units whiles 25.0% were Chiefs in PMU Sections.

Whiles 38.24% of the respondents 'agree' to the fact that they experience difficulties in using the business intelligence toolkits for undertaking PM tasks, the same percentage of the respondents 'disagree'. Also the same percentage (5.88%) of the respondents both 'strongly agree' and 'strongly disagree' on this. See figure 13 below for the response rate on the difficulty in using the business intelligence toolkit in undertaking PM duties.

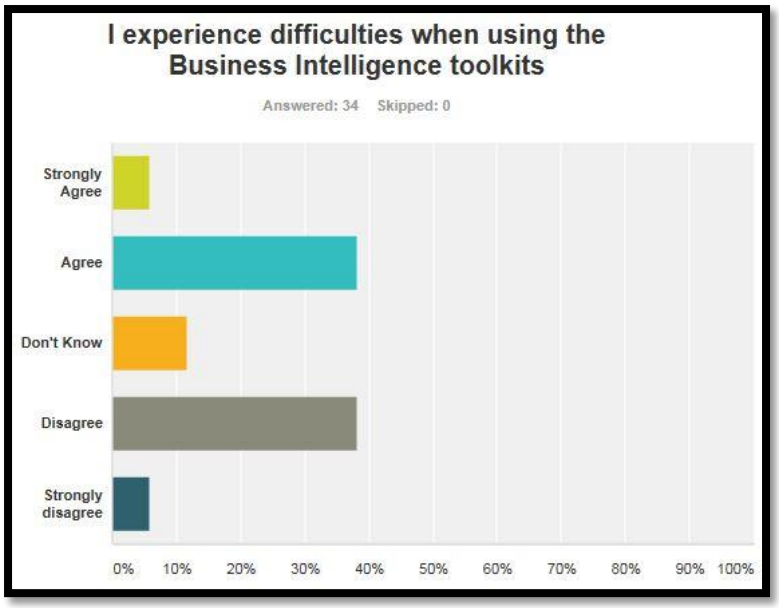


Figure 13 Response to difficulty in using the business intelligence toolkit

The analysis from the survey also shows that almost 59% of the respondents 'agree' that they receive adequate resources to perform property management functions in the UN. Notwithstanding, approximately 35.3% of the respondents 'disagree'. See table 10 below for the full response rate to this observation.

Table 10Response to receiving adequate resources to undertake PM functions

Answer Choices	Responses	
Strongly agree	2.94%	1
Agree	58.82%	20
Disagree	35.29%	12
Strongly Disagree	2.94%	1
Don't Know	0.00%	0
Total		34

Also, on the assertion that there is effective coordination between procurement sections/units and asset/commodity managers in various UN missions to determine demand forecast, about 44.1% of the respondents 'agree' whiles a significant percentage of about 41.2% 'disagree' to this statement. See figure 14 below for the overall graphical response rate to this survey statement.

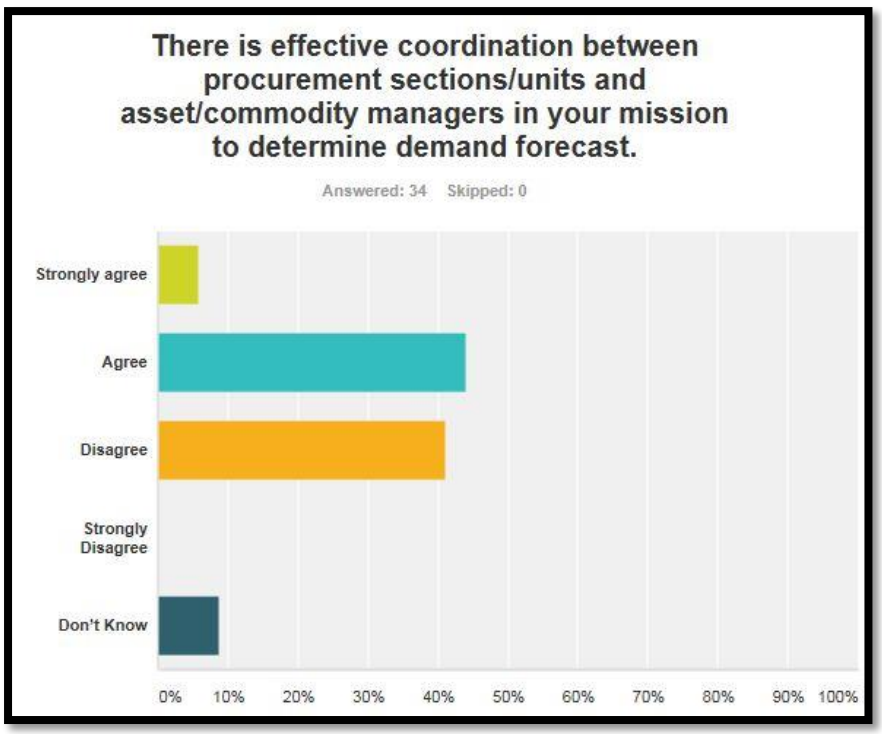


Figure 14Response to the survey assertion that there is effective coordination between procurement sections/units and asset/commodity managers in UN missions to determine demand forecast

Further analysis from the survey revealed that whiles 8.82% of the respondents consider 'delays in providing notification by vendors' as a factor to why their mission isn't able to meet the KPI on provisional R&I process timeline, 14.71% suggested 'delays in updating inbound delivery of information in Umoja' and 'technical issues with Umoja or Galileo' as the most relevant factors that prevent their mission from meeting the same KPI target. On why target set for the same KPI cannot be met, 29.41% of the respondents suggested that 'delays in processing information internally within their missions' is the most vital factor that hinders them. Lastly, a greater percentage (32.35%) of the respondents suggested other factors contributed to why target set for the same KPI cannot be met. These other factors involved all the above mentioned factors, delays in freight forwarding, wrong product ID by inexperienced personnel, lack of trainings/workshops, and lack of resources/staffing. The table 12 below shows the response rate to some of the factors that prevents UN missions from meeting the KPI on Disposal by Commercial Sale.

As can be seen from the table 12 below, a greater percentage of the respondents (44.12%) suggested other factors prevent them from meeting the KPI on Disposal by Commercial Sale. These factors included: all the above factors mentioned in table 11, identification of property by Self Accounting Units (SAUs), lack of staff, delay from procurement and finance to update sales in Galileo, restrictions and sanctions by local authorities, and delays by procurement in processing sales.

Table 11response rate to some of the factors that prevents UN missions from meeting the KPI on Disposal by Commercial Sale

Answer Choices	Responses
Delays with formation of lots	0.00%
Lack of qualified Vendors	8.82%
Long solicitation processing time	14.71%
Restrictions by Local Authorities	32.35%
Other (please specify) Responses	44.12%
Total	

When respondents were asked to select the most relevant factor that prevents their mission from meeting the KPI on P&E Write-off Timeline, 32.35% selected 'delays in WOR approval by SAU' whiles the same percentage (2.94%) of respondents selected 'delays in case processing by PSU' and 'delays with approval of WOC by DMS/CMS'. Again a greater

percentage of the respondents selected ‘other factors’ that prevent them from meeting the KPI on P&E write-off timeline. These other factors included: all the above mentioned factors, lack of Property Control & Inventory Unit (PCIU) member in the LPSB team, lack of effective collaboration and assistance between PSU and SAU on what is to be written off and not, the lack of available experts, and the lack of necessary documentation to proceed with write-off.

The detailed survey answers to the open questions are shown in Appendix 22. A comparative analysis of the various UN functions in describing the competence level of their respective staffs in undertaking PM duties revealed that 87.50% of the Chief of Sections (COS) selected ‘High’ whiles 12.50% selected ‘Average’. About 30.00% of the Chief of Unit (COU) selected ‘Very High’, 40.00% selected ‘High’ and 30.00% selected ‘Average’. Also, 33.33% of the Property Management Officers selected ‘Very High’, ‘High’ and ‘Low’. Lastly, among the Property Management Assistants, 20.00% selected ‘Very High’, 30% selected ‘High’ whiles the remaining 50.00% selected ‘Average’. See Appendix 20 for the graphical presentation of the overall response rate in describing the competence level of UN Property Management (PM) staffs in undertaking PM duties.

A further cross-tabulation of which of the UN PM staff positions experience difficulty in using the BI toolkits showed that about 50% (12.50% + 37.50%) of the Chief of Sections (COSs) experience difficulties in using them. This percentage score is a total of the overall staff who selected agreed and strongly agreed as their choice. Among the Chief of Units (COUs), a total of 20.00% were recorded. The COUs recorded the least percentage score in experiencing difficulties using the BI toolkits. The Property Management Officers (PMOs) recorded a percentage score of 33.33% whiles the Property Management Assistants (PMAs) were about 55.00%. See figure 15 below for the graphical presentation:

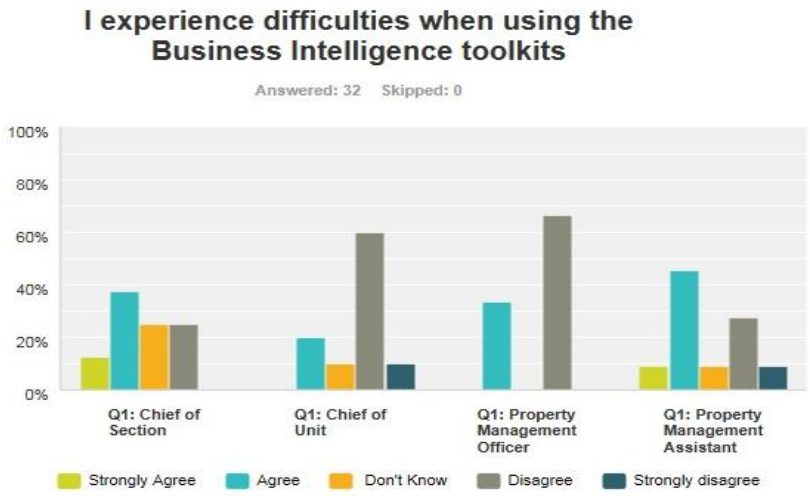


Figure 15 Cross-Tabulation of UN PM Positions with difficulties in Using BI toolkit Usage

In as much as the percentage scores for almost all the functions were high, with regards to experiencing difficulties in using the BI toolkits, almost all the functions recorded higher percentages, in asserting that the PMPMF has helped their missions to exercise strong stewardship over UNOE. Whiles 75.00% of the COSs agreed that the PMPMF has helped their missions to improve UNOE, COUs and PMOs all recorded a percentage of 100.00%, with the PMAs recording a percentage score of about 91.00%. It should be noted again that the percentage scores are the totals of those who selected 'agree' and 'strongly agree'. Figure 16 shows the graphical presentation:

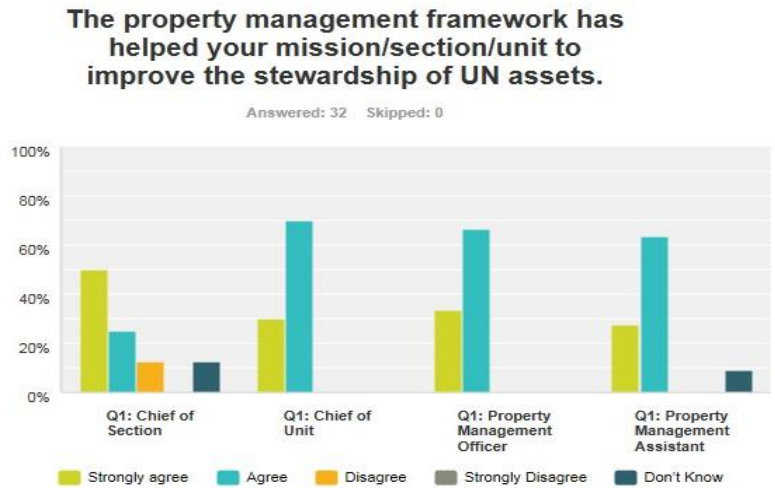


Figure 16 Cross-Tab of UN PM Staff Functions with Performance of PMPMF

Also a summary of the analyses on the challenges experienced by the four UN functions (COSs, COUs, PMOs & PMAs) in managing UNOE is shown in table 12 below:

Table 12 UN PM Functions and Challenges

Chief of Section and Chief of Units Challenges	PM Officer and PM Assistants
• Lack of Proper Inventory Management Practices • Lack of Qualified Staff and Downsizing of Staffs • Lack of Unified (One PM body) PM Section in exercising Oversight functions • Negligence • Lack of Specific Accountability/Penalties for Staffs responsible for UNOE • Lack of supporting documents accompanying the write off request • Political and Security Concerns/barriers from different Geographical Locations • Periodic lapses without Delegation of Authority for Property Management • Lack of qualified vendors in the host nation • Lack of Effective and Continual Training • UNOE are relocated/replaced without notification to the respective warehouse managers/staffs	• Lack of Qualified Staff • Poor Corporation on the side of end users, particularly assets assigned to troop contributing countries (TCC) • Shortage of Staff • Lack of effective coordination between asset managers and mission Property Management units • Wrong data entries in Galileo/Umoja

In concluding the analysis with regards to the survey, when respondents were asked to respond to the assertion that the property management framework has helped their mission/section/unit to improve the stewardship of UN assets, based on a Likert Scale response: about 35.3% selected 'Strongly Agree', more than half the respondents (approximately 55.9%) selected 'Agree', about 2.9% selected 'Disagree' whiles the remaining 5.9% selected 'Don't Know'. Overall about **91.2% (35.3+55.9**) of the respondents agreed that the PMU PMPMF has helped UN missions/sections/units to improve stewardship over UN assets. See the graphical presentation below in figure 17.

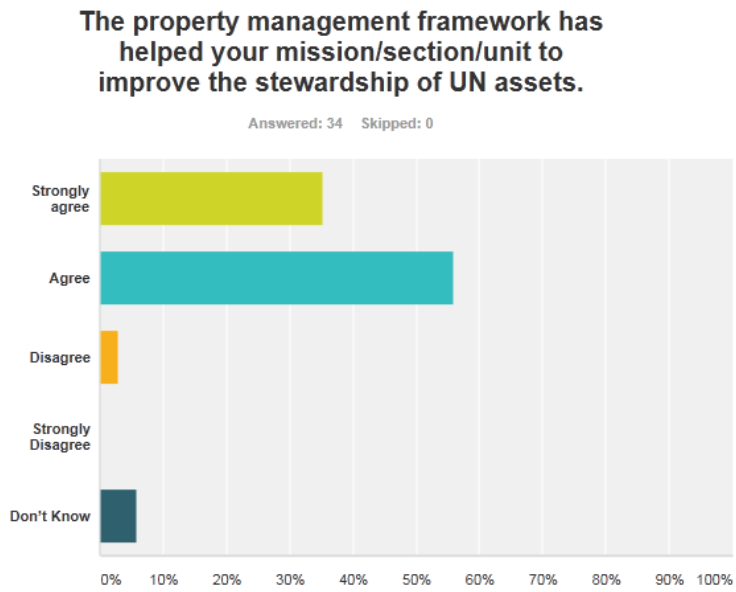


Figure 17Response to the assertion that the PMPMF has helped UN mission/section/unit to improve stewardship over UN assets

Also, the interviews conducted with the various service delivery sections/units under LSD/DFS identified the following to be added to the PMPMF (Based on PMU objectives):

- Engineering Unit
- Medical Unit
- Ground Transport Unit and
- Aviation Section

Some of the service deliveries had their own KPIs whiles others did not. A synchronization of these KPIs with the PMPMF will enhance the overall total performance of PM under PMU/LSD/DFS/UNHQ. Other relevant KPIs identified by the usage of the TOTS Canvas can be utilized for the other service deliveries and DFS supply chain.

5.3 Application of TOTS Canvas

The second objective of the research sought to assess opportunities for expanding the scope of the Property Management Performance Management Framework to include both upstream and downstream processes involving various service components (with emphasis on SC). Here, the TOTS Canvas is applied in identifying relevant KPIs necessary to enhance the PMPMF to manage the performance of the SC upstream and downstream processes. The TOTS Canvas hence focus on DFS SC processes/tasks involving: Demand Planning, Acquisition Planning, Resource and Capacity Planning, Sourcing and Purchasing, and

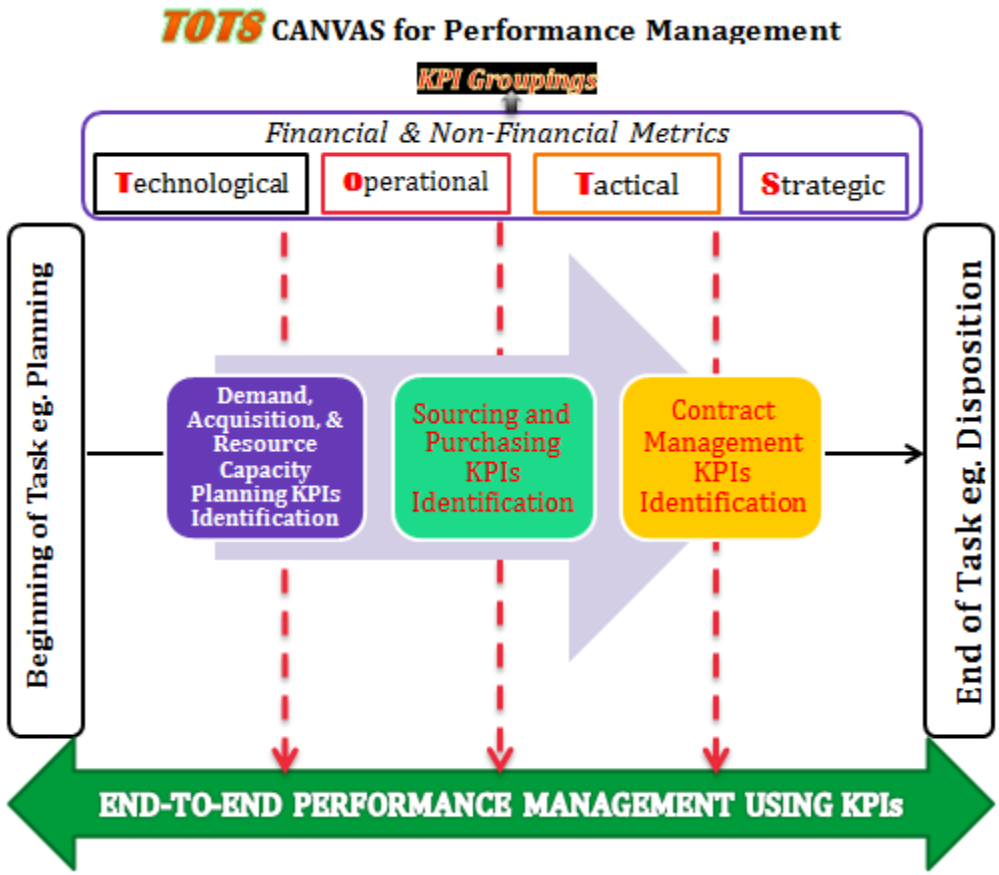


Figure 18 Application of TOTS Canvas

Contract Management. KPIs for each of these tasks can be identified from the start to the end of each processes/tasks as necessary to an organization. This is applied in the TOTS Canvas above (See figure 18). Depending on the need of an organization, the KPIs can either be financial or non-financial (Gunasekaran, 2001&2004) and categorized into technological, operational, tactical and strategic levels (Gunasekaran, 2001&2004, Daekwan et al. 2006, Subramani, 2004, Aho, 2012&Grover, 2015). When using the TOTS Canvas:

1. Identify the task to be performed (eg. Demand Planning)
2. Think of other relevant sub-tasks in connection with the main task to be performed (eg. Forecasting techniques)
3. Identify relevant KPIs suitable for your organization with regards to T-O-T-S (eg. Forecast accuracy versus Actual Demand or type of forecasting technique used versus Actual Demand)

5.4 KPI Identifications (TOTS)

The TOTS Canvas is used to identify relevant KPIs and groupings (levels) applicable to both the upstream and downstream processes of DFS SC: Demand Planning, Acquisition Planning, Resource and Capacity Planning, Sourcing and Purchasing, and Contract Management. The

important KPIs relevant in assisting PMU to execute its objectives are then agreed upon by PMU (Grover, 2015). Some of the relevant KPIs are explained below using TOTS Canvas classification:

5.4.1 Technological Level KPIs

a. **KPI for Monitoring Surplus**: An electronic alert system should be created within UN SAP system to alert missions in detecting early signs of surplus. This alert should be signaled 2 or 3 times prior to the reporting cycle. With this, missions are able to take appropriate actions early enough before the financial year reporting-time. This same idea can be implemented for the 'not-found-yet' inventories and other significant concerns across the SC. This is a non-financial measure yet highly significant. This KPI was suggested by the researcher as a result of working on the PMPMF. It was agreed by the PMU to be helpful and hence vital to the current PMPMF.

b. **KPI for Comparative Analytics:** This metric measures the effectiveness of how missions are able to carry out significant analytics with UN business intelligence toolkits. Comparative analytics within UN missions should be done for significant UNOE. This non-financial measure will help missions to carry out self-performance check as well before the reporting cycle. This KPI was suggested by the researcher as a result of working on the PMPMF. It was agreed by the PMU to be helpful and hence vital to the current PMPMF.

c. **Level of IT Supporting PM/SC Tasks**: This KPI measures the rate at which IT is used to carry out PM/SC tasks. For example, at what rate does IT support UN inventory management within missions? Significant processes should be identified and supported with novel technologies like Radio-frequency identification (RFID) instead of barcode readings at the warehouse. This non-financial measure consequently can be used as a financial measure as well since top managers will know how to do proper IT investments. This KPI was suggested by the researcher as a result of working on the PMPMF. It was agreed by the PMU to be helpful and hence vital to the current PMPMF.

d. **Effectiveness to Electronic Data Transfer**: This non-financial measure monitors the response time with which UN missions and UN suppliers are able to effectively send quality electronic data during transactions. This also measures the rate of errors during transactions. How real time data are exchanged can also be monitored among UN

suppliers. This KPI was suggested by the researcher as a result of working on the PMPMF. It was agreed by the PMU to be helpful and hence vital to the current PMPMF.

e. **Rate of Automatic Purchase Orders release (RAPOR)**: Streamlining DFS SC can better be achieved through a regular and automatic release of purchase orders (POs) by UN vendors by MRP or ERP system. This means higher rates of POs is indicative of a good systemic purchasing process (Chae, 2009).

5.4.2 Operational Level KPIs

a. **Total Inventory Days of Supply (TIDS):** This vital metric is to help minimize total DFS total inventories within UN supply chain. There are several ways of computing TIDS and monthly computation is much desirable (Chae, 2009)
b. **Rate of Obsolete Inventory (ROIn):** Increase in inventory costs are mainly due to obsolete inventories. This non-financial measure should be monitored regularly by DFS (Chae, 2009).
c. **Resource Utilization Ratio (RUR)** (for the most applicable UNOE): Measures the most applicable UNOE relevant to PMU/UNHQ. (eg. Aircraft Utilization Ratios-Aviation Section, Relevant UNOE to PMU across the SC etc.). UNOE capacity utilization can be measured as well. This KPI was suggested by the researcher as a result of working on the PMPMF. It was agreed by the PMU to be helpful and hence vital to the current PMPMF.
f. **Number of Repairs and Costs of Repairs:** This KPI is both financial and non-financial measure. The number and costs involved in missions' repairs on UN Plant & Equipment (P&E) should be measure for specific missions. This should include both response time and downtimes. This KPI was suggested by the researcher as a result of working on the PMPMF. It was agreed by the PMU to be helpful and hence vital to the current PMPMF.
g. **Property Disposition Rate:** this non-financial metric measure the rate at which UNOE are disposed within specific missions. This KPI was suggested by the researcher as a result of working on the PMPMF. It was agreed by the PMU to be helpful and hence vital to the current PMPMF.

5.4.3 Tactical Level KPIs

a. **Forecasting Accuracy Techniques**: This non-financial measure is relevant to DFS supply chain (SC) planning which can lead to effective material sourcing, acquisition

planning, inventory management and the other activities in DFS SC. This upstream measure can be calculated as: minimum (amount of sales, amount of forecasting)/maximum (amount of sales, amount of forecasting) per each sales person, each sales subsidiary, each product, and each product category (Chae, 2009 and Gunasekaran et al. 2001&2004)

b. **Supplier Management**: This metric can both be financial/non-financial KPI. This measure includes: supplier assistance in solving IT problems, ability to respond to quality problems, supplier cost saving initiatives etc. (Gunasekaran et al. 2001&2004)

c. **Supplier Fill Rate**: This upstream metric measures how reliable DFS suppliers are in delivery materials. This metric is also a non-financial measure (Gunasekaran, 2001 & 2004)

5.4.4 Strategic Level KPIs

a. **Variances against Budget (VAB)**: A financial measure that emphasizes the relevance of financial measures in strategic planning and control. Measures the difference between the organization's budgeted and actual amount for the SC. (eg. Total Supply chain Variance budget, SC Planning Variance Budget or SC Execution Variance Budget etc.). This can also include the deviation of the number of total budgets (Gunasekaran et al. 2001 & 2004).

b. **Order Lead Time (OLT):** This non-financial measure is the total order cycle time refers to the time which elapses between the receipt of the customer's order and the delivery of the goods. The reduction in order cycle time leads to reduction in supply chain response time. Total order cycle time = Order entry time (through forecasts/direct order from the customer)+ Order planning time (Design + Communication+ Scheduling time)+ Order sourcing, assembly and follow up time+ Finished goods delivery time (Gunasekaran, 2001 & 2004).

c. **Sustainability Strategy:** The entire end to end process of DFS SC should be sustainable. DFS SC should involve measuring environmental initiatives, energy reduction, ethics and CSR, Global Reporting Standards etc. This KPI was suggested by the researcher as a result of working on the PMPMF. It was agreed by the PMU to be helpful and hence vital to the current PMPMF.

d. **Contract Management Costs**: This upstream metric which is a financial metric measure all the relevant costs involved in the processes of DFS contract management: negotiation of contracts, warranty initiatives etc. (SAP, 2015)

h. Effective Reporting: This non-financial measure should measure: the percentage of financial reports issued on time and percentage of accurate financial reports issued for the financial year. This KPI was suggested by the researcher as a result of working on the PMPMF. It was agreed by the PMU to be helpful and hence vital to the current PMPMF.

5.5 Benchmarking KPIs

Benchmarking organizations' KPIs should form an integral part of managing business to affect result driven processes (Hall and Hargitay, 1984 & Anumba et al. 2004). The KPIs developed by PMU/LSD/DFS/UNHQ in New York, must be benchmarked with best industry practices to offer continuous improvement in the PMPMF (Christopher, 1998 and Togar, 2004).As emphasized by Grover (2015), the achievement of an organization's long term objectives can be enhanced through an effective benchmarking process. Two different benchmarking groups were chosen. One from an academic research (based on SCOR, see figure 19 below) and the other from an Enterprise Software Industry (SAP). The production KPIs are cancelled out since it is not applicable to UN supply chain. Also, a total of 95 KPIs were chosen from SAP best practices (See Appendix 21). The most relevant KPIs (41)vital to PMU were selected as a result of intense review between PMU and the researcher (See table 13 below).

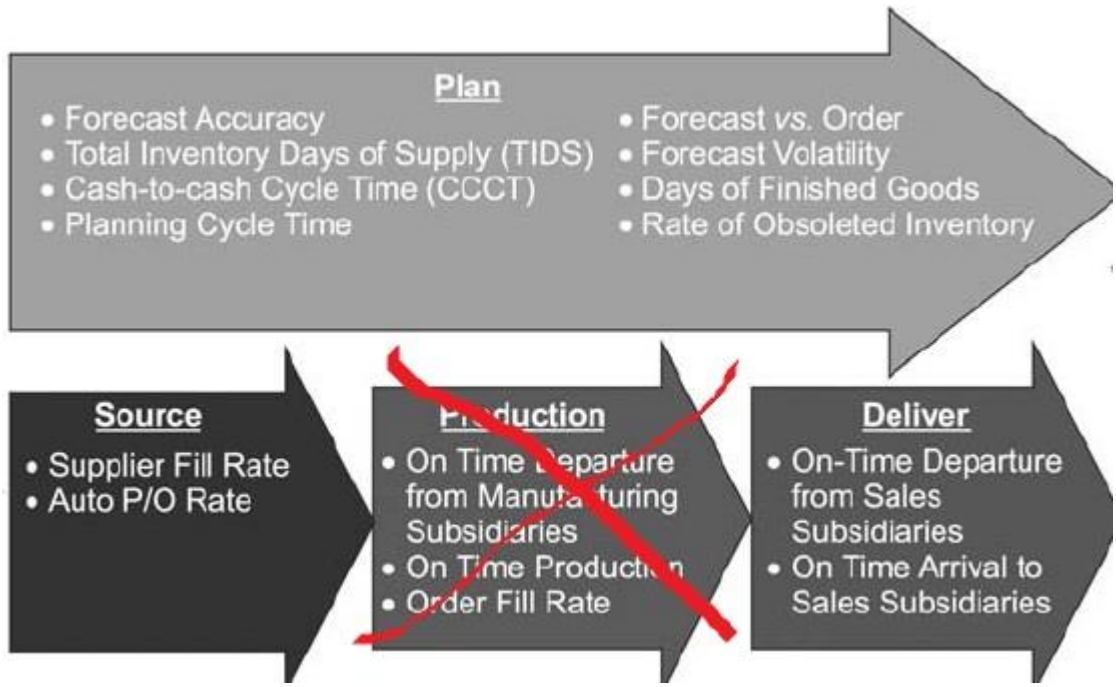


Figure 19Relevant Industry Benchmarking KPIs (Chae, 2009)

Table 13 Benchmarking KPIs (SAP, 2015)

1. **Capacity Utilization KPI**: A measure of how intensively a resource is being used to produce a good or service. Some factors that should be considered are internal manufacturing capacity, constraining processes, direct labor availability and key components/materials availability.
2. **KPI for Cash-to-Cash Cycle Time**: Cash-to-cash cycle time = inventory days of supply + days sales outstanding – average payment period for materials (time it takes for a dollar to flow back into a company after it has been spent for raw materials).
3. **KPI for Delivery Performance to Customer Request Date**: The percentage of orders that are fulfilled on or before the customer's requested date.
4. **KPI for Delivery Performance to Scheduled Commit Date:** The percentage of orders that are fulfilled on or before the original scheduled or committed date.
5. **KPI for Distribution Costs**: Includes costs for warehouse space and management, finished goods receiving and stocking, processing shipments, picking and consolidating, selecting carrier, and staging products/systems
6. **KPI for Finished Goods Inventory Days of Supply**: Finished goods inventory days of supply are calculated as gross finished goods inventory ÷ (value of transfers/365 days).
7. **KPI for Forecast Accuracy**: Forecast accuracy is calculated at the shippable end-product level for each distribution channel, and for both units and dollars. Forecast Accuracy = Forecast Sum – Sum of Variance / Forecast Sum. Forecast Sum = the sum of the units or dollars forecasted to be shipped in each month based upon the forecast generated three months prior. Sum of Variances = The sum of the absolute values, at the forecasted line item level, of the differences between each month's forecast as defined above and actual demand for the same month.
8. **KPI for Inventory Carrying Costs**: Inventory Carrying Costs are the sum of opportunity cost, shrinkage, insurance and taxes, total obsolescence for raw material, WIP, and finished goods inventory, channel obsolescence and field sample obsolescence.
9. **KPI for Inventory Obsolescence as a Percentage of Total Inventory**: The annual obsolete and scrap reserves taken for inventory obsolescence expressed as a percentage of annual average gross inventory value
10. **KPI for Order Management Costs:** The aggregation of the following cost elements (contained in this glossary): Create Customer Order Costs, Order Entry and Maintenance Costs, Contract/Program and Channel Management Costs, Installation Planning Costs, Order Fulfilment Costs, Distribution Costs, Transportation Costs, Installation Costs, Customer Invoicing/Accounting Costs
11. **KPI for Perfect Order Fulfilment**: A "perfect order" is defined as an order that meets all of the following standards: Delivered complete; all items on order are delivered in the quantities requested; Delivered on time to customer's request date, using your customer's definition of on-time delivery; Documentation supporting the order including packing slips, bills of lading, invoices, and so on, is complete and accurate; Perfect condition: Faultlessly installed (as applicable), correct configuration, customer-ready, no damage
12. **KPI for Shrinkage:** The costs associated with breakage, pilferage, and deterioration of inventories.
13. **KPI for Source Cycle Time**: Cumulative lead time (total average combined inside-plant planning, supplier lead time [internal or external], receiving, handling, and so on, from demand identification at the factory until the materials are available in the production facility) required to source 95% (chosen to eliminate outlying data) of the dollar value of materials from internal and external suppliers.
14. **KPI for Supplier On-Time Delivery Performance**: The percentage of orders that are fulfilled on or before the original customer requested date (supplier's performance measured by the customer).
15. **KPI for Total Logistics Costs**: Total logistics costs are the sum of supply-chain related MIS, Finance and Planning, Inventory Carrying, Material Acquisition, and Order Management costs
16. **KPI for Value-Added Employee Productivity**: Value added per employee is calculated as total product revenue less total material purchases ÷ total employment (in full-time equivalents).
17. **KPI for Warranty Costs:** Warranty costs include materials, labor and problem diagnosis for product defects
18. **KPI for Percentage of EDI Transactions**: Percentage of orders received via electronic data interchange (EDI).
19. **KPI for Field Finished Goods Inventory**: The inventory which is kept at locations outside the four walls of the manufacturing plant, that is, distribution center, warehouse.
20. **KPI for Forecast Cycle:** The time between forecast regenerations that reflect true changes in marketplace demand for shippable end-products. Only true "bottom-up" forecasts are counted: for example, if weekly or monthly updates to the forecast only recalendarize or shift dates for the

forecast to avoid changing the annual dollar-based forecast, they should not be considered true forecast regenerations.

21. **KPI for Indirect to Direct Labor Headcount Ratio:** Ratio of total number of employees required to support production in general without being related to a specific product, indirect labor, to the total number of employees that is specifically applied to the product being manufactured or used in the performance of the service, direct labor.
22. **KPI for Number of End Products/SKUs**: Total number of unique end item product offerings. End items are individually planned and managed.
23. **KPI for Order Entry and Maintenance Costs**: Includes costs for maintaining the customer data base, credit check, accepting new orders and adding them to the order system as well as later order modifications.
24. **KPI for Order Entry Complete to Order Ready for Shipment Time:** Including release to manufacturing, order configuration verification, production scheduling, build, pick/pack, and prepare for shipment time, in calendar days.
25. **KPI for Order Fulfilment Lead Times**: The average actual lead times consistently achieved, from Customer Signature/ Authorization to Order Receipt, Order Receipt to Order Entry Complete, Order Entry Complete to Start-Build, Start Build to Order Ready for Shipment, Order Ready for Shipment to Customer Receipt of Order, and Customer Receipt of Order to Installation Complete.
26. **KPI for Percentage of Orders Scheduled to Customer Request:** The percentage of orders whose delivery is scheduled to within a agreed to time frame of the customer's requested delivery date
27. **KPI for Scrap Expense**: Expenses incurred from material falling outside of specifications and possessing characteristics that make rework impractical.
28. **KPI for Total Source Lead Time:** Total source lead time is the cumulative lead time required to source 95% of the dollar value of materials from internal and external suppliers.
29. **KPI for Transportation Costs:** Includes all company paid freight and duties from point of manufacture to end-customer or channel.
30. **KPI for Unit Cost:** Total labor, material, and overhead cost for one unit production, for example, one part, one gallon, one pound.
31. **KPI for Number of Orders with Complete and Accurate Documentation:** Number of orders without correct documentation supporting the order, including packing slips, bills of lading, invoices, and so on
32. **KPI for Commodity Management Profile**: Number of distinct part numbers (purchased commodities) sourced within the following areas: 200 miles, Own country, Own continent, Off-shore.
33. **KPI for Cross-Training:** The providing of training or experience in several different areas, for example, training an employee on several machines rather than one. Cross-training provides backup workers in case the primary operator is unavailable.
34. **KPI for Inventory Aging**: The percentage of total gross inventory (based on value) covered by expected demand within specific time buckets.
35. **KPI for Number of Orders, Line Items, and Shipments in the Channel**: The aggregated of orders, line items and shipments for the retail channel.
36. **KPI for Number of Supply Sources**: Total number of internal and external direct production material suppliers used.
37. **KPI for Order Consolidation Profile:** Consolidation is defined as the activities associated with filling a customer order by bringing together in one physical place all of the line items ordered by the customer. Some of these may come directly from the production line; others may be picked from stock. The following profiles have been captured: Shipped direct to customer's dock from point of manufacture (No Consolidation). Shipped direct to customer with consolidation completed local to customer by your transport company. Moved to on-site staging location for consolidation and shipment direct to customer. Moved to on-site stockroom for later pick, pack and ship. Shipped to different locations for consolidation or later pick, pack and ship. Shipped to different locations for consolidation or later pick, pack and ship.
38. **KPI for Order Entry Methods:** The method of how orders are entered into a company's system, whether the orders are entered by: the customer, sales personnel in the field, sales support personnel in remote sales offices, or sales support personnel in business unit or corporate headquarters.
39. **KPI for Published Delivery Lead Times**: The typical standard lead time (after receipt of order) currently published to customers by the sales organization. For typical orders only, not standing / re-supply orders
40. **KPI for Re-plan Cycle Time:** The time between the initial creation of the regenerated forecast and its reflection in the Master Production Schedule of the end-product production facilities

41. **KPI for Schedule Achievement:** The percentage of time that a plant achieves its production schedule. This calculation is based on the number of scheduled end-items or total volume for a specific period. Note: overships do not make up for undership.

Some of the selected KPIs were redefined to reflect the supply chain processes of PMU/LSD/DFS/UNHQ. These KPIs were further categorized under: Product/Services, Sales (Consumption), Costs, Asset Utilization, Responsiveness, Quality, Cycle Time and Warehouse (See Table 14 below).

Table 14 Benchmarking KPI Categorization

CATEGORIES	KPIs	ID (from list)
PRODUCT/ SERVICE	Value-Added Employee Productivity	16
	Number of End Products/SKUs	22
	Number of Orders with Complete and Accurate Documentation	31
	Order Consolidation Profile	37
	Published Delivery Lead Times	39
SALES (CONSUMPTION)	Percentage of EDI Transactions	18
	Percentage of Orders Scheduled to Customer Request	26
	Number of Orders, Line Items, and Shipments in the Channel	35
	Order Entry Methods	38
COSTS	Distribution Cost	5
	Inventory Carrying costs	8
	Order Management Costs	10
	Shrinkage	12
	Total Logistics Costs	15
	Warranty Costs	17
	Order Entry and Maintenance Costs	23
	Indirect to Direct Labor Headcount Ratio	21
	Transportation Costs	29
	Unit Cost	30
ASSET UTILIZATION	Capacity Utilization KPI	1
	Commodity Management Profile	32
	Schedule Achievement	41
RESPONSIVENESS	Delivery Performance to Customer Request Date	3
	Delivery Performance to Scheduled Commit Date	4
	Order Entry Complete to Order Ready for Shipment Time	24
	Order Fulfilment Lead Times	25
	Cross-Training	33
QUALITY	Forecast Accuracy	7
	Perfect Order Fulfilment	11
	Supplier On-Time Delivery Performance	14
	Scrap Expense	27
CYCLE TIME	Cash-to-cash cycle time	2
	Source Cycle Time	13
	Forecast Cycle	20
	Total Source Lead Time	28
	Re-plan Cycle Time	40
WAREHOUSE	Finished Goods Inventory Days of Supply	6
	Inventory Obsolescence	9
	Field Finished Goods Inventory	19
	Inventory Aging	34
	Number of Supply Sources	36

6 Results

The research findings and evaluation of the research results are discussed under this section of the thesis. This chapter presents an overall summary of the findings of the research work. The main findings from the survey are discussed as well as relevant findings addressing the research questions.

6.1 Research Findings

Overall, UN specific missions face several challenges that hinder them from meeting specific KPI targets with regards to the Property Management Performance Management Framework (PMPMF). Nonetheless about 91.2% of the users of the framework agree that the PMPMF has helped their missions to exercise good stewardship over UN assets.

Some of the most relevant challenges included: inadequate resources to undertake property management (PM) functions, difficulties in using business intelligence toolkits, more room for improvements in organizational culture and systems that can support PM utilization, downsizing of staffs, asset planning and procurement not integrated into PMU hence cannot influence demand planning and acquisition, delays in processing information within specific missions, restrictions from local authorities, delays in Write-off Request (WOR) approval by Self Accounting Units (SAU), complexities in managing certain stakeholders, inadequate training, etc.

The performance appraisal for the PMPMF can hence be classified as having a strong implication in helping UN missions to exercise good stewardship over United Nations Owned Equipment (UNOE). Nonetheless, a continual improvement of the framework is vital to help extend the current PMPMF to be included in other services under PMU/LSD/DFS/UNHQ New York. Following interviews with LSD services, the following services were identified to be included in the PMPMF: Engineering Unit, Medical Unit, Ground Transport Unit and Aviation Section. Hence PMU needs to extend the framework to cover these services. Effective communication and stakeholder management among these services will be relevant to implement the extension of the PMPMF as emphasized under the literature review. Moreover additional KPIs were suggested to be included in the current PMPMF using the TOTS Canvas. These include: KPI for Monitoring Surplus, Effectiveness to Electronic Data Transfer KPI, KPI for Rate of Obsolete Inventory, Number of Repairs and Costs of Repairs KPI, KPI for Property Disposition Rate, and KPI for Effective Reporting.

Also in anticipation of LSD/DFS to develop a robust performance management framework to include both upstream and downstream processes of DFS supply chain, TOTS Canvas was developed to identify relevant KPIs. These KPIs included: KPI for Comparative Analytics, Level of IT Supporting PM/SC Tasks, Effectiveness to Electronic Data Transfer, Rate of Automatic Purchase Orders release (RAPOR), Total Inventory Days of Supply (TIDS), Rate of Obsolete Inventory (ROIn), Resource Utilization Ratio (RUR), Number of Repairs and Costs of Repairs, Forecasting Accuracy Techniques, Supplier Management, Supplier Fill Rate, Variances against Budget (VAB), Order Lead Time (OLT), Sustainability Strategy, Contract Management Costs, and Effective Reporting KPIs. Most of the KPIs identified with TOTS Canvas can both be applied within UN specific missions and for DFS envisioned end to end supply chain implementation.

In concluding, it can be asserted that the act of benchmarking the performance management of an organization with industry best practices helps achieve long term objectives of an organization (Grover, 2015). About 95 KPIs were selected to be benchmarked with PMU/LSD/DFS PMPMF. Out of these, 41 were chosen as applicable to the current PMPMF by the heads of PMU. These KPIs were categorized under eight sub-groupings: Product/Services, Sales (Consumption), Costs, Asset Utilization, Responsiveness, Quality, Cycle Time and Warehouse.

6.2 Evaluation of Results

The usefulness of the results of the present research has significant benefits to practitioners such as consultants, staff specialists, line managers etc. Research results must address the needs of practitioners in the areas of: descriptive relevance, goal relevance, operational validity, non-obviousness, and timeliness (Thomas and Tymon, 1982, Khan and Mentzer, 1995). The present research is hence evaluated based on these five variables as follows:

The accuracy of the findings of the research in capturing a phenomena encountered by practitioners in their organizational setting is called descriptive relevance (DR). The examination of the internal and external validity of DR is one way to evaluate this variable (Khan and Mentzer, 1995). Kilmann (1979) asserts that internal validity is the predominant concerns of organizational scientists. In this present study the selected research methods contributed to solving the research questions. It offered an unbiased view of the data collection. Hence the internal validity which seeks to show the confidence by which conclusions can be made from a chosen data was achieved (Kilmann. 1979). The ability to generalize the research

findings to reflect other situations and contexts is what is described as the external validity. This was also achieved through the thorough literature review where the present research systematically and progressively connects property management (PM) to asset and facility management (AM &FM). Even though these (AM&FM) are the closer concepts to PM, the literature review also provided other extant studies like IS/IT where the present findings of the present research can be applied.

According to (Thomas and Tymon 1982), the ability of research to address real practical concerns is termed as goal relevance. In the light of this variable, the present research provides applicable results for the PMU/LSD/DFS in the United Nations Headquarters, New York. This helps in improving the current property management framework for the United Nations as well as fostering open innovation between the academia and practitioners (Chesbrough, 2003).

The ability of practitioners to successfully implement the action implications of a theory which is to say, manipulate the independent variables is termed as operational validity (Thomas and Tymon, 1982). Through triangulation, the usage of mixed research methods in this present research also strengthens the reliability of the research results. The usage of reliability and validity has been reconsidered in both quantitative and qualitative researches (Golafshani, 2003). Even though the methodology used for this research do not stipulate any hypothesis to define dependent and independent variables, making an assumption from this research will be very significant. Assuming we define the dependent variable to be "Property Management" and the independent variable to be "TOTS Canvas", practitioners mostly can manipulate the results of the KPIs derived from using the TOTS Canvas. Here this also confirms the performance measurement and management cycle designed in the literature review (Figure 2) where it provides opportunity for continuous improvement. Consequently, depending on the core objectives of the organization, financial capacity and other organizational needs, it's vital to state that not all organizational management practices can practically be carried out (Lempinen, 2013).

When a theory meets or exceeds the complexity of "common sense theory" known already by a practitioner, it's termed as non-obviousness (Thomas and Tymon, 1982). In the present research, since the selected methodologies helped in achieving the objectives of the research, the results contributed to what PMU/LSD/DFS in the UNHQ already knows. Even though the Board of Directors (BODs) had certain concerns on the effective stewardship of UNOE, they agreed to the fact that the current PMPMF has helped missions in exercising overall stewardship over UN assets across specific missions. Also the BODs agreed that the framework

has contributed to meeting UN requirements on specific IPSAS initiatives. Furthermore, the act of benchmarking also helped PMU to significantly extend the scope of the current PMPMF. Lastly the TOTS Canvas provides a robust performance management framework capable of guiding practitioners and researchers to systematically develop an end to end performance management framework with significant KPIs.

Consequently the requirement for a theory to be available when needed for making sense of current practical problems is also termed as timeliness (Thomas and Tymon, 1982). Since all the findings and results are built around extant studies, it provides practitioners and researchers to benefit in a timely manner from the results of this research. The advent of disruptive technologies, continuous improvement, radical novel designs etc. has resulted in unpredicted changes in most organizations. Hence it's paramount to persistently strive a balance between conceptual theories and practical scenarios to present solutions to timely problems. This present research does not provide any ambiguous theories which might make it virtually impossible to address organizational pressing concerns. Rather, it provides a robust performance management framework capable of addressing certain eminent concerns and also serves as a platform for further research works; for both researchers and practitioners alike.

7 Discussion and Conclusions

This present research set out to appraise the current Property Management Performance Management Framework (PMPMF) of the Property Management Unit (PMU) of the United Nations Headquarters in New York. Further improvements to the framework are made and consequently seek to expand the scope of the framework to include other PMU/LSD/DFS services with special emphasis on DFS supply chain. The nature of this study utilized both qualitative and quantitative research methodologies which eventually helped in addressing the research objectives. The practical implications and limitations of the research which provides bases for further research work are summarized below:

7.1 Practical Implications

In General the thesis provides robust practical contribution applicable to mainstream supply chain performance management initiatives. This is achievable by applying the TOTS Canvas offered in this research to carefully identify several relevant KPIs categorized under four main levels: Technological, Operational, Tactical and Strategic. Practitioners and researchers who seek to identify an extensive end to end performance management involving several downstream and upstream processes can apply the TOTS Canvas. Even though the framework focused more on supply chain, the core principles outlined in the usage of TOTS Canvas is applicable across several organizations.

The present research also has practically helped DFS to identify certain challenges that significantly hinders UN specific missions from meeting certain performance targets stipulated in the PMPMF. It has provided a pivotal focus for continuous improvement of the PMPMF to enable PMU/LSD/DFS in the United Nations Secretariat Headquarters in New York, to improve effective stewardship of United Nations Owned Equipment (UNOE).

7.2 Research Limitations and Future Studies

Even though the framework presented in this research is new and built on extant studies, there will be need to test it with different organizations. In as much as the chosen methodologies contributed effectively in addressing the objectives of the thesis, the TOTS Canvas cannot be generalized since it's based solely on one intergovernmental organization, United Nations Headquarters, New York. The UN supply chain is different from other profit oriented supply chain (SC) processes. For example the UN SC doesn't involve manufacturing so it will be interesting to see how the framework can relate to other organizations engaged in an overall

supply chain end to end processes. To be able to do this and also relate the framework to other smaller companies will be vital for further studies. Also in as much as the benchmarking activity was relevant to UN, it only involved only one company. It will be interesting to see how other relevant KPIs can be developed from several companies during the activities of benchmarking. Again, it will be vital to see how other researchers apply different research methods to strengthen the results of the thesis.

Consequently, since the envisioned end to end processes of the United Nations supply chain is still ongoing, certain principles might not be applicable in the near future so it will be vital to see further research works in the future to validate the results and findings of this present research. The usage of further case studies through more empirical studies might validate the result findings.

References

Books and Reports

Chesbrough, Henry W. (2003) "Open Innovation the New Imperative for Creating and Profiting from Technology" Harvard Business School Press

DFS Supply Chain Management Strategy (2014). "Supply Chain Management Implementation Strategy: 2014-2016" Department of Field Support, UN pp. 23

DFS Directive (2015), "Property Management for the Financial Year 2015" Department of Field Support, United Nations.

Freeman, R. Edward., and McVea, John. (2001), "A Stakeholder Approach to Strategic Management" Handbook of Strategic Management, Oxford: Blackwell Publishing pp. 1-32

Myers, Michael D. (2013) "Qualitative Research in Business & Management" Sage Publications Limited, London. 2nd ed. pp. 7-8, 22, 117-136

PWC, (2014). "Rethinking your Performance Management Program" Success Factors Inc PWC. White Research, pp.8

Turban, Efraim., Sharda, Ramesh., Delen, Dursun. (2011) "Decision Support and Business Intelligence Systems" 9th ed. Pearson Education, Inc., Prentice Hall pp. 374, 377, 390

Articles

Abor, Patience Aseweh. (2015),"The Effects of Healthcare Governance and Ownership structure on the Performance of hospitals in Ghana", International Journal of Law and Management, Vol. 57 Iss. 2 pp. 107 - 140

Ageron, Blandine., Gunasekaran, Angappa., and Spalanzani Alain. (2013),"IS/IT as supplier selection criterion for upstream value chain", Industrial Management & Data Systems, Vol. 113 Iss. 3 pp. 443 - 460

Amaratunga, Dilanthi., Baldry, David., and Sarshar, Marjan. (2000),"Assessment of facilities management performance – what next?", Facilities, Vol. 18 Iss. 1/2 pp. 66 - 75

Amaratunga, Dilanthi., and Baldry, David. (2002),"Moving from Performance Measurement to Performance Management", Facilities, Vol. 20 Iss. 5/6 pp. 217 – 223 Vol. 20 Iss. 5/6 pp. 217 – 223

Angerhofer, Bernhard., and Angelides, Marios C. (2005) "A Model and a Performance Measurement System for Collaborative Supply Chains." Decision Support Systems 42, 283-301.

Anoop, Kumar Sahu., Saurav, Datta Siba., and Sankar, Mahapatra. (2014),"Supply Chain Performance Benchmarking Using Grey-MOORA approach", Grey Systems: Theory and Application, Vol. 4 Iss 1 pp. 24 -55

Anumba, Chimay., Beatham, Simon., and Thorpe, Tony. (2004) "KPIs: A Critical Appraisal of their use in Construction" Benchmarking, An Internal Journal. Vol. 11 No. 1 pp. 93-117

Beringer, Claus., Jonas, Daniel., and Kock, Alexander. (2013), "Behavior of Internal Stakeholders in Project Portfolio Management and its Impact on Success" International Journal of Project Management, Vol. 31 pp. 830-846

Berman, Shawn L., Wicks, Andrew C., Kotha, Suresh., and Jones, Thomas M. (1999), "Does stakeholder Orientation Matter? The Relationship between Stakeholder Management Models and Firm Financial Performance" The Academy of Management Journal, Vol. 42, No. 5, pp. 488-506

Brady, Cydnee., and Gargeya, Vidyaranya B. (2005), "Success and Failure Factors of Adopting SAP in ERP System Implementation." Business Process Management Journal, 11/5 pp. 501-516

Brown, R.J., and Klingenberg, B. (2006),"Optimization of residential property management", Property Management, Vol. 24 Iss. 4 pp. 397 - 414

Cai, Jian., Liu, Xiangdong., Xiao, Zhihui., Liu, Jin. (2009) "Improving Supply Chain Performance Management: A systematic approach to analyzing iterative KPI accomplishment" Decision Support Systems 46, 512-521. (Elsevier)

Chae, Bongsug (Kevin). (2009) "Developing Key Performance Indicators for Supply Chain: An Industry Perspective" Supply Chain Management: An International Journal 14/6 pp. 422-428

Chithambaranathan, P., Palaniappan, PL.K., and Subramanian, Nachiappan. (2015),"An Innovative Framework for Performance Analysis of members of Supply Chains", Benchmarking: An International Journal, Vol. 22 Iss. 2 pp. 309 - 334

Chotipanich, Sarich. (2004),"Positioning facility management", Facilities, Vol. 22 Iss. 13/14 pp. 366

Chou, David C., Tripuramallu, Hima Bindu., and Chou, Amy Y. (2005),"BI and ERP integration", Information Management & Computer Security, Vol. 13 Iss. 5 pp. 340 - 349

Christopher, Martin. (1998) "Logistics and Supply Chain Management" Financial Times Professional Limited, London 2nd ed. pp. 102-125

Cirtita, Horatiu., and Glaser-Segura, Daniel A. (2012),"Measuring downstream supply chain performance", Journal of Manufacturing Technology Management, Vol. 23 Iss 3 pp. 299 – 314

Collier, Philip A., Davern, Michael J., and Elbashir, Mohamed Z. (2008), "Measuring the Effects of Business Intelligence Systems: The Relationship between Business Process and Organizational Performance" International Journal of Accounting Information systems, 9 pp. 135-153

Crook, John R., and McCaffrey, Stephen C. (1997), "The United Nations Starts Work on a Watercourses Convention." The American Journal of International Law, Vol. 91, No. 2 pp. 374 – 378

Daekwan, Kim., Fang, Wu,. Sengun, Yeniyurt. And Tamer, Cavusgil. (2006) "The impact of Information Technology on Supply Chain Capabilities and firm performance: A resource-based view" Industrial Marketing Management 35 pp. 493 – 504

Dahlgaard, Jens J. and Setijono, Djoko. (2007) "Customer value as a Key Performance Indicator (KPI) and a Key Improvement Indicator (KII)." Measuring Business Excellence, Vol. 11 No. 2 2007, pp. 44-61

Estampe, Dominique., Lamouri, Samir., Paris, Jean-Luc., Brahim-Djelloul, Sakina. (2010) "A framework for Analysing Supply Chain Performance Evaluation Models" Int. Production Economics (Elsevier)

Fang, Eric (Er)., Lee, Jongkuk., and Yang, Zhi. (2015), "The Timing of Co-development Alliances in New Product Development Processes: Returns for Upstream and Downstream Partners." Journal of Marketing, Vol. 79 pp. 64- 82. American Marketing Association

Folan, Paul., and Browne, Jim. (2005) "A review of performance measurement: Towards Performance Management" Computers in Industry 56, 663-680 (Elsevier)

Francisco, M. , Del-Rey-Chamorro., Rajkumar, Roy., Bert, Van Wegen. , and Steele, Andy. (2003) "A Framework to Create Key Performance Indicators for Knowledge Management Solutions" Journal of Knowledge Management; 7, 2 (ProQuest)

Gibson, Virginia. (1994),"Strategic Property Management", Property Management, Vol. 12 Iss. 3 pp. 9 – 14

Gibson, Virginia. (2000),"Property Portfolio Dynamics: the flexible management of inflexible assets", Facilities, Vol. 18 Iss. 3/4 pp. 150 – 154

Golafshani, Nahid. (2003) "Understanding Reliability and Validity in Qualitative Research", The Qualitative Report, Vol. 8 No. 4 pp. 597-607

Gopal, P.R.C., and Thakkar, Jitesh.(2012),"A Review on Supply Chain Performance Measures and Metrics:2000-2011", International Journal of Productivity and Performance Management, Vol. 61 Iss. 5 pp. 518 - 547

Grover, Neha., and Anand Neeraj. (2015) "Measuring Retail Supply Chain Performance", Benchmarking: An International Journal, Vol. 22 Iss. 1 pp. 135-166

Gunasekaran, A., Patel, C., Tirtiroglu, E. (2001) "Performance Measures and Metrics in a Supply Chain Environment." International Journal of Operations & Production Management. (Emerald Insight) Vol. 21, 1/2 pp. 71-87 New York University School of Law ILL

Gunasekaran, A., McLaughlin, John., Motwani, Jaideep., and Madan, Manu S. (2003), "Using information technology to improve downstream supply chain operations: a case study" Business Process Management Journal, Vol. 9 Iss. 1 pp. 69 - 80

Gunasekaran, A., Patel, C., McGaughey, Ronald E. (2004) "A Framework for Supply Chain Performance Measurement" Int. J. Production Economics 87, 333-347.

Hall, Patrick., and Hargitay, Stephen. (1984) "Property Portfolio Performance- A Selected Approach." Emerald Insight, Property Management, Vol. 2 Iss. 3 pp. 219-220

Hernández-Espallardo, Miguel., Rodríguez-Orejuela, Augusto., and Sánchez-Pérez, Manuel (2010),"Inter-organizational governance, learning and performance in supply chains", Supply Chain Management: An International Journal, Vol. 15 Iss. 2 pp. 101 – 114

Hillman, Amy J., and Keim, Gerald D. (2001), "Shareholder Value, Stakeholder Management, and Social Issues: What's the Bottom Line?" Strategic Management Journal, 22 pp. 125-139

Homburg, Christian., and Pflesser, Christian. (2000), "A Multiple-layer Model of Market-Oriented Organizational Culture: Measurement Issues and Performance Outcomes." Journal of Marketing Research, 37/4 pp. 449-462

Jean-Francois, Henri. (2006), "Organizational Culture and Performance Measurement Systems" Accounting, Organizations and Society, 31 pp. 77-103

Kagaari, James., Munene, John C., and Ntayi, Joseph Mpeera. (2010),"Performance management practices, employee attitudes and managed performance", International Journal of Educational Management, Vol. 24 Iss. 6 pp. 507 – 530

Kagaari, James R.K. (2011),"Performance Management Practices and Managed Performance: The Moderating influence of Organisational Culture and Climate in Public Universities in Uganda", Measuring Business Excellence, Vol. 15 Iss. 4 pp. 36 - 49

Kaganova, Olga., and Nayyar-Stone, Ritu. (2000), "Municipal Real Property Asset Management: An Overview of World Experience, Trends and Financial Implications" Journal of Real Estate Portfolio Management; 6, 4 pp. 311

Kagioglou, Michail., Cooper, Rachel., and Aouad, Ghassan. (2001) "Performance management in Construction: A Conceptual Framework." Construction Management and Economics 19, 85-95

Khan, Kenneth B., and Mentzer, John T. (1995) "A Framework of Logistics Research" Journal of Business Logistics, Vol. 16. No.1 pp.231-250

Kaplan, Robert S., and Norton, David P. (2001) "Transforming the Balanced Scorecard from Performance Measurement to Strategic Management: Part II" American Accounting Association, Accounting Horizons Vol. 15 No. 2 pp. 147-160

Kaplan, Robert S., and Norton, David P. (2001a), “Transforming the Balanced Scorecard from Performance Measurement to Strategic Management: Part I” Accounting Horizons, Vol. 15 No. 1 pp. 87- 104

Kilmann, R. H. (1979)“On Integrating Knowledge Utilization withKnowledge Development: The philosophy behind the MAPS design technology.” Academy of Management Review, Vol. 4,417-426.

Klassen, Robert D., and Vachon, Stephan. (2006),"Extending green practices across the supply chain", International Journal of Operations & Production Management, Vol. 26 Iss. 7 pp. 795 - 821

Lohman, Clemens., Fortuin, Leonard., and Wouters, Marc. (2004) “Designing a Performance Measurement System: A Case Study” European Journal of Operational Research 156, 267–286

Lempinen, Heikki. (2013) “Design Framework for Performance Management Systems: An Ensemble Approach.” Aalto University publication Series Doctoral Dissertations 100 pp. 1, 8

MacNair, Gordon E. (2010), “Strategic Asset Management (Real Property).” Canadian Property Valuation, Vol. 54, Book 1 pp. 42- 45

Melnyk, Steven A., Bititci, Umit., Platts, Ken., Tobias, Jutta., and Anderson, Bjørn. (2014). “Is Performance Measurement and Management Fit for the Future?” Management Accounting Research 25, pp. 173-186

Neely Andy., Adams, Chris., Kennerley, Mike. (2002) “The Performance Prism: The Scorecard for Measuring and Managing Business Success.” Cranfield School of Management, Pearson Education.

Neely, Andy (2002a) “Business Performance Measurement: Theory and Practice” Cambridge University Press, Cranfield School of Management, UK

Neely, Andy. (2005) “The Evolution of Performance Measurement Research: Developments in the last decade and research agenda for the next.” International Journal of Operations & Production Management; 2005; 25, 12; 1264 (Emerald Insight) Cranfield School of Management, Centre for Business Performance, Cranfield UK

Oosterhuis, Marian., Vaart, Taco van der., and Molleman, Eric, (2012),"The value of upstream recognition of goals in supply chains", Supply Chain Management: An International Journal, Vol. 17 Iss. 6 pp. 582 - 595

Otley, David. (2001) "Extending the Boundaries of Management Accounting Research: Developing Systems for Performance Management." British Accounting Review 33, 243–261

Otley, David (2003). "Management Control and Performance Management: whence and whither?" The British Accounting Review 35 (2003) pp. 319-324, 325

Phelps, Alan. (2011), "Municipal Property Asset Management- A Comparative study of UK and Russia" International of Strategic Property Management, 15(4) pp. 422, 430

Ranjan, Jayanthi. (2008),"Business justification with business intelligence", VINE, Vol. 38 Iss. 4 pp. 461 - 475

Ranko, Bon Jay F., and Carder, McMahan Paul. (1998),"Property Performance Measurement: from theory to management practice", Facilities, Vol. 16 Iss. 7/8 pp. 208 – 214

Rothaermel, Frank T., and Deeds, David L. (2004), "Exploration and Exploitation Alliances in Biotechnology: A System of New Product Development." Strategic Management Journal, 25 pp. 201-221

Roulac, Stephen R. (2001), "Corporate Property Strategy is Integral to Corporate Business Strategy" The Journal of Real Estate Research, 22, 1/2 pp. 132-134, 135

Subramani, Mani. (2004) "How Do Suppliers Benefit from Information Technology Use in Supply Chain Relationships?" MIS Quarterly, Vol. 28, No. 1 pp. 45-73

Thomas, Kenneth W., and Tymon, Walter G. Jr. (1982) "Necessary Properties of Relevant Research: Lessons from recent Criticisms of the Organizational Sciences" Academy of Management Review, Vol. 7, No. 3, pp. 345-352

Togar, M., Simatupang, and Sridharan, Ramaswami. (2004),"A benchmarking scheme for supply chain collaboration", Benchmarking: An International Journal, Vol. 11 Iss. 1 pp. 9 - 30

Too, Eric G., and Weaver, Patrick. (2014), "The Management of Project Management: A Conceptual Framework for Project Governance" International Journal of Project Management 32, pp. 1382- 1394

Vance, Charles M. (2006), “Strategic Upstream and Downstream Considerations for Effective Global Performance Management” International Journal of Cross Cultural Management: CCM, 6/1 pp. 37-55

Vermiglio, Carlo. (2011), “Public Property Management in Italian Municipalities: Framework, current issues and viable solutions” Property Management, Vol. 29 No. 5, pp. 433-434, 438

Watson, Hugh J., and Wixom, Barbara H. (2007), “The Current State of Business Intelligence.” IEEE Computer society, IT Systems Perspectives pp. 96-99

William, J. Doll., and Gholamreza, Torkzadeh. (1991), “The Measurement of End-User Computing Satisfaction: Theoretical and Methodological Issues” MIS Quarterly, Vol. 15, No. 1 pp. 5

Wong, S.K., Yiu, C. Y, and Yau, Y. (2006),"Property Management as Property rights Governance", Property Management, Vol. 24 Iss. 2 pp. 87 - 97

Wood, Martin. (1994),"Upstream Thinking in Management", Management Development Review, Vol. 7 Iss 4 pp. 3 - 4

Interviews

Babacar Diop OIC Fuel Operations Unit PMU/LSD UNHQ, NY USA 04.06.15

David Zehler, Officer Logistics Planning and Coordination, LSD/DFS UNHQ, NY USA 04.06.15

Dr. Muhammad Munir, Chief Medical PMU UNHQ, NY USA 10.06.15

Ebrima Ceesay, Chief Surface Transport Section, PMU UNHQ, NY USA 10.06.15

Edmond Hanson, General Supplies PMU UNHQ, NY USA 04.06.15

Elsy Patricia Martinez, Chief Planning Unit Engineering PMU UNHQ, NY USA 04.06.15

Jim Smith, Chief Movement Control Section/Strategic Transport Service, PMU UNHQ, NY USA 17.06.15

Omkar Basnyet, Rations, PMU UNHQ, NY USA 04.06.15

Ovais Ahmed, Chief Aviation Safety, DFS UNHQ, NY USA 17.06.15

Russ Doran, Environmental Management, PMU UNHQ, NY USA 04.06.15

VTC Meetings with Missions, 23.04.15 – 27.05.15

Internet-references

Cambridge Systematics, Inc. Cambridge, Massachusetts (2011). "The Relationship between Asset Management and Performance Management" NCHRP 20-24 (58) Project Available at (Friday, 15 May 2015): http://www.camsys.com/pubs/NCHRP20-24_58.pdf

Procurement Executive' Association (1999) "Guide to a Balanced Scorecard Performance Management Methodology: Moving from Performance Measurement to Performance Management" PEA. Available at: http://energy.gov/sites/prod/files/maprod/documents/BalancedScorecardPerfAndMeth.pdf (Monday, 18 May 2015)

SAP (2015) "SCOR Key Performance Indicators" SAP ASAP Provided KPI References. Available at: http://www.r3now.com/about/scor-key-performance-indicators/ Time Visited: Friday, 07 August, 2015

United Nations' Website (2015). Available at:http://www.un.org/en/sections/about-un/overview/index.html Time Visited: Tuesday, 12 May 2015

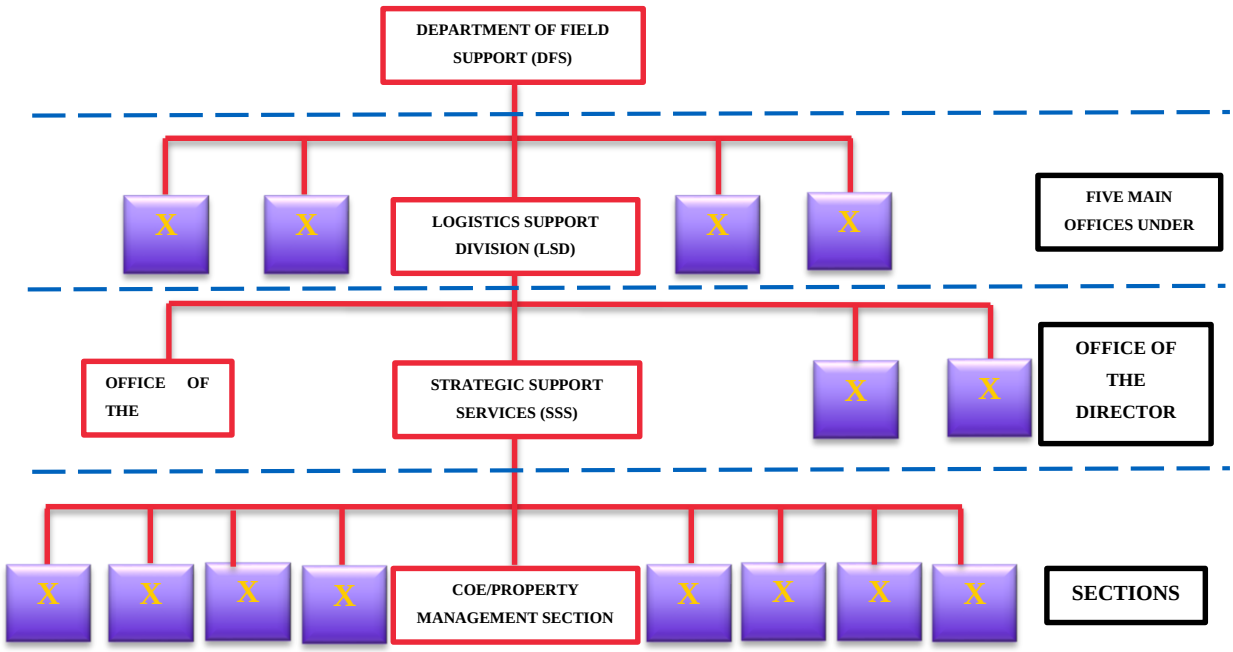
United Nations' Website (2015a). Available at: http://point.un.org/SitePages/dpkodfsoffices.aspx Time visited: Monday, 01 June 2015

United Nations' Website (2015b). Available at: http://point.un.org/SitePages/lsd.aspx Time visited: Monday, 01 June 2015

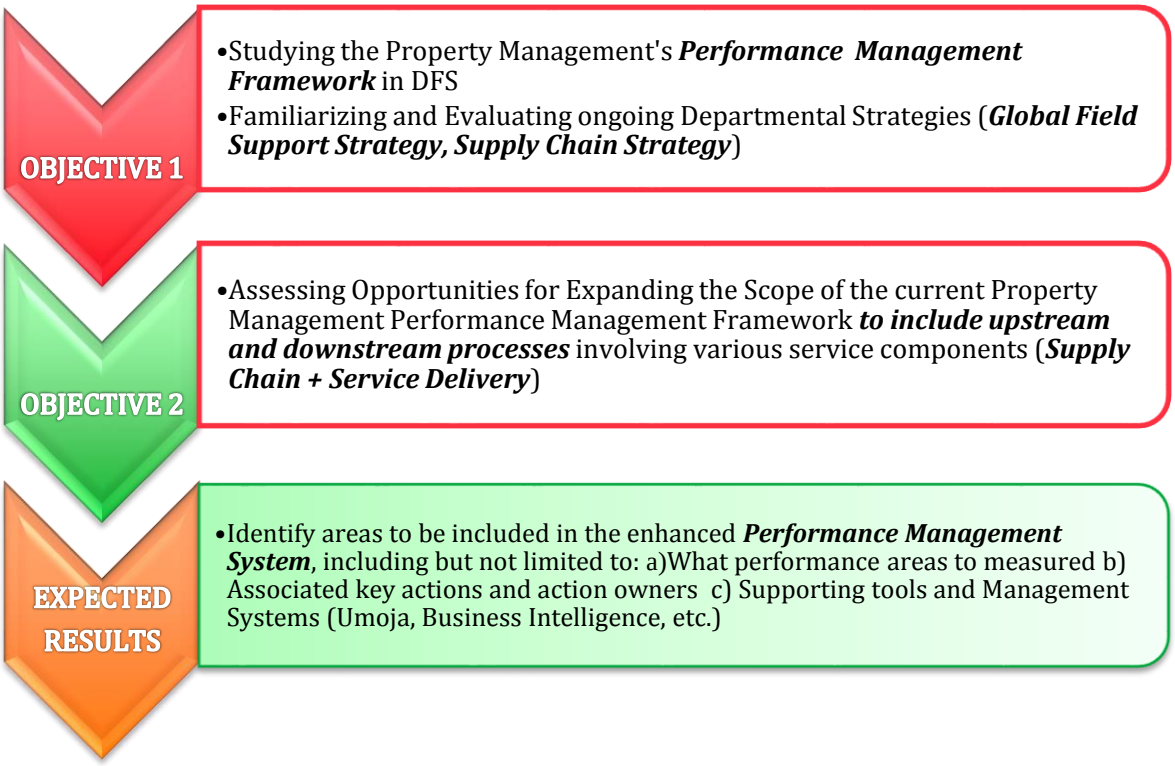
United Nations' Website (2015c). Available at: https://iseek-newyork.un.org/umoja Time visited: Tuesday, 02 June 2015

United Nations' Website (2015d). Available at: https://iseek-newyork.un.org/departmental_page/umoja-business-intelligence Time visited: Tuesday, 02 June 2015

Appendix1: Thesis position in the LSD/DFS Chart (Emphasis on where the research was conducted- red Boxes):



Appendix 2: Research Objectives and Expected Results Chart



Appendix 3a: Draft of LSD/DFS Work Plan 1 April 2015-30th March, 2016

Department of Field Support
Logistic Support Division
Work Plan 1 April 2015 – 30 March 2016

1. The Logistic Support Division (LSD) Work Plan is distributed for the guidance and implementation of LSD Services, Sections and Staff Work Plans which are to contain more detailed goals, related actions and success criteria. Furthermore this Plan is written in the context of the ongoing review of LSD structure, its roles and responsibilities within the 'end to end' Supply Chain Concept and its relationship and interface with key service providers at the strategic, operational and tactical levels. In this regard the LSD Work Plan is for the short to medium term timeframe to provide the necessary strategic policy, governance oversight and implementation of logistic support and services in accordance with Peacekeeping priorities and DPKO/DFS objectives as directed by USG/DFS.

2. LSD coordinates the following key outputs with its counterparts in Field Missions; HQ Department of Field Support (DFS), Department of Peacekeeping Operations (DPKO), Department of Management (DM), Department of Political Affairs (DPA) and Office of Legal Affairs (OLA); Global Service Centre (GSC); Member States and legislative and oversight bodies.

a. Develop and promulgate policies, guidelines and procedures and monitor compliance for carrying out logistics functions in field operations.
b. Provide strategic advice on logistical matters; monitor and assess the delivery of strategic air, transportation and support services; assess safety of aviation operations; direct the delivery of strategic air, transportation and specialist support services in the functional areas of air, ground transport, engineering, medical and supply.
c. Develop strategic and operational level policy to improve Contingent Owned Equipment (COE) and United Nations Owned Equipment (UNOE) management and accountability; design, validation and submission of IPSAS financial reports on Property Plant and Equipment (PP&E) and inventory.
d. Contribute to the implementation of UNHQ global management change initiatives including IPSAS, UMOJA, INSPIRA; streamlining of supply chain structures.

Goal/Sub goal	Key Related Actions	Success Criteria/KPI	Progress
I. Develop and promulgate policies, guidelines and procedures and monitor compliance for carrying out logistics functions in field operations.	• Develop and distribute Guidance Materials for strategic transportation, logistic support services and aviation services coherent with UN Rules and Regulations and system wide policies of the Secretary General. • Analyze gaps in policy engaging with internal, external and international partners to remain current with industry standards. • Monitor individual Mission compliance as promulgated in UNHQ/DFS/Guidance Materials.	• Missions informed and updated on current policies and guidelines. • Missions performing logistics functions in the field in accordance with the Guidance Materials.	
	• Contribute to budget guidance to field missions, and review mission budgets and performance reports.	• Mission budgets are coherent across peacekeeping and reflect current logistic policy/methodology.	
	• Respond to BOA/OIOS/JIU Audits and implement their recommendations.	• BOA and other audit body observations minimized. • Stewardship of resources strengthened to minimize legislative and oversight bodies recommendations.	
	• Establish performance management framework and quarterly reporting regime for LSD.	• HQ Senior Leadership informed of key areas of non-compliance – remedial actions taken.	
	• Ensure LSD contribution to full implementation of SAG recommendations and 2014 COE WG.	• Missions fully conversant with SAG recommendations, policy and procedures. • New reimbursement framework implemented.	

Appendix 3b: Draft of LSD/DFS Work Plan

		• New reimbursement framework implemented.	
II. Provide strategic level support within the specialist of areas of Air, Engineering, Medical, Transport and Supply.	• Provide technical and professional advice to Mission Leadership. • Represent Missions at HQ/seek higher level guidance/advice/approval on behalf of Missions.	• Seamless and transparent flow of information between Mission and HQ Leadership minimizing escalation of issues and facilitating early resolution.	
	• In close cooperation with PD and OLA, establish a comprehensive and robust performance management based systems contract mechanism to meet current, emerging and future peacekeeping support needs.	• Systems contracts established for all key deliverables (equipment and services) in direct support of mandates and operations.	

1

Department of Field Support
Logistic Support Division
Work Plan 1 April 2015 – 30 March 2016

Goal/Sub goal	Key Related Actions	Success Criteria/KPI	Progress

	• Develop fit for purpose electronic management tools to enhance service delivery and improve stewardship, accountability and oversight of UN resources.	• All e. management tools piloted and implemented in accordance with project timelines to:
		  • enhance delivery of key logistic services.
		  • minimize BOA and other audit body observations.	

III. Contribute to the implementation of UNHQ global management change initiatives including UMOJA, mission support structures, 'end to end' supply chain concept and technology led support innovations.	• Facilitate full implementation of UMOJA, IPSAS and INSPIRA at HQ. • Support full operationalization of RSCE and contribute to Shared Service development. • Ensure LSD staff trained on UMOJA, IPSAS and INSPIRA as required by function. • Mainstream IPSAS accounting and reporting requirements for Property, Plant & Equipment (PP&E) and Inventory into the standard business processes of the supported field operations. • Initiate a project for retirement of Galileo and facilitate full transitioning of downstream materials management processes into Umoja in the supported field operations.	• UMOJA fully operationalized and supporting HQ business processes. • INSPIRA fully supporting HR processes. • SSS structure refined to provide more efficient, effective and synergistic services to clients. • IPSAS financial reports are accepted by OPPBA, no qualified opinion from the BOA.	

	processes into Umoja in the supported field operations.		

	• Contribute to strategy key building blocks:
	  • Defining a framework of integrated 'end to end' SCM process.
	  • Explore different supply chain solutions.
	  • Provide solutions for infrastructure, technology and resources in support of SCM processes.
	  • Introduce performance management framework to measure, monitor and manage the supply chain.
	• Develop and distribute guidance for Supply Chain Management.
	• Develop a refined Supply Chain Implementation Roadmap.
		• Supply Chain Management established as a strategic function within DFS and field missions.
		• SCM priorities for 2015/16 progressed:
		  • Acquisition Planning: to develop a standard approach based on customer requirements and strategic sourcing activities to achieve timely acquisition and economies of scale.
		  • Eastern Africa Corridor: to optimize transportation routes/resources and services in East Africa.
		  • INCOTERMS and Upstream Inbound Delivery: to develop a plan for strategic use of INCOTERMS for goods shipped.
		  • Centralized Warehousing: to establish uniform end-to-end processes, achieve economies of scales, maximize warehouse resources utilization and improve inventory management.	

	• Direct LSD activities in technology led support solutions in accordance with recommendations of High Level Panel Report on Technology and Innovation.	• LSD policies/initiatives aligned to Technology Action Matrix. • New technology/thinking adopted within support culture.	
IV. Lead and contribute to specific projects as directed by USG/ASG DFS.	• Provide direction on Government of Japan (GoJ)/DFS Triangular Partnership – Rapid Deployment of Engineering Capabilities in Africa.	• GoJ to report significant progress of project by September 2015.	

2

Department of Field Support
Logistic Support Division
Work Plan 1 April 2015 – 30 March 2016

Goal/Sub goal	Key Related Actions	Success Criteria/KPI	Progress
V. Perform necessary management and administration tasks	• Ensure adequate allocation and effective management of LSD posts and staff resources • Put in place adequate management tools.	• Posts are encumbered in a timely manner. • Work Plans established for all Services.	

Appendix 4: BODs Concerns for Better Asset Management (Extract from PM's 2015 Directive)

8. Notwithstanding the continuous improvements, the Board of Auditors, in its Report A/69/5 (Vol. II) on peacekeeping operations for the 12-month period from 1 July 2013 to 30 June 2014, identified weaknesses in the area of asset management as an exposure to higher risk of loss, wastage and ineffective stewardship of resources allocated for mandate implementation. The Board indicated the following areas where continuous attention is required:

   a. Strengthen asset management procedures and closely monitor the level of never-used items and their judicious deployment and re-distribution;

   b. Conduct proper assessment of requirement before undertaking procurement so as to ensure that items purchased are utilized;

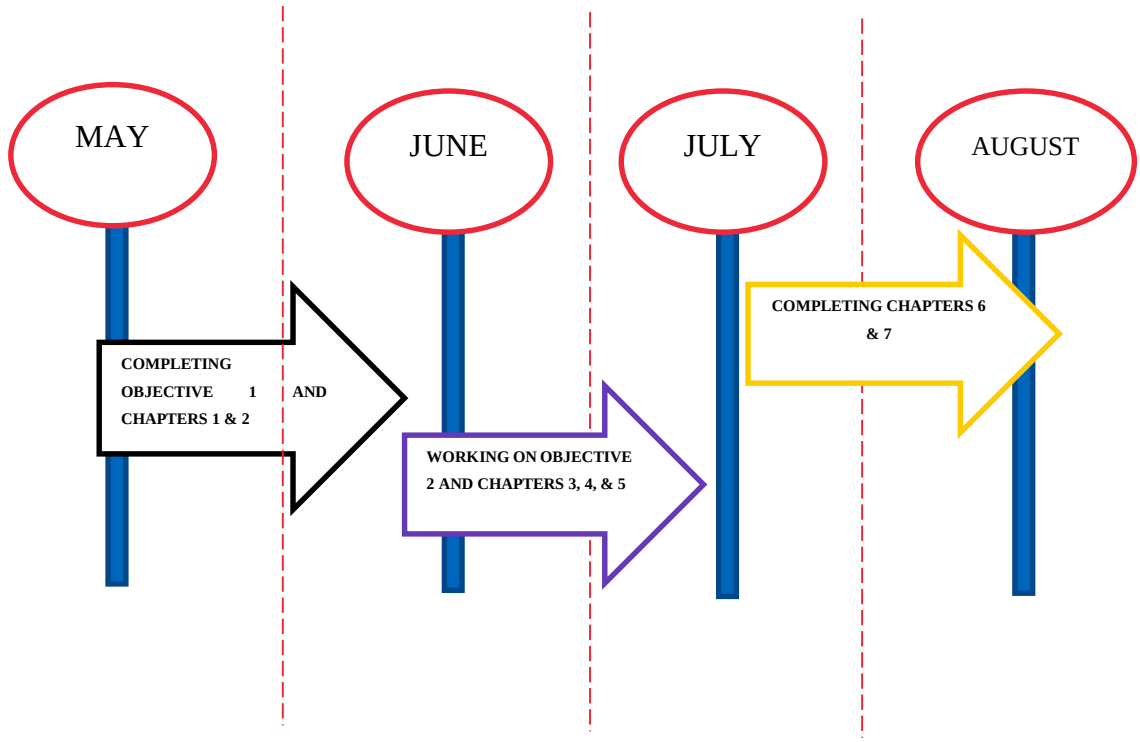
   c. Review inventory practices in missions to reduce the number of over-stocked items and ensure a more rational stocking of items taking into account actual rates of consumption or utilization while at the same time, ensuring timely replenishment of stocks;

   d. Review the reasons for delay in write-off and disposal of property and ensure that the missions explore the possibility of early completion of the long pending cases while addressing mission specific constraints; undertake a more focused effort to ensure that instructions in respect of write-off and disposal of assets are followed by missions;

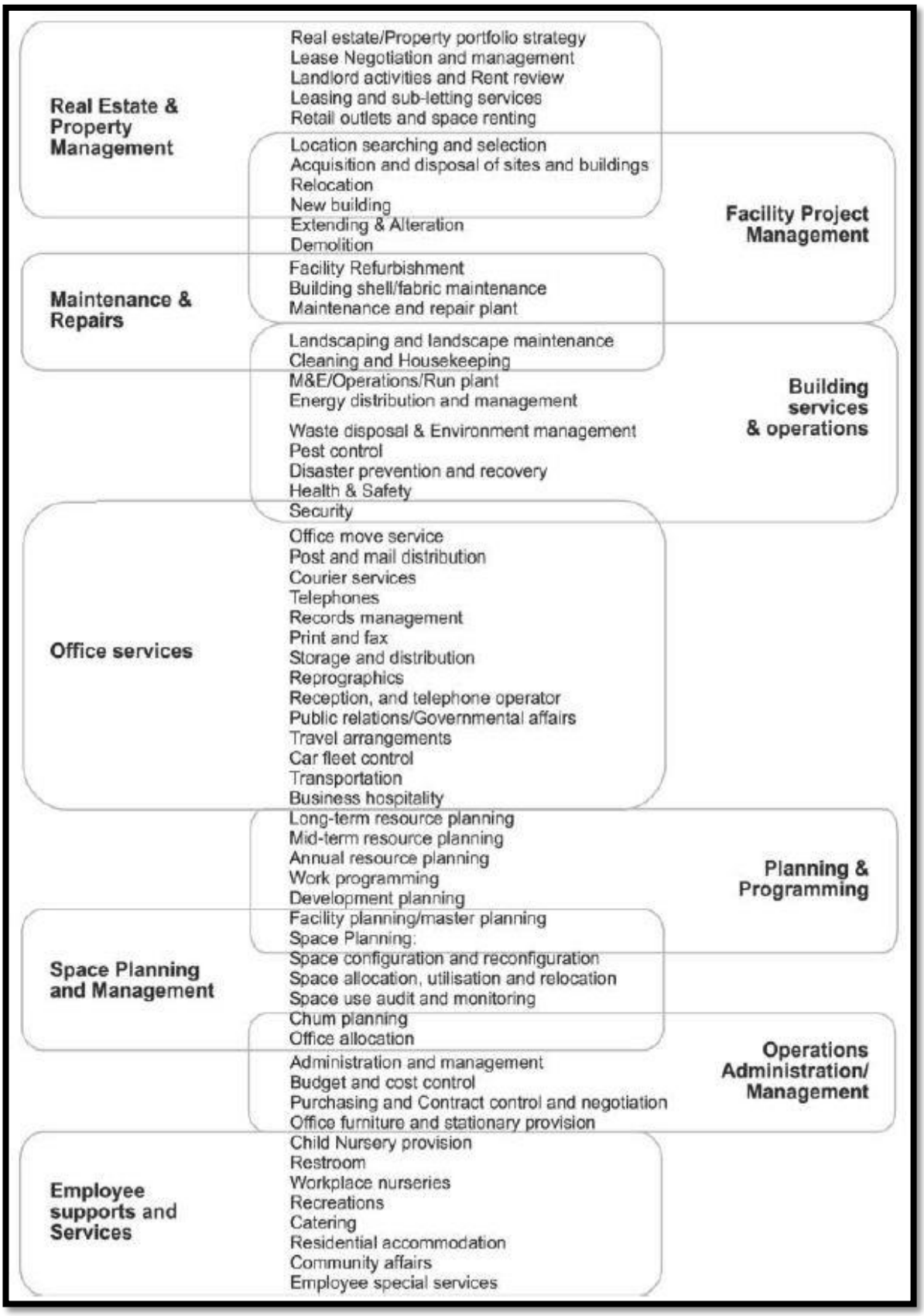
   e. Improve procedures for issuance and tracking of assets; exert more effort to trace the "not located" items during physical verification; and consider writing-off or disposing all obsolete equipment which are no longer in use;

   f. Monitor compliance with the requirement of obtaining clearance from the UNGSC by the missions prior to going for sourcing of non-expendable assets.

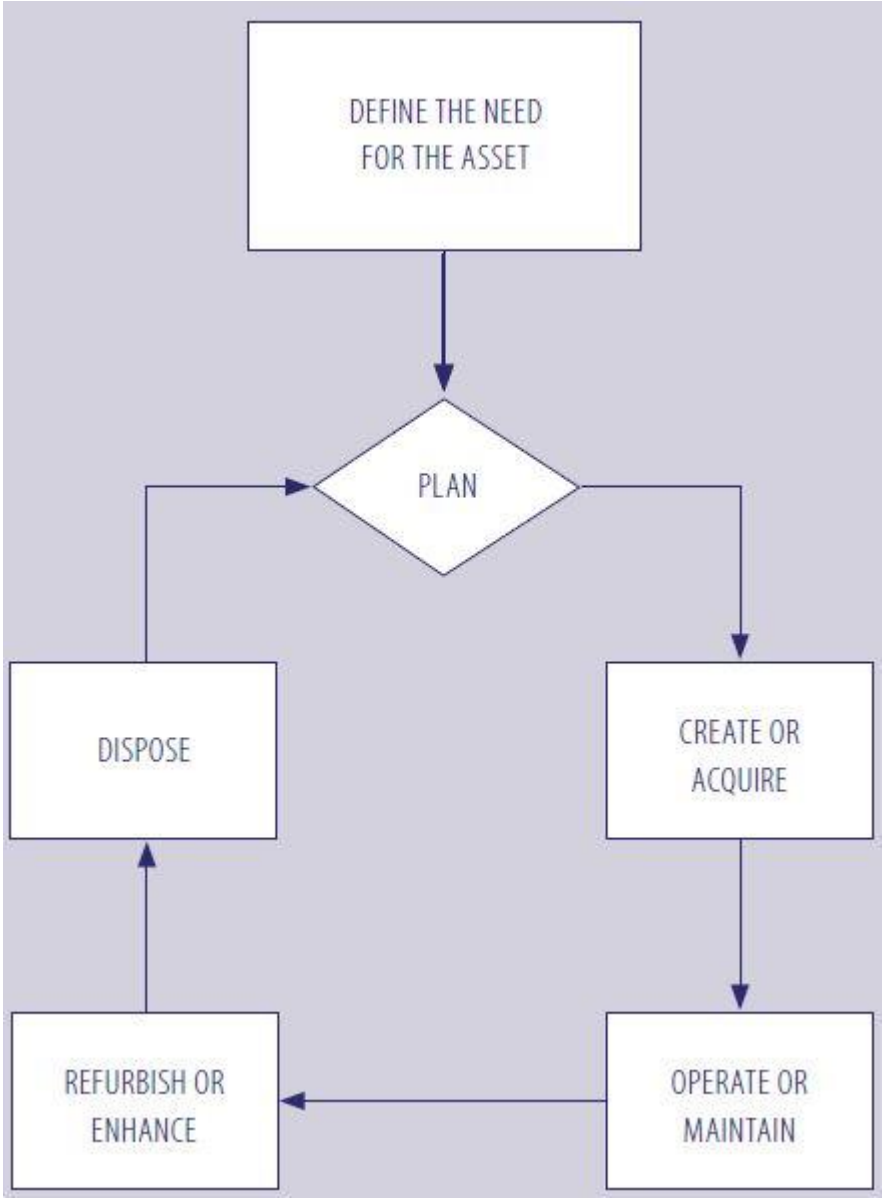
Appendix 5: Research, Typesetting and Timeframe for Thesis Work



Appendix 6: Positioning of FM & PM, Chotipanich (2004)



Appendix 7:Sections of the Real Property Asset Lifecycle (MacNair, Gordon E. 2010)



Appendix 8: Governance-Extract from DFS 2014 Supply Chain Vision Strategy

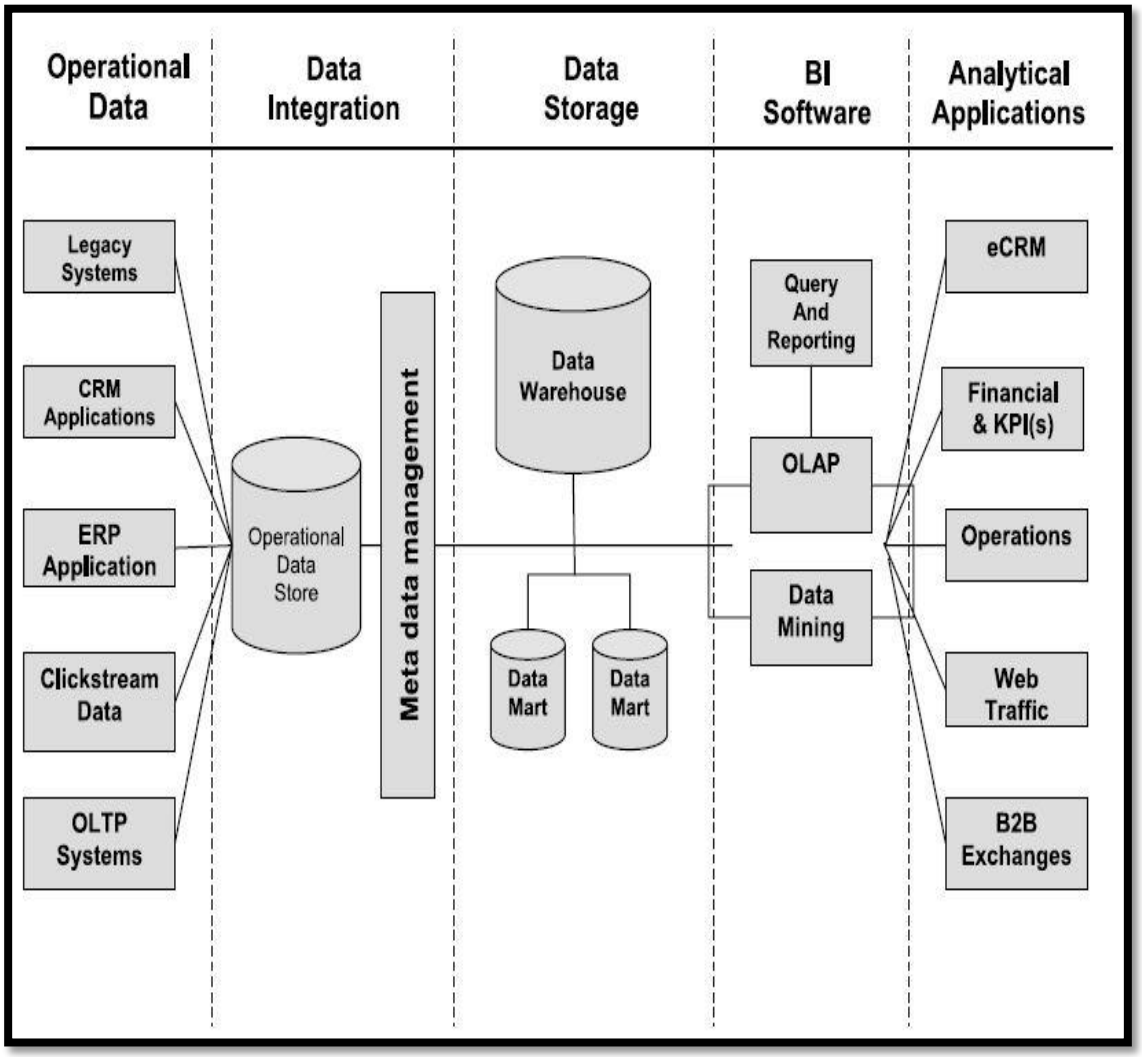
6.1 Governance of Supply Chain Management

As mentioned in the Introduction, work started on development of a Supply Chain Management

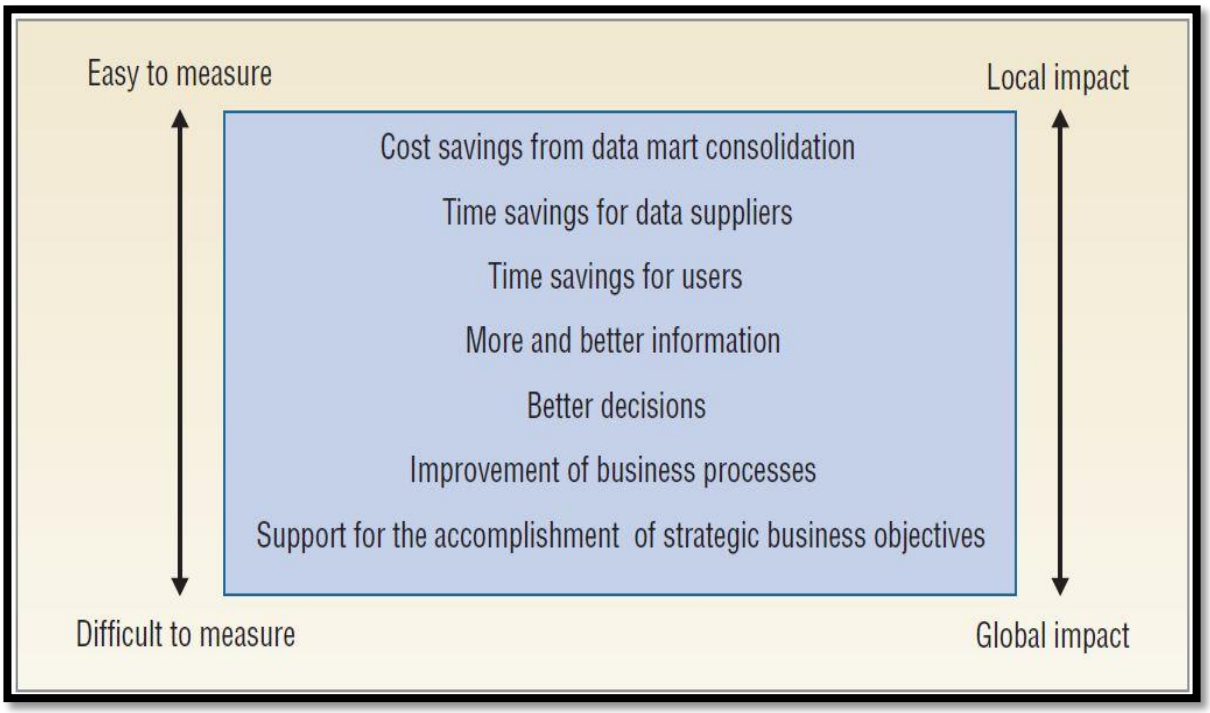
Article	Governance mechanism	Article's type and conclusions
Cai *et al.* (2009)	Legal contract, joint problem solving, joint planning and collaborative communication	Empirical. Governance mechanisms are more used in more interdependent relationships and they improve performance and commitment
Chelariu and Sangtani (2009)	Qualification, monitoring and enforcement	Empirical. The three types of e-marketplaces, i.e. independent exchanges, consortia, and private exchanges are characterized by the use of different interfirm governance processes
Dyer and Singh (1998)	Third-party enforcement mechanisms (contract) and self-enforcing mechanisms (countervailing specific investments, financial, and trust-reputation)	Interfirm governance generates relational rents because it influences transaction costs (e.g. the risk of opportunism) and the parties' disposition to engage in value-creation initiatives (e.g. by sharing knowledge)
Heide (1994)	Market governance, unilateral and bilateral	Theoretical. Each form of interfirm governance is distinct from the others according to how the relationship starts, roles are specified, nature of planning and adjustments, monitoring procedures, incentive systems, means of enforcement, and how relationship ends
Hernández-Espallardo and Arcas-Lario (2003)	Formalization, participation, input control, behavior control and output control	Governance helps firms to improve market orientation
Mohr and Sengupta (2002)	Information exchange, operational linkages, cooperative norms, specific investments and contract	Theoretical. Appropriate goveranance mechanisms must be crafted which maximize the benefits of learning and minimizes the risks
Wathne and Heide (2000)	Monitoring, incentives, selection and socialization	Theoretical. Governance mechanisms must be aligned with the type of opportunism that has to be managed
Wathne and Heide (2004)	Qualification and hostages	Empirical. Flexibility in dyadic relationships depends on how other connected relationships in the firm's larger supply chain are governed

Appendix: 9 Governance Mechanisms (Hernández-Espallardo et al. 2010)

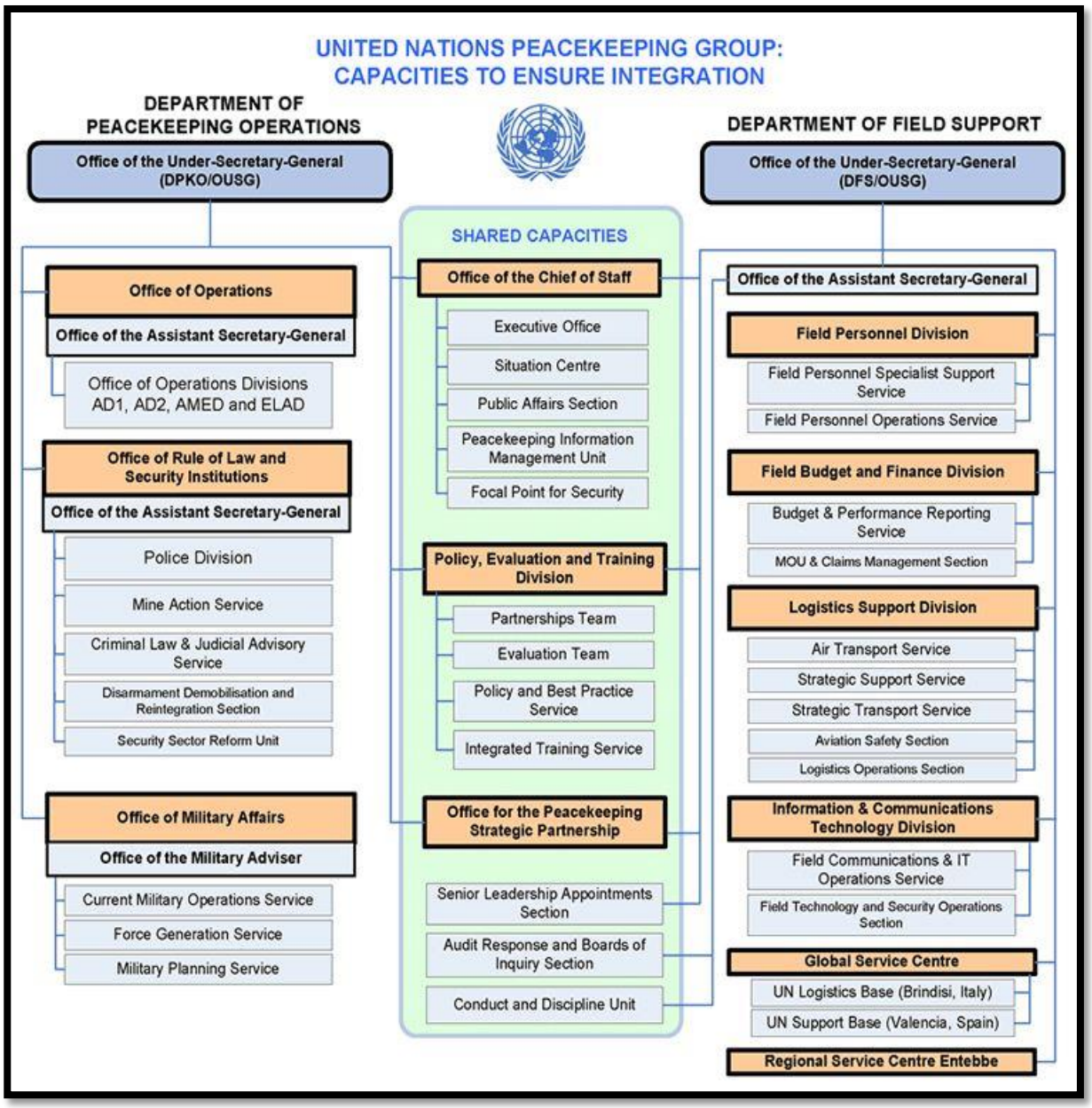
Appendix 10: Integrated Framework for BI and ERP. Chou et al. (2005) adapted from Datamonitor (2001)



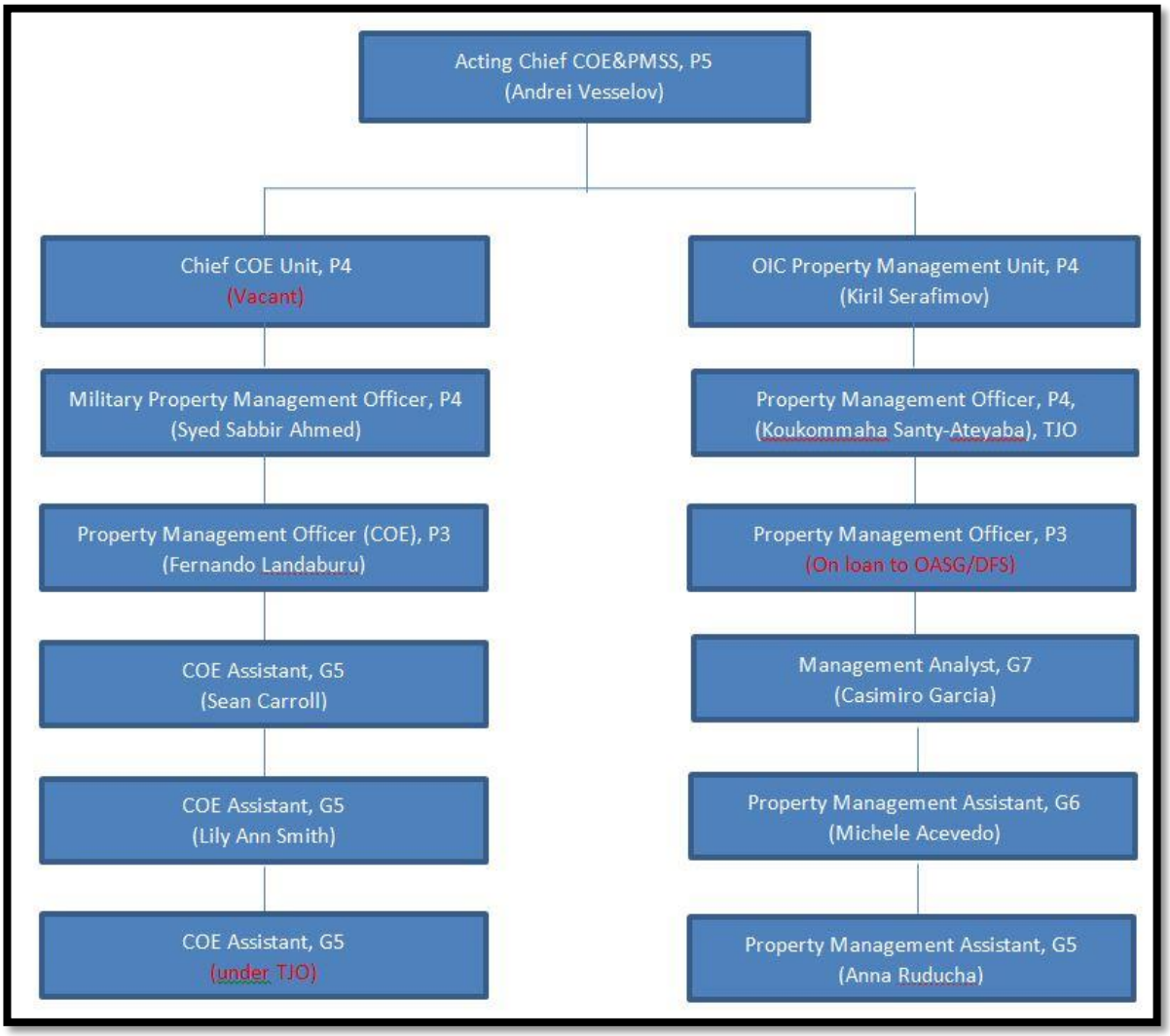
Appendix 11: Spectrum of BI benefits. "As business users mature to performing analysis and prediction, the level of benefits become more global in scope and difficult to quantify"(Watson and Wixom, 2007)



Appendix 12: DFS-DPKO Offices as of 03.02.2015 (United Nations Website 1, 2015)



Appendix 13: PMU and COE Organization and Staffing Chart as of June, 2015. (Director Briefing - February 2014 COE&PMSS)



Appendix 14: Galileo Gap Analysis (Project Initiation Document for Migration of Peacekeeping Entities to Umoja Foundation Supply Chain and Decommissioning of Galileo, Proposal 02.03.15 KH)

Supply Chain and Planning	1) No integration with Program and Project Management 2) No planning tools; no visibility of inbound delivery; no location/tracking outside of mission area. 3) No demand planning, no safety stock calculations and minimal consumption history tools. 4) Mission liquidation (PADP) is limited to NEP items; no planning tools for Expendables.
Master Data	1) Lack of integration with requisitioning/procurement systems means that codification occurs during the physical receipt of property. Results in proliferation of stock cards and resource intensive data cleansing and quality control procedures. 2) Galileo utilizes one codification structure that is geared towards the classification of property into Non-expendable (NEP) or Expendable property whereas SAP allows for several layers of master data (Material Master, Equipment Master, Fixed Asset Master, Service Master, etc.) 3) Galileo's codification is based "UNCCS" nomenclature whereas Umoja introduced "UNSPSC" classification for its Material Master. This means that asset managers are procuring based on one standard of information which must be translated into another set for stock management purposes.

	4) Lack of a single, integrated staff list prevents coordination among missions sharing services. (Example: RSC Entebbe is hindered by inability to issue equipment to staff members serving at the Centre but which are officially assigned to a neighbouring mission.)
Operational	1) Limited ability to identify sets of equipment; data elements are confined to specific missions and are not transferrable. 2) All procurement is to "Stock"; no ability to procure directly for a project (necessary for tracking costs). 3) Limited batch management to monitor expiration dates, shelf life (necessary to prevent the issuance of expired medical supplies, ration packs, etc.) 4) No restrictions management (necessary to prevent the sale / disposal of controlled equipment purchased with End User Certificates) 5) No demand fulfilment tools. 6) No interface to customer actual or forecasted demand/ orders 7) Lack of ability to task warehouse personnel and allocate appropriate MHE 8) Lack of ability to monitor and notify orders status to customers 9) Lack of storage capacity management and optimization functionality. 10) Storage strategy and business rules are not encapsulated in the system, thus lack of ability to monitor and control material flow and movement. 11) Lack of ability to plan, monitor, control, and optimize warehouse workload and work processes

Financial	1) Performing a goods receipt has no financial impact in real time. 2) No ability to automatically capture associated costs; 3) The financial reporting of expendable property is compromised by lack of back-end transaction management system. Unchecked business practices exist that compromise financial data. Incorrect changes in units of measure, merging of dissimilar stock cards are unchecked and facilitated by the system. 4) Limited ability to track different types of programmes and projects (e.g. Mine Action Service Assets in locations where Galileo is not deployed.)

Appendix 15: Comprehensive list of Envisaged benefits and associated KPIs (IPSAS benefits realization Plan for UN, 2014)

Benefit Categories & Benefits	KPIs
A. Alignment with best practices	
A.1 Compliance with independently developed, high-quality public sector accounting standards	A.1.1 A clean annual audit opinion
	A.1.2 Application of as few as possible transitional provisions
	A.1.3 Number of new or updated accounting policies implemented for the UN based on decisions of the IPSAS Board
	A.1.4 Fewer audit corrections
B. Improved stewardship of assets and liabilities	
B.1 More focused resource utilization	B.1.1 Increased number of strategic resource management decisions taken by the MC
B.2 Improved visibility for capital expenditure requirements	B.2.1 Number of instances where the justification of requirements under section 33, capital expenditures, of the regular budget, under the support account for peacekeeping operations as well as under individual mission budgets is based on and/or includes accrual-based information
B.3 Improved management of long-outstanding contributions	B.3.1 Increased number of follow-up actions with donors regarding XB contributions
	B.3.2 Increased number of follow-up actions regarding assessed contributions based on aging data of receivables
B.4 Closing the funding gap for employee liabilities (ASHI) related to extra-budgetary resources	B.4.1 Reduced amount of unfunded ASHI liability for XB resources compared to the previous period
B.5 Improved property and inventory management	B.5.1 100% complete and accurate asset registers (tangible and intangible assets)
	B.5.2 Recognition of all donated right to use assets
	B.5.3 Semi-annual match of physical inventory records with ERP records
	B.5.4 Percentage reduction in asset/inventory requirements compared to previous period (preliminarily until 2017 (= full deployment of Umoja)
B.6 Better revenue management related to extra-budgetary contributions	B.6.1 Number of programme/project managers trained in IPSAS revenue recognition aspects
	B.6.2 Changes in revenue amounts and contingent assets related to XB contributions compared to previous period

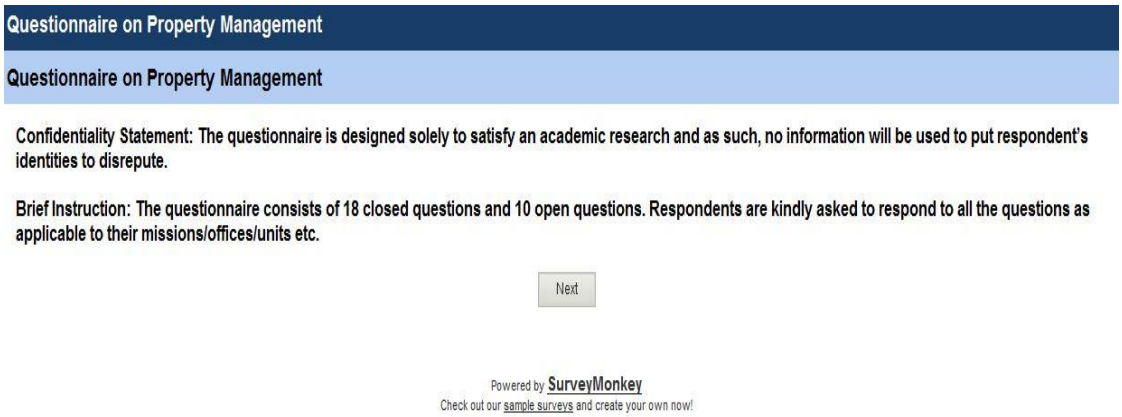
Appendix 16: Comprehensive list of Envisaged benefits and associated KPIs (IPSAS benefits realization Plan for UN, 2014)

Benefit Categories & Benefits	KPIs
	B.6.3 Reduced level of write-offs for doubtful accounts
B.7 Better management of provisions	B.7.1 Reduction in the number and total amount of provisions as well as contingent liabilities compared to previous period
C. Availability of more comprehensive information on cost	
C. 1 Improved financial decision-making	C.1.1 Number of recommendations and observations by ACABQ and implementation requests by the Fifth Committee of the GA related to the management of costs
	C.1.2 Number of implemented MC decisions regarding mandate/service delivery based on cost info
	C.1.3 Lower level of variances between budgeted and actual expensed amounts
C.2 Improved financial management	C.2.1 Implementation of cost management strategies defined by the Controller
	C.2.2 Number of identified measures for more efficient service delivery
	C.2.3 Number of best financial management practices implemented by Heads of Administration/DMS/CMS
C.3 Improved cost recovery	C.3.1 Variance in recovered amounts/income
D. Improved consistency and comparability	
D.1 Increased number of UN system-wide financial initiatives	D.1.1 Number of best financial management practices adopted by UN System emanating from the adoption of IPSAS
D.2 Improved longer-term financial risk management	D.2.1 Number of identified financial risks with defined mitigation measures
E. Increased transparency and accountability	
E.1 More comprehensive and more frequent availability and use of financial information	E.1.1 Number of meetings held by the Fifth Committee and the ACABQ considering financial statements and BoA reports
	E.1.2 Number of senior managers trained in the interpretation of financial information contained in financial statements
	E.1.3 Number of instances reported to the Controller where IPSAS financial information has been used and integrated into the management of programmes and day-to-day operations
E.2 Better assignment and enforcement of accountability for financial performance	E.2.1 Number of instances where managerial accountability for operational performance has been established by the MC, Management Performance Board, Heads of Administration/DMS/CMS

Appendix 17: Supply Chain Framework (Gunasekaran et al. 2001 & 2004)

Level	Performance metrics	Financial	Non-financial
Strategic	Total supply chain cycle time		◆
	Total cash flow time	◆	◆
	Customer query time	◆	◆
	Level of customer perceived value of product		◆
	Net profit vs. productivity ratio	◆	
	Rate of return on investment	◆	
	Range of product and services		◆
	Variations against budget	◆	
	Order lead time		◆
	Flexibility of service systems to meet particular customer needs		◆
	Buyer-supplier partnership level	◆	◆
	Supplier lead time against industry norm		◆
	Level of supplier's defect free deliverires		◆
	Delivery lead time		◆
	Delivery performance	◆	◆
Tactical	Accuracy of forecasting techniques		◆
	Product development cycle time		◆
	Order entry methods		◆
	Effectiveness of delivery invoice methods		◆
	Purchase order cycle time		◆
	Planned process cycle time		◆
	Effectiveness of master production schedule		◆
	Supplier assistance in solving technical problems		◆
	Supplier ability to respond to quality problems		◆
	Supplier cost saving initiatives	◆	
	Supplier's booking in procedures		◆
	Delivery reliability	◆	◆
	Responsiveness to urgent deliveries		◆
	Effectiveness of distribution planning schedule		◆
Operational	Cost per operation hour	◆	
	Information carrying cost	◆	◆
	Capacity utilisation		◆
	Total inventory as:	◆	
	– Incoming stock level		
	– Work-in-progress		
	– Scrap level		
	– Finished goods in transit		
	Supplier rejection rate	◆	◆
	Quality of delivery documentation		◆
	Efficiency of purchase order cycle time		◆
	Frequency of delivery		◆
	Driver reliability for performance		◆
	Quality of delivered goods		◆
	Achievement of defect free deliveries		◆

Appendix 18: Samples of Survey Questions



Questionnaire on Property Management

Questionnaire on Property Management

Confidentiality Statement: The questionnaire is designed solely to satisfy an academic research and as such, no information will be used to put respondent's identities to disrepute.

Brief Instruction: The questionnaire consists of 18 closed questions and 10 open questions. Respondents are kindly asked to respond to all the questions as applicable to their missions/offices/units etc.

Next

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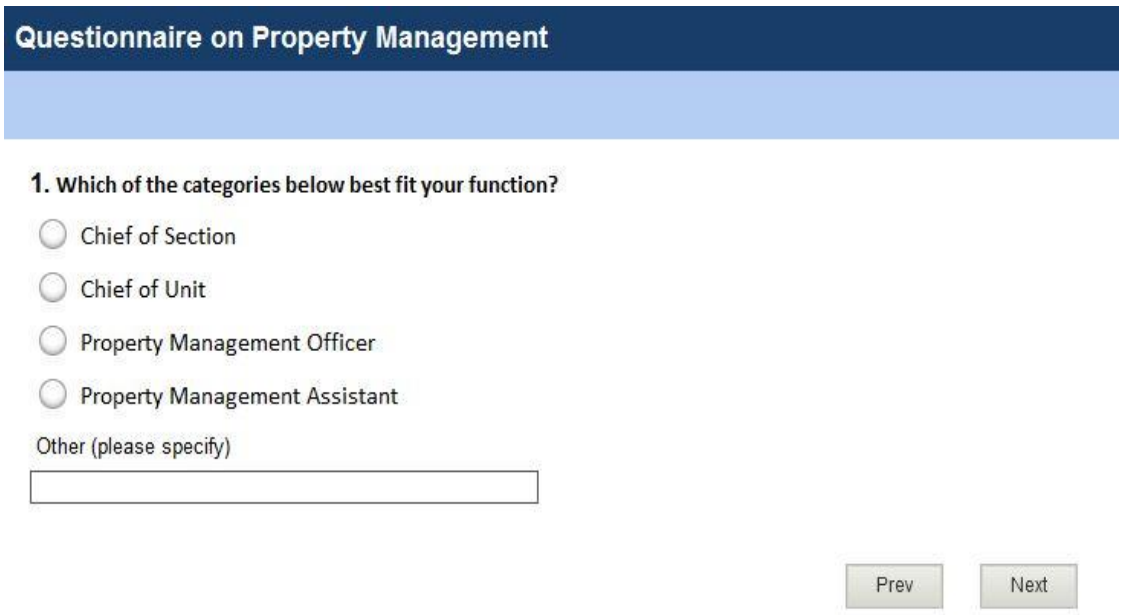


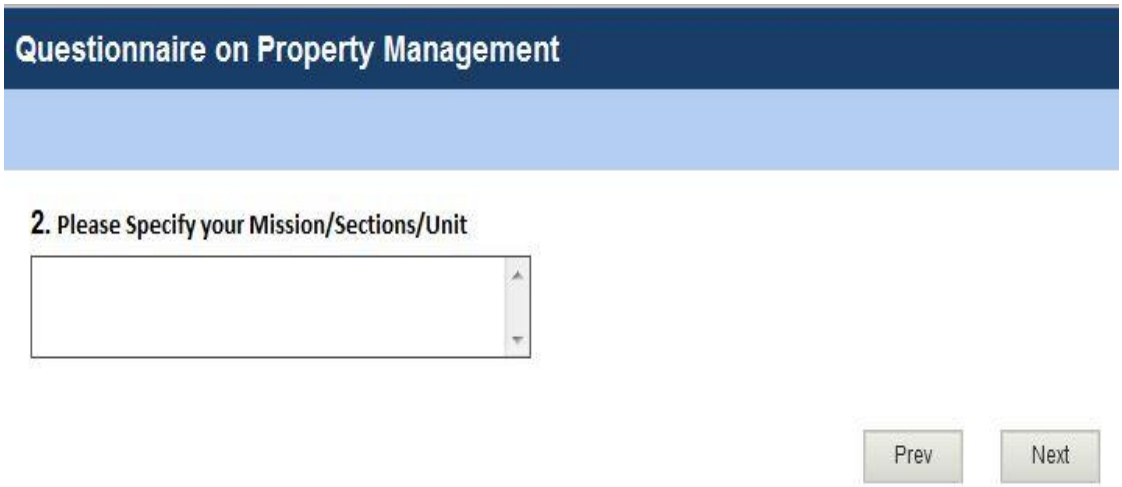
Questionnaire on Property Management

1. Which of the categories below best fit your function?

- Chief of Section
- Chief of Unit
- Property Management Officer
- Property Management Assistant

Other (please specify)

Prev Next



Questionnaire on Property Management

2. Please Specify your Mission/Sections/Unit

Prev Next

Questionnaire on Property Management

4.
I experience difficulties when using the Business Intelligence toolkits

- Strongly Agree
- Agree
- Don't Know
- Disagree
- Strongly disagree

Prev Next

7. How clear are the explanations of the KPIs for property management to you?

- Very Clear
- Clear
- Not clear
- Very unclear
- Don't know

8. How will you describe the competence level of your staff in undertaking property management functions?

- Very High
- High
- Average
- Low
- Very Low

Prev Next

Questionnaire on Property Management

21. What factors account for low stewardship of UNOE in your mission/section/unit?

22. What are the main causes of property loss at your mission/section/unit?

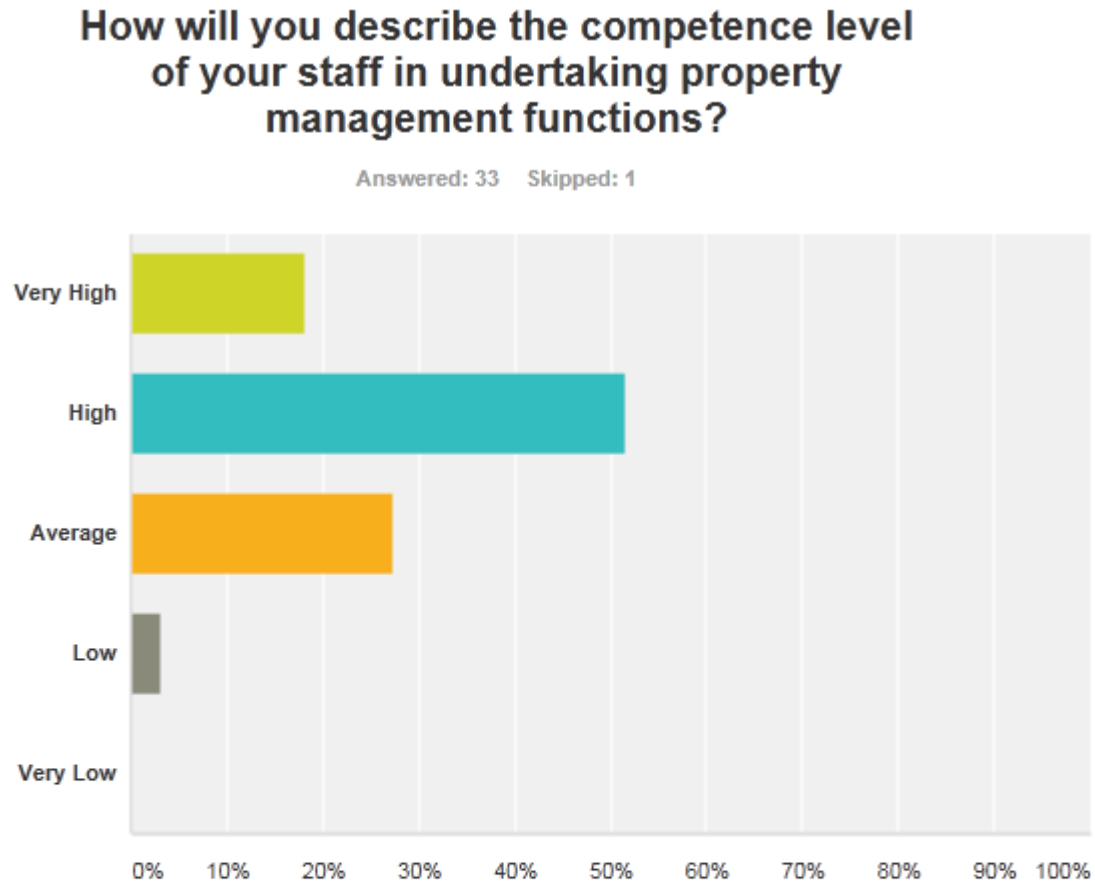
23. What are the main causes of property damages at your mission/section/unit?

Prev Next

Appendix 19: Supply Chain Performance Measures by other researchers (Gopal and Thakkar, 2012)

1. Qualitative or Quantitative (Beamon, 1999; Chan, 2003)
2. Cost and non-cost (Gunasekaran et al., 2001; De Toni and Tonchia, 2001)
3. Quality, cost, delivery and flexibility (Schonsleben, 2004)
4. Cost, quality, resource utilization, flexibility, visibility, trust and innovativeness(Chan, 2003)
5. Resources, outputs and flexibility (Beamon, 1999)
6. Supply chain collaboration efficiency; coordination efficiency and configuration(Hieber, 2002)
7. Input, output and composite measures (Chan and Qi, 2003)
8. Strategic, operational or tactical focus (Gunasekaran et al., 2001& 2004)
9. Supply chain operations reference (SCOR) model (plan, source, make, deliver andreturn or customer satisfaction); whether they measure cost, time, quality,flexibility and innovativeness; and, whether they were quantitative or qualitative(Shepherd and Gunter, 2006)
10. Modelling the metrics of lean, agile and leagile supply chains (Agarwal et al.,2006)
11. Key performance measures and metrics in supply chain (Gunasekaran and Kobu,2007)
12. Scorecard approach (Brewer and Speh, 2000, 2001; Bullinger et al., 2002)
13. Tangible/intangible (Park et al., 2005; Saad and Patel, 2006)
14. Sustainability/green (Clift, 2003; Hervani et al., 2005) and
15. Financial/non-financial (Beamon and Balcik, 2008; Gunasekaran et al., 2004;Gunasekaran et al., 2001)

Appendix 20: Overall Response Rate to Staff Competence



Answer Choices	Responses	
Very High	18.18%	6
High	51.52%	17
Average	27.27%	9
Low	3.03%	1
Very Low	0.00%	0
Total		33

Appendix 21: Overall Benchmarking KPIs (SAP, 2015)

1. **Build-to-Ship Cycle Time**: Average time from when a unit/product is deemed shippable by manufacturing until the unit/product actually ships to a customer
2. **Capacity Utilization**: A measure of how intensively a resource is being used to produce a good or service. Some factors that should be considered are internal manufacturing capacity, constraining processes, direct labor availability and key components/materials availability.
3. **Cash-to-Cash Cycle Time**: Cash-to-cash cycle time = inventory days of supply + days sales outstanding – average payment period for materials (time it takes for a dollar to flow back into a company after it has been spent for raw materials).
4. **Create Customer Order Costs**: Includes costs for creating and pricing configurations to order and preparing order documents.
5. **Cumulative Cycle Time** (Source/Make): The cumulative external and internal lead time to build shippable product (if you start with no inventory on hand, no parts on order, and no prior forecasts existing with suppliers), in calendar days.
6. **Customer Invoicing/Accounting Costs**: Includes costs for invoicing, processing customer payments, and verifying customer satisfaction.
7. **Delivery Performance to Customer Request Date**: The percentage of orders that are fulfilled on or before the customer's requested date.
8. **Delivery Performance to Scheduled Commit Date:** The percentage of orders that are fulfilled on or before the original scheduled or committed date.
9. **Demand / Supply Planning Costs**: Costs associated with forecasting, developing finished goods or end item inventory plans, and coordinating Demand/Supply process across entire supply chain, including all channels. (Not including MIS associated costs.)
10. **Distribution Costs**: Includes costs for warehouse space and management, finished goods receiving and stocking, processing shipments, picking and consolidating, selecting carrier, and staging products/systems
11. **Fill Rates:** The percentage of ship-from-stock orders shipped within 24 hours of order receipt.
12. F**inished Goods Inventory Carrying Costs**: Sum of all costs associated with finished goods inventory: opportunity cost, shrinkage, insurance and taxes, total obsolescence, channel obsolescence and field sample obsolescence.
13. **Finished Goods Inventory Days of Supply**: Finished goods inventory days of supply are calculated as gross finished goods inventory ÷ (value of transfers/365 days).
14. **Forecast Accuracy**: Forecast accuracy is calculated at the shippable end-product level for each distribution channel, and for both units and dollars. Forecast Accuracy = Forecast Sum – Sum of Variance / Forecast Sum. Forecast Sum = The sum of the units or dollars forecasted to be shipped in each month based upon the forecast generated three months prior. Sum of Variances = The sum of the absolute values, at the forecasted line item level, of the differences between each month's forecast as defined above and actual demand for the same month.
15. **Inventory Carrying Costs**: Inventory Carrying Costs are the sum of opportunity cost, shrinkage, insurance and taxes, total obsolescence for raw material, WIP, and finished goods inventory, channel obsolescence and field sample obsolescence.
16. **Inventory Days of Supply**: Total gross value of inventory at standard cost before reserves for excess and obsolescence. Only includes inventory on company books, future liabilities should not be included. 5 point annual average of the sum of all gross inventories (raw materials & WIP, plant FG, field FG, field samples, other) ÷ (COGS ÷ 365).
17. **Inventory Obsolescence as a Percentage of Total Inventory**: The annual obsolete and scrap reserves taken for inventory obsolescence expressed as a percentage of annual average gross inventory value.
18. **Material Acquisition Costs:** Material acquisition costs include costs incurred for production materials: sum of materials management and planning, supplier quality engineering, inbound freight and duties, receiving and material storage, incoming inspection, material process engineering and tooling costs.
19. **Order Fulfilment Costs**: Includes costs for processing the order, allocating inventory, ordering from the internal or external supplier, scheduling the shipment, reporting order status and initiating shipment.
20. **Order Management Costs:** The aggregation of the following cost elements (contained in this glossary): Create Customer Order Costs, Order Entry and Maintenance Costs, Contract/Program and Channel Management Costs, Installation Planning Costs, Order Fulfilment Costs, Distribution Costs, Transportation Costs, Installation Costs, Customer Invoicing/Accounting Costs
21. **Perfect Order Fulfilment**: A "perfect order" is defined as an order that meets all of the following standards: Delivered complete; all items on order are delivered in the quantities requested; Delivered on time to customer's request date, using your customer's definition of on-time delivery; Documentation supporting the order including packing slips, bills of lading, invoices, and so on, is complete and accurate; Perfect condition: Faultlessly installed (as applicable), correct configuration, customer-ready, no damage

22. **Plant Finished Goods Inventory Days of Supply**: Plant finished goods inventory days of supply are calculated as gross plant finished goods inventory ÷ (value of transfers/365 days).
23. **Production Flexibility:** Upside Flexibility: The number of days required to achieve an unplanned sustainable 20% increase in production. Downside Flexibility: The percentage order reduction sustainable at 30 days prior to delivery with no inventory or cost penalties.
24. **Raw Material & WIP Inventory Days of Supply**: Raw material & WIP inventory days of supply are calculated as gross raw material and WIP inventory ÷ (value of transfers/365 days).
25. **Raw Material Days-of-Supply**: Raw material inventory days of supply are calculated as gross raw material inventory ÷ (value of transfers/365 days).
26. **Raw Material Inventory Carrying Costs:** Sum of all costs associated with raw material inventory: opportunity cost, shrinkage, insurance and taxes, and total obsolescence.
27. **Raw Material Shrinkage**: The costs associated with breakage, pilferage, and deterioration of raw material inventories.
28. **Return on Assets**: A financial measure of the relative income-producing value of an asset. It is calculated as net income divided by total assets.
29. **Shrinkage:** The costs associated with breakage, pilferage, and deterioration of inventories.
30. **Source Cycle Time**: Cumulative lead time (total average combined inside-plant planning, supplier lead time [internal or external], receiving, handling, and so on, from demand identification at the factory until the materials are available in the production facility) required to source 95% (chosen to eliminate outlying data) of the dollar value of materials from internal and external suppliers.
31. **Supplier On-Time Delivery Performance**: The percentage of orders that are fulfilled on or before the original customer requested date (suppliers performance measured by the customer).
32. **Supply Chain Finance Costs**: Costs associated with paying invoices, auditing physical counts, performing inventory accounting, and collecting accounts receivable. (Does not include customer invoicing / accounting costs.)
33. **Total Build Time:** Total build time is the average time for build-to-stock or configure-to-order products from when production begins on the released work order until the build is completed and unit deemed shippable.
34. **Total Logistics Costs**: Total logistics costs are the sum of supply-chain related MIS, Finance and Planning, Inventory Carrying, Material Acquisition, and Order Management costs.
35. **Total WIP Inventory Days of Supply (DOS):** Total WIP inventory days of supply are calculated as gross WIP inventory ÷ (value of transfers/365 days).
36. **Training/ Education**
37. **Value-Added Employee Productivity**: Value added per employee is calculated as total product revenue less total material purchases ÷ total employment (in full-time equivalents).
38. **Warranty and Returns:** Number of returns within the warranty period. Warranty is a commitment, either expressed or implied that a certain fact regarding the subject matter of a contract is presently true or will be true.
39. **Warranty Costs:** Warranty costs include materials, labor and problem diagnosis for product defects.
40. **WIP Shrinkage:** The costs associated with breakage, pilferage, and deterioration of WIP inventories.
41. **Work-In-Process Inventory Carrying Costs**: Sum of all costs associated with WIP inventory: opportunity cost, shrinkage, insurance and taxes, and total obsolescence.
42. **Percentage of EDI Transactions**: Percentage of orders received via electronic data interchange (EDI).
43. **Build Cycle Time**: Built cycle time is the average cycle time for builid-to-stock products calculated as the average number of units in process divided by the average daily output in units.
44. **Complete Manufacture to Order Ready for Shipment Time**: Includes pick/pack and prepare for shipment time, in calendar days.
45. **Contract/Program and Channel Management Costs**: Includes all costs for activities related to contract negotiation, monitoring progress and reporting against the customer's contract, including administration of performance or warranty related issues.
46. **Customer Signature/Authorization to Order Receipt Time**: Time, in calendar days, from when the customer authorizes an order to the time that the order is received.
47. **End-of-Life Inventory:** Inventory on hand that will satisfy future demand for products that are no longer in production at your entity.
48. **Faultless Invoices:** The number of invoices issued without error. Examples of potential invoice defects are: Change from customer purchase order without proper customer involvement, Wrong Customer Information (for example, name, address, telephone number), Wrong Product Information (for example, part number, product description), Wrong Price (for example, discounts not applied), Wrong Quantity or Wrong Terms or Wrong Date.
49. **Field Finished Goods Inventory**: The inventory which is kept at locations outside the four walls of the manufacturing plant, that is, distribution centre, warehouse.
50. **Finished Goods Shrinkage:** The costs associated with breakage, pilferage, and deterioration of finished goods inventories.

51. **Forecast Cycle:** The time between forecast regenerations that reflect true changes in marketplace demand for shippable end-products. Only true "bottom-up" forecasts are counted: for example, if weekly or monthly updates to the forecast only recalendarize or shift dates for the forecast to avoid changing the annual dollar-based forecast, they should not be considered true forecast regenerations.
52. **Indirect to Direct Labor Headcount Ratio:** Ratio of total number of employees required to support production in general without being related to a specific product, indirect labor, to the total number of employees that is specifically applied to the product being manufactured or used in the performance of the service, direct labor.
53. **Material Management and Planning Costs as a Percentage of Material Acquisition Costs:** Material (Commodity) Management and Planning – All costs associated with supplier sourcing, contract negotiation and qualification and the preparation, placement, and tracking of a Purchase Order expressed as a percentage of material acquisition costs. This category includes all costs related to buyer/planners.
54. **Material Process Engineering as a Percentage of Material Acquisition Costs**: Material Process Engineering – Cost associated with tasks required to document and communicate material specification, as well as reviews to improve the manufacturability of the purchased item expressed as a percentage of material acquisition costs..
55. **Number of End Products/SKUs**: Total number of unique end item product offerings. End items are individually planned and managed.
56. **Order Entry and Maintenance Costs**: Includes costs for maintaining the customer data base, credit check, accepting new orders and adding them to the order system as well as later order modifications.
57. **Order Entry Complete to Order Ready for Shipment Time:** Including release to manufacturing, order configuration verification, production scheduling, build, pick/pack, and prepare for shipment time, in calendar days.
58. **Order Entry Complete to Start Manufacture Time:** Time from completion of order entry to that of the release to manufacturing, in calendar days.
59. **Order Fulfilment Lead Times**: The average actual lead times consistently achieved, from Customer Signature/ Authorization to Order Receipt, Order Receipt to Order Entry Complete, Order Entry Complete to Start-Build, Start Build to Order Ready for Shipment, Order Ready for Shipment to Customer Receipt of Order, and Customer Receipt of Order to Installation Complete.
60. **Overhead Cost**: Costs incurred in the operation of a business that cannot be directly related to the individual products or services produced. These costs, such as light, heat, supervision, and maintenance, are grouped in several pools and distributed to units of product or service by some standard allocation method such as direct labor hours, direct labor dollars, or direct materials dollars.
61. **Percentage of Orders Scheduled to Customer Request:** The percentage of orders whose delivery is scheduled to within a agreed to time frame of the customer's requested delivery date.
62. **Quarantine Time:** Setting aside of items from availability for use or sale until all required quality tests have been performed and conformance certified.
63. **Receiving & Material Storage Costs as a Percentage of Material Acquisition Costs**: Receiving and Material Storage – All costs associated with taking possession of and storing material. Includes warehouse space and management, material receiving and stocking, processing work orders, pricing, and internal material movement. This does not include incoming inspection.
64. **Receiving costs as a % of Material Acquisition Costs**: All costs associated with taking possession of material expressed as a percentage of material acquisition costs. This does not include inspection.
65. **Scrap Expense**: Expenses incurred from material falling outside of specifications and possessing characteristics that make rework impractical.
66. **Total Source Lead Time:** Total source lead time is the cumulative lead time required to source 95% of the dollar value of materials from internal and external suppliers.
67. **Transportation Costs:** Includes all company paid freight and duties from point of manufacture to end-customer or channel.
68. **Unit Cost:** Total labor, material, and overhead cost for one unit production, for example, one part, one gallon, one pound.
69. **Number of Orders with Complete and Accurate Documentation:** Number of orders without correct documentation supporting the order, including packing slips, bills of lading, invoices, and so on.
70. **Channel Inventory:** Finished Goods inventory that is allocated to a particular distribution channel, that is, OEM goods, retail.
71. **Commodity Management Profile**: Number of distinct part numbers (purchased commodities) sourced within the following areas: 200 miles, Own country, Own continent, Off-shore.
72. **Cross-Training:** The providing of training or experience in several different areas, for example, training an employee on several machines rather than one. Cross-training provides backup workers in case the primary operator is unavailable.
73. **Customer Receipt of Order to Installation Complete:** Includes product installation, acceptance and product up and running time, in calendar days.

74. **Delivery Locations by Geography**: The number of ship-to locations by geography (United States/Canada, Europe, Middle East/Africa, Japan, Asia/Pacific, Mexico/Central America /South America).
75. **ECO Cost:** Costs incurred from revisions to a blueprint or design released by engineering to modify or correct a part. The request for the change can be from a customer or from production quality control or another department.
76. **Installation Costs:** Includes costs for verifying site preparation, installing, certifying, and authorizing billing.
77. **Installation Planning Costs**: Includes costs for installation engineering, scheduling and modification, handling cancellations and planning the installation.
78. **Intra-Manufacturing Re-plan Cycle:** Time between when a regenerated forecast is accepted by the end-product producing location and the time the revised plan is reflected the master production schedule of all the affected plants, excluding external vendors.
79. **Inventory Aging**: The percentage of total gross inventory (based on value) covered by expected demand within specific time buckets.
80. **Number of Channels:** The number of different channels through which product is shipped to customers.
81. **Number of ECOs:** Total number of revisions to a blueprint or design released by engineering to modify or correct a part, engineering change orders (ECO). The request for the change can be from a customer or from production quality control or another department.
82. **Number of Orders, Line Items, and Shipments in the Channel**: The aggregated of orders, line items and shipments for the retail channel.
83. **Number of Supply Sources**: Total number of internal and external direct production material suppliers used.
84. **Order Consolidation Profile:** Consolidation is defined as the activities associated with filling a customer order by bringing together in one physical place all of the line items ordered by the customer. Some of these may come directly from the production line, others may be picked from stock. The following profiles have been captured: Shipped direct to customer's dock from point of manufacture (No Consolidation). Shipped direct to customer with consolidation completed local to customer by your transport company. Moved to on-site staging location for consolidation and shipment direct to customer. Moved to on-site stockroom for later pick, pack and ship. Shipped to different locations for consolidation or later pick, pack and ship. Shipped to different locations for consolidation or later pick, pack and ship.
85. **Order Entry Methods:** The method of how orders are entered into a company's system, whether the orders are entered by: the customer, sales personnel in the field, sales support personnel in remote sales offices, or sales support personnel in business unit or corporate headquarters.
86. **Order Ready for Shipment to Customer Receipt of Order Time:** Including total transit time (all components to consolidation point), consolidation, queue time, and additional transit time to customer receipt of order, in calendar days.
87. **Order Receipt Modes**: The mode of how an order is received by a company, whether it received via: EDI, fax, mail, or phone.
88. **Order Receipt to Order Entry Complete Time:** Time required, in calendar days, for order revalidation, configuration check, credit check, and scheduling of received orders.
89. **Percentage of Parts Delivered to Point of Use:** The percentage of material receipts that are delivered directly to production or a consolidation point or to point of use on the production floor with no inspection or minor visual/researchwork inspection only.
90. **Published Delivery Lead Times**: The typical standard lead time (after receipt of order) currently published to customers by the sales organization. For typical orders only, not standing / re-supply orders.
91. **Purchased Material by Geography**: Number of the following distinct part numbers of: Raw materials, Externally manufactured intermediates, Toll manufactured finished products, Packaging material, Labelling material that are sourced in within the following areas: 200 miles, Own country, Own continent, Off-shore.
92. **Re-plan Cycle Time:** The time between the initial creation of the regenerated forecast and its reflection in the Master Production Schedule of the end-product production facilities.
93. **Schedule Achievement:** The percentage of time that a plant achieves its production schedule. This calculation is based on the number of scheduled end-items or total volume for a specific period. Note: overships do not make up for undership.
94. **Yield:** The ratio of usable output from a process to its input.
95. **Yield Variability:** The condition that occurs when the output of a process is not consistently repeatable either in quantity, quality, or combination of these.

Appendix 22: Questions and Answers to Open Questions

What are the challenges encountered by your mission/section/unit in managing UN Owned Equipment (UNOE)	What are the main causes of property loss at your mission/section/ unit?	What are the main causes of property damages at your mission/section/unit?
• Poor corporation of end users, particularly assets assigned to TCC • Passed life expectancy • Main challenges are stock levels and aged assets in stock due to lack of deep understanding of inventory management by SAUs • Assets not found, lost assets not reported on time, verification and survey of assets in security risk areas. • LACK OF STAFF • lack of coordination between asset managers and mission Property Management unit • Challenges: 1- Impairment Project. Section chiefs in general have no clue on	• Gross negligence by UNMO, UNPOL personnel and porous perimeter fence for outsider invading UN premises. -Poor storage/lack of warehousing facilities for assets management stakeholders in our mission • Hostile action and abandonment of locations • Administration process to long to finish investigation and to identify who is responsible on loss • theft, loss while on shipment, bringing of assets out of the Mission area, hostile action, abandonment, discrepancy • The most important cause for property loss is the unavailability of strong measures which can prevent the staff from losing their assets. If staff cannot be accountable for their assets,	• Lack of experience by most colleagues MILOBS, UNPOL and TCC personnel in using UN equipment • Bad road • accidents, negligence by end users or by asset managers, hostile action • TROOPS RECEIVED DAMAGED ITEMS ALREADY FROM OTHER MISSIONS • The lack of maintenance and serviceability procedures is the main cause of assets being left for years unserviceable and not properly maintained until it is totally damaged and the asset managers preferring to write it off with a simple damage report. In my opinion, these UN workshops should be abolished and immediately outsourced • Lack of spare parts
what they need to do or what to tell their staff to do. 2- PCIU involvement in the Expendable stock taking project or what is called High value stock cards. 3- SAU's wrong data entries in Galileo in regards to asset locations and users which always delay the PCIU inspection yearly plans and jeopardizes their successfully meeting their own KPI's. Another factor is the SAU delays or not doing at all the PCIU discrepancy reconciliation which in my opinion should be automatically updated by Galileo in the SAU side directly after PCIU update. • Mainly Staffing! In addition it is important to keep the Property Management Section as one Section to carry out the oversight to manage the UNOE accurately. • Delay in updating SAU data: Voucher/Discrepancy Review &	they should not be allowed to sign for them and if they agree to sign, they should pay for them when lost; unless the case is highly proven that the loss is beyond the staff member accountability. I strongly supported the new LSD guidelines to write off lost assets based on fact finding reports; but I also not satisfied at all from the claim side especially when you run reports in Galileo and you see 99% of the lost cases are absorbed by the organization and that property losses increased since the new procedure was implemented and specially when asset users are aware of these guidelines as well as the charging guidelines. Example: a lot of staff currently have assets worth of hundreds of thousands of dollars and when they are near their check out or repatriation time, they will submit a security initial report that they lost their most of their asset and they already know deep down that if they are found Gross Neglect the mission will deduct only 7500$ if they international and like maximum of $500 if local Staff.	• Wear and tear (Items beyond life expectancy) • Unstable public power caused IT equipment damages **What are the main reasons for the "Not Found Yet" equipment/inventories in your mission/section/unit?** • Lack of cooperation from staff • No implication of all actors to look for the asset • When the assets are transferred to another location and the user is not available during the verification • NOT REACHABLE LOCATIONS DUE TO SECURITY SITUATION IN SOMALIA • UN property issuance & return are not managed timely by the asset managers. • The carelessness of both asset users and their respective asset managers as well as the soft procedures from security investigation unit when staff report their lost assets. We have noticed that not located yet assets are not

Reconciliation sent to them by PCIU, delay in initiating Lost/Damaged UNOE • Attractive assets are reported lost even when they are not because all staff understand that anything below $500 maybe written off easily as long as incident report is acceptable • Political unrest in some areas cannot be visited hence UNOE can neither be protected nor verified • training need and refreshment training to most of staff working in Property • Cooperation of stakeholders • Current Security Situation, Downsizing of National Staffs, improper management of stocks by SAU, lack of supporting documents accompanying the write off request, lack of qualified vendors in the host nation, Host nation regulations hindering the disposal process • Lack of accountability by users and SAUs	This rule by itself encourages staff of purposely and losing their assets • Delay in prompt updating electronic data in Galileo • Staff turnover rate and the Check in Check out procedures need to be strengthened; Staff list in no longer a PCIU function • The new Threshold of UNOE minimized the audit role on UNOE in the warehouse and at the user level, this has contributed relatively in the loss or misplacement of UNOE • Misplace of UNOE by staff member • The main cause of property loss is due to the lack of proper management of infrastructure equipment by the technicians. Warehouses issue equipment to technicians and do not follow-up on where it was installed or which item was replaced. **Describe the competence of your staff with regards to property management functions** • good in most areas except for area of communication • Very competent and well-trained	taken seriously by users until that time when we are almost to close the financial year and with the continuously pressure from top management, they will accept to report their assets as lost and they will do the initial security report which is currently is enough to either clear them if they are checking out or equally important is also more than enough for any asset manager to directly initiate the write offs without even putting the minimal effort to check their records of wrong location updates or unprocessed issue vouchers ....etc. Location of assets in Galileo is also neglected by asset Managers. They always approve asset request and update Galileo on the staff location rather on the asset location. • Continuous movements of Assets/equipment, at remote and distant areas, where inspection has already been conducted in the year cycle. • Change of locations without updating the electronic data in Galileo accordingly • Lack of Coordination between end user and PCIU
• Huge inventory discrepancies emanating from years of delayed recording of ex-AMIS assets and subsequent regimes of asset mismanagement. • Periodic lapses without Delegation of Authority for Property Management resulting into delayed write-offs. • Geographical and political inconveniences culminating to huge transport costs, withholding shipments at Port of entry/exit and difficult conditions imposed by GoS on asset disposal and Shortage of key professional staff • UNOE is relocated / replaced by without notification to the respective warehouses. Due to the limited guidance / policies on the management of infrastructure / multi-user equipment the staff members handling this equipment do not exercise reasonable care for the accountability and safety of the equipment • Obsoletes assets due to the fact that each	• High • well trained • general considered competent • Average • Not trained well • experienced staff • very qualified people with relevant skills • NEEDS MORE TRAINING • very knowledgeable • Medium at SAU level • Current number of staffing not sufficient, but well trained • Have basic knowledge of the property management functions. **What are your thoughts on the current Property Management Performance Management Framework? Any weakness/areas of improvement?** • Sufficient for current systems • More training/workshop should be given to the staff to Property Management. • I consider it as excellent approach to actually keep an eye even on quarterly basis on the field	• NO GO AREAS; inadequate information in Galileo rather wrong information; shortage of staff and staff movement due to security unrest • NO APPROPRIATE FOLLOW UP • The main reasons for the "Not Found Yet" equipment are due to the incomplete procedures performed by warehouse operators, technicians and users. Equipment is replaced or relocated without proper completion of related vouchers or without informing the equipment manager at the Self-Accounting Unit (SAU). In this instance, if the user judges that the equipment is deployed, this could wait until the following physical inspection cycle to be found • Delay of Security reports on reported lost items • not reporting to SAUs **Which areas of the KPIs does your mission perform low and why?** • Accumulated Depreciation to Historical Cost Ratio for P&E - mission long life

liquidation seems to be the last but new Mission pop up at the last moment • UN property issuance is not timely updated by Asset Managers in the mission • A lot of assets sitting in the stores which were ordered but never been used and they became obsolete and we're written off in the mission without even declaring them as Surplus when they were still in good condition and their life expectancies were still within targets. • lack of coordination between the technical staff and the warehouse staff is the cause of discrepancies, which might later lead to loss • change of structure due to implementation of Supply Chain Management PMS has been dismantled PCIU is a standalone Unit • The new Threshold of UNOE is a major factor for low stewardship of UNOE.	missions' achievements and truly compare it with the corporate LSD performance targets. I also want to appraise the healthy and continuous LSD management including all the team players on their excellent and proactive approach to assess the performance of field missions in the areas of property management. Allow me please to suggest a small request to add one more KPI which monitors all the missing expendable from stores and the way these losses were reconciled. I mean by that something called in Galileo Inventory Cycle Vouchers (ICV) which can lead to very unpleasant results if misused and can be easily audited. • Data Specialist in SAU to assist the Asset Managers with possible weakness/anomalies to deal with/tackle before the PCIU reports to DFS-LSD PMU-UNHQ. • missions need to be engaged for inputs due to mission specific experiences • Very effective. But not appropriate to view all missions in a general scale, as each mission is different, even though the procedures are same. But other operational dynamics are different.	• Provisional R&I, Too many stakeholders in the process. • DISPOSAL OF THE ITEMS/ASSETS- Qualified third parties very rare in the country • (Passed Life expectancy in stock) because the mission does not have adequate funds to replace the obsolete equipment • UNMIL under performed in the following: Reconciliation of discrepancies specially the Not Located Assets by SAU ASSET Managers. Delay in the provisional R&I process timeliness and related to other stakeholders such as procurement and supply chain. Delays in the disposal of commercial sale timelines caused by procurement and finance Galileo delay updates. Assets which already passed their life expectancies which is the lack of proper rotation of stocks used by unexperienced asset managers. • Not found yet - PCIU staff feel as long as they report that they visited that is enough to update on their side. There is a disconnect in the overall understanding that it is the
E.g. The following items became Expense items: Mobile phone, GPS, Camera, Hand-held Radio, Binocular, Hard Disk Drives, Monitors etc,. The warehouse operator cannot track items manually in efficient manner (Excel sheet or internal database). The above items are expense upon release, PMS don't track expense items; warehouses has no audit body on expense (Attractive) items.	• DFS/UNHQ/PMS/COE are monitoring the missions performance on monthly and quarterly basis, and emails are sent out to all the missions, where we can see in some of them are really low, however by only monitoring, this does not help, there should be another ways to questioning low performance, maybe the reason is lack of staff and nothing to do with staff preforming their job, we are all fully aware of the 2500 lost containers in Darfur during the start up, we can even find the OIOS report in google, where the problem was due to the fact of lack of staff, I guess PMS NY should look into this mission by mission, the UN assets are the member states contribution money and our money as well. • The main area of weakness is the lack of training especially for staffs who have been nominated as Fixed Asset Accountants.	mission not a Unit which reports status to UNHQ • Stock management. Due to the security situation in the country, lack of international staffs on ground, limitation of Movements in the duty station, lack of MOU/SOMA with current host country. restriction of moving goods between locations • Need to hold staff accountable for issue and utilization of UNOE. • Management of UNOE in stock (Ageing Assets, Operational Stock): Warehouse managers do not review their stock holdings on a regular basis and check current condition of equipment in stock. Disposal Back-Log due to the lengthy procedures involved with Commercial Sales and delay by local authorities when finalizing cases of Gifting.