



A Model for Implementation of IT Service Management in Zimbabwean State Universities

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ABSTRACT

Several IT service management (ITSM) frameworks have been deployed and are being adopted by companies and institutes without redefining the framework to a model which suits their IT departments' operating environment and requirements. An IT service management model is proposed for Zimbabwean universities and is a holistic approach through integration of Operational Level Agreements (OLAs), Service Level Agreement (SLAs) and IT Service Catalogues (ITSCs). OLA is considered as the domain for describing IT Service management and its attainment is geared by organizational management and IT section personnel in alignment with the mission, vision and values of the organization. Explicitly defining OLAs will aid management in identification of key services and processes in both qualitative and quantitative form (SLAs). After defining SLAs then ITSCs can be formulated, a measure which is both customer and IT service provider centric and acts as the nucleus of the model. Redefining IT Service Management from this perspective will result in deriving value from IT service management frameworks and customer satisfaction.

Keywords: SLAs, OLAs, ITSCs, ITSM.

1. INTRODUCTION

The IT service management is a modern concept adopted by the IT community for improved IT services delivery and productivity to attain customer satisfaction and control costs. IT Service Management is an integration of IT services provisioning between service providers and end users to arrive at end-to-end service through the implementation of measures such as Service Level Agreements (SLAs), Operations Level Agreements (OLAs) and IT Service Catalogues (ITSCs) (Almeroth & Hasan, 2002). Service management frameworks in IT industry have been developed such as Control Objectives for Information and related Technology (COBIT), and IT Infrastructure Library (ITIL) but have not been related for a specific IT sections given its operating environment and



constraints. IT Service is the nucleus in accomplishment of business processes at a University, thus it supports academic research, learning and teaching. Universities offers IT Services to staff, researchers and students, visitors and partners on platforms such as Electronic Learning (ELearning), library services, staff directory and email, learning resources which are crucial to learning, teaching, and collaboration as the community becomes global. The IT department must offer better services to these stakeholders in a resource constraint environment (staff and financial resources) (University of Birmingham, 2014).

2. RELATED WORKS

An ITS service consists of three key elements namely, a Service Level Agreements (SLAs), Operational Level Agreements (OLAs) and Service Catalogue page/s. Operational Level Agreements (OLAs) are agreements between the ITS teams and such as hardware, software and networking teams on how they will collaborate to ensure the appropriate service level is met for a particular service under supervision of a coordinator and it defines the expectations and commitments needed to deliver Service Level Agreements (SLAs) (University of California, 2012). Service Level Agreements (SLAs) are agreements between the Information Technology Services (ITS) team or teams and their clients which define the level of service the client should receive. An IT service catalogue is a mapping database of an institute's available technological resources and products/ IT services in offer and about to be rolled out (Griffiths, Lawes, & Sansbury, 2012; Moeller, 2013). The ITS Service Catalogue is the division of services offered at an institute into components with policies, guidelines and responsibilities of parties involved, SLAs and delivery conditions (Bon et al., 2007).

The service level catalogue should be readily accessible to authorised users and facilitate them to create a service request on behalf of themselves and others, and contain facilities to approve service requests. IT service catalogues should be tested by both IT and key users so that the product complies with the prescribed technical functionality and usability metrics. The IT catalogue should be developed in such a way that it facilitates effective communication between IT management and stakeholders involved and acts as an effective tool for good governance (Griffiths et al., 2012; Moeller, 2013).

Basically an IT service catalogue is divided into business service catalogue and technical service catalogue. A business service catalogue is client centric and must meet users' requirements thus the user community should be engaged in requirement gathering and design. Alternatively, a technical service catalogue is service provider centric and focuses on specific services description in IT terms including services constructs and their



interrelationships. IT managerial and technical staff work processes are explicitly defined and the technical service catalogue access is mainly restricted to organizational (Troy, Rodrigo, & Bill, 2007).

A SLA should consist of the following elements namely, placement of services into categories (sections for catalogue), listing of each category as a service catalogue section, establishing integrated/packaged/bundled service products, identification of modular service products, definition of each service product, establishing service owner and supplier, defining procurement procedures (how and the cost), specifying service level metrics (availability, reliability, response), defining limits of service and defining customers responsibilities thus it provides a basis for managing the relationship between the service provider and the customer, describing the agreement between the service provider and customer for the service to be delivered, including how the service is to be measured (Hiles, 2000).

A service must provide a bridge from the developers and engineers' point of view to the end-user's perspective and identifies internal processes necessary to offer and maintain the services. Services change management and continuous processes improvement is important in addressing stakeholders' needs (University of California, 2012). A Service Lifecycle basically focuses on defining a service strategy thus maintaining it and implementing it, service designing which focuses on the methodology and architectural design to offer the service, thirdly, service transition, which focuses on testing and integration of services offered for quality and control compliance, and finally service operation focuses on smooth running of daily IT services and continuous improvement which aligns the life cycle stages thus offering room for best practices and improvement in value delivery (Office of Government Commerce, 2010).

A Service Level Agreement (SLA) is a blue-print which governs service provision parameters between the service provider and the client (University of California, 2012). Mainly, a SLA consists services being provided by the IT service provider and how they will deliver them (they must meet user requirements and standards agreed upon by parties involved and be attainable thus communication is key in all processes), definition of key performance parameters, assigning IT service providers personnel and users to measure specific performance using specific metrics (continuously monitor, manage and measure Service Level commitments), identification of rewards or penalties levied if service delivery is being offered effectively or they're failing to render the services (SLA matrices should have performance buffers to allow for the recovery from breaches) (Dube & Gulati, 2005; Lahti & Peterson, 2007).



4. METHODOLOGY

The research questions in this study examine ITS personnel services delivery in relation to SLAs, OLAs and ITSCs. Research approach is the way the researcher approaches the research either by gathering data and formulates a theory or the researcher develops a theory and hypotheses and then tests or validate it. An inductive approach was adopted since it allowed the researchers to develop a theory during data analysis of the collected data (Saunders, Lewis, & Thornhill, 2009). The researchers used questionnaires to carry out the research since they facilitated saturation, the questionnaires were distributed in proportion to personnel in each ITS department team. 20 Questionnaires were distributed in the Hardware Section, 7 in the Software section and 7 in the Networking section. The response rates were 80 percent, 71.43% and 85.71% percent respectively. The data was coded manually.

5. RESULTS

The hardware section team is not aware of any agreements with the software team and the networking department which ensure appropriate service level is met for particular services within the ITS department. If OLAs agreements are in place personnel felt that the ITS department Director and or other senior officers should facilitate and maintain these agreements since they increase efficiency and they allow alignment of work processes with organizational objectives.

The hardware section team is not aware of any agreements with the software and networking team which define the level of service the students and staff members should receive and this should be led by the chief technician. Personnel act on intuition to work and tasks when called upon or infer to those which are his/her job description. All respondents agreed to the notch that the adoption of SLAs will improve service delivery to the clients and helps in setting boundaries on personnel's duties and how they would execute them with confidence. Furthermore, it results in process standardization and improved accuracy in execution of tasks. 10% of the respondents strongly agree, 60% Agree, 15% are Neutral and also 15% Disagree that the use SLAs will improve and differentiate services by defining performance and its measures and this will help in building actionable performance tracking and controls.

There is no policy about IT services currently in offer and ready to be delivered which the respondents felt they should be monitored by supervisors responsible for a specific services being offered. In hardware maintenance, personnel from other departments are called upon to offer all related activities on ad-hoc basis. ITSCs offers a platform to evaluate services being offered if they're meeting the required standard. Top



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management such as directors and supervisors are key stakeholders in implementation of IT service management.

The networking section team do not have any agreements with the software and hardware teams to ensure appropriate service level is met for particular services in the ITS department. The service level, which students and staff should receive is not defined such as the uptime and download speed available in both the wireless and wired network. Staff portal services and the students' electronic learning (E-Learning) accounts being monitored by the software team are dependent upon network availability and the server capacity which is the responsibility of the networking and hardware section respectively even though there are no OLAs among the departments concerned. Staff and students are informally consulted on their requirements on the services being offered by the ITS department. Students and staff members should be given a platform to request additional functionalities 'add-on' on their E-Learning and staff portal services accounts.

IT service management model

A University-wide IT service management model was developed which consists of the Operational Level Agreements which is viewed as the cornerstone of IT service management implementation, the service level agreements which is the sub-domain linking OLAs and ITSCs, and finally the IT service catalogues which is referred to as the nucleus of IT service management. Leadership support is important from personnel such as IT directors, projects managers and Chief IT technicians since they will initiate setting of specific benchmarks for performance measurement and facilitate effective feedback mechanism and communication. Top management will help in organizing seminars or workshops in form of refresher courses or awareness campaigns about execution of their work processes.

Explicitly defining OLAs will aid management in identification of key services and processes in both qualitative and quantitative form while monitoring them and taking corrective measures where necessary (SLAs). After defining SLAs then ITSCs can be formulated, a measure which is both customer and IT service provider centric and acts as the nucleus of the model. Services being offered should be end-user centric rather than the provider's point of view such as the website should be navigated easily and there must be a distinction between administrative issues and other information to be displayed on the homepage. Support services including how to access the website using mobile phones and those which are supported or compatible mobile browsers should be availed to clients. Additionally, key future plans such as general upgrade of the site (time it will be expected to be down during maintenance should be communicated),



upgrading to mobile site, modification of functionalities on the webpage, and phasing out of specific service should be communicated. Figure 1 overleaf shows the developed model.

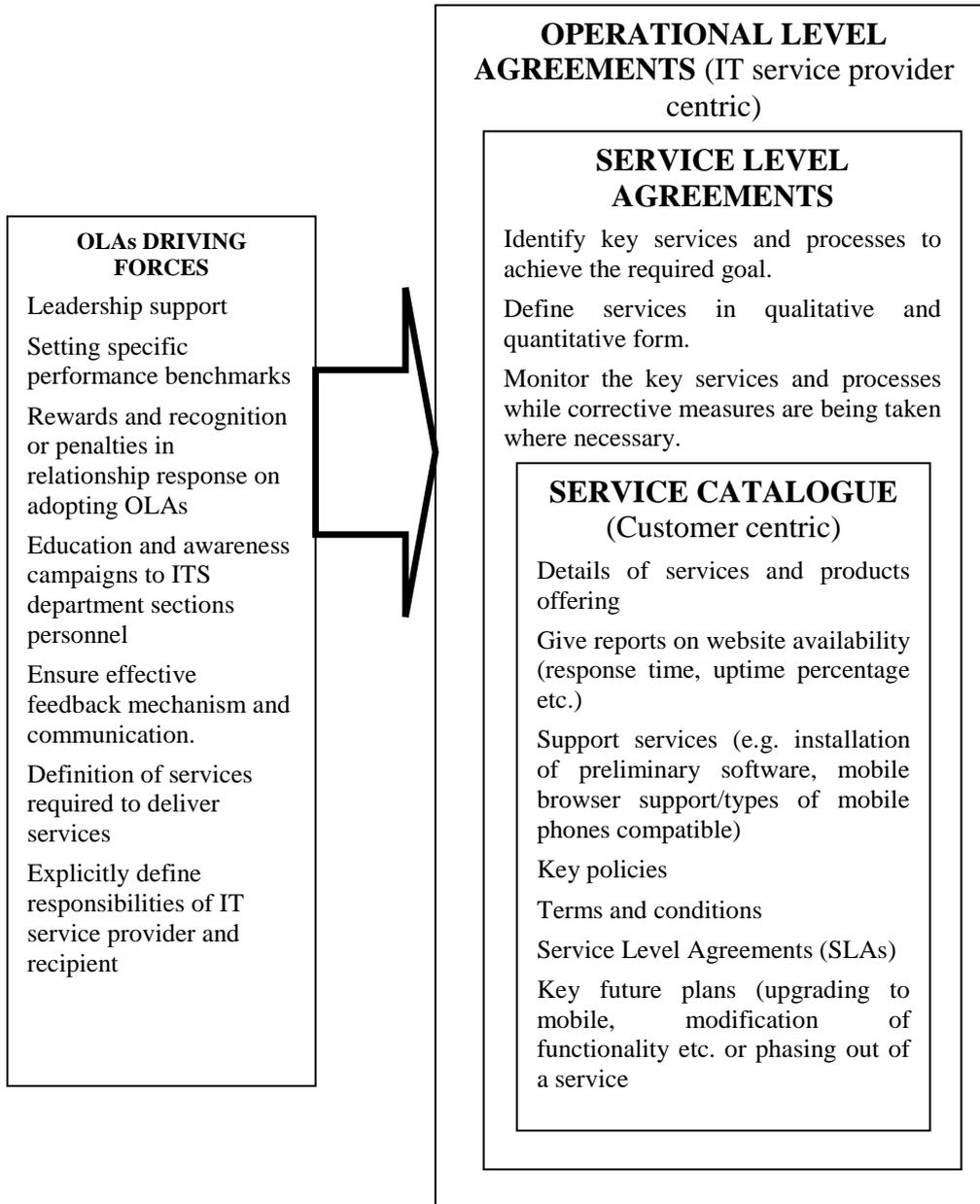


Figure 1: IT service management implementation model



6. CONCLUSIONS

An enabling collaborative approach to quality improvement should be explored by the ITS teams while involving their clients (staff and students) so that their needs are satisfied. In achieving ITSM, goals must be benchmarked and reviewed by the monitoring and evaluation committee being steered by the project manager. The committee must ensure availability of human and financial resources for example through lobbying top management support and training of employees. In addition, the committee should facilitate a cyclical communication system with stakeholders and top management so as to ensure their support and commitment even during the review process. The institutional goals, vision and mission should be aligned with ITSM strategy adopted. A service catalogue which acts as a blue-print to clients in understanding and making an informed decision about the services they use or intends to use must always be availed to clients, and also it acts as a benchmark for quality assurance on services the ITS department offers to clients.

OLA between IT service provider and a procurement department or other departments to obtain hardware or other resources in agreed times and between a service desk and a support group to provide incident resolution in agreed times should be defined to ensure appropriate service level is met (Rudd, 2010). Adoption of OLAs will result in better service delivery and management of duties and responsibilities. Universities must integrate various IT teams within departments across the various campuses while explicitly defining implementation of SLAs, OLAs and ITSCs and also emphasise on performance reporting which must be facilitated by a team leaders from all IT sections. Additionally, institutes must identify facilitating and clogging conditions for successful ITSM and this can be necessitated through conducting seminars and or workshops on relevant IT aspects. Conducting post training evaluation on deliberations on ITSM will help in continuous improvement in service delivery. Relating COBIT and ITIL to IT service management constructs (OLAS, SLAs and ITSCs) presents an interesting area for further research.

REFERENCES

- [1] Almeroth, K.C. and Hasan, M., 2002. *Management of Multimedia on the Internet: 5th IFIP/IEEE Proceedings of the International Conference on Management of Multimedia Networks and Services, MMNS 2002*, Santa Barbara, CA, USA, October 6-9, 2002. CA: Springer, p.356.
- [2] Bon, J. van et al., 2007. *IT Service Management: An Introduction*. Van Haren Publishing, p.514.
- [3] Dube, D.P. and Gulati, V.P., 2005. *Information System Audit and Assurance*. Tata McGraw-Hill Education, p.671.
- [4] Griffiths, R., Lawes, A. and Sansbury, J., 2012. *IT Service Management: A Guide for ITIL Foundation Exam Candidates*. BCS, The Chartered Institute for IT, p.200.



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- [5] Hiles, A., 2000. *Service Level Agreements: Winning a Competitive Edge for Support & Supply Services*. Rothstein Associates Inc, p.287.
- [6] Lahti, C.B. and Peterson, R., 2007. *Sarbanes-Oxley IT Compliance Using Open Source Tools*. Syngress, p.466.
- [7] Moeller, R.R., 2013. *Executive's Guide to IT Governance: Improving Systems Processes with Service Management, COBIT, and ITIL*. John Wiley & Sons, p.416.
- [8] Office of Government Commerce, 2010. *Introduction to the ITIL service lifecycle*. The Stationery Office, p.247.
- [9] Rudd, C., 2010. *ITIL V3 Planning to Implement Service Management*. The Stationery Office, p.320.
- [10] Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research methods for business students*. (5th Edition, Ed.) Pearson Education Limited, Essex, England.
- [11] Troy, D. M., Rodrigo, F., & Bill, F. (2007). *Defining IT Success Through the Service Catalog: A Practical Guide about the Positioning, Design and Deployment of an Actionable Catalog of IT Services* (1st Edition, Ed.). US: Van Haren Publishing.
- [12] University of Birmingham, 2014. *IT Services - University of Birmingham*. [Online] Available at: <<http://www.birmingham.ac.uk/university/professional/it/index.aspx>> [Accessed 18 Mar. 2014].
- [13] University of California, 2012. *ITS Service Management: Key Elements*. [online] Available at: <<http://its.ucsc.edu/itsm/servicegmt.html>> [Accessed 18 Mar. 2014].

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