



THE UNIVERSITY OF
MELBOURNE

The University of Melbourne
Department of Computing and Information Systems

Individual Assignment Cover Sheet

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Subject Code and Name: ISYS90048 Managing ICT Infrastructure

Assignment Title: **Assignment A02**

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Due Date/Time: Friday 28th April, 2017

Submitted Date/Time: 19/05/2017

Before submitting my assignment, I have:

1. Made a copy of the assignment and of any material submitted with the assignment
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Signed:

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19/05/2017

ICT INFRASTRUCTURE PROPOSAL REPORT

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[18/05/2017]

Report Prepared for Assignment A02
ISYS90048 Managing ICT Infrastructure
Semester 1, 2017

IT Infrastructure Proposal Report

1. Background

Slough Borough Council is the local authority for the Borough of Slough, located in the South East England. The council provides many types services to local residents and enterprises such as providing regulation information. It aims to “be recognized as an exemplar in the delivery of ICT services—providing the best customer experience”. According to Slough Borough Council ICT strategy 2012-2015, council is committed to reducing waste and delivering modern public services at lower cost, creating a common a ICT infrastructure, using ICT to enable and deliver change and strengthening governance.

The council adopted “SWOT” analysis to identify strengths, weaknesses, opportunities, and threats in the business operation. In addition, the council retrieved some useful information from internal audits conducted in 2011. The strategic plan addresses some problems raised by the audits.

2. Nature of this Report

2.1 The objectives of this report

This report chooses a ICT business framework and briefly analyzes the Slough Borough Council ICT Strategic against the chosen framework. Some important aspects of the choose framework that is missing from the Slough Borough Council are listed as key gaps.

The main objective of this repot is to produce an ICT Infrastructure Proposal Report for the Slough Borough Council that that seeks to deliver services using ICT infrastructure that incorporates mobile technology.

In the end, a recommendation based on the analysis of the proposals are provided.

2.2 The scope and limitation of the analysis

The scope of this report is limited to the content of Slough Borough Council ICT strategy (2012-2015). The analysis is based on strategic goals of the Slough Borough Council and the ITIL framework range from service strategy, service design, service transition, service operation and continual service improvement.

The report does not provide sufficient managing procedures because of the unclear organization structure of the organization. Besides, this report does not consider technical issues of the mobile applications such as link encryption. Detailed methodologies such as the method to conduct user survey is not included in this report.

2.3 Assumptions

It assumes that all the information in the City of Albany ICT Strategic Plan is correct and complete. It also assumes that there are no internal conflicts in the Slough Borough Council.

3. ICT Governance Framework

3.1 Identification of ICT governance framework

Unfortunately, no ICT governance framework is found in the the Slough Borough Council ICT strategy 2012-2015.

Information Technology Infrastructure Library (ITIL) is chosen as the most suitable ICT governance framework for the Slough Borough Council.

3.2 Justification

ITIL is a popular ICT framework that includes a set of detailed practices in IT service management. Compared with COBIT and other frameworks, ITIL describes in more detail of IT service management. ITIL provides detailed criteria on the implementation of IT processes for IT operation. Since the strategic plan is mostly about IT service instead of organizational structure and other issues, ITIL is suitable for analyzing the plan and providing proposals to the council.

4 Analysis of the Slough Borough Council ICT strategy 2012-2015

4.1 Analysis

The objective of the analysis is to evaluate the strategic plan of the council and identify some gaps in the plan, based on the guidelines of ITIL.

Guidelines(ITIL)	Evidence	Analysis
G1. The council should have service level management(SLM)(Service Design)	No evidence	The council does not have SLM to identify an agreed service level that is used throughout the whole service.
G2. The council should align IT security with business security and ensure that information security is effectively managed in all service and Service Management activities. (Service Design)	<ul style="list-style-type: none">“Regular intrusion detection testing is carried out, and that software security patches are applied in a timely fashion.”“This has given additional security and resilience, thus addressing a major part of our Business	Although the council has considered some security issues in the service, it lacks formal information security management(ISM). The council does not maintain an overall security policy and consider the ISM within the overall corporate governance framework.

	Continuity planning.”	
G3. The council should have availability management. (Service Design)	“Given the recent loss of a number of staff, it is important to review the skills we have in-house, conduct a gap analysis against future requirements and invest in a training programmer to professionally recognized standards.”	The council manages the availability to some extent. However, it only focuses on the capacity of human resources instead of many aspects of the whole service lifecycle.
G4. The council should have supplier management.(Service Design)	“Although we are currently committed to a 4-year contract with our existing provider, serious consideration must be given in the future to joining a PSN for the provision of our WAN services. ”	The strategy plan indicates that there is no strategy for managing, maintaining and monitoring contracts and service delivery of suppliers.
G5. The council should have knowledge management(Service Transition)	No evidence	The strategy plan of the council indicates that the council does not have a plan to manage knowledge. It means that the council does not define that who can have access what knowledge at what time.
G6. The council should have standardized methods for the efficient and prompt handling of all changes.(Service Transition)	“However it should be noted that the success or failure of any ICT initiative depends to a large degree on business preparedness, competency in change management and effective process re-engineering.”	Although the council realizes the importance of change management, it does not have standardized methods to handle changes.
G7. The council should plan for service validation and testing. (Service Transition)	No evidence	The strategic plan does not mention how will the council test and validate their service.
G8. The council should	No evidence	The council does not

have IT operations management (Service Operation)		identify the responsibility for the management and maintenance of the IT infrastructure.
G9. The council should have incident management. (Service Operation)	No evidence	The council does not have a plan to handle unplanned reduction in the quality of an IT service.
G10. The council should have problem management.(Service Operation)	No evidence	The council does not have a plan to prevent problem from happening
G11. The council should have a service desk. (Service Operation)	No evidence.	The council does not have a single central point of contact for all users of IT.
G12. The council should generate service reports.(Continual Service Improvement)	“That project initiation ensures that a clear business case is in place and that post-implementation reviews ensure that lessons are documented, and learnt.”	According to the strategy plan of the council, the council only generate reports on the project implementation. The council lacks service reporting to track the quality of service.

Table1. Brief analysis

4.2 Identification of Key Gaps

This section identifies some key gaps in the strategic plan of SBC based on the analysis in section 4.1. The key gaps represent some aspects in which the strategy plan does not conform to the requirement ITIL framework. Proposals will be provided against each key gaps in next section.

Key gaps:

KG1. Lack of service level management.

The council does not have service level management. For lack of SLM, the council does not have an agreed service level. Thus it would be hard to define whether the implemented service is satisfying. Besides, when changes occur, it would be hard to decide whether it is necessary to modify the IT service without a guideline of IT services.

KG2. Lack of incident management

Incident management can help to restore the normal service from unplanned interruption as quickly as possible. The council is devoting itself to mobile service, which means the council needs incident management more than ever. Without the incident management, the council may not be able to restore the service quickly. People use mobile devices more frequently than using other types of

devices. If users have a look at the mobile application provided by the council several times in five minutes and the the application always shows “service unavailable”, the users would feel annoying about the mobile service. Therefore, the lack of incident management would influence the user experience, unless failure never happens, which is impossible.

KG3. Lack of change management

The word is evolving and new technology is emerging, it is essential for the council to keep pace with the latest trends to in technology. Although the council currently realize some technology trends like cloud computing and mobile computing, it does not have standardized methods for the efficient and prompt handling of changes. For lack of change management, if a new mobile technology appears, the council is not able to adopt the new technology in a short term and thus lose the competitiveness. Except for management of technology change, the council also does not have a plan to manage market change and organization’s internal change.

KG4. Lack of supplier management

The council does not have supplier management. It means that the council may fail to maintain the healthy relationship with suppliers, which can cause the failure of service. Without supplier management, it is hard to ensure that the suppliers deliver contractual service to the council.

KG5. Lack of validation and test of service

The strategic plan does not include any test of the service. Without the test, there is no way to know whether the service can fulfill the business requirement. For instance, to deliver the service at low cost, the council decided to adopt cloud service which is not used by the council before. Since it is a new technology, the cloud solution must be tested rigorously to ensure the reliability.

5. The Proposal

This section provides a formal proposal for the Slough Borough Council to deliver mobile services. The proposal addresses the key gaps identified in section 4.2. and two questions: 1. How can mobile platforms be used to deliver selected ICT services for the Slough Borough Council? 2. What ICT Governance requirements should the Slough Borough Council seek to address when offering these mobile-based services?

The structure of this proposal follows five key sections in ITIL – service strategy, service design, service transition, service operation and continual service improvement. The key gaps found in section 4.4 are provided with detailed proposals.

5.1. Service strategy

The council should decide on the strategy to serve users. To fulfill it, the council needs to achieve a deep understanding of user needs via demand management. It is necessary to analysis what kind of service the users will expect in mobile platform. For instance, compared with tradition services, users will more focus on

respond time of mobile service. The demand management should be aligned with capacity management to ensure the council has the sufficient capacity to meet the required demand.

5.2. Service design

In this stage, the council needs to design appropriate and innovative services. Service solutions are designed to provide a service design package for handover into service transition.

5.2.1. Service Level Management (SLM)(KG)

Since there is always trades off between the quality of service and the cost, the council needs to balance them in SLM. The council should define an agreed level of service. If the cost is predicted to be pretty high, then the quality of service has to be traded off to some extent. SLM should be implemented carefully, because the outcome of SLM is a guideline of service quality in the ICT implementation. The implementation, operation, continuous improvement of service in the future is guided and constrained by the Service Level Management.

The availability of information that would be provided to the end users is vital. Because mobile devices normally have small screens, it limits the amount of text that can be displayed to a user. Besides, the wireless network is sometimes unstable and relatively slow. Therefore, the information transferred to the end users must be simple and have high value.

5.2.2. Supplier management(KG)

The council should properly manage the relationship for each supplier such as cloud service provider. Supplier management ensures that contracts with suppliers support the needs of the mobile service and all suppliers meet their contractual commitments. It reduces the risk of failure. To implement supplier management, the council should form a supplier management team. The team is responsible for continuously communicating with all the suppliers and build trust. The communication includes inviting suppliers to the strategy meeting of the council and visiting suppliers' company. In addition, the supplier management team should identify key suppliers and focus on the relationship with them. For instance, if the council decides to utilize cloud computing to support their mobile service, cloud service vendor like AWS will play an important role in the performance of council's service. It requires a reliable relationship and frequent communications with AWS. The supplier management team is also responsible for safekeeping supply contracts.

5.2.3. Information Security Management (ISM)

According to the strategic plan, the council has developed a set of complete strategies towards the security issues. Since the council has considered the CIA of information, my only proposal is that the council should enforce and maintain an overarching security policy. The policy should include separate policy for system security, data CIA, and business procedure. In addition, how to react when security problems occur also should be included in the policy. For mobile service, the council should especially focus on the security of data transform procedure between the end users and the system. Because the wireless network is normally less secure than the wired network.

5.3 Service transition

5.3.1 Change management(KG)

The purpose of change management is to enable IT service to meet both expectations—enable rapid changes while minimizing the possibility of disruption to services.

The first thing to adopt change management change is to create a culture of change management across the council. It can motivate staff to accept and raise changes. When a change occurs, it should be recorded. A change can be raised from incidents, problems, request from users, social trends or technology trends. Then the change needs to be assessed and evaluated based on the category, priority and risk of the change. Whether to modify the service to meet the change is based on the guidelines in Service Service Level. If the change is proved to be worthy being applied, the relevant service needs to be modified. Afterwards, the changed service needs to be tested and confirmed and the system may require test and validation again.

5.3.2. Knowledge management

The objective of knowledge management is to share perspectives, ideas, experience and information and ensure that these are available in the right place and at the right time. The knowledge management stores many types of reports generated in the implementation, operation and continuous improvement of services. The proposal is that the council needs develop the Service Knowledge Management System (SKMS). The SKMS is able to empower users and IT staff with vital information that they require in order to perform their role. For instance, when the service is modified to meet the requirement of changes, the evaluation of the modified service can be compared with the previous knowledge to check whether the new service is satisfying.

5.3.3. Service test and validation(KG)

The purpose of service test and validation is to validate the quality of mobile services before delivery. It makes sure the service meets business goals and user needs. It can be achieved by system validation and user experience survey

5.3.3.1. System validation

The council should test the reliability of the ICT system. It should be a validation procedure for the internal system including cloud service and data center. Since the mobile service could lead to high network traffic, it is important to make sure the system is able to handle high network traffic. In addition, the respond time of system also requires validation, because users would particularly expect for a quick respond when using mobile devices. The council needs to invite professional testing engineers to test the system. A report should be generated by the tester based on the performance of the system.

5.3.3.2. User experience survey

Evaluating the user experience is essential to making sure the application meets users' requirement. The council should invite some local residents or employee of local business to conduct user survey. The test should focus on application functionality and user interface(UI) as well. so that the user will be A report

should be generated based on the beta testers' degree of satisfaction towards the application.

Both of the reports should be delivered to the agile project team of the council and the project manager should decide whether the ICT system needs to be improved or what drawback should be addressed before the delivery of service.

5.4. Service operation

5.4.1. IT Operations Control

The council should monitor and control the status of service. It is necessary to define an operation control team that is responsible for maintaining day-to-day services.

5.4.2. Request Fulfillment Management

The request fulfillment management is associated with IT operation Control. It is responsible for handling requests from users via different tools including online consultations and social media. Although the council has considered this issue, it does not provide a way to fulfill the request. The council should formally manage the request from users and then develop a strategy to fulfill user's request. And this procedure should be aligned with Service Level Management.

5.4.3. Incident management(KG)

Incident management is usually closely aligned with the service desk, which is the single point of contact for all users. When the mobile service is disrupted, it is essential to restore the service to normal operation as quickly as possible.

Before the launch of the mobile service, the incident management team should develop a set of strategies against the possible incidents including hardware failure, network interruption and so on. Then, who will take on the responsibility of incident management should be decided. The service desk needs to be trained, the members of service desk are responsible for monitoring the service, logging the incidents, requesting technical support when necessary and performing the initial Incident diagnostics.

When the incident happens, service desk is responsible for trying to solve the incident. If it does not work, the service desk will have to request technical support. Since the council wants to focus on mobile service and users are not willing to wait too long for mobile service, the restoring time must be quick. It is necessary to regularly check whether the people who are responsible for incident management is available. Normally, some incident restoring procedures needs the approval from the administrative level. If the incident is urgent, the restoring procedures do not necessarily need approval.

After the incident is solved, a report should be generated on the description of the incident, how the incident is solved and the result. The report will be stored in Service Knowledge Management System.

5.5. Continual Service Improvement

After the launch of service, the council should regularly implement service review. The review should include user satisfaction, system performance and the cost.

Reports should be generated based on the result of the review. Since a big collection of data or information can be gathered, the report only needs to record a small subset that is of real interest and importance to the business. The result of the review is used to check whether the current service level is aligned the requirements in service level management. The council needs to improve the service or identify a more economical way to provide service if necessary.

6. Recommendations

Recommendation

It is recommended that the Slough Borough Council needs to transfer the architecture to SOA gradually.

Justification

The world is evolving rapidly, residences' needs on IT will change pretty frequently. To catch up with the trend, the Slough Borough Council should achieve IT service that is more flexible. SOA will allow the council to select components on a build-as-you-go basis by adding components as new requirements need to be addressed. The SOA also provide extensive support to facilitate greater interoperability and portability between applications. When the council also can adopt Enterprise service bus(ESB) to implements a communication system between mutually interacting services. It is useful to integrate the existing service and the new mobile service.

7. References

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