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 A01**

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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: Dexiao Ye

Date: April 7 2017

IT INFRASTRUCTURE EVALUATION REPORT

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Report Prepared for Assignment A01

ISYS90048 Managing ICT Infrastructure

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1. Introduction

The aims of this report are to evaluate the City of Albany ICT Strategic Plan (2012-2017) and provide appropriate recommendations on the revision of the strategic plan. This report is direct to the City of Albany to show them the result of evaluation and some recommendations.

The scope of this report is limited to the content of City of Albany ICT Strategic Plan (2012-2017), which is mainly about five strategic Key Focus Areas of the City of Albany.

It assumes that all the information in the City of Albany ICT Strategic Plan is correct and complete.

1.1 Report Objectives

The objectives of this report are to choose a ICT business framework and evaluate the strategic plan against the chosen ICT framework by analyzing relevant content in the plan. Key findings are identified in the evaluation and recommendations on how to eliminate non-compliance issues are provided based on these key findings.

2. Background

The City of Albany is a government organization that provides ICT systems and services to community in Albany and other councils in the Great Southern. The ICT services are provided to approximately 250 end-users across 11 sites and the community. The vision of the City of Albany is "Western Australia's most sought after and unique regional city to live, work and visit". And the ICT vision is "Provide business focused, effective and scalable ICT systems and services that will benefit the City and potentially other Councils in the Great Southern" (City of Albany, 2012)

The ICT team of the City of Albany used to be a team with a single staff and a single file server and it grows into a larger team with sophisticated computer equipment.

The ICT team has three major objectives:
• Standardization
• Simplification
• Improvement

3. Analysis

This report evaluates the City of Albany Strategic Plan against COBIT5.

The preliminary analysis of the strategic plan is presented in Table 1. The findings in preliminary analysis is further investigated to find out Key Finding as presented in Table2. In the end, some recommendations are identified to enhance the strategic plan.

3.1 Choice of Framework

COBIT5 is a popular IT governance framework which is developed by ISACA. It includes COBIT 5 framework, guides on enablers and professional guides on implementation, risks, assurances, information security, etc. The COBIT5 framework defines a series of operations for the management of IT, which is a clear model that can be put into practice. COBIT 5 framework can contribute to the robust IT infrastructure and efficient business operations.

While ITIL puts emphasis on service management, COBIT 5 involves organizational structure, risk management, audit and information security into account which satisfies the needs of the City of Albany strategic plan. The COBIT5 is found to be the most appropriate IT governance framework for the City of Albany.

COBIT5 aligns well with the strategic objectives of the city of Albany.
- The City of Albany increasingly relies on online services, which means there is a heavy operational dependency on Information Technology. COBIT 5 has clear criteria on implementing robust IT infrastructure.
- Quality governance plays an important role in the government organization like the City of Albany. IT service in the City of Albany should be consistently monitored against benchmark and continuously improved. COBIT provides robust quality management strategies for organizations.
- The IT infrastructure in the City of Albany should be properly aligned with the objectives. COBIT 5 provides criteria that can ensure the IT infrastructure consistently supports business objectives.

3.2 Detailed Analysis

Guidelines / Criteria	Evidence	Assessment / Findings
C1. The City of Albany should Understand enterprise direction (APO02.01)	Section 2, p3 • "The ICT vision of the City of Albany: "Provides business focused, effective and scalable ICT systems and services that will benefit the City and potentially other Councils in the Great Southern" The vision would be met through 'best practice'." Section1, p2 • "Meetings with key stakeholders to determine business	**F1.** The plan indicates that the objective of the City of Albany is providing business focused, effective and salable service. It sets the direction of the City. Key stakeholders as well as requirements are identified. **Conforms to COMBIT criteria**

	plans, requirements and issues surrounding ICT technologies and services"	
C2. The City of Albany should establish roles and responsibilities. (APO01.02)	SM-02, p18 • "Consequently, there is a need to examine roles and responsibilities within the whole ICT discipline and determine the most effective way to fulfil the responsibilities, whether in-house or outsourced." IM-04, p11 • "Database administration specialists can supply the necessary skills to maintain optimal performance of databases." SM-01, p17 • "By consolidating the ICT personnel into a single service unit with a single manager"	**F2.** Main roles and responsibilities are established. And staff with relevant skills are identified. **Conforms to COMBIT 5 criteria**
C3. The City of Albany should define the organizational structure. (APO01.01)	SM-01, 17 • "ICT services are delivered from within two different business units within the City of Albany. • There will need to be flexibility in the organization structure to allow for a corresponding increase in service and support demand."	**F3.** Main roles and responsibilities are established. And staff with relevant skills are identified. **Conforms to COMBIT 5 criteria**

C4. The City of Albany should create and maintain budgets. (APO06.03)	G-02,16 • "ICT budget and associated expenditure needs to be based on valid reasons with clear and transparent decision making."	**F4.** It is important to have a budget plan that reflects the investment priorities supporting strategic objectives **Conforms to COBIT 5 criteria.**
C5. The City of Albany should analyze risk. (APO12.02)	IM-05, p11 • "Risk and vulnerability assessments could be conducted by specialists to include physical and logical security."	**F5.** According to the plan, only information security risk has been assessed, the City of Albany does not completely develop risk identification and risk treatment strategy **Does not conforms to COBIT 5 criteria.**
C6. The City of Albany should maintain adequate and appropriate staffing. (APO07.01)	BS-02, p7 • "Effective use of Business Systems will be ensured through adequate training of staff."	**F6.** Appropriate training is essential to maintaining adequate staffing. However, staffing should be evaluated on a regular basis to ensure personnel have the competencies to fulfil their roles. **Partially conforms to COBIT 5 criteria.**
C7. The City of Albany should establish a quality management system (QMS). (APO11.01)	BS-01, P6 • "Periodically checking that major systems meet the business needs is necessary to ensure that they are fit for purpose."	**F7.** The quality of the ICT system is periodically checked, however, the City of Albany does not not establish a formal and complete QMS. **Partially conforms to COBIT 5 criteria.**

C8. The City of Albany should Focus quality management on customers. (APO11.03)	IM-04, p11 • "Often application software is blamed by users when data queries are inconsistent or slow."	**F8**. The City of Albany improve the quality based on the experience of customers. **Conforms to COBIT 5 criteria.**
C9. The City of Albany should define information (data) and system ownership. (APO01.06)	BS-03, p7 • "Integration provides consistency of information and eliminates the need to have multiple systems performing the same function."	**F9.** It can ensure the consistency and integrity of information stored in database, however, the City of Albany needs central management of data **Partially conforms to COBIT 5 criteria.**
C10. The City of Albany should maintain continuous improvement. (APO11.06)	Executive Summary • "As part of continuous improvement, these actions will need to be reviewed and updated regularly within the timeframe for this plan or as circumstances change." BS-04, p7 • "There is a need to ensure that the City's online services are contemporary in terms of information, services, 'usability' and enhances the City's presence and image." Section8, p20 • "There is also a need for continuous review of the ICT Strategic Plan. Whenever a new requirement is identified, that requirement should be	**F10.** The City of Albany can maintain continuous improvement by reviewing and updating operations regularly. It also updates the technology and service to make them contemporary **Conforms to COMBIT 5 criteria**

	referenced to one of the Key Focus Areas and Strategies."	
C11. The City of Albany should evaluate and retire information. (BAI08.05)	IM-01, p9 • "Information stores will have relevant and up-to-date data."	**F11.** The data stored are up-to-date and any anomalies data will be corrected if appropriate. **Conforms to COBIT 5 criteria.**
C12. The City of Albany should nurture and facilitate a knowledge-sharing culture. (BAI08.01)	IM-02, p10 • "In the context of ICT, Knowledge Management" refers to the creation of an environment where systems and technologies enable sharing, learning and collaboration that together lead to organizational improvement."	**F12** Knowledge-sharing is essential to the improvement of efficiency **Conforms to COBIT 5 criteria.**
C13. The City of Albany should control the processing of information. (DSS06.02)	IM-03, p10 • "Information will be managed in line with its business value and with a view to progressively make available online relevant information to the public."	**F13** It does not mention who has the authority to decide how to process information. **Partially conforms to COBIT 5 criteria.**
C14. The City of Albany should manage licenses. (BAI09.05)	T-02, p13 • "Software licensing models will be selected to ensure optimal value and effectiveness. This should take into account the overall benefit to the City and not just the upfront or ongoing license costs."	**F14.** Since the cost of business software is usually expensive, establishing software licensing models software is essential to achieving optimal values. **Conforms to COBIT 5 criteria.**
C15. The City of Albany should assess the current environment,	T-03, p13 • "There will be a corresponding requirement for	**F15.** Realizing the current business environment is essential to business

capabilities and performance. (APO02.02)	improved voice and data services."	implementation and improvement
	BS-04, p8 • "Broadband, mobile and handheld technologies are becoming more ubiquitous at reduced price points." G-01, p15 • "Feedback received during this consultancy has highlighted there was shortfall in terms of reporting for ICT systems and services." SM-02, p18 • "An ICT skills shortage is worsening and is unlikely to be filled from within Australia."	**Conforms to COBIT 5 criteria.**
C16. The City of Albany should assess the potential of emerging technologies and innovation ideas. (APO04.04)	T-04, p14 • "This procedure would focus on selection of energy efficient technologies, improved ICT management practices of devices to reduce power consumption."	**F16** The gain and lose should be assessed before the selection of energy efficient technologies. **Partially conforms to COBIT 5 criteria.**
C17. The City of Albany should evaluate the governance system. (EDM01.01)	G-01, p15 • "Feedback received during this consultancy has highlighted there was shortfall in terms of reporting for ICT systems and services. • By adopting better reporting mechanisms, engaging with the service stakeholders regarding ICT performance and projects, an	**F17.** The current governance system has been evaluated and the future design has been established. **Conforms to COBIT 5 criteria.**

	improvement in service capability should occur."	
C18. The City of Albany should monitor and report service levels. (APO09.04)	SM-05, p19 • "Best-practice ICT Service Management processes will be implemented to ensure the delivery of appropriate levels of customer service."	**F18.** Manage the service level properly can produce benefits for the organization. **Conforms to COBIT 5 criteria.**
C19. The City of Albany should define and manage an information security risk treatment plan. (APO13.02)	SM-05, p11 • "The security of information resources will be improved through the adoption of best-practice standards and processes. This would include the use of an information security management system (ISMS)."	**F19.** The City has a proper information security treatment plan. **Conforms to COBIT 5 criteria.**
C20. The City of Albany should manage supplier relationships and contracts. (APO10.03)	No evidence	**F20.** There is no strategy for managing, maintaining and monitoring contracts and service delivery of suppliers **Does not conforms to COBIT 5 criteria.**
C21. The City of Albany should create an environment conducive to innovation. (APO04.01)	No evidence	**F21.** The City of Albany does not create an environment that encourage innovation and have some mechanisms to promote and capture employee ideas. **Does not conforms to COBIT 5 criteria.**

Table1. Analysis and findings.

4. Key Findings and Recommendations

Section 4.1 presents the key findings that arise from the analysis in section 3.2. And section4.2 presents some recommendations dealing with the key findings in 4.1.

4.1 Key Findings

No.	Key Findings	Reference from Table1	Justification
KF1	IT strategy has been well defined and aligned with the objective of the City of Albany.	F1, F8, F10, F12, F17	The strategy plan has been well aligned with the City of Albany's vision: "Provides business focused, effective and scalable ICT systems and services that will benefit the City and potentially other Councils in the Great Southern".
KF2	The current ICT environment and requirement have been well analyzed.	F1, F15, F16	Analyzing the ICT environment is important to keep the technology contemporary.
KF3	The information is properly stored and processed.	F9, F12, F13, F19	The City of Albany has complete and well-defined strategies for dealing with information. The information will be safely stored in database and have integrity and consistency. Besides, the information shown to the public will be properly managed. It would be perfect if the City has central management of data and if there is a person who has the authority to decide how to process information.
KF4	Lack of complete risk management.	F5	Although some risks have been identified in the strategic plan, the City of Albany does not have formal plan to deal with risks.
KF5	Lack of regular employee evaluation	F6	Although the employee can get appropriate training, there is no regular evaluation of employees' performance.
KF6	Lack of formal quality management	F7	The City of Albany focuses on the quality of ICT system, but it does not have a formal quality management plan. Besides, the plan does not mention any quality guidelines.
KF7	Lack of assessing emerging technology	F16	It is a good thing to adopt new technology, but a formal evaluation should be processed on the new technology before adopting it.

KF8	Lack of a systematic approach to scan the technology environment.	F15, F16	The plan mentions some new technologies and some fact in the current technology environment. However, the City does not have a plan to systematically scan the technology environment or efficiently identify emerging technology.
KF9	The City does not manage supplier relationship for each supplier.	F20	There is no evidence indicating that the supplier relationship is managed.
KF10	The plan does not propose any method to establish an environment conducive to innovation	F21	There are no clear suggestions on how the City do to establish an innovation friendly environment, where the innovational ideas from staff can be promoted.

Table2. Criteria and findings

4.2 Recommendations

No.	Recommendations	Reference from Table2	Justification
R1	It is recommended that the City of Albany should develop risk avoidance and treatment strategies to reduce the influence of risks.	KF4	"With information and technology at the heart of creating value for enterprises, it is more important than ever for organizations to optimize their IT risk approach in order to effectively identify related risks, opportunities and meet enterprise objectives." (ISACA, 2013) ref3
R2	It is recommended that the City of Albany should regularly evaluate employees' performance to make sure that the organization has sufficient human resources to support organization's objectives.	KF5	There are many facts can cause the shortage of human resources in the organization. • Employee cannot deal with emerging technology • Employee absent • Employee's personal issue…etc. These can influence the operation of the organization. Therefore, the performance of employees needs to be evaluated regularly to make sure the human resources are sufficient.
R3	It is recommended that the City of Albany should develop a Quality Management	KF6	"A QMS is developed and maintained that includes proven development and acquisition processes and standards. This is enabled by planning,

	System(QMS)to effectively evaluate and maintain service quality.		implementing and maintaining the QMS by providing clear quality requirements, procedures and policies. Quality management is essential to ensure that IT is delivering value to the business, continuous improvement and transparency for stakeholders." (ISACA, 2012)
R4	It is recommended that the City of Albany should evaluate emerging technologies to decide whether it is worthy to adopt them.	KF7	• Emerging technology is not always the best choice. Whether to adopt it or not depends on if it can align well with the organization's strategy and the current situation of the organization • "Consult with third-party experts where needed to confirm research findings or as a source of information on emerging technologies."(ISACA, 2012)
R5	It is recommended that the City of Albany should regularly scan the technology to identify emerging technology	KF8	"Perform research and scanning of the external environment, including appropriate web sites, journals and conferences, to identify emerging technologies." (ISACA, 2012)
R6	It is recommended that the City of Albany should manage the relationship for each supplier to maximum the value of interaction and reduce risk of failure.	KF9	"Establish and maintain criteria relating to type, significance and criticality of suppliers and supplier contracts, enabling a focus on preferred and important suppliers." (ISACA, 2012) "Focus their vendor management efforts on third-party relationships that: • Play a vital role in the enterprise's daily operations. • Have a critical impact on the success of the enterprise's strategic projects" (Crowe, 2013)
R7	It is recommended that the City of Albany should come up with a method that collects staff's innovation idea to create an environment conducive to innovation.	KF10	If an environment conducive to innovation is established, it will motivate staff to come up with innovation ides and each staff is more willing to put forward the idea.

Table3. Recommendations and justifications

References

1. City of Albany ICT Strategic Plan (2012-2017), 2012

2. ISACA, 2012, COBIT 5: Enabling Processes, viewed 6 April 2017, <https://www.isaca.org/COBIT/Pages/COBIT-5-Enabling-Processes-product-page.aspx>.

3. ISACA, 2013, COBIT 5 for Risk, viewed 6 April 2017, <http://www.isaca.org/COBIT/Documents/COBIT-5-for-Risk-Preview_res_eng_0913.pdf>.

4. Crowe, 2013, Vendor Management Using COBIT5, viewed 6 April 2017, < http://www.isaca.org/chapters2/jacksonville/Documents/2012-2013%20Documents/Vendor%20Management%20Using%20COBIT.pdf>.

5. ISACA, 2012, PO8 Manage Quality, viewed 6 April 2017, <https://www.isaca.org/popup/Pages/PO8-Manage-Quality.aspx>.