MACQUARIE University

Faculty of Science and Engineering

Department of Computing

COMP3770/6770: Management of IT Systems and Projects

2022 – Individual Assignment 2 – 20% of semester

Considering the Triple Constraint, while capturing the expertise of Company X

Due : 5pm – Thursday 14th April

https://unitguides.mq.edu.au/unit_offerings/149797/unit_guide#assessment_task_426473

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MS Project [1]

(20 marks - 20%)

Scope statement [2]

Date: March 3rd 2022
Prepared by Dr. Peter Busch – Chief Technology Officer - Company X

Background

Company X - an SME founded in 2012, provides IT services. The following paragraph is taken from the paper presented in appendix 1.

> The founders share extensive experience in the IT industry with ways to improve the delivery of IT services. Together they've formed a company that is continually growing with over 25 team members located in the heart of Sydney. The business is built on best practice to ensure an engagement model that is responsive and flexible. The company values the success of guiding and supporting their clients through the focus of using DevOps strategies enabling them to deliver automated Azure platforms and data centres. Company X also uses Microsoft 365 and Citrix to build modern and secure workplaces for their clients. The team provides advice and solutions by integrating best practices with leading technologies. They have a strong record in delivering IT Infrastructure projects across a diverse range of clients that are on-time, within budget and high-quality outcomes. Their services include Azure Factory, Modern Workplace, Cyber Security, Managed Services, Hybrid Cloud, DevOps, Digital Healthcare and Business, Industry Solutions, WiFi, Modern Desktop Servicing, Windows Analytics and more. These services enable the support of IT needs across a range of locations and platforms for optimal performance, allowing companies to focus on their core business effectively and efficiently. Their organizational structure chart (figure 1) is generalized (Cen and Busch, 2019 p. 916).

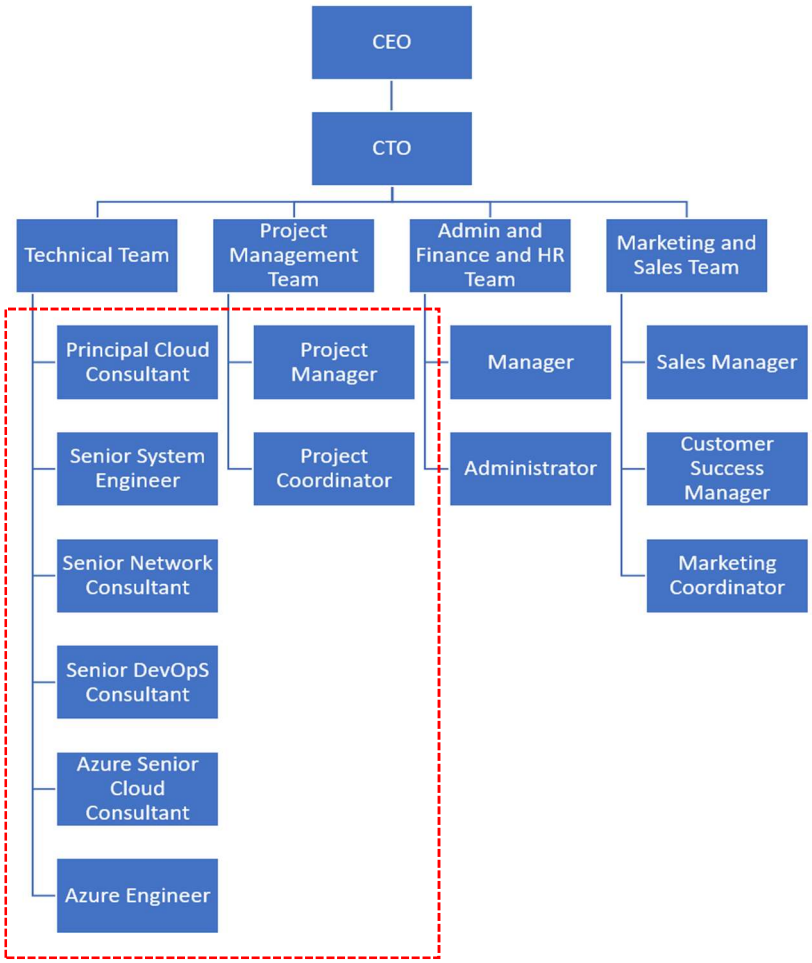


Figure 1: illustrating the structure chart of Company X (with IT specific staff in the red rectangle)

[1] Or other suitable PM software – up to you!
[2] See appendix 1 for a full background to the scenario presented here.

Answer Q1 and Q2:

Q1. Assume YOU are the project manager (PM) in company X (a real IT company) illustrated above. Fifteen (15) staff are illustrated in figure 1, of which we could consider the 8 profiled in the red rectangle to comprise the actual IT staff.

The CTO (i.e., me - with the CEO's blessing) has instructed you (PM) to prepare a project plan for a knowledge system garnering expertise in the firm, regarding the sorts of technologies listed in the background above. To remain competitive company X needs to draw better upon their internal knowledge. The system requirements at a high level are as follows:

System Characteristics and Requirements: [3]

1. The system must run on the company's existing intranet using current hardware and software as much as possible.
2. The new system should be user friendly.
3. The main requirements of the system are to:

    - Allow *potentially* all employees to access stored expertise in areas of the company listed above.
    - The system should also enable staff to determine which of their colleagues have expertise in specific areas, should the system itself not store such specialised knowledge.
    - The system should be up to date insofar as staff who may have left the company are so recorded, meaning that expertise may need to be sought from outside the organisation.
    - The system should provide all location details for current staff, including their position description and biographical information.
    - Provide a means for staff to enter areas of expertise they may have. Such expertise descriptions will be in the form of keywords chosen from a thesaurus in the system; staff will also be able to add vetted keywords, should satisfactory keywords not exist.

Project success criteria:

Our goal is to complete this project within 4 months for no more than $? [4] The main goal is increase access to expertise by providing a system that can be used by all 25 staff in the company ideally, even though the 8 staff listed above, comprise the core of staff with most of the IT knowledge **(15 marks).**

Q2. Comment on the importance of the Triple Constraint with reference to *both* the concepts provided in Cen and Busch (2019 – see **Appendix 1**) and *relating such concepts to the scenario you have worked on in question 1*. What do you think are the most important constraints in the assignment scenario here – Scope, Time, or Cost? Why? **(5 marks).**

[3] Note – *you are not installing this system*, merely working out the project management for the installation!
[4] Meaning you tell me what you think the project will cost with the 8 staff members, over a 4-month timeframe.

Basic assignment steps

a. You are the PM as illustrated in figure 1. *Consider your salary cost too*.

b. Company X wants a knowledge system which can store expertise on the platforms, software and cloud knowledge of 8 staff in particular, mentioned in the scope above.

c. As PM, it is assumed you have some knowledge of the potential of cloud.

d. Company X would like their intranet knowledge system online in ***4-month timeframe***.

e. For consideration here, Company X has 1 PM (you), and 7 other IT staff. [5]

f. You as PM can work out the budget ***- there is no correct answer here!*** What do you think it might cost over the 4 months?

- One way to work the payments out might be to work out an hourly rate of pay and multiple by the number of days per week and weeks per month your staff might be allocated to the lab.
  - Again - ***there is no one correct answer here,*** just how well you explain yourself and why.
- You can be creative and Google costings - just write where you derived these costings in your report
- The more thorough/convincing/plausible your explanation is – the better.

g. Consider, as with any workplace, the above staffing is only partially dedicated to achieving the end goal of the knowledge system establishment in 4 months. *You decide what fraction of time is spent by staff on this initiative!*

h. This project represents an *intra-organisational* view of PM.

i. Consider the **Triple Constraint** as discussed in appendix 1 (Cen and Busch, 2019) and answer question 2.

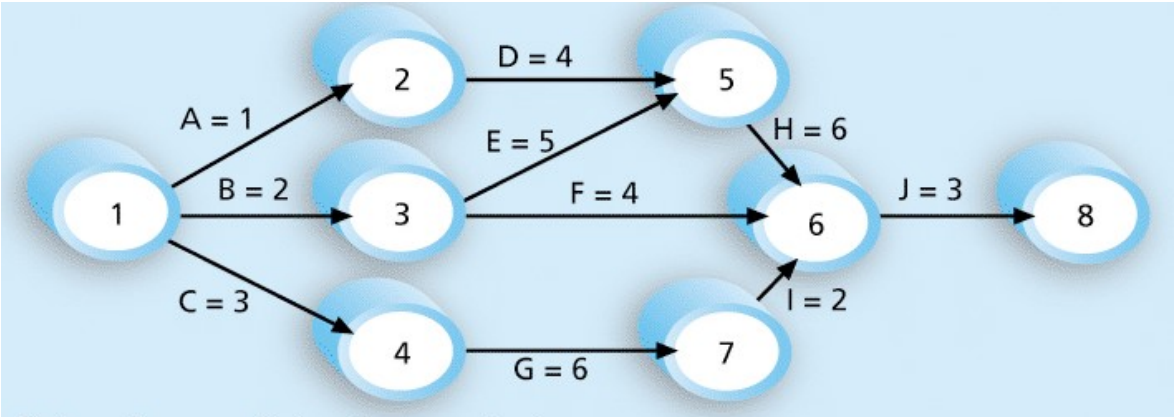
[5] You are the PM - so you work out the costings of these staff. 'Google' what the salaries might be.

Assignment Algorithm

1. Implement the above project scope (basic assignment steps) into MS Project (or appropriate PM software). *You are free to modify the WBSs as you see appropriate* **(15 marks).**

   Please answer the following: -

   - How long will your project take?
   - How did you calculate this? (explain)
   - Provide the critical path (e.g., figure 1 below) for your implementation.
     - You may use the network diagram feature in MS Project (or equivalent) and modify/comment to illustrate your point, rather than redrawing from scratch.
   - Provide a discussion of your approach – how did you arrive at your costings, timeframes, how staff were allocated and so on?
   - *Hint: higher grades tend to refer to sources of information* [6]



Note: Assume all durations are in days.

Path 1:	A-D-H-J	Length = 1+4+6+3 = 14 days
Path 2:	B-E-H-J	Length = 2+5+6+3 = 16 days
Path 3:	B-F-J	Length = 2+4+3 = 9 days
Path 4:	C-G-I-J	Length = 3+6+2+3 = 14 days

Since the critical path is the longest path through the network diagram, Path 2, B-E-H-J, is the critical path for Project X.

Figure 1: Determining the critical path for project X (source: Schwalbe, 2018 p. 260).

2. Write your answer to question 2 **(5 marks)**.

[6] See assignment 1 – appendix 1.

Deliverables – soft copy only

1. One (combined) pdf file containing your MS project (or equivalent) solutions (question 1), which includes:
    a. **WBS charts**, including
        i. Gantt chart
        ii. Network diagram
        iii. Resource graphs etc., and discussion/commentary/costings.
2. The answer to question 2.

Submission

Place your **soft copy** (1 file) in the appropriate folder on iLearn (Turnitin submission).

Marking Rubric

Note higher grades include examples from the literature. Higher grades show greater initiative in costings, providing explanation for why staff cost what they did, reasons for time durations on tasks and so on. The critical path will be well explained, showing good understanding of what is taking place.

	Developing (Borderline Pass-Fail)	**Functional** (Pass)	**Proficient** (Credit)	**Advanced** (Distinction to HD)
Comprehending the underlying scenario	An understanding that organisations have PM strengths, expressed through basic statements articulating how some organisations may be better because of PM.	Some indication literature exists providing wider examples of CM, staffing etc. in organisations.	Recourse to the literature, illustrating similar organisation profiles with regard to CM and PM, staffing etc. and how these factors relate to the material under study.	A comprehensive study of the literature providing deeper examples of similar CM and how PM has strengthened them.
PM software	Limited use of PM software showing some understanding of the tool.	Competent use of PM software showing understanding of the software, perhaps making some basic mistakes.	Good understanding of the software, using tool appropriately without any significant mistakes.	Excellent understanding of the PM software, using tool appropriately at an expert level.
PM modelling	Limited understanding of PM modelling, some obvious mistakes.	Competent understanding of PM modelling, some trivial mistakes still in evidence, but generally an understanding of what is taking place and why.	Good grasp of PM modelling bringing in other examples of PM modelling from the literature explaining how this has improved project scenarios.	Excellent grasp of PM modelling, also drawing on the literature widely to exemplify in the case of further examples how PM modelling has aided other organisations as well.

Late submissions

Late submissions will be accepted but will incur a penalty unless there is an approved Special Consideration request. A 12-hour grace period will be given after which the following deductions will be applied to the awarded assessment mark: 12 to 24 hours late = 10% deduction; for each day thereafter, an additional 10% per day or part thereof will be applied until five days beyond the due date. After this time, a mark of zero (0) will be given. For example, an assessment worth 20% is due 5 pm on 1 January. Student A submits the assessment at 1 pm, 3 January. The assessment received a mark of 15/20. A 20% deduction is then applied to the mark of 15, resulting in the loss of three (3) marks. Student A is then awarded a final mark of 12/20. If you require an extension, please do so via **ask.mq**.

Appendix 1

Cen, M. & Busch, P., (2019) "Project management success factors in an Australian SME" *Proceedings of the 34th International Business Information Management Association Conference*: Vision 2025: Education Excellence and Management of Innovations through Sustainable Economic Competitive Advantage. Soliman, K. S. (ed.). Madrid, Spain pp. 916-929.

Project Management Success Factors in an Australian SME

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Abstract

The literature analyses the project management areas of knowledge in the IT industry focusing on the Triple Constraint. The IT organisation here is a small and medium enterprise (SME) where we examine the influences of project management through questionnaires relating to the triple constraint and concepts of success in project management. This paper explores how project management influences projects in an IT company - company X; and how project management can provide success in projects in SMEs to achieve increases in efficiency and productivity, leading to project success and potentially competitive advantage. The research uses qualitative measures to establish the influence of project management while identifying project success factors between the project team and client when delivering IT services. The study revealed that management areas with greatest impact on project success were time, cost, and quality.

Keywords: Project Management, Survey, Triple Constraint, Australian SME

Introduction

The project management areas of knowledge provide standard project management and best practices to improve efficiency, productivity and project success in businesses including SMEs. The skill sets required for success in projects have evolved in the past few years (Pant and Baroudi, 2008). Project management (PM) provides influential information guiding IT project managers with information about the project management lifecycle and its related processes around managing projects. PM provides guidance that led to project success to help meet the standards and competitive realities in businesses (Pant and Baroudi, 2008). PM helps project managers gain insight into good leadership of projects. It is also known most businesses expect employees to demonstrate and excel in skills such as teamwork and development, as there is growing demand for project management skills because of 'projectisation' in organisations (Pant and Baroudi, 2008). Project management areas are considered a strong business strategy where many businesses have incorporated tools and techniques into organizations for competitive advantage and to integrate, plan and control schedule intensive projects to improve overall performance (Pant and Baroudi, 2008). After briefly examining the ten project management bodies of knowledge, we focus on the triple constraint which encompasses time, cost and quality management which collectively may also be interpreted as the deadline, budget, and minimum acceptable level of performance (PMP, 2004). Analysing the triple constraint focuses on the benefits in reviewing availability, maintainability, affordability, and scalability, being at the core of crucial decisions about a project for a high standard of excellence (PMP, 2004). We conducted a study on the perceived areas of greatest significance in project management, in an Australian Small and Medium-sized Enterprise (SME) - which we call Company X.

PMBOK

The Project Management Institute (2013) introduced the Project Management Body of Knowledge (PMBOK Guide) to provide guidelines for project managers. The guide is globally recognised as the standard for managing projects across many different types of industries (Institute, 2013). Making up the PMBOK are ten knowledge areas including project scope, time, cost, quality, integration, human resources, risk, and procurement management (Institute, 2013). The areas mentioned describe the key competencies for project managers to develop (Schwalbe, 2015) and help project managers determine how to allocate resources most effectively, gain insight into the roles of leadership in management of projects and help form great teamwork (Cleland, 1995). We decided to focus on three management areas agreed to be the most influential in project management - time, cost and quality management - recognized as the 'triple constraint' (Smartsheet, 2018; Anbari, Carayannis & Voetsch, 2008). Catanio, Armstrong, and Tucker (2013a, 2013b), state that IT projects are constrained primarily by these three parameters which affect the likelihood of project success. These metrics enable projects to move forward and when issues are identified, adjustments may be implemented (Westland, 2018; Wyngaard, Pretorius and Pretorius, 2012) through resource-levelling, right-sizing, and crashing (Rosenau and Githens, 2011) to focus attention on important aspects (Baratta, 2006).

Organisational background

Small and medium sized enterprises (SMEs) play a significant role in providing competitive advantage and increasing efficiency, which can lead to eventual success in the digital economy (Fakieh, Blount & Busch, 2014; 2016). Oritogun, Busch and Picoto (2018) note SMEs comprise a significant percentage of all businesses in Australia. In Australia, 3.8% of all organisations are medium-sized businesses employing 50-199 employees, while 96% are small businesses employing fewer than 50 staff (Anon, 2018; Connolly, Norman, and West, 2012). Other characteristics of SMEs include having a flat organizational structure, the division of activities is unclear, the span of activities narrow, they tend to have a fast response to environmental changes, they possess a high incidence of innovativeness often involving information evaluation, control, and reporting procedures, have flexible organization flows and top management level is highly visible (Ghobadian and Gallear, 1996). Interestingly, Angela Mentis, CEO of National Australia Bank (NAB 2018), mentions SMEs created 7 million jobs contributing 57% of Australia's Gross Domestic Product (GDP), making SMEs the backbone of the Australian economy (NAB, 2018), driving growth and employment - particularly in developing economies (Radas and Božić, 2009).

To place the above concepts into context, it was decided to 'ground' the above ideas in an SME (a Sydney, Australia-based organization) to determine if IT personnel agreed the Triple Constraint comprised the most important aspects of IT project management. We shall refer to this company as 'X' which provides IT services and was founded in 2012. The founders share extensive experience in the IT industry with ways to improve the delivery of IT services. Together they've formed a company that is continually growing with over 25 team members located in the heart of Sydney. The business is built on best practice to ensure an engagement model that is responsive and flexible. The company values the success of guiding and supporting their clients through the focus of using DevOps strategies enabling them to deliver automated Azure platforms and data centres. Company X also uses Microsoft 365 and Citrix to build modern and secure workplaces for their clients. The team provides advice and solutions by integrating best practices with leading technologies. They have a strong record in delivering IT Infrastructure projects across a diverse range of clients that are on-time, within budget and high-quality outcomes. Their services include Azure Factory, Modern Workplace, Cyber Security, Managed Services, Hybrid Cloud, DevOps, Digital Healthcare and Business, Industry Solutions, WiFi, Modern Desktop Servicing, Windows Analytics and more. These services enable the support of IT needs across a range of locations and platforms for optimal performance, allowing companies to focus on their core business effectively and efficiently. Their organizational structure chart (figure 1) is generalized.

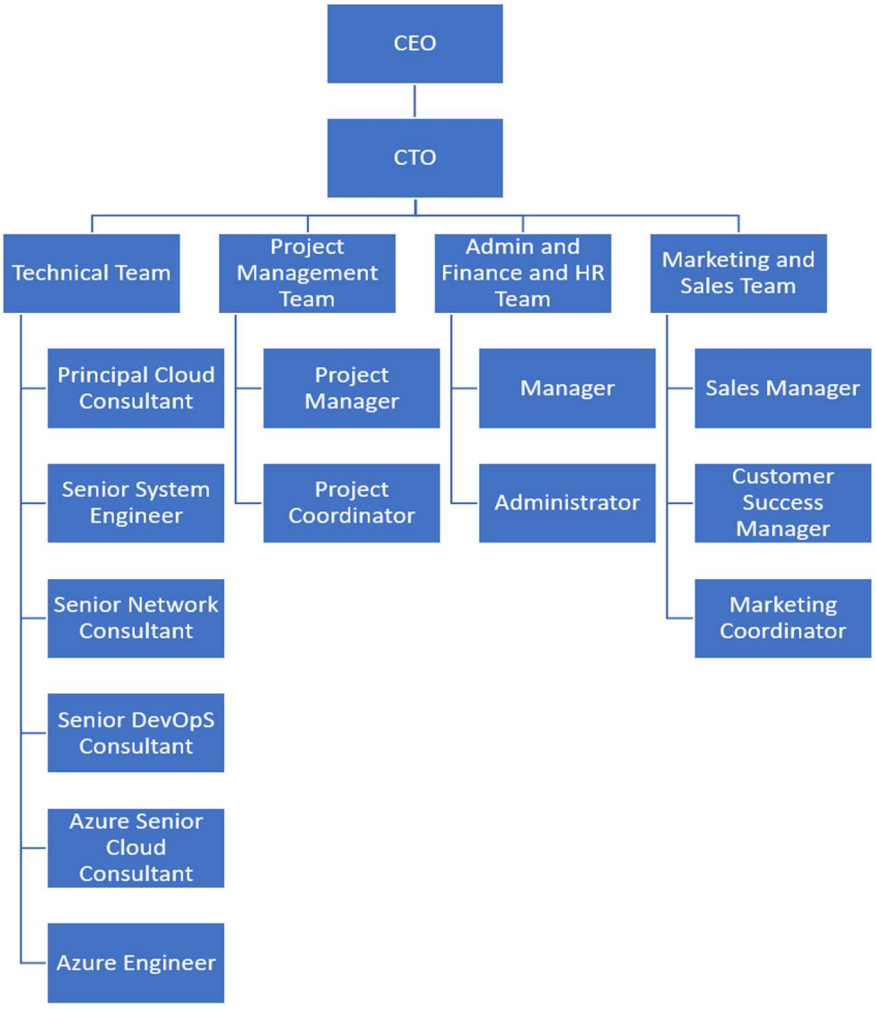

Figure 1: illustrating the structure chart of Company X

In the technical team there are the:

- Principal Cloud Consultant: This role consists of experience in DevOps, automation, ability to present complex IT solutions to customers, provide leadership and communication skills, innovative approaches to their projects and any issues that arise.
- Senior System Engineer: consisting of experience in Windows 10 OS, windows analytics and modern management tools, windows servicing and configuration options, system centre configuration manager and scripting.
- Senior Network Consultant: This role consists of advanced networking and security, networking protocols and security, network security design, technologies and principles and the latest Azure network service.
- Senior DevOpS Consultant: This role consists of Azure architecture being current with the latest Azure services.
- Azure Senior Cloud Consultant: This role consists of Azure architecture for the enterprise environment, Azure foundations and scaffolding and being current with the latest Azure services.
- Azure Engineer: has experience in deploying and managing Azure services, an understanding of virtualisation technologies and understanding general data centre management and infrastructure service with Azure services.

In the project management team, we have the:

- Project Manager: with experience in project management, client-facing and internal communication skills, written and verbal communication skills and organisation skills.
- Project Coordinator: experience in verbal, written and presentation skills, ability to work effectively independently and as a team with knowledge in file management, transcription, and other administrative procedures.

In the admin, finance, and HR team, we have the:

- Manager: with experience across administration, finance, and human resources, providing leadership, time, task and resource management skills, strong problem solving, critical thinking, coaching, interpersonal, verbal and written communication skills. Also, this individual has familiarity with planning and enforcement, human resources, and customer service procedures.
- Administrator: experience in knowledge of office management systems and procedures, time management skills, the ability to multitask and prioritise work with attention to detail and problem-solving skills, organizational and planning skills and written and verbal communication skills.

In the marketing and sales team, we have the:

- Sales Manager: previous experience as a sales representative, committed to continuous education through workshops, seminars and conferences, the ability to communicate, present and influence all levels of the organisation with strong business sense and industry expertise.
- Customer Success Manager: experience for all accounts, resolving customer issues, engaging through all phases of the customer relationship, and remaining in contact with the customer to evaluate satisfaction and proactively identifying upcoming needs.
- Marketing Coordinator: well organised and self-motivated with excellent command of written English with copy accuracy.

Approach

Our study adopted questionnaires but in the form of written interviews carried out face to face through phone calls and internal mail. Questionnaires are cheap, quick, and efficient to obtain a lot of information from many people (McLeod, 2018). The advantages of questionnaires are that they are cost efficient, practical to gather data and results are quick and easy to collect while being scalable (Debois, 2016). On the other hand, some questions may be difficult to analyze, may lack personalization or have differences in understanding and interpretation (Debois, 2016). For a good questionnaire, it is important to lead respondents to answer questions appropriately to capture the needed data (SmartSurvey Blog, 2018). The questionnaires were put into place through interviews, focusing questions on the ten bodies of knowledge (appendices 1 and 2), but particularly the triple constraint. The questionnaire was developed through altering pre-existing questions from academic sources (Serrador and Turner, 2015; Silvius, et al., 2017). Some changes were made to questions, so they better suited our research and profile of company X. The questions mainly focused on project management, including the triple constraint of time, quality, and scope. Respondents provided a response on a scale of 1-10 (1 being the least important, 10 being the most important). Respondents were asked to rank the level of importance between time, quality and scope and project success perceived by the sponsor, client and project team and the performance of project efficiency in time, cost, and scope. The project was nationwide, taking place within Australia.

Results

The results of the survey (appendix 1) are presented in table 1, show the ratings of statements in relation to the triple constraint

which consisted of nine statements and one question. From specific roles of company X, the ratings and answers varied. The results of appendix 2 are presented in table 2 from qualitative interviews regarding concepts of project success. This instrument consisted of seven questions. From specific roles of company X, answers varied alongside different types of IT projects chosen.

Table 1: Results of interviews from appendix 1

	Person 1	**Person 2**	**Person 3**	**Person 4**	**Person 5**	**Person 6**
Time Time is the most important factor.	6	6	8	5	9	4
Checking the schedule is a priority.	8	9	9	5	7	5
Being on schedule is a must.	8	10	9	5	8	3
Quality Following the quality management plan is a must.	8	7	7	7	9	10
A quality review session is necessary.	6	10	8	7	8	8
First time right is an important factor.	6	6	1	9	8	8
Cost Available resources is an important factor.	8	10	7	5	7	9
Cost is the most important factor to take into account.	6	9	5	7	8	3
A cost/benefit analysis is considered.	6	10	4	5	5	3
In your opinion - is time, quality or cost the most important in a project?	Quality	Quality	Time and quality	All equally important	Time	Quality

Table 2: Results of interviews from appendix 2

Appendix 2	**Person 1**	**Person 2**	**Person 3**	**Person 4**	**Person 5**	**Person 6**
What is this project generally about?	Networking service	Firewall service	Windows analytics service	Voice rollout deployment	Digital transformation	Desktop analytics
Project success: meeting timeline goals How successful was the project in meeting project time goals?	30%	80%	60%	75%	90%	85%
Project success: meeting budget goals How successful was the project in meeting project budget project goals?	Over budget	Unsure	Under budget	Over budget	Under budget	Under budget

Project success: meeting scope/requirements goals How successful was the project in meeting scope and requirements goals?	100%	60%	100%	85%	85%	90%
Project success rating: project team assessment How do you rate the project team's satisfaction with the project?	Mixed	Very successful	Very successful	Mixed	Very successful	Successful
Project success rating: client assessment How do you rate the client's satisfaction with the project's results?	Successful	Successful	Successful	Mixed	Very successful	Successful
Overall project success rating: How do you rate the overall success of the project?	Very successful	Successful	Successful	Mixed	Successful	Mixed

Time

The results given for time (figure 2) in terms of whether time is the most important factor, whether being on schedule is a must and whether checking the schedule is a priority - all have vastly different ratings due to differences in opinions between technical and business employees. Moreover person 4 and person 6 worked as project managers and understood dependencies between different projects. In particular, person 6 assessed a project which was funded by another company for the client, hence the drastic difference in rating.

Quality

Responses provided for quality (figure 3) were relatively similar from both technical and business employees for ratings, whether a quality review session was necessary - and whether following the quality management plan was a must. In contrast, rating whether the output was correct the first time was an important factor and differed as responses ranged from 1-9. In this case persons 1, 2 and 3 gave the time parameter a relatively low rating as they were technical employees. Technical employees generally think they can re-code, re-configure and trouble-shoot, hence the first-time-right factor did not exist for them.

Cost

Results given for cost (figure 4) were all drastically different for both technical and business employees. Ratings for available resources as an important factor, ranged from 5-10. Ratings for cost was the most important factor ranging from 3-9. Ratings for a cost/benefit analysis was considered from 3-10. With all these answers it was felt the technical team wouldn't know or be exposed to many of the costings of projects. With the business team it was understood this varied from project to project, some projects being funded better than others. Nonetheless the latter group had a better understanding of this parameter than the technical personnel interviewed/questioned.

Meeting Timeline Goals

Figure 5 shows the comparison of successfully meeting project time goals through 6 different projects. For person 1, it was significantly different compared to other projects where person 1 felt time goals were only achieved 7% of the time. After further discussion we recognised the drawback was due to delays on the client side. Persons 3 and 4 provided the same constraints, person 3 however again stating this was due to the client's workloads. In contrast to person 2, persons 5 and 6 project time goals were met at 85% and above, which was achieved through maintaining proper communication between the team and client and by meeting deadlines based on schedules.

Meeting Budget Goals

As the interviews were not role specific, we interviewed not only managerial but also technical employees - hence the interview questions included the option of being 'unsure'. Generally, we can see at least 50% of projects were under-budget (figure 6), for accurate contingency plans were in fact put into place. For projects over-budget, this was mainly due to time

delays as the internal team provided further help where the client should've requested a project change request (PCR). Moreover, it was understood that consistent and accurate communication with the project manager was felt to be important by the interviewees.

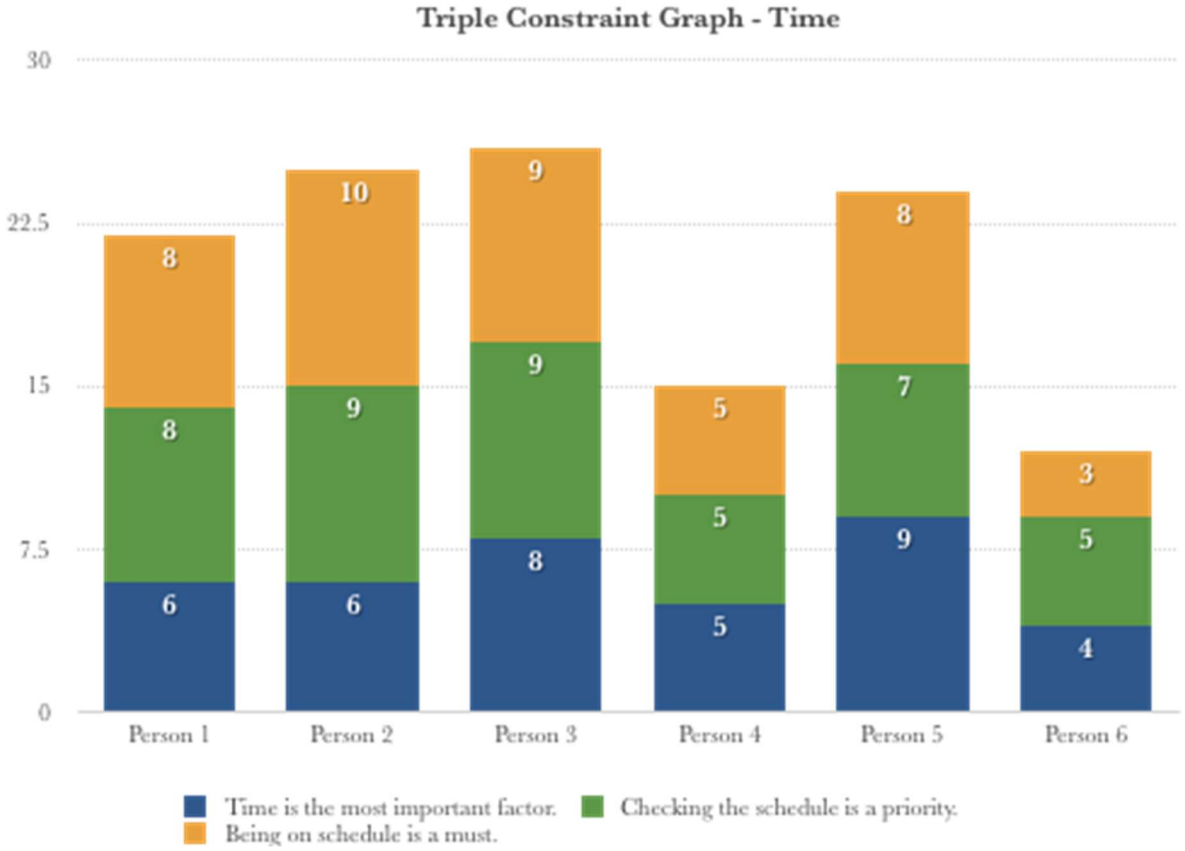

Figure 2: illustrating results of time (from appendix 1).

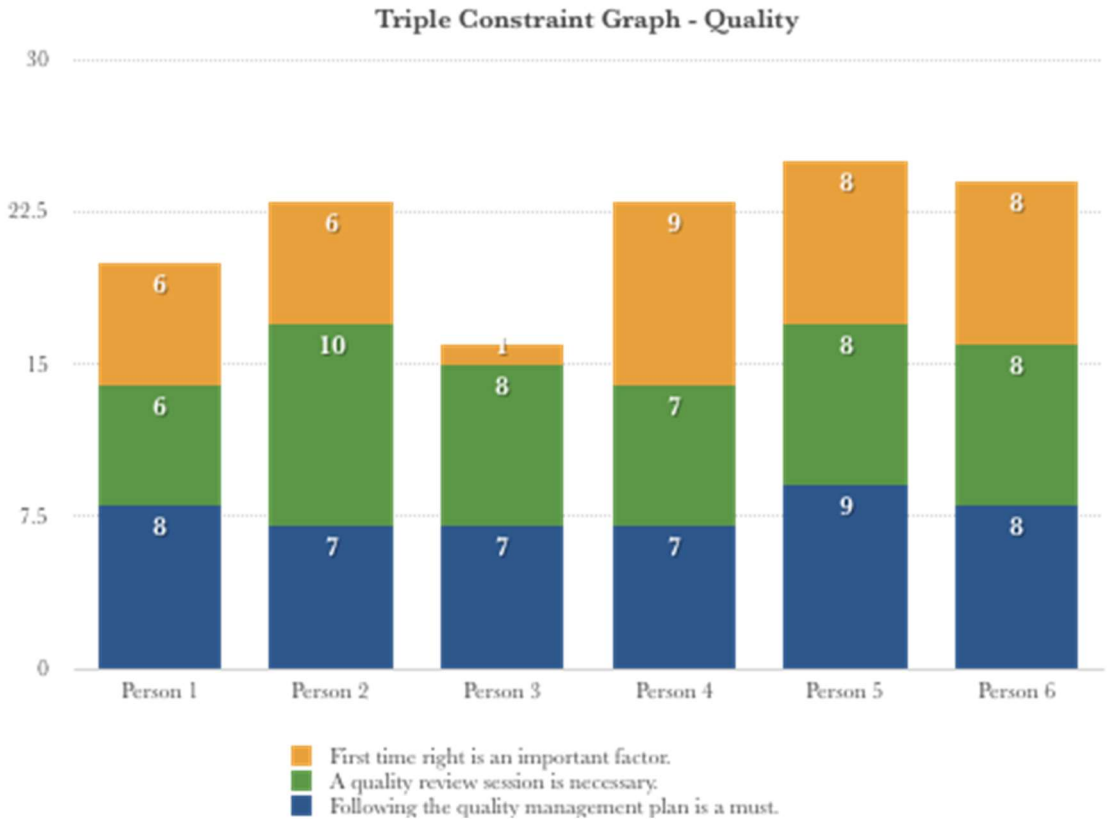

Figure 3: Illustrating results of quality (from appendix 1).

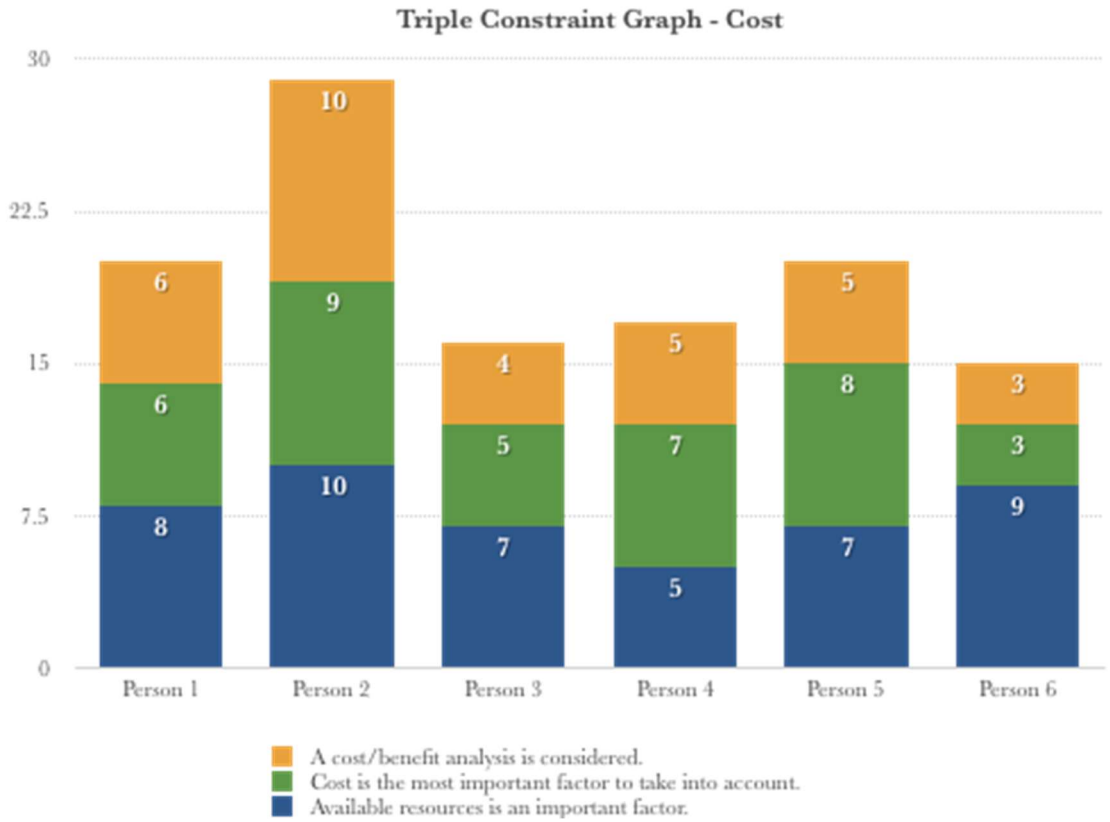

Figure 4: Illustrating results of the triple constraint in total (from appendix 1).

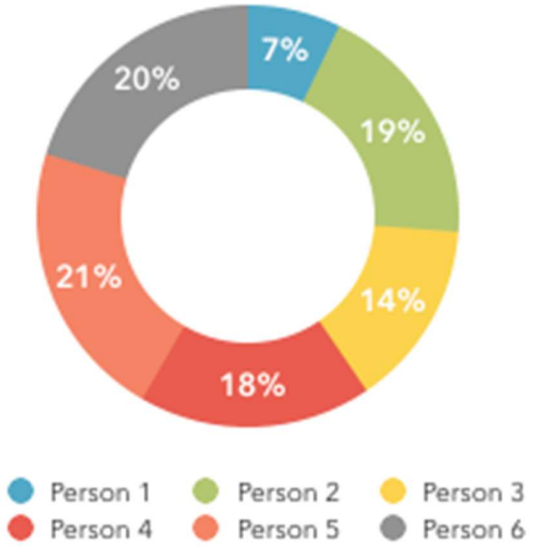

Figure 5: Meeting Timeline Goals.

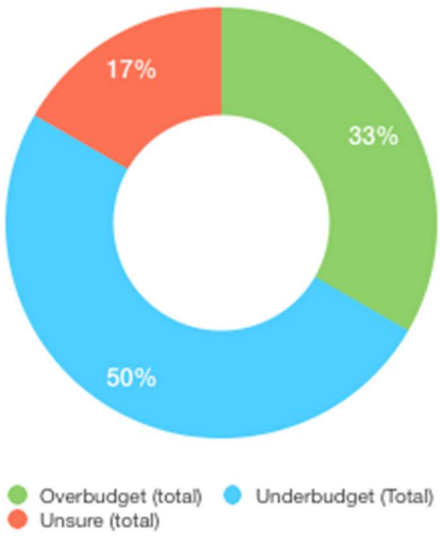

Figure 6: Meeting Budget Goals

Meeting Scope/Requirement Goals

Figure 7 illustrates a comparison of projects that successfully met the project scope/requirements goals. As we can see, most projects met these criteria however person 2 had the lowest number of requirements met due to complications and changes ordered by the client. Interestingly person 4 reviewed an older project where new technology was emerging, as the project took place at a time of immature technology based on implementing innovative solutions. With limited resources and materials, it was hard to meet 100% of the national project's scope requirements.

Project Team Assessment

Figure 8 present findings of whether different projects were unsuccessful, successful, very successful or mixed. However, all employees interviewed had relatively positive outcomes. Persons 1 and 4 had mixed responses, as problems such as delays

were influenced by clients, as well as changes made in requirements. On the contrary for projects that were very successful, employees recognised this was achieved through good scope, set expectations, and flagged areas of concern.

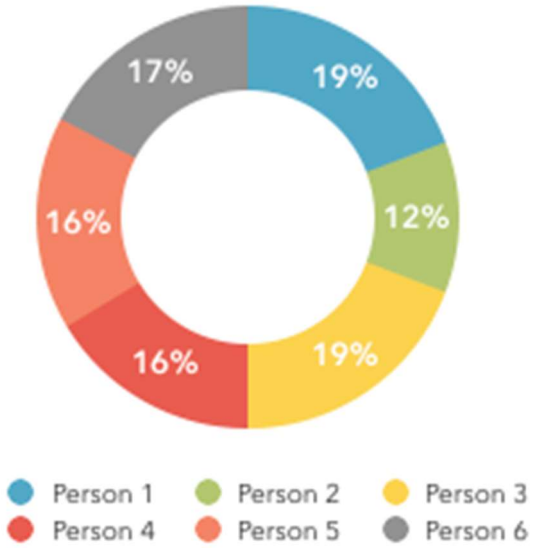

Figure 7: Scope/Requirement Goals

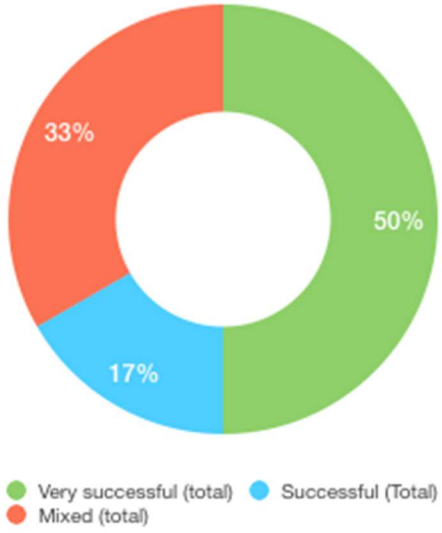

Figure 8: Project Team Assessment

Client Assessment

Figure 9 highlights the project success rating of client assessment from a range of 6 different projects. Most projects were regarded as successful; however, it has come to our attention person 4 gave a mixed rating. Apparently, the mixed rating was due to available resources as the project concentrated on new and improved technologies. The goal of a new product/service was not a priority, hence the mixed rating. Generally, the majority of projects were successful as the teams provided deliverables and service at an agreed cost and time frame with both the project team and client.

Overall Project Success Rating

Figure 10 illustrates the overall project success provided by the interviewees. Most projects had successful ratings if not very successful, but there were a couple of mixed reviews provided by persons 4 and 6. While person 4 previously noted the challenges of the introduction of new technology, person 6 had a different opinion in the overall project success rating - noting the different levels of engagement between project teams. Hence with mixed ratings, factors such as recognising the business and technical teams were important to consider.

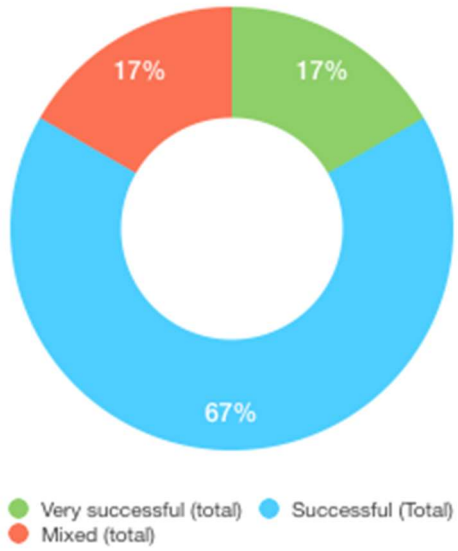

Figure 9: Client Assessment of Project Success

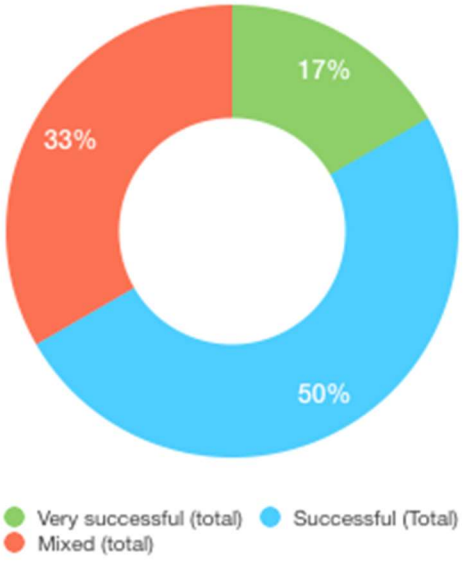

Figure 10: Overall Project Success

Discussion

The results provide some insight for academics and practitioners hopefully to positively influence project management in different IT projects. Difficulties were encountered by interviewees who assumed the interview would be lengthy. But with

the results given we were able to gain insights into opinions in Company X regarding project management. Interestingly the interviews clearly show employees with different roles had vastly different answers. Company X is a relatively small company, and every employee has their own role to help assist deliver IT service, hence it is safe to assume not all employees have experience in project management. Thus, it would be difficult for these employees to measure and reflect upon PM. However, where a company is not a large organization there are roles and responsibilities overlapping one another, such that an employee who has not worked as a project manager will at least have had some exposure to it.

In appendix 1 employees with exposure to project management, both as project manager and technical lead, project managers and technical employees all provided vastly different answers. Employees with more exposure to project management noted the importance for businesses to provide clients with the best services to build and maintain relationships for business success. They also noted every project had its own level of importance for time, quality, and cost. For a business role, employees understood how success should be measured, as it varied from project to project. Employees in a technical role were generally able to provide a rating without the need to refer to a particular project. Regarding project quality, one interviewee stated: 'first time right is an important factor', further commenting 'measure twice cut once' for there may be one shot at getting things right but it will always cost time and money. Another factor to consider was where an employee provided drastically different ratings for the cost sections, as the project was funded by another company. Thus, costs were not the primary concern.

Regarding appendix 2, the technical employees had limited information about different aspects in the projects, hence answers provided for the questionaries were different compared to business employees. It seems information such as budget and cost is usually only of concern to business employees. In general, it is known both technical and business employees need to meet and understand project success in meeting project time goals, as time is an influential component both with the project team and client especially when deliverables and milestones are involved. Interestingly, for project success in meeting requirements, a technical employee expressed the importance of only applying activities that are within scope, for difficulties can arise when clients expect further work and engagement. Hence it is important for both technical and business teams in both parties to refer to the initial scope and decide whether it is appropriate to apply for a project change request (PCR). In general, all project success ratings for the project teams and clients had positive reviews and projects with delays were largely due to clients. Overall, the project success rating assessment demonstrated positive results with a few mixed reviews.

Limitations

Some interviewees referred to a project completed years ago and as technology continuously changes older projects may not align to current means of project management. To improve the findings, it is recommended to specify only projects currently worked on. Moreover, as Company X provides a range of different IT services, it would be advisable to interview employees with a more specific IT service, so results are more concise and accurate. Only 6 employees were interviewed in-depth, as most employees were busy, if not out of the office.

Conclusion

Project management and particularly the triple constraint plays an important role in the IT industry as depicted through Company X. Effectively and efficiently utilizing the triple constraint increases the likelihood of project success. There are a range of guidelines to successful knowledge management implementation and practices. This research consists of interviews with 2 different sets of questions. In the first set of questions, the study attempted to explore the level of ratings across different areas of the triple constraint and its level of importance in an Australian SME - Company X. A structured survey of statements was rated by Company X personnel, with the results informing the second stage of the study. The second questionnaire was designed to uncover qualitative feedback. All 6 participants were selected for a detailed interview on project management, the triple constraint, and definitions of project success. We gained certain insights into influential factors in project management of certain key knowledge areas in an Australian IT SME. Limitations in the research may be partially overcome with further interviews.

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Appendix 1 (Adapted from Silvius et al., 2017)

In your opinion, is time, quality or cost the most important in a project?

Question	**Response ranges (1 - 10)**	**Reference**
Time/schedule Time is the most important factor? Checking the schedule is a priority? Being on schedule is a must?		(Silvius, Kampinga and Moori, 2017) (Project Management Institute, 2013)
Quality Following the quality management plan is a must? A quality review session is necessary? First time right is an important factor?		(Silvius, Kampinga and Moori, 2017) (Project Management Institute, 2013)
Cost Available resources is an important factor? Cost is the most important factor to take into account? A cost/benefit analysis is considered?		(Silvius, Kampinga and Moori, 2017) (Project Management Institute, 2013)

Appendix 2 (Adapted from Serrador and Turner, 2015)

Question	**Responses ranges**	**Reference**
Project success: meeting timeline goals How successful was the project in meeting project time goals? What was your opinion about the scheduled time? e.g. Were the times achievable	Rate from 0 – 100%	Dvir et al (2003) Zwikael and Globerson (2006).
Project success: meeting budget goals How successful was the project in meeting project budget project goals? Do you have any recommendation for improvement?	- Under budget - Over budget	Dvir et al (2003) Zwikael and Globerson (2006).
Project success: meeting scope/requirements goals How successful was the project in meeting scope and requirements goals? Why?	Rate from 0 – 100%	Dvir et al (2003)
Project success rating: project team assessment How do you rate the project team's satisfaction with the project? Why?	5 point scale: 1. failure 2. not fully successful 3. mixed 4. successful 5. very successful	Müller and Turner (2007)
Project success rating: client assessment How do you rate the client's satisfaction with the project's results?	5 point scale: 1. failure 2. not fully successful 3. mixed 4. successful 5. very successful	Müller and Turner (2007)
Overall project success rating: How do you rate the overall success of the project?	5 point scale: 1. failure 2. not fully successful 3. mixed 4. successful 5. very successful	Shenhar, Levy and Dvir (1997)