HOW TO USE THIS TEMPLATE

An Introductory Point

This template is not designed to provide a full project Quality Management Plan (QMP). It only includes sections that will be pertinent to the assignment. If you want to see what a proper QMP looks like, you can generally find free simplified copies on the internet. Additionally, most major organisations have their own standards for these, so you would typically use theirs when you need to develop one for that company.

The project QMP would be created during the Planning Phase of the project. The intended audience is normally the Project Sponsor, Project Manager, project team, and stakeholders whose support is needed to carry out the plan.

Using this Template

Firstly, after downloading this template from the LMS, make a copy on your computer using the conventions discussed in the Assignment 2 instructions.

As discussed above, this template provides some of the standard types of information that you can expect to find in a QMP. Text that is provided in black Times New Roman font, will remain in your final version. You will need to add the information that is required to deliver the material requested for each section of the QMP. These requirements are defined using blue font text shown in square brackets (e.g. [these are the instructions for the information that you need to include]). Read these instructions carefully, before you do your drafting, as they provide important hints and guidelines.

When drafting your responses for each section, the key is clarity and the level of thought that you have put into assessing the issues. Consequently, you do not need to provide long detailed prose. Clear, well-thought-out dot-points will be better in most situations.

Once you have drafted the required content, you should remove the [blue font instructions] so your draft would then be ready to be forwarded to the Project Sponsor for final approval (as simulated by uploading this into the LMS). Additionally, you should remove the information on this page, so your response just starts with the Introduction on the following page.

In practical terms, once you have completed the draft (by taking the preceding steps) and the other required documents, these should be uploaded to the LMS, in accordance with the Assignment 2 Information instructions.

> **Apart from the changes discussed in the preceding elements on this page, you must not change this template. This reflects real-world imperatives. Companies generally want you to conform to the templates that they provide. Therefore, get used to utilising standard templates now.**

1   INTRODUCTION

1.1   Purpose of the Project Quality Management Plan

This Project Quality Management Plan (QMP) documents the necessary information required to effectively manage quality issues from project planning to delivery. This QMP, therefore, defines the EduStream project's quality policies, procedures, criteria, areas of application, and the roles, responsibilities and authorities allocated to involved stakeholders.

1.2   Objective

The objective of this QMP is to help ensure that the EduStream project is delivered in accordance with the identified specifications, so it satisfies stakeholder requirements. Additionally, it is intended that this QMP, and the associated procedures, will reduce the cost of quality, by helping to avoid costly re-works, cost non-conformity, deficiencies, unnecessary future maintenance and repair costs. In practice, this means that the quality approach defined in this QMP aims to help ensure that the project will be completed successfully, and in-line with identified success criteria detailed in the associated project documentation.

Quality management for this project shall focus on project Quality Assurance (QA) and Quality Control (QC) *(including service quality from the Service Desk)* and Document Control (DC). Project QA will, therefore, be concerned with improving our joint processes. DC will manage the documentation processes under the overarching requirements for QA. QC is focussed on what is delivered *(in line with the defined specifications and requirements)*.

2   PROJECT SCOPE

[Instructions for what to include in this section: Insert a short Project Scope statement using an approach similar to the one described within the instructions provided for Section 2 within the PMP template.   Craft this section carefully, as you should use the same content for this QMP, the Communications Plan (CP) and the Risk Management Plan (RMP). This approach is normal in the industry. You typically try to minimise your work by writing key sections well the first time and then reusing them as appropriate. However, in this context, please be aware that your team will also be marked on the Project Scope in each document that you provide. Therefore, if you do this well, you should use this in all three documents, and this means that you will get three times the benefit in terms of your marks. On the other hand, if you do the Project Scope section badly, the lower score would be reflected each time you use that content.

Remember, this should not be a long section (about one to one and a half pages of text). If you also decide to include a diagram of the technical architecture, make sure that you build this in PowerPoint and import the graphic into Word (do not just copy and paste the one provided in the unit materials). Additionally, don't forget to provide a figure number and introduce the diagram in the lead-in text (which should also refer to the figure number). Examples of this approach are given in the PMP template (e.g. look at the examples for Figure 1 and Figure 2 in the PMP).

The key to writing a Project Scope well is to give the reader a general understanding of the project, so they can then put the information within this document into context. The following structure is recommended as it will help to ensure that there is a clear flow within this section:

(1) Begin by providing an overview of the deliverables (what will be provided). Within this first paragraph also explain the ethos of for the solution. For example, think about what we want to get from the project by providing what our clients will want. Think about this in terms of the key points you developed in Section 2.1 of the Project Charter. Keep this short and focussed. One paragraph is usually enough.

(2) In the following paragraph provide an overview of that explains how the project will be delivered. This should be a short and clear description of the overall approach to delivery (e.g. implementing the pilots, phasing, etc.). Remember the key is to ensure that a novice who knows nothing about the project will understand how you intend to achieve this objective. When defining this aspect, ensure that you are also explaining how this approach will help to reduce risks. Once again, keep this to one paragraph if possible.

(3) From the third paragraph, this is where your focus changes to explain the Scope of Work. If you are going to add in an architecture diagram, this is where it would be placed. This way it gives an overview of the architecture and you will describe the elements below the graphic. If you have decided not to use a graphic, just use an introductory paragraph that leads into the more detailed scope of work as outlined in the following points.

(4) Separate the elements within the Scope of Work using Scan Point bullets as discussed during the Topic 5 Workshop. This should cover every aspect of the solution, including the client application, CDN Nodes, Colo Datacentres, Security and Customer Support. For each of these elements provide enough information so that a reader who knows nothing about the project can understand what is being provided and some of the key issues that will need to be addressed to deliver the solution effectively *(e.g. enough about the technical issues so that a reader can understand what is important).*

(5) It is generally a good idea to provide a last paragraph that lists the date for the transition from the project to the full operational environment *(e.g. the full market opening).* This ensures that your reader can understand the timing issues more effectively.

Insert your material by replacing the following text that states, 'Insert your material here'.]

Insert your material here.

3   PROJECT QUALITY OVERVIEW

3.1   Specific Roles in the Organisation

The Project Quality Management Team (QMT) will be a part of EdMedia International's (EdMI) EduStream Project Office (PO). The personnel listed in Table 1 will be responsible for implementing Quality Assurance (QA) (including DC) and Quality Control (QC) across the entire team. Contractors will be responsible for ensuring that EdMI's mandated QA and QC procedures are implemented effectively, in conformance with the requirements specified in the engagement contracts. The relationships between each of these roles are discussed in more detail within Section 3.3.

[Instructions for what to include in this section: Put some careful thought into the development of this table. Here are the key issues that you need to take into account:

(1)   Ensure that the roles listed in Table 1 map to the ones shown in Figure 1. In other words, there should be a row in this table for every role listed in your organisation diagram. This means that other roles will need to be added into this table.

(2)   Provide names of people who will be filling each role in the left-hand column of the table. Some of the names of people filling each of the roles have already been supplied in the Assignment information. Where a name has already been provided for a role, please use that (in other words, read the Assignment 1 and Assignment 2 information carefully and apply the names that have been supplied). For the Project Manager role, add the name of your assignment team's leader (your Project Manager). For the remaining roles, add in any name you wish (e.g. you can use themed names, such as members of your team, world leaders, or movie stars). It is important that there are names provided for each role. In the real world, it is critical that this type of document include a clear listing of people who will be responsible for each key QA role.

(3)   The information already provided in the 'Responsibilities' column should be expanded to best represent the actual responsibilities associated with each role in the real world. The information provided in Table 2 (below) should help you define these responsibilities. You will get higher marks if you think practically about the issues and include other responsibilities that are inferred from other material associated with ICT Project Quality Management. As an example, look carefully at Schwalbe and articles on the internet and then include these types of role/responsibility in the table as appropriate. You will obviously get higher marks if your listing of responsibilities exceeds those supplied in the assignment information. As an example, the DC team would obviously also need to be directly responsible for developing the Knowledge Base and Service Desk Management System (SDMS) decision tree information and Frequently Asked Questions (FAQ) web site, as well as managing the Knowledge Base, Wiki, SDMS/FAQ content.

The more thought and effort you put into this table, the higher your score will be.]

Table 1: EduStream Project – Project Quality Team Members

Project Quality Team Members		
Name	**Role**	**Responsibilities**
	Project Manager	Oversee the Quality Management Team's (QMT) activities and ensure that these procedures and methods reflect appropriate best practices.
	EdMI Quality Team Manager (QTM)	Responsible for coordinating the implementation of all aspects of QA and QC across the entire team.
	EdMI QC Team Leader (QCTL)	Responsible to the QTM for coordinating all QC related activities *(including system monitoring)*.
	EdMI Document Controller (DC)	Responsible to the QTM for the coordination, management and storage of the project and design documentation.

Project Quality Team Members		
Name	**Role**	**Responsibilities**
	Quality Lead StreamTech	Responsible to: • the EdMI QTM for coordinating all QA activities; • the EdMI QCTL for all QC related activities; and • the EdMI DC for the development of all documentation, in line with EdMI's requirements; associated with StreamTech's workshare.
	Quality Lead DemSet	Responsible to: • the EdMI QTM for coordinating all QA activities; • the EdMI QCTL for all QC related activities; and • the EdMI DC for the development of all documentation, in line with EdMI's requirements; associated with DemSet's workshare.
	EdMI Test Manager (TM)	Responsible to the EdMI QCTL for planning and implementing all aspects of testing across the entire joint team.
	StreamTech Test Lead	Responsible to the EdMI TM for planning and implementing all aspects of testing across StreamTech's (and their subcontractor's) developments/systems (including all aspects of Unit, Integration, System and Acceptance Testing).
	DemSet Test Lead	Responsible to the EdMI TM for planning and implementing all aspects of testing across DemSet's developments/systems (including all aspects of Unit, Integration, System and Acceptance Testing)
	DCPlus Quality Manager (QM)	The DCPlus Quality Manager is the point of liaison for coordinating QM issues related to the datacentres.
	MBSD Quality Lead (QL)	The MBSD QL will be the point of liaison and coordination for implementing the Quality systems developed by EdMI and implemented through the Service Desk.

3.2   Overview of the General Requirements

Table 2 outlines elements of the key activities required to achieve the QA (including DC) and QC roles. Please note that this table only provides an overview and is not an exhaustive listing.

Table 2: EduStream Project – Roles necessary to achieve

Quality Assurance	& Document Control	Quality Control
⬧ Review material submittals and methods statements ⬧ Verify compliance with quality criteria ⬧ Evaluate inspection records ⬧ Identify training needs ⬧ Evaluate project records ⬧ Conduct audits of project procedures	⬧ Update project records and registers ⬧ Receive and register relevant documents and upload these into the project Knowledge Base (as necessary) ⬧ Distribute documents to stakeholders (as necessary) ⬧ Develop and maintain other documentary or knowledge related materials (as necessary)	⬧ Inspect materials and equipment as a part of the procurement and test processes ⬧ Coordinate testing in accordance with the Test Plan and associated methods ⬧ Produce appropriate checklists, forms and other records to facilitate testing ⬧ Implement tests as outlined in Appendix 1.

3.3   Team Organisation and Lines of Responsibility

The relationships between the roles outlined in Table 1 are illustrated in Figure 1.   These relationships and the lines of authority/responsibility are discussed in the following paragraphs.

[Instructions for building your diagram: Build your diagram in PowerPoint and then import it into this document as a graphic. At a minimum, your graphic should include all of the roles and lines of responsibility illustrated in the diagram discussed during the Topic 6 Workshop. Please note that this diagram is not provided in the Workshop handout, so you will need to develop your own outline during the Workshop and then create the diagram for Figure 1 from those notes. To avoid missing anything, make sure every member of your team develops the draft during the Workshop and then compare your notes afterwards to help ensure that you develop the right graphic.

Please note that the diagram discussed in the Topic 6 Workshop is not exhaustive and some roles that would be implemented in the real-world have been left out. Therefore, have a think about any other roles that should be included and add these as you see fit. You will get higher marks if you develop a more detailed organisational model. However, remember that we just want to discuss those roles specifically focussed on Quality Management issues. Consequently, do not just make a diagram that contains the entire organisational structure. Base your organisational model on what was explained during the Topic 6 Workshop and expand on this as appropriate.

Lastly, make sure that the roles listed in your diagram are also outlined in Table 1, so there is a clear mapping between this section and the information provided in Section 3.1.]

Insert your Project Quality Management Team diagram here

Figure 1: The EduStream Project Quality Management Team

[Instructions for what to include in this section: Below the graphic, you need to describe the key aspects of the relationships between the various roles.   In particular, cover:

(1) *Lines of responsibility/authority.* It will help if you begin by explaining the terms authority and responsibility and then putting these into the general context of this organisational structure. Your discussion of the diagram must explain that people connected by the lines are responsible to their superiors in the organisational structure (e.g. those shown above in the diagram). Additionally, make it clear in your discussion of the issues that those shown higher in the diagram have authority over those connected to them at a lower level. The objective will be for you to outline the key relationships aligned to responsibility/authority in your discussion here (you don't have to describe all of them in detail, just outline them in a broad sense). When doing this, remember to make it clear that our contractors' responsibilities are outlined in the contracts. One final point about this.   All organisational interactions in the industry should aim to be collaborative. Therefore, when discussing aspects of responsibility/authority, ensure that you avoid defining these as authoritarian relationships – outline them as cooperative relationships in which parts of the team have clear lines of authority/responsibility, so everyone can understand their defined roles.

(2) *Escalation.* The second key aspect must cover the concept of 'escalation'. As explained during the Topic 6 Workshop, escalation is the process of elevating problems to the next higher level in the hierarchy, to get issues resolved quickly. You will need to use the Define, Explain, Apply approach to discuss this. In other words, Define what is meant by the term escalation, Explain the practical implications, and Apply this by describing at least one example within the organisational framework that you have developed.

It is expected that you will complete this section in about half to one page of text.]

Insert your material here.

4   PROJECT QUALITY MANAGEMENT

4.1   Project Quality Management Methodology

Figure 2 provides an overview of the Quality Management Methodology (QMM) that will be applied to successfully deliver the EduStream project. This methodology is explained in more detail within the following paragraphs of this section.

Insert your Project Quality Management Methodology diagram here

Figure 2: An overview of the EduStream Project Quality Management Methodology

[Instructions on what to include in this section: Develop a synopsis of about 1 to 2 pages of text (not including your graphic), which explains the key elements of your QMM.

Do this by taking the following steps:

(1)   Carefully view the videos provided at the following web sites and make notes:
        https://www.youtube.com/watch?v=cq22U4k5Ecg   (Plan Quality Management)
        https://www.youtube.com/watch?v=84fpY8b2G10   (Manage Quality)
        https://www.youtube.com/watch?v=SfoR2mLOBtk   (Control Quality)

(2)   Collaborate with your team members to jointly define a single diagram that illustrates the key points identified in these videos. This diagram will obviously need to start with Plan Quality Management. Then categorise the next parts of the model in terms of Manage Quality and finish with Control Quality. For each element, explain key inputs, tools and techniques and outputs. You will also need to include the relationship of these aspects with Quality Control and Quality Assurance. Additionally, when developing this diagram, look more broadly than the videos. For example, additional information is provided in Schwalbe and the Topic 6 handouts. You will also get a better mark if you do some more detailed research and define the model more extensively. Once you have completed your design, build it in PowerPoint and insert this as a graphic for Figure 2.

(3)   Next, below Figure 2 write up your description of the methodology. It will help if you break up the elements using sub-headings that align with each key part of the diagram you developed. Then use the *Define, Explain and Apply model* to draft each section under its subheading.   In other words, begin each of the sections for the parts of your methodology diagram by:
   a.   ***Defining*** what is meant by that section of the diagram (e.g. The first step involves conducting detailed planning for all aspects of Quality Management…).
   b.   ***Explaining*** the broad implications of what that section of the diagram means (e.g. Planning Quality Management is an essential first step because it allows our team to determine optimal approaches for managing all aspects of quality within the project…)
   c.   ***Applying*** that element of the diagram to our situation in the EduStream project (e.g. The EduStream project team will implement these processes early in the Plan Quality Management phase and will engage all involved stakeholders to define this critical element of our PM procedures…).

(4)   Obviously, I will be upset if you just copy the wording provided in the examples above. Put these into your own words.]

Insert your information here.

4.2   Associated Documents

This Quality Management methodology is intrinsic to all elements of the project. Consequently, this QMP forms a part of the overall Project Management Plan, and is closely associated with the following EduStream project documents:

a)   Project Scope Management Plan,
b)   Project Requirements Management Plan,
c)   Project Schedule Management Plan,
d)   Project Cost Management Plan,
e)   Process Improvement Plan,
f)   Project Human Resource Management Plan,
g)   Project Communication Management Plan,
h)   Project Test Plan,
i)   Project Risk Management Plan,
j)   Project Procurement Management Plan,
k)   Project Stakeholder Management Plan,
l)   Project Financial Management Plan, and
m)   Project Health and Safety Management Plan.

5   PROJECT QUALITY STANDARDS

The quality standards listed in Table 3 shall be applied for the EduStream project.

[Instructions on what to include in the following table: Use this section to build up your understanding of key standards that you will need to apply when you are working in the industry. Therefore, put a great deal of rigour into completing this. It is recommended that the entire team develop sections and then you should merge them into a single table.

Key sections of the table should cover:

- ***Project management/procedural standards.*** Begin by looking at the standards that would be applied to manage the project formally. As an initial hint - we have been talking about the most important of these throughout the semester. Next, make sure that you include the various general quality standards that will be applicable (e.g. ISO 9000 and the others discussed in the Topic 6 lecture).

- ***Product/System Standards.*** There is a wide range of system standards with which we are going to have to conform. The easy starting point for defining these is to look at the technical architecture overview information and then investigate all of the standards that will be appropriate for each system element, application and interface (e.g. standards for RTSP, TCP-IP, ODBC, etc.). This can be done through the web sites discussed during the Topic 6 Workshop and doing some additional internet research.

- ***Operating Systems.*** In parallel with your investigation of the preceding standards, make sure that you take into account the various operating systems for which we will need compatibility in the Client Software. These include:

  - PCs (Windows 7 to Windows 10);

  - Apple computers/phones/tablets going back to 2009 (e.g. builds from Snow Leopard (10.6) to Catalina (10.15), tvOS9 to tvOS12, Apple TV 3.0 (Tiger) to 7.0, iPhone OS3 to iOS 13, etc.;

  - Android 2.0-Éclair to 10.0-Q (API 29); and

  - Smart TV operating systems, which include those listed in the following web site (https://en.wikipedia.org/wiki/List_of_smart_TV_platforms_and_middleware_software).

- ***Laws and Regulations.*** Make sure that you take into account key laws and regulations. These should include the following at minimum: Broadcasting Services Act 1992 (Cth), Classification (Publications, Films and Computer Games) Act 1995, Commonwealth Classification (Publication, Films and Computer Games) Act 1995, Competition and Consumer Act 2010 (Cth), Flemington Childcare Co-operative Information and Communication Technology (ICT) Policy, Copyright Act 1968 (Cth), Copyright Amendment Act 2006 (Cth), Education and Care Services National Law Act 2010, Education and Care Services National Regulations 2011, Freedom of Information Act 1982, National Quality Standard -Quality Area 7, Leadership and Service Management - Standard 7.3, Privacy Act 1988 (Cth), Spam Act 2003 (Cth), and Trade Marks Act 1995 (Cth).

As you investigate the preceding aspects you will typically find standards/laws/regulations that are associated or collateral, and these should be considered/included appropriately as well. Therefore, follow the threads that you expose by looking at each particular

standard/law/regulation, so you can come up with a listing that will help you in your later studies and your work in the industry.

As each team member does their investigation, they need to include the appropriate information in the columns of Table 3. Insert the information as follows:

- ***Standards to be Applied.*** In the left-hand column insert the standards/laws/regulations that are applicable. When entering these, ensure that:

    - you include the standard number where one is available and the title of the standard (as discussed in the Topic 6 Workshop), or

    - the entire title for laws and other general standards that do not have a standard number; and

    - a web address for the site that contains the information on that standard.

- ***Equipment/Systems/Methods/etc. to which the Standards are applicable.***   In the right-hand column list every key element of the systems or processes to which that standard/law/regulation would be applicable.   Keep these short, but make sure that it is clear from your description where that particular standard would be applicable (e.g. the Privacy Act would be applicable to the Client Database, including all personal information collected and managed).   Alternately, where the standard is broadly applicable you can make a more general statement (e.g. for the ISO9001 standard, you would state something like: 'All appropriate Quality Management processes applied within this project').

It is recommended that you start working on this as a team during Topic Week 6, and finalise this after a few weeks, by merging all of the information that has been identified. When doing this merge, make sure that you don't double up entries, and rationalise the content so you create a single coherent listing.]

Table 3: EduStream Project – Project Quality Standards

PROJECT QUALITY STANDARDS	
STANDARDS/LAWS/REGULATIONS TO BE APPLIED	**EQUIPMENT/SYSTEMS/METHODS/ETC. TO WHICH THE STANDARDS/LAWS/REGULATIONS ARE APPLICABLE**

6   PROJECT TESTING

6.1   Introduction to Project Testing

The detailed project testing approaches, strategies, and techniques are explained in the associated Test Plans. However, the general principles that are applicable to this project include the information provided in the following subsections. The table in Appendix 1 also maps how key functional and non-functional tests will be implemented during the project.

[Instructions on what to include in this section: This section should develop the material defined by the following points (including the development of the table in Appendix 1). It is recommended that you build the table in Appendix 1 at the same time as you complete the first two steps.

(1)   *Functional Testing.* This material should be completed in Section 6.1.1. Begin this section by defining what we mean by functional testing. Then define each of the different types of functional tests outlined in the Topic 6 lecture (e.g. unit, integration, system, and acceptance). When doing this, use the Define, Explain and Apply model. For example, you would define what we mean by unit testing, then explain what it is designed to achieve, and finally, you would apply this to the EduStream situation, by giving at least one example to describe where unit tests would be conducted in the project. You will note that this listing aligns to the horizontal sections within the table in Appendix 1.

(2)   *Non-Functional Testing.* This material should be provided in Section 6.1.2. Start this part by explaining what is meant by non-functional tests. Next, make sure that you point out that for each of the functional tests described in the preceding section there is also a range of non-functional tests applicable. In the following paragraph of Section 6.1.2, explain that there is a range of different types of non-functional tests, which include the ones that are described in the associated bullet points. The ones that you will cover in this section should align with those in the columns within the table in Appendix 1. Once again, outline each of these using the Define, Explain and Apply framework.

(3)   *Appendix 1.* In parallel with the preceding activities, fill in the table at Appendix 1. Do this by indicating when the different types of testing would be applied. This will be achieved by inserting an appropriate symbol, as specified below the table in Appendix 1.

Short Scan Bullet Point (SBP) descriptions will suffice for the descriptions of the various functional and non-functional tests. To demonstrate the concept of the SBPs, some have already been provided in Sections 6.1.1. Obviously, you will need to replace the associated text by adding the required material in the Define, Explain, Apply structure. You will need to replicate this approach in Section 6.1.2. To assist in the creation of new bullets of this type, you can use the List Bullet Style and you can create sub-bullets using the List Bullet 2 Style (Note: all of the key styles that you will need are provided in the Styles section shown in the ribbon).

When completing these SBPs, ensure that there is enough information included to allow a novice (someone who does not have any knowledge about ICT testing) to understand the principles. Feel free to develop diagrams as appropriate. It is expected that you should be able to complete Sections 6.1.1 and 6.1.2 in about one and a half to three pages of text. The more detailed and understandable your response (within reason – i.e. don't waffle) the higher your mark will be.]

6.1.1   Functional Testing

Insert your answers here for the lead-in material mandated above. Make sure that you also introduce the SBPs with a statement such as 'The following are the key functional tests that will be applied within the EduStream project:'.

- ***Unit Testing.***   Replace this text, by inserting your description using the Define, Explain, Apply approach (which is explained above).

- ***Integration Testing.***   Replace this text, by inserting your description using the Define, Explain, Apply approach (which is explained above).

- ***System Testing.***   Replace this text, by inserting your description using the Define, Explain, Apply approach (which is explained above).

- ***Acceptance Testing.***   Replace this text, by inserting your description using the Define, Explain, Apply approach (which is explained above).

6.1.2   Non-Functional Testing

6.2   Practical Implementation

6.2.1   Overview of the Testing Regime for the Client Software

As an example, of the practical implementation of this approach, this section provides an outline of the testing regime that will be applied for the development of the Client Software (Workstream 2).

[Instructions on what to include in this section: In this section, you need to include a practical overview of the steps that you will apply within the preceding testing regime to conduct the testing of the Client Software. This does not need to be too long (typically no more than one to two pages of text). Make the discussion of the issues as practical as possible.   For instance, you should include aspects such as these:

- ***Unit Testing.*** The client software is being developed by StreamTech, who are located in Sydney. They will, therefore, be responsible for coordinating practical aspects of the testing. However, EdMI in Perth is managing all of the testing and will also need to be able to monitor the development and testing directly (without having to fly over to Sydney all the time, as this would add a lot of costs to the project). Therefore, you would need to consider a range of issues that will include:

    - ***Hardware.*** StreamTech/EdMI are going to need hardware for their development environment and test environments.
        - This means that specification/design will need to be conducted early, so the specific requirements can be determined.
        - The equipment would then need to be ordered, but you would need to think about how much equipment is needed and to which sites it needs to be delivered. Is it just Sydney? Additionally, do we need hardware for every one of the operating systems listed in the Section 5 blue text? Alternately, can we use techniques such as the application of emulations or partitions, to help minimise costs? This is an important question to consider early.
        - Our test teams would then need to conduct unit testing once the equipment is delivered to site.   These tests must be defined in line with the

specification/design work that was implemented. In addition to the standard functional testing, which non-functional tests will be required? This is where the preceding section within the QMP will help, so you can describe specific types of testing that would be written into the test plans.

- **Software.** For this assignment, you can assume that StreamTech will be doing all of their client software development at their Sydney site, which will simplify unit testing of the software to a great extent. However, they would still need to set up (if they don't already have it) an Integrated Development Environment (IDE) and a series of standardised methods for controlling code management/unit testing (e.g. checking-in/out software blocks, so the code base is coordinated to avoid untested software moving on to integration testing – remember this has to take into account reworks of code blocks when problems are identified in testing).

- **Integration Testing.** Integration testing will need to be conducted for the software elements as they are combined in the IDE and also loaded onto the hardware platforms. You would also need to think about the fact that integration testing will not just be needed for the client software on its own. For example, here are some other key considerations:

  - If the client software is going to be thin-client deployed, then StreamTech will need to work closely with DemSet's Web Team (who are located in Melbourne). Therefore, integration testing would have to be coordinated across both organisations.
  - For fat-client systems, the client software would need to be tested for integration compatibility with the Web Front end, OCA/Streaming Server, and Games Server. Therefore, StreamTech and DemSet would need to work closely together on these aspects as well.
  - If we are using a secure software token to control access, then this aspect of the client software would need to be checked for operations with the Web Front End and Client Database.
  - Security would also need to be tested throughout these initial integration tests, to ensure that different hacking techniques cannot be used to gain unauthorised access.
  - Bandwidth issues related to the network connectivity will play a role in some aspects of integration. For instance, you would need to think about doing relatively early integration tests that take into account poor connections between the client and the CDN node systems. Many of these issues should be handled by TCP-IP, but you could also end up with latency/Quality of Service (QoS) problems that would need to be tested early, so this would influence design and implementation.
  - Once again, you would have to consider the functional and non-functional tests that will need to be implemented for different types of integration testing.

- **System Testing.** As discussed during the Topic 6 and Topic 7 Workshops, the diverse locations for our team will present challenges for conducting effective system testing. For example, all of the elements will need to be tested through Wide Area Network (WAN) connectivity. However, you would need to ensure that we take into account issues related to low-bandwidth connectivity. Within this testing, you would also need to think carefully about which functional and non-functional tests will be necessary/ important/included in the Test Plan. Additionally, you need to consider how the tests would be managed across sites. Also, please note that you would need to include tests for load sharing (e.g. the client will transparently point to another CDN node if there is too much load on that site and the session will be transferred). When assessing this

aspect, consider when you would do this (e.g. from the Perth node, or once more than one CDN node is available). This will have important implications for the equipment you need to buy. If you do this with just the Perth node in place you would need to ensure that a full CDN configuration is also available in the Test Environment to provide a second node for this type of testing. You could get around this by procuring the hardware for the second node early and establishing two parallel test environments, but you would need to think about this in the cost model (please note that you will not need to develop a cost model – just talk about the implications).

- *Acceptance Testing.* This testing will be conducted in the operational environment (e.g. the CDN nodes in DCPlus datacentres and client software utilised in a wide range of schools and remote communities). Obviously, you would need to define all of the various tests that will need to be conducted within a Test Plan. This would typically be similar to the one developed for system testing, but additional tests will be required to assess a wide range of different demand types by the users. For instance, extensive load testing scenarios will be required, and usability testing will need to consider various ethnic/ cultural variations. The setup for these acceptance tests will also be somewhat different. As an example, you will need to get buy-in from stakeholders through site visits prior to the sessions, and you would have to ensure that assistance can be provided to help them conduct the tests (therefore prior education and support throughout the process will be necessary for the users involved in the testing). Additionally, you would need to drive the testing around the client/tester work cycles. This can have a very significant impact on the way you would coordinate/manage the tests. As an example, when will the users have the time to do the tests (think about aspects such as school holidays), when can they train their students in the use of EduStream, and how will they manage this in relation to site-specific differences (e.g. availability of hardware, bandwidth, etc.).

Please note that the preceding listing does not include all of the factors that you would take into account. Additionally, it would be upsetting to just see the same information included in your team's QMP response. What is expected is that you will think about these issues and provide a relatively short and focussed description of the approach that would be taken (in your own words). Just as importantly, when considering these issues, think about:

- who will conduct the testing at each stage;

- when will the testing be carried out (think carefully about some of the preceding issues);

- where will the testing be conducted; and

- how will the testing be managed and coordinated (Hint: think about Test Plans and the responsibilities/authorities you described in Section 3 of the QMP and the locations of the test sites.)

Please note that there is no need to develop specific Test Plans or budgets. All that is required is that you provide a clear synopsis that demonstrates that you have considered some of the key practical issues and you are able to explain them clearly and succinctly.]

Insert your answers here

	Availability	Compatibility	Compliance	Configuration	Interoperability	Recoverability	Security	Performance	Regression	Usability
Unit										
Hardware			✓	?		?	?	✓	?	?
Software (Including interfaces)										
Network/Connectivity										
Integration										
Hardware										
Software (Including interfaces)										
Network/Connectivity										
System										
Hardware										
Software (Including interfaces)										
Network/Connectivity										
Acceptance										
Hardware										
Software (Including interfaces)										
Network/Connectivity										

The symbols in the cells of this table mean the following:

✓ or Yes = This type of test would normally be applied for this element of the testing regime

? = This type of test may be applied to this element of the testing (but it will be situation-dependent)

Blank = This type of testing is typically **not** done for this type of functional testing.