

Plug IT In 5

Project management



PLUG IT IN OUTLINE

- PI5.1** Project management for information systems projects
- PI5.2** The project management process
- PI5.3** The project management body of knowledge

LEARNING OBJECTIVES

- 1** Explain the relationship between the triple constraints on projects.
- 2** Describe the five phases of the project management process.
- 3** Review how each of the nine processes of the Project Management Body of Knowledge is necessary in order to ensure smooth project deployment.

PI5.1 Project management for information systems projects

A **project** is a short-term effort to create a specific business-related outcome. These outcomes may take the form of products or services. In the context of information systems (IS), many of the resource investments made by organisations are in the form of projects.

Almost every organisation that utilises information technology to support business processes engages in some form of IS project management. **IS project management** is a directed effort to plan, organise and manage resources to bring about the successful achievement of specific IS goals. All projects, whether they are IS projects or not, are constrained by the same three factors, known as the **triple constraints of project management**: time, cost and scope (see figure PI5.1). *Time* refers to the window of opportunity in which a project must be completed to provide a benefit to the organisation. *Cost* is the actual amount of resources, including cash and labour, that an organisation can commit to completing a project. *Scope* refers to the processes that ensure that the project includes all the work required — and only the work required — to complete the project successfully. For an IS project to be successful, the organisation must allow an adequate amount of time, provide an appropriate amount of resources, and carefully define what is and is not included in the project.

The triple constraints are related and involve trade-offs. For example, scope can often be increased by using additional time and incurring increased costs. Cost and/or time can often be saved by reducing scope. For a given scope, time can sometimes be saved by increasing cost.

FIGURE PI5.1 The triple constraints of project management are time, cost and scope.



BEFORE YOU GO ON ...

- 1 What is a project?
- 2 What is the triple constraint of any project?

EXAMPLE

In today's turbulent economic times, some managers are having difficulty justifying spending money on IT projects when resources are so scarce. Staying innovative by providing the latest technology services for the community is

a trade-off between short-term savings and long-term benefits. This was the challenge that the Western Australian government faced when providing location information services (LIS) for the community.

Western Australian LIS (WALIS) was implemented in 2005 and was accessed by 4000 registered users with a 'wide range of business use in the public and private sector'.¹ However, as technologies such as the Google Map Engine advanced, there was greater potential for the system's use by a wider range of community members. As such, among other enhancements, WALIS upgraded the Shared Location Information Platform (SLIP) from their classic model to SLIP Future (also known as 'new SLIP').² The enhancements made included presentation upgrades such as embeddable maps for organisations' websites, supported 3D viewing and a single point for access and searches; capacity and performance upgrades such as a 24/7 system availability of a projected 99.5 per cent; and monitoring and reporting upgrades including a custodian reporting dashboard.³ It was the 'access control and administration' of the data that would be most improved, including the ability to upload CSV files and custodian controls for managing access to sensitive information.⁴

Projects such as these often have projects within projects. For instance the SLIP Future project included five projects, some running concurrently while others were juxtaposed. By encapsulating specific areas of 'build', 'explore', 'migrate', 'decommission' and 'enhance', the project management team was able to manage the project triple constraints more effectively, enabling some projects to continue where others may have had scope creep.⁵ It is important to note that although these 'updated' systems began development in 2012, the legacy system was maintained until all testing and data migration was completed in mid 2014. The decommissioning of SLIP Classic began in mid 2014 with scheduled completion in early 2015.

An integral part of the success of the project was the close working relationship that the WALIS team had with Google developers. This included providing information for users at early stages of the project so that they could prepare their data in CSV format.⁶ This meant that data collected and stored in spreadsheets could easily be converted to CSV file with the correct notations saving organisations time and money in data conversion costs as well as reducing the complexity and turnaround times previously experienced. Each organisation or individual is the custodian of their own information and has the ability to monitor their customers' access to that information, making updates available in real time.



The skyline of Western Australia's capital, Perth.

QUESTIONS

- 1 When considering the project triple constraints, which project (build, explore, migrate, decommission and enhance) would have the most significant impact on the project completion date if there was scope creep?
- 2 Considering the project triple constraints, what contingencies should be put in place to manage scope creep for each project?

PI5.2 The project management process

The traditional approach to project management divides every project into five distinct phases: initiation, planning, execution, monitoring and control, and completion (see figure PI5.2). These phases are sequential, and we will discuss them in order.

Project initiation

The first phase in the management of a process is to clearly define the problem that the project is intended to solve and the goals that it is to achieve. In this phase, it is also necessary to identify and secure the resources necessary for the project, analyse the costs and benefits of the project, and identify potential risks.

In an IS project, a user's business problem or need typically initiates a project that can solve the problem and meet the need. The user must clearly define the problem so that the IS team can understand it. The user must also define the benefits he or she expects to gain from successful completion of the IS project.

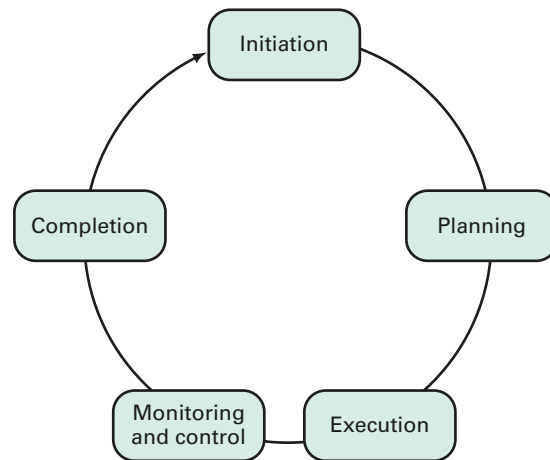


FIGURE PI5.2 The project management process.

Project planning

As the term *planning* suggests, in this phase, every project objective and every activity associated with that objective must be identified and sequenced. This phase is critically important to avoid scope creep once the project gets underway (see figure PI5.3). **Scope creep** refers to uncontrolled changes in a project's scope. This phenomenon can occur when the scope of a project is not properly defined, documented or controlled. It is generally considered a negative occurrence that is to be avoided.

In an IS project, users often contribute to scope creep when they ask for additional features or functionality after the project is underway. This situation often leads to the project being overtime and over budget.

Many tools assist developers in sequencing these activities, including dependence diagrams, such as the program evaluation and review technique (PERT), the critical path method (CPM) and a timeline diagram called the Gantt chart. Project managers use these tools to ensure that activities are performed in a logical sequence. As the project progresses, project managers also employ these tools to evaluate whether the project is on schedule and, if not, where the delays are occurring and what the managers must do to correct them.

Project execution

In this phase, the work defined in the project management plan is performed to accomplish the project's requirements. Execution coordinates people and resources, and it integrates and performs project activities in accordance with the plan.

Users may be involved in project execution. For example, in an IS project, users often evaluate prototypes so that they can provide meaningful feedback to the IS team.



FIGURE P15.3 Adequate planning is one of the most effective methods of safeguarding against scope creep.

Project monitoring and control

The purpose of monitoring and control is to determine whether the project is progressing as planned. This phase consists of three steps:

- 1 monitoring ongoing project activities (where we are)
- 2 comparing project variables (cost, effort, time, resources, etc.) with the actual plan (where we should be)
- 3 identifying corrective actions (how do we get on track again).

Project completion

The project is completed when it is formally accepted by the organisation. All activities are finalised and all contracts are fulfilled and settled. In addition, all files are archived and all lessons learned are documented.

Project management failure

Many times IT projects fail to achieve their desired results. In fact, analysts have found that only 29 per cent of all IS projects are completed on time, within budget, and with all the features and functions originally specified. Further, between 30 and 40 per cent of all IS software development projects are *runaway projects*, meaning they are so far over budget and past deadline that they must be abandoned, typically with large monetary loss. IS projects do not deliver their potential value for a number of reasons, including these:

- lack of sufficient planning at the start of a project
- difficulties with technology compatibility (that is, new technology may not work with existing technology)
- lack of commitment by management to providing the necessary resources
- poorly defined project scope
- lack of sufficient time to complete the project.

BEFORE YOU GO ON ...

- 1 What are the five phases of the project management process?
- 2 What are the major causes of project failure?

P15.3 The Project Management Body of Knowledge

The **Project Management Body of Knowledge (PMBOK)** is a collection of processes and knowledge areas generally accepted as best practice within the project management discipline. As an internationally recognised standard, it provides the fundamentals

of project management, regardless of the type of project (e.g. construction, software, engineering, automotive, etc.). The purpose of the PMBOK is to provide and promote a common vocabulary within the project management profession for discussing, writing and applying project management concepts.

The PMBOK recognises five basic process groups and nine knowledge areas typical of almost all projects. You learned about the five basic process groups in the previous section. They were:

- initiation
- planning
- execution
- monitoring and control
- completion.

Processes overlap and interact throughout a project. Processes are described in terms of inputs (documents, plans, designs), tools and techniques, and outputs (documents, products).

The nine knowledge areas of the PMBOK are following.

- 1 *Project Integration Management.* Project integration management includes those processes required to ensure that all the project's components are properly coordinated. The project plan development processes, project plan execution processes and integrated change control processes are all included in this area of knowledge. Each process has expected inputs and outputs and plus the appropriate tools and techniques to support the change of inputs to outputs.
- 2 *Project Scope Management.* Project scope management defines the processes that limit and control the work included in a project. Scope creep is a serious problem that often causes projects to go over time and over budget. These processes ensure that all the work of the project is included and properly accounted for (see figure 5.3).



The construction industry is often associated with the project management discipline, but skills in project management can be applied to projects across a multitude of industries.

- 3 *Project Time Management.* Proper sequencing is vital to timely project completion. When the amount of time needed is established, it takes excellent scheduling skills and tools to manage the activities to complete project milestones and the project itself within the allotted time. Different tools are available to assist with this process, such as Gantt charts, milestone charts and network charts. Each tool helps managers see the big picture and stay in control of the project's progression.
- 4 *Project Cost Management.* Resource planning and cost estimation are equally vital to time management. These two processes cannot exist independently of each other. Resource cost management is difficult to estimate and even more difficult to manage

when unforeseen events take place. Early in a project, managers may project a budget range and then fine-tune it as the project progresses.

- 5 *Project Quality Management.* Every project needs a set of processes ensuring that project outcomes meet the needs for which the project was executed. Quality planning, assurance and control are included in this area. There are many quality management models to consider, such as the Deming Prize, TQM and Six Sigma. These all aim to help organisations produce quality products the first time they try. There are also many paradigms applicable to this area of knowledge, such as ‘Zero Defects’ and ‘DTRTRTFT’ (do the right thing right the first time). These paradigms are meant to inspire organisations to operate at higher quality levels.
- 6 *Project Human Resource Management.* People can be the major headache or the major asset of any project. People with differing skill sets are required at various times during a project and their individual skills have to be used effectively for the project to succeed. This area of knowledge includes concepts such as staffing decisions; team management; and organisational culture, style and structure.
- 7 *Project Communications Management.* A vast amount of communication is necessary in successful projects. Information must be collected, disseminated, stored and destroyed at the appropriate time. This area of knowledge contains the processes to perform these functions. Often, organisations investigate personality styles to determine their most effective communicators. Choosing the right person to be a leader can make all the difference in the success of a project.
- 8 *Project Risk Management.* All projects face risk. With organisational success, jobs, careers and livelihoods on the line, it is a good idea to minimise the risk of projects as much as is feasible. Therefore, risk management must be an integral part of any project because things do not always happen as planned. The risk management process includes identification of risks, quantitative and qualitative analysis, risk response planning and risk monitoring.
- 9 *Project Procurement Management.* No matter how good the idea behind a project, without funding it will never be more than a good idea. The accumulated knowledge related to project procurement management encompasses processes of solicitation, selection, contractual agreements and closeout processes.

BEFORE YOU GO ON ...

- 1 What is the Project Management Body of Knowledge and why is it important to organisations?
- 2 What part of the PMBOK do you think is most important? Can a project succeed without all the parts?

WHAT'S IN IT FOR ME?



FOR ALL BUSINESS DEGREES

Regardless of the functional area in organisations, each of you will be on project teams beginning very early in your careers. These projects will be critical to your organisation's success. Therefore, it is critical that all majors understand the project management process so that you can make immediate contributions to your project teams.



SUMMARY

1 Explain the relationship between the triple constraints on projects.

Projects are short-term efforts to create a specific business-related outcome. *IS project management* is a directed effort to plan, organise and manage resources to bring about the successful achievement of specific IS goals. All projects, whether they are IS projects or not, are constrained by the same three factors, known as the *triple constraints of project*

management: time, cost and scope. *Time* refers to the window of opportunity in which a project must be completed to provide a benefit to the organisation. *Cost* is the actual amount of resources, including cash and labour, that an organisation can commit to completing a project. *Scope* refers to the processes that ensure that the project includes all the work required — and only the work required — to complete the project successfully.

2 Describe the five phases of the project management process.

Project initiation clearly defines the problem that the project is intended to solve and the goals that it is to achieve. In *project planning*, every project objective and every activity associated with that objective must be identified and sequenced. In the *project execution* phase, the work defined in the project management plan is performed to accomplish the project's requirements. The purpose of the *monitoring and control phase* is to determine whether the progress is progressing as planned. The *project completion* phase is when the project is formally accepted by the organisation.

3 Review how each of the nine processes of the Project Management Body of Knowledge is necessary in order to ensure smooth project deployment.

IS projects do not deliver their potential value for a number of reasons, including lack of sufficient planning at the start of a project; difficulties with technology compatibility (that is, new technology may not work with existing technology); lack of commitment by management in providing the necessary resources; poorly defined project scope; and lack of sufficient time to complete the project.

>>> GLOSSARY

IS project management A directed effort to plan, organise and manage resources to bring about the successful achievement of specific IS goals.

Project Management Body of Knowledge (PMBOK)

A collection of processes and knowledge areas generally accepted as best practice within the project management discipline.

project Short-term effort to create a specific business-related outcome.

scope creep Uncontrolled changes in a project's scope.

triple constraints of project management Time, cost and scope.

>>> DISCUSSION QUESTIONS

1 You manage the department that will use a system being developed on a large project. After carefully reviewing the requirements definition document, you are positive that there are missing, ambiguous, inaccurate and unclear requirements. The project manager is pressuring you for your sign-off because he has already received sign-offs from all of your co-workers. If you fail to sign off on the requirements, you are going to put the entire project at risk because the timeframe is not negotiable. What should you do? Why? Support your answer.

2 You have been hired as a consultant to build an employee payroll system for a start-up restaurant. Before you even have a chance to interview them, the two owners decided to independently come up with a list of their business requirements. When you combine their two lists, you have the following list.

- All employees must have a unique employee ID.
- The system must track employee hours worked based on employees' last names.

- Employees must be scheduled to work a minimum of 8 hours per day.
- Employee payroll is calculated by multiplying the employees' hours worked by \$7.25.
- Managers must be scheduled to work morning shifts.
- Employees cannot be scheduled to work more than 8 hours per day.
- Servers cannot be scheduled to work morning, afternoon or evening shifts.
- The system must allow managers to change and delete employees from the system.
 - a** Highlight potential issues with the list.
 - b** Add requirements that you think should be there but are not.
 - c** What do you tell the owners when you derive your new list?

>>> PROBLEM-SOLVING ACTIVITIES

1 Apply each of the five project management processes of the PMBOK to the following massive project. Then, discuss each process with regard to that project.

Finally, use a search engine to find out where the project stands now. Would this be considered a runaway project? Why or why not?

SIRIUS business

Some organisations have developed very successful project management methodologies over time through the lessons learnt from unsuccessful project management experiences. One example is the Australian Defence Materiel Organisation's Project SEA 1654, which was instrumental in the rapid transformation of a commercial product tanker into a naval auxiliary ship, the *HMAS Sirius*. Defence projects are often hampered by excessive costs when potential contractors realise they are dealing with a government or defence project. This cost escalation can put large and already costly projects into significant scope creep, so project managers and teams need to use innovative approaches to achieving the desired goal of having their projects come in under budget and within time.

Risk management is an integral stage of Defence projects. It is crucial that the project team possesses the ability to analyse the project effectively and identify the early risks of failure. Risk analysis is conducted early in the project in conjunction with the triple constraints of project management: time, cost and scope, as these are the mostly likely causes of project failure. Prior to March 2004, Defence projects were not provided with sufficient funding to complete in-depth risk analysis, which resulted in the failure of several projects. Therefore, the success of SEA 1654 hinged on an extensive risk analysis before the project could be undertaken. While this process did not prevent all potential errors, the project managers needed to ensure they had thoroughly analysed the risks and were able to assure the client that the project would be completed within time and budget.

Scope creep impacts all projects, which was no exception in the case of SEA 1654. Between September and November 2003 the project deliverable date had been brought forward three years, requiring innovative

approaches to achieving the deliverable within the shorter timeframe while also being on time and within budget. In order to manage this scope creep, the project SEA 1654 team — rather than using the defence and government acquisition processes — used commercial approaches with their contractors. This was achieved by offering the refit and modification contractor financial incentives for completing work ahead of schedule, saving significant time costs for both the project team and the contractor. This was one of the many reasons that the project came in under budget and within the 'reduced' project scope.

Source: K Gillis (2008), Getting SIRIUS: a Project Manager's story, Australian Government, Department of Defence, March, www.defence.gov.au.

What do the projects from this 'Plug IT In' have in common? Project management is the culmination of all you have learned in management information systems. Project management tests the best chief information officers' skills to manage, monitor and adapt systems to provide the correct information, resources and funds at the correct time to the correct place. Getting SIRIUS is provided as an example not only of a successful project delivered under extreme pressure, but also as an example for those potential project managers to understand that management information systems, and project management in particular, have an impact on every aspect of the project manager's role. Managing information systems using all of the project management skills and the PMBOK provided here, when applied, will give you the tools to be successful project managers no matter how big or small the organisation you work for and no matter what industry type that organisation falls within.

>>> ENDNOTES

- 1 'SLIP Future Project Redevelopment Overview' (2013), WALIS website, www.walis.wa.gov.au.
- 2 'Shared Location Information Platform — Classic and Future', WALIS website, www.walis.wa.gov.au
- 3 'SLIP Comparison: Understanding the future of new SLIP', WALIS website, www.walis.wa.gov.au.
- 4 *ibid.*
- 5 'Delivery timeframe for SLIP Future Project', WALIS website, www.walis.wa.gov.au.
- 6 'New SLIP — technical update', WALIS website, www.walis.wa.gov.au.