

**APPLYING PRINCE2 PROJECT MANAGEMENT DISCIPLINES  
TO ADDRESS KEY RISKS  
IN ERP SYSTEM IMPLEMENTATION PROJECTS**

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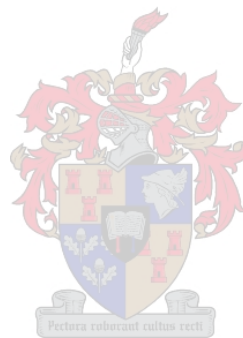
**March 2007**

## DECLARATION

I, the undersigned, hereby declare that the work contained in this assignment to be my own original work and that I have not previously, in its entirety or in part, submitted it at any other university for a degree.

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March 2007



## ABSTRACT

The successful implementation of an Enterprise Resource Planning (ERP) System can help an organisation to redefine its business processes and enhance its competitive advantage. An ERP System Implementation is a transformation project, which changes the way an organisation thinks and acts about its business. An ERP System implementation is also a complex endeavour, and as such, it requires rigorous risk management. The understanding and management of risks relevant to ERP System Implementation Projects are critical in order to ensure that the project delivers on its objectives within the specified budget and timelines, and eventually realises the envisaged business benefits.

The purpose of this study is to discuss how key risks relevant to ERP System Implementation Projects could be addressed by applying project management disciplines derived from the PRINCE2 (**PR**ojects **IN** **C**ontrolled **E**nvironment) project management methodology. This methodology was developed by the Office of Government Commerce in the United Kingdom. This study also provides a framework that could be applied at the outset and during an ERP System Implementation Project by business management, to understand the risks (“what could go wrong?”) and project management disciplines that should be applied to address these risks (“what must go right?”).

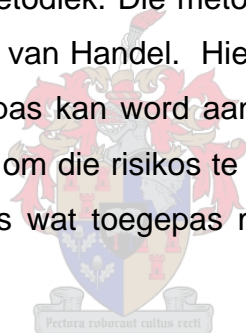
This framework was derived by:

- Identifying key risks relevant to ERP System Implementation Projects;
- Mapping these key risks onto SAP Implementation phases to highlight where these risks could materialise in the SAP Implementation process;
- Then mapping these key risks across PRINCE2 project management processes and SAP Implementation phases by creating the SAP Implementation Key Risks Map; and finally
- Providing a detailed description of how to apply PRINCE2 project management disciplines to address each risk in the SAP Implementation Key Risks Map.

## OPSOMMING

Die suksesvolle implementasie van die ERP stelsel kan n organisasie help om sy bedryfs prosesse te verfyn en sodoende sy kompeterende voordeel te verbeter. ERP stelsel implementasie is 'n transformerende projek, dit verander die manier hoe n organisasie dink en optree in sy bedryf. ERP stelsel implementasie is ook 'n komplekse onderneming, en as sulks vereis dit deeglike risiko bestuur. Die bestuur en begrip van risikos verwant tot 'n ERP stelsel implementasie projek is krities om te verseker dat die projek se doelwitte binne die gespesifiseerde tyd en, begroting gelewer word.

Die doel van die studie is om te bespreek hoe die sleutel risikos relevant tot ERP stelsel implementasie projekte geadresseer kan word deur die toepassing van projekbestuur beginsels gebaseer op die PRINCE2 (Projects IN Controlled Environment) projekbestuur metodiek. Die metodiek is ontwikkel deur die Verenigde Koningryk regering se Kantoor van Handel. Hierdie studie gee ook 'n raamwerk wat deur besigheidsbestuur toegepas kan word aan die begin, en ook gedurende ERP stelsel implementasie projekte om die risikos te verstaan ("wat kan verkeerd gaan?") en die projekbestuur beginsels wat toegepas moet word om die risikos te beheer ("wat moet reg wees?").



Die raamwerk is afgelei van:

- Die identifisering van die sleutel risikos verbonde aan ERP stelsel implementasie projekte;
- Die afmerk van die sleutel risikos op SAP implementasie fases om uit te wys waar die risikos kan voorkom in die SAP implementasie proses;
- Die afmerk van die sleutel risikos teenoor die PRINCE2 projekbestuur prosesse en SAP implementasie fases met die gebruik van 'n SAP implementasie sleutel risikos kaart, en ten laastens;
- Detail beskrywing van die gebruik van PRINCE2 projekbestuur dissiplines om elke risiko in die kaart te adresseer.

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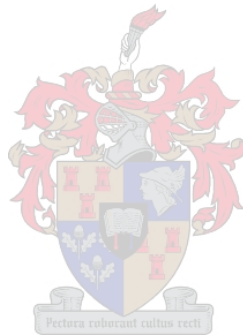
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## CHAPTER 1

### INTRODUCTION

#### 1.1. BACKGROUND AND STATEMENT OF PROBLEM

ERP System Implementation Project failures are all too common – some make the headlines, but the vast majority are quickly forgotten. ERP systems are well documented in the Information Systems literature as being difficult to implement within budget, within anticipated timelines and with the functionality, which meets the needs of the end users. This could be illustrated by the research of Standish Group International (1999), which is based on feedback from 117 companies involved in ERP system implementation and it provides the following indicators of the difficulties experienced by organisations in implementing these systems:

- One of four ERP system implementation projects is over budget;
- Approximately 20% of ERP system implementation projects are terminated before implementation is completed;
- 40% of respondents confirm that their ERP system implementation project failed to achieve business benefits, as it took six months to one year longer than expected to achieve the required Return on Investment (ROI).

According to Pang (2001), the following are some examples of ERP system implementation failures:

- **Hershey Foods** – A 19% drop in earnings was caused by an incompetent ERP implementation that wreaked distribution havoc during one of its most profitable seasons in the US, Halloween.
- **FoxMeyer Drugs** – This pharmaceutical distribution company was forced to declare bankruptcy after an unsuccessful ERP implementation.
- **Whirlpool** – ERP implementation crippled its shipping system, leaving appliances stacked on loading docks and not delivered to paying customers for a full eight weeks.
- **Volkswagen** – Significant delays in parts shipments caused product inventories to build up to costly levels.



The reasons for failures are many and varied, however.

PRINCE2 is a project management methodology developed by the UK Office of Government Commerce. PRINCE2 applies three key elements to each project: **Processes**, which drive the project management, **Components** and **Techniques**, which are used by each of the processes to effect the management of the project. PRINCE2 was developed and launched in 1996 in response to user requirements for improved guidance on project management of all projects, not just information systems. PRINCE2 is based on the experiences of scores of projects, project managers and project teams, who have contributed, some from their mistakes or omissions, others from their successes.

According to PRINCE2 (**PR**ojects **IN** **C**ontrolled **E**nvironment) project management methodology, some common causes are as follows:

- Insufficient attention to checking that a valid business case exists for the project;
- Insufficient attention to quality at the outset and during ERP implementation;
- Insufficient definition of the required outcomes, leading to confusion over what the project is expected to achieve;
- Lack of understanding of the complexity of the ERP system and the implementation thereof;
- Lack of communication with stakeholders and interested parties, leading to the delivery of system functionality that only partially meets business requirements;
- Poor estimation of duration and costs, leading to projects taking more time and costing more money than expected;
- Lack of executive commitment;
- Business rules and requirements are not clear;
- Unclear definition of roles, responsibilities and ownership;
- Inadequate planning and coordination of resources, leading to poor scheduling; and

- The existing business processes do not change to fit the integrated ERP solution. (Office of Government Commerce, 2002: 1)

While this is by no means a complete list, it indicates that the root causes of failure may be different, may emerge at different times in the project lifecycle and, at times, may be hard to detect other than through monitoring delays and cost overruns. The road from the initial idea to the actual realisation of benefits from investments in the implementation of the ERP solution is clearly a rocky one. According to Standish Group International (1999), corporate companies in the USA alone spend more than \$275 billion each year on approximately 200,000 application software development projects. Many of these projects fail, but not for lack of money or technology; most will fail because of the lack of project governance and skilled project management.

## **1.2. PURPOSE OF STUDY**

The purpose of the study is to discuss how key risks relevant to ERP System Implementation Projects could be addressed by applying PRINCE2 project management disciplines.

The study provides a framework that could be applied at the outset and during ERP System Implementation Project by business management to understand the risks (“what could go wrong?”) and project management disciplines that should be applied to address these risks (“what must go right?”).

## **1.3. METHODOLOGY**

In Chapter 2, the author gives an overview of the ERP system’s characteristics and system implementation process, as well as lists the main ERP vendors. The author also discusses the SAP Implementation process, its concepts, activities and deliverables.

In Chapter 3, the author discusses three elements of risk in ERP system implementation projects, identifies key risks relevant to ERP System Implementation Projects and maps them onto SAP Implementation phases.

In Chapter 4, the author provides an overview of PRINCE2 methodology, describes project management processes, components and techniques, and shows how they interact and relate to each other.

In Chapter 5, the author maps key risks relevant to ERP System Implementation Projects across SAP Implementation phases and PRINCE2 project management processes. This is graphically depicted in the SAP Implementation Key Risks Map.

Finally, the author describes in detail how these key risks could be addressed through application of PRINCE2 project management disciplines, in Chapter 6.

A summary of this report and the conclusions drawn are provided in Chapter 7.

#### **1.4. LIMITATIONS OF STUDY**

The limitations of this study include the following:

- This report does not discuss technical aspects of ERP System Implementation Project.
- The author is referencing the PRINCE2 project management methodology only.
- The author is subjective in mapping the risks across PRINCE2 project management processes and SAP Implementation phases.
- Although there are many ERP systems on the market, the author selected the SAP Implementation process as a generic method of ERP solution implementation. The other ERP systems are listed, but their implementation process is not discussed.

## CHAPTER 2

### INTRODUCTION TO ERP SYSTEM IMPLEMENTATION

#### 2.1. CHARACTERISTICS OF ERP SYSTEMS

According to Rosemann (1999), ERP systems are packaged but highly customisable software applications, which manage data from various organisational activities and provide a fully integrated solution to major organisational data management problems. They provide for both the core administrative functions, such as human resource management and accounting, as well as integrated modules, which can be selected to support key business processes, such as warehousing, production and Client Relationship Management (CRM).

The main characteristics of ERP systems are as follows:

- Extensive functionality, as many ERPs include the capability to interface data warehouses to support managerial reporting and business intelligence requirements, such as online analytical processing and data mining (Pang, 2001).
- Focus on the end-to-end business process, as the relational database tables of ERPs are designed around a complete set of core functions rather than disparate modules that merely pass transaction data from one module to another. For example, “the financial accounting modules are tightly integrated into a logistical chain that begins with purchasing and ends in sales and distribution. Every business transaction is automatically recorded in the financial accounting and controlling (or management reporting) module. (Addison, 2001).
- Non-industry specific, as they are “highly customisable and flexible packages that could be used in any industry”. (Peasley, 1999)
- Structured on “a client-server architecture that consists of presentation, Internet-enabling, application and database layers. These layers could either be installed in one server, for example an enterprise server or mainframe, or distributed among a number of servers for scalability. In addition, the heart of the ERP is a relational database management system that ensures data

consistency and integrity. Another feature is a workflow manager that supports the management of a dynamic work process". (Pang, 2001)

- Based on an enterprise data model that supports data flow among the business units and has a common look and feel among the modules. "All data represent the 'single truth' and a reduction of errors associated with repackaging data. Therefore, the ERP environment is operating online and in real time in line with the business. Management has access to online, up-to-date information on how the business is performing. That information is shared among application modules and among users from different departments simultaneously. Following implementation of an ERP, organisations typically report completion of period or year-end closes in one or two days as opposed to two to three weeks under their legacy system environment". (Addison, 2001)
- Open systems, as they "enhance web interfaces to better support e-commerce, enterprise portals and extensible mark-up language (XML), which facilitates data interchange over the Internet". (Pang, 2001)

The other suggested characteristics of ERP systems include "the embedding of tacit organisational knowledge in well-documented information structures and decision rules for use by both management and employees of the organisation" (Davenport, 2000); providing a way "to increase management control through centralised information and management-sanctioned rather than ad-hoc business processes" (Besson & Rowe, 2001); and "increased IT infrastructure capability and business flexibility and reduced IT costs" (Shang & Seddon, 2000).

According to Pang (2001) the ERP vendors are represented by the following companies:

- SAP (Systems, Applications and Products in Data Processing) is the global market leader in ERPs; it has approximately 30% to 60% of the world market. The strengths of its R/3 product include support for multi-country, multi-currency environments and wide scalability. The company spends a large percentage of its revenues in research and development.
- Oracle is the second-largest software company in the world. Its ERP product, Oracle Applications, includes the popular Oracle Financials module. It has the

reputation for developing a product that can be interfaced with other applications to create a best-of-breed ERP package. It should be pointed out that Oracle Applications should be distinguished from the Oracle relational database management system, which is often a part of other ERP products, such as PeopleSoft and SAP.

- PeopleSoft has its origins in human resource management software that evolved to a full feature product with the addition of other modules. However, its strength remains its human resource management systems. PeopleSoft has a major presence in the US federal government.
- Baan has developed a number of componentised products and it is a relatively dominant player in the ERP market.
- JD Edwards has a product called OneWorld with origins in the AS/400 environment. Its target customers are primarily smaller organisations with less than 2,000 users.

The approximate market share by vendor could be diagrammatically presented as follows:

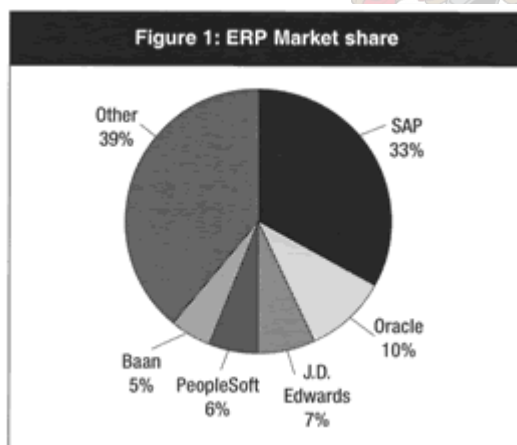


Figure 1: ERP Market Share  
(Source: Pang, 2001)

## 2.2. ERP SYSTEM IMPLEMENTATION PHASES

According to Anderson (2003) the ERP System Implementation process is based on a System Development Lifecycle (SDLC) process. SDLC is a conceptual model used in project management that describes the stages involved in an information system development project, from an initial feasibility study through maintenance of the

completed application. There are various SDLC methodologies, which include the waterfall model, rapid application development (RAD), joint application development (JAD), the fountain model, the spiral model, build and fix, and synchronise-and-stabilise. Often, several methods are combined into some sort of hybrid methodology. Anderson (2003) lists the following basic steps of SDLC methodology.

No	Process	Description
1	Business Need Identification	Determining the strategic business objectives. These objectives could include cost reduction, growth, synergies and optimisation of business processes. During this phase a thorough study is conducted on the cost and benefit of acquiring and implementing a new system. The cost and benefit are articulated in the feasibility analysis.
2	Business and System Requirements Definition	Identifying the business and technical requirements for the new system.
3	System Design	Defining the high level and detailed design of the new system. The high-level design focuses on what programmes are needed and how they are going to interact. The detailed level design focuses on how individual programmes are going to work, what interfaces are going to look like (interfaces), and what data will be required (data design). During this phase, the overall logical structure of the software is defined. This is a crucial phase in SDLC as any problems in the design could be very expensive to solve in the later state of the software development. The Logical Design forms part of the high-level specification of the recommended solution and is populated during the "Produce Logical Design" process in the System Development Life Cycle. The Logical

		<p>Design could list more than one option to satisfy the Business Requirements, of which one is then recommended. This document should not contain too much technical detail, e.g. platforms for development, but rather reflect a logical solution that can be presented to the user without drowning them in technical jargon. The Logical Design serves as a basis for the next step, which is the Physical Design where platform-specific issues are dealt with and where detailed specifications will be produced.</p>
4	System Build	<p>Translating business and functional requirements into code. Computer programmes are written using a conventional programming language or an application generator.</p>
5	System Testing	<p>System testing verifies that the system satisfies the user and business requirements, functions as it was designed, works with hardware and other software and is free from error. For this purpose, various types of tests are performed, such as testing the series of individual modules, testing the system as a whole to ensure that interfaces between modules work (integration testing), testing that the system works on the intended platform and with the expected volume of data (volume/stress testing) and that the system does what the user requires (user acceptance testing).</p>



6	System Implementation	System implementation includes conversion (transfer of data from an old system, preparation of training documentation to facilitate the understanding of system and user training to ensure the system is used correctly.
7	System Maintenance	This is an ongoing process, which includes continuing support of end users, correction of errors and updates of the software over time.

Implementation of ERP systems is different from normal software development projects – even large ones. ERP projects are actually business transformation projects, rather than straightforward large software development projects. The implementation of ERP systems significantly changes work processes and organisational structures, together with the daily activities of the majority of staff. According to Fitz-Gerald and Carroll (2004), while closely aligned with the SDLC process, the ERP Implementation has specific phases that are unique to the business transformation project's requirements. These implementation phases are discussed further in this chapter.

There are different approaches in implementing an ERP system. Selection of the implementation approach is based on the business need, implementation cost and risk appetite of the organisation. According to Pang (2001) these implementation approaches include:

- **“Big Bang” approach**, which involves having all modules in all business areas implemented at the same time. Characteristics of this approach include no need for temporary interfaces, limited requirement to maintain legacy software, cross-module functionality and lower overall cost if no contingencies arise.
- **Phased approach**, which involves ERP system modules being implemented singly or in a group, often at a single location at a time. Benefits of this approach include a smoothing of resource requirements, an ability to focus on a particular module, availability of existing legacy systems as a fallback,

reduced risk, the knowledge gained with each phase and the usefulness of demonstrable working system.

- **Wave approach**, which involves the application of different waves of change to different business units or regions.
- **Parallel implementation**, which involves both ERP and an existing system running together for a period of time. Its characteristics include having a basis of comparison, with the existing system serving as backup; it requires more computing and human resources, which is more costly, if the existing system had not been properly maintained during the period and reengineering not supported by existing systems.
- **Instant cutovers** (flip-the-switch) approach, which is lower in cost, motivates users to seriously convert to the new system and reduces the need for redundant systems. However, it tends to be risky, stressful to users and requires a high level of contingency planning.

For example, the SAP Implementation process consists of four phases, namely:

- *Project preparation*, where a vision of the future state of the SAP solution is being created.
- *Sizing and blueprinting*, where the solutions stack is created and training is being performed.
- *Functional development*, where the main focus is on two main activities – change management and testing.
- *Final preparation*, where the last tests are being performed before the actual go-live.
- *Go-live* is where the system is turned on for the end users.

(Anderson, 2003)

Each of these phases has a set of activities and deliverables. The SAP Implementation process data diagram is depicted below:

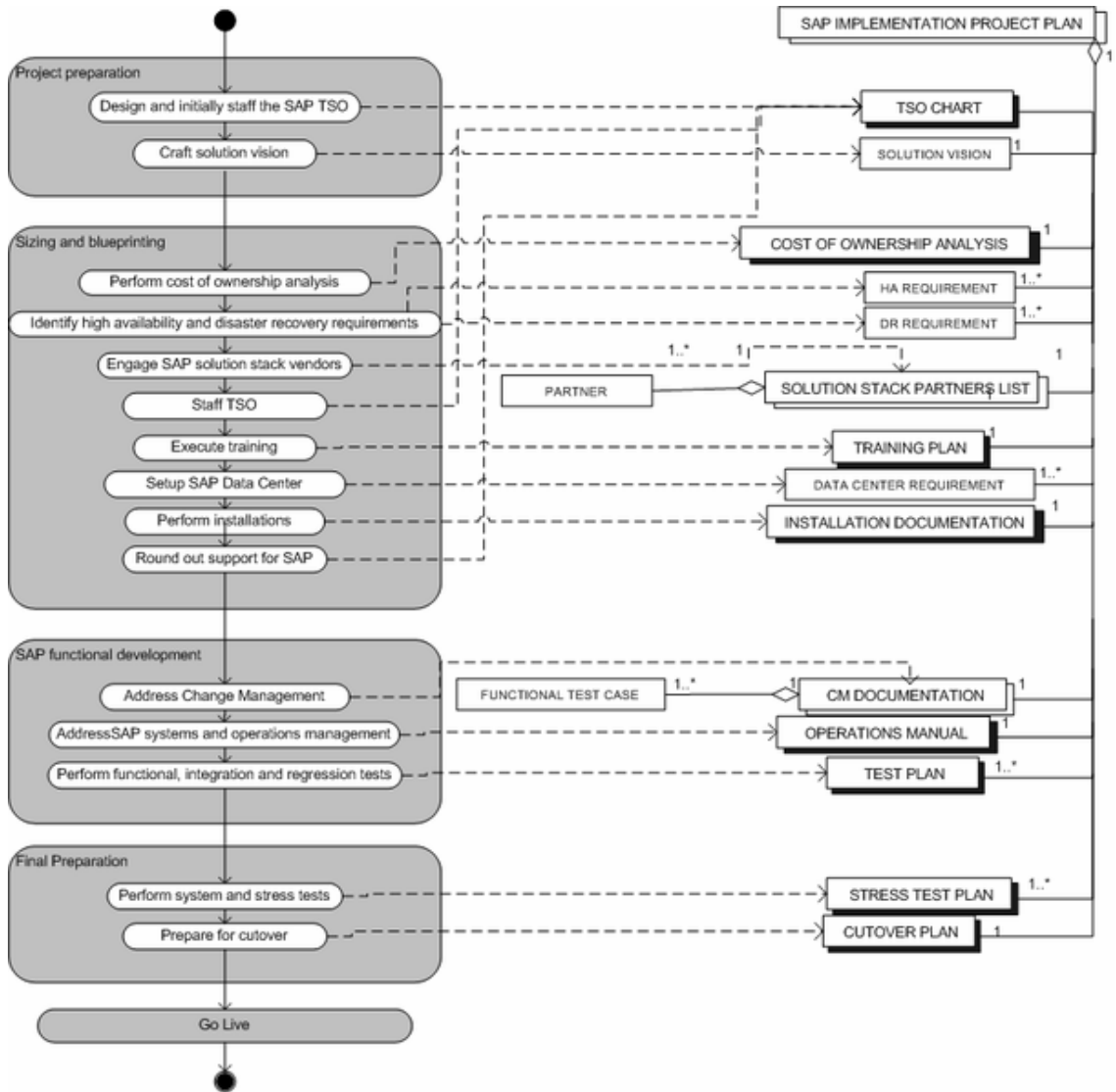



Figure 2: SAP Implementation Process Flow  
 (Source: Anderson, 2003)

Within each phase of SAP Implementation process there are defined objectives, activities and deliverables, which are described by Anderson (2003) as follows:

Implementation Phase	Activity	Description
<p><b>SAP Project Preparation</b></p> <p>Focuses on two main activities:</p> <ul style="list-style-type: none"> <li>• Craft a solution vision</li> <li>• Set up the Technical Support Organisation (TSO)</li> </ul>	Craft a solution vision	Sketching a design that meets both financial and business requirements with the focus on a vision for a future state of the SAP solution. The main focus is on the company's core business and how the SAP solution will enable that core business to be more successful.
	Design and staff the SAP TSO	Identifying the composition and staff of the TSO, which the organisation that is in charge of addressing, designing and implementing the SAP solution.
<p><b>SAP Blueprint</b></p> <p>To plan implementation of the SAP solution</p>	Perform cost of ownership analysis	Determining how to get the best business at the lowest costs, by comparing business solution stack options and alternatives, and then determining what costs each part of the stack will bring and when these costs will be incurred.
	Identify high availability and disaster recovery requirements	To determine a set of actions for managing system downtime, which could be caused by hardware failures, application failures, or power outages.

<b>SAP Blueprint</b> (continued)	Engage SAP solution stack vendors	Select the best SAP hardware and software technology service providers for all layers and components of the SAP solution stack, based on a side-by-side sizing comparison. The most important factors in the selection are the estimated numbers of concurrent users and batch sizes.
	Staff TSO	Fill the position in the TSO team to directly support the short-term objectives of the implementation. The short-term objectives are to develop and begin installation/implementation of the SAP data centre.
	Execute training	Train the various members of the SAP TSO (data centre specialists, network specialists and high-availability specialists) and end users. These people need to acquire the required SAP knowledge and skills, or even SAP certifications, through training.
	Set up SAP data centre	Build a new SAP data centre facility or transform the current data centre into a function capable of supporting the SAP solution stack. The most important factor when designing the data centre is availability. The high availability and disaster recovery requirements, which should be defined earlier, give a good idea of the required data centre requirements for hosting the SAP software.

	Perform installations	Install the required SAP software parts, which are called components and technological foundations, like a web application server or enterprise portals, to a state ready for business configuration.
	Round out support for SAP	Identify and staff the remaining TSO roles relating to the help desk and other supporting functions.
<p><b>SAP Functional Development</b></p> <p>Focuses on two main activities:</p> <ul style="list-style-type: none"> <li>• Change Management and</li> <li>• Testing</li> </ul>	Address change management	Develop a planned approach to manage change in the organisation. The objective is to maximise the collective efforts of all people involved in the change and minimise the risk of failure of implementing the changes related to the SAP Implementation.
	Address SAP systems and operations management	Create a foundation for the SAP systems management and SAP computer operations by creating a SAP operations manual and by evaluating SAP management applications.
	Perform functional, integration and regression tests	Test the SAP business processes by executing functional tests to ensure that business processes work. Perform integration tests to ensure that the organisation's business processes work together with other business processes, and regression tests to ensure that a specific set of data and processes yield consistent and repeatable results.

<b>SAP Final Preparation</b>  The final phase before go-live.	Perform system and stress tests	Plan, script, execute and monitor SAP stress tests. These tests mean planning, scripting, executing and monitoring system and stress tests to see if the expectations of the end users, defined in service level agreements, will be met.
	Prepare for cutover	Plan, prepare and execute the cutover by creating a cutover plan that describes all cutover tasks that have to be performed before the actual go-live.
<b>Go-Live</b>	Turn on and support the system for the end users	This is the final step in ERP system implementation. Go-live means to turn on the SAP system for the end users, obtain their feedback and monitor/support solution.

There are also specific SAP System Implementation concepts that support the key objectives, activities and deliverables of SAP Implementation process. These are described by Anderson (2003) as follows:

Implementation Concept	Description
Change Management	These activities are concerned with defining and embedding new values, attitudes and behaviours within an organisation that support new ways of doing work and successfully overcome resistance to change. These activities involve building consensus among stakeholders on specific changes designed to meet their needs, and implementing all aspects of transition from one organisational structure or business process to another.

Change Management Documentation	All documentation that is required and being delivered whilst performing change management, for example the functional test cases and other documents that end users of SAP require, and the various tools and approaches used to manage change by the Technical Support Organisation (TSO).
Cost of ownership analysis	Determining where and when the external and internal costs are required within the context of the SAP solution stack and ongoing operations.
Cutover	The process of transition from one system to another. During this process, a cutover plan is prepared which describes how to lock down the system from a technical change management perspective, prepares TSO for its new role and rolls out the SAP graphical user interface to all end users.
Data Centre	This is a facility, which is used for housing a large amount of electronic equipment, such as computers.
Data Centre requirement	Defining a requirement for a SAP data centre, i.e. power requirements, a rack requirement, network infrastructure or network requirement.
Disaster recovery (DR) requirement	Requirement that focuses on the actions required during system downtime in the event of a disaster.
Functional test case	Setting up conditions and variables under which a tester will determine if a business process works.
High availability	Requirements that describe the amount of time that the system needs to be available to satisfy end user needs.
Installation documentation	All documentation relating to the installation of an end-to-end SAP solution.



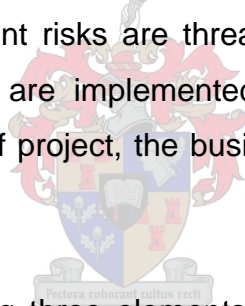
Operations manual	The collection of current state system documentation, day-to-day and other regularly scheduled operations, tasks, various installation and operations checklists, and “how-to” process documentation.
SAP Implementation project plan	A comprehensive plan that contains all deliverables and activities during implementation of a SAP system.
Solution stack	This is a set of software subsystems and components required to deliver a fully functional solution.
Solution stack partners list	A list of all vendors that deliver the products, which make up the SAP solution stack.
Solution vision	A vision of the future state SAP solution.
Stress test plan	A test plan, which is focused on determining the stability of a SAP system. A stress test involves testing beyond normal operational capacity, often to a breaking point, to observe the results.
Test plan	A plan that details how the test will proceed, who will do the testing, what will be tested, in how much time the test will take place, and to what quality level the test must be performed.
Training	The knowledge and skills acquired as a result of training.
Training plan	The training plan consisting of knowledge components and tailored to address specific user learning requirements. It is tailored according to the learning preferences and prior knowledge of the trainee.
Technical Support Organisation (TSO)	The team of people who committed to the implementation and management of the SAP.
TSO chart	A chart that depicts the structure of the TSO.

## CHAPTER 3

### MAPPING KEY RISKS OF ERP SYSTEM IMPLEMENTATION PROJECTS TO SAP IMPLEMENTATION PHASES

In this chapter, the author discusses three elements of risk in ERP System Implementation Projects, identifies key risks relevant to these projects and maps them onto SAP Implementation phases.

Identifying and managing risks in an ERP System Implementation Project is crucial to its success. According to Trepper (1999), a risk, simply defined, is a potential failure point. There are thousands, maybe even millions of potential failure points in an ERP System Implementation Project. “The crucial factor for an efficient risk management in any IT project is the systematic identification of the inherent project risks and the assessment of the existing project controls. Project risks are potential threats to the success of the project. Inherent risks are threats that exist fundamentally within a process, i.e., before controls are implemented. These inherent risks depend on among other things the type of project, the business area and the technology used” (Gaulke, 2002).



White (2006) lists the following three elements of an ERP System Implementation Project's risk environment:

- **Business Environment** – elements beyond the project manager's control that could affect the success of the project.
- **Project Management** – activities that focus mainly on organising the work of the project, including the planning, monitoring and controlling of project tasks.
- **Project Execution** – activities that focus mainly on the specification and creation of deliverables organised to align with the project lifecycle phases.

These three elements are graphically represented in the diagram below:

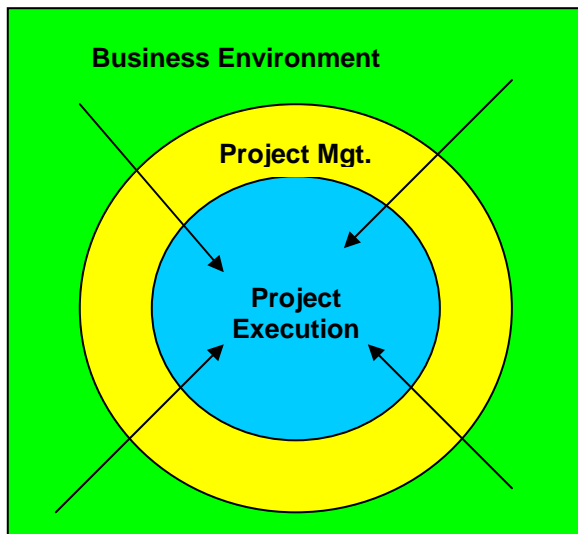


Figure 3: Project Risk Environment (Source: White, 2006)

Therefore, the ERP Implementation Project risks should be identified and managed in the context of these three elements, their interaction and impact on each other.

These risks can be categorised as follows (White, 2006):

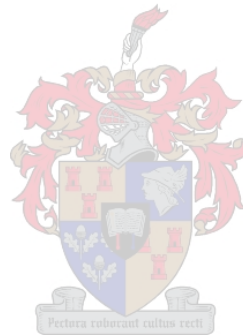
Business Environment Criteria	Project Management Criteria	Project Execution Criteria
<p><b>External:</b></p> <ul style="list-style-type: none"> <li>• Regulatory</li> <li>• Marketplace</li> <li>• Competitors</li> <li>• Suppliers</li> <li>• Customers</li> </ul> <p><b>Internal:</b></p> <ul style="list-style-type: none"> <li>• Management and Operations</li> <li>• Culture</li> <li>• Stakeholders</li> <li>• Sponsorship</li> <li>• Governance</li> </ul>	<ul style="list-style-type: none"> <li>• Integration</li> <li>• Scope</li> <li>• Time</li> <li>• Quality</li> <li>• Cost</li> <li>• HR/Personnel</li> <li>• Communications</li> <li>• Risk/Issues</li> <li>• Dependencies</li> </ul>	<ul style="list-style-type: none"> <li>• Technology Selection</li> <li>• Requirements</li> <li>• Design</li> <li>• Development</li> <li>• Interfaces</li> <li>• Testing</li> <li>• Training</li> <li>• Data Migration</li> <li>• Security and Controls</li> <li>• Implementation</li> <li>• Post Deployment</li> </ul>

Figure 4: Risk Categories (Source: White, 2006)

There are a number of risks that could materialise in an ERP System Implementation Project. However, certain risks are more common and appear more frequently than others. Therefore, in the next section the author will list only the key risks relevant to an ERP System Implementation Project. These key risks were derived from case

studies and various academic research articles. The table below depicts these key risks, which are categorised according to three elements of project risk environment. These key risks are mapped onto SAP Implementation phases based on the key objectives, activities and deliverables of each SAP Implementation phase, as described in Chapter 2. Although there are many ERP systems on the market, for the purpose of this study, the author uses the SAP Implementation process as a generic method of ERP solution implementation. This method is based on “best practices and case studies from various literature sources, and presents a collection of processes and products that make up a complete implementation method to allow any organisation to plan and execute the implementation of ERP system” (Anderson, 2003).

The literature sources for the key risks are listed in the column “Source”.



Key Risks	Source	SAP Implementation Phases				
		SAP Project Preparation	SAP Blueprint	SAP Functional Development	SAP Final Preparation	Go-Live
<b>Business Environment Risks</b>						
<b>R1:</b> Lack of executive management commitment and support in ERP solution design and implementation	(Champy, 2005; Fitz-Gerald & Carroll, 2004; Gallegos, 2005; Holland & Light, 1999; Hsu, 2004; Pang, 2001; Tomb, 2006; Trepper, 1999; Ulfelder, 2001)	X	X	X	X	
<b>R2:</b> The project is not organised and structured to enable delivery of a quality ERP solution	(Trepper, 1999; Holland & Light, 1999; Hsu, 2004; Sayana, 2004)	X	X			
<b>R3:</b> ERP solution does not enable the realisation of business benefits	(Champy, 2005; Pang, 2001; Sayana, 2004)		X	X		X
<b>R4:</b> The design and implementation of the ERP solution disrupts/negatively impacts the business operations (people, processes, technology)	(Fitz-Gerald & Carroll, 2004; Gallegos, 2005; Holland & Light, 1999; Hsu, 2004; Pang, 2001; Tomb, 2006; Trepper, 1999)		X	X	X	
<b>R5:</b> Lack of business ownership of ERP solution processes and components during and post-operational roll-out	(Donovan, 2002; Fitz-Gerald & Carroll, 2004; Gallegos, 2005; Holland & Light, 1999; Hsu, 2004; Pang, 2001; Trepper, 1999)					X
<b>R6:</b> Lack of buy-in and support from stakeholders into the ERP solution design and implementation	(Champy, 2005; Gallegos, 2005; Holland & Light, 1999; Hsu, 2004; Pang, 2001; Tomb, 2006; Trepper, 1999; Ulfelder, 2001)		X	X	X	
<b>R7:</b> The end ERP solution is not used effectively as business users are not ready to operate the new solution.	(Aiken, 2002; Donovan, 2002; Holland & Light, 1999; Hsu, 2004; Gallegos, 2005; Musaji, 2005; Pang, 2001; Tomb, 2006; Trepper, 1999)		X	X	X	X

Project Management Risks						
<b>R8:</b> Poor definition of the ERP System Implementation Project scope and underestimation of the implementation timeline.	(Donovan, 2002; Holland & Light, 1999; Hsu, 2004; Trepper, 1999; Sayana, 2004; Ulfelder, 2001)		X	X		
<b>R9:</b> Underestimation of the ERP solution complexity, integration and dependency requirements.	(Donovan, 2002; Fitz-Gerald & Carroll, 2004; Gallegos, 2005; Holland & Light, 1999; Tomb, 2006; Trepper, 1999; Ulfelder, 2001)		X	X		
<b>R10:</b> The ERP System Implementation Project risks materialise and/or issues are not resolved timeously.	(Addison, 2001; Holland & Light, 1999; Hsu, 2004; Trepper, 1999)		X	X	X	
<b>R11:</b> The ERP System Implementation Project does not have the necessary resources (people, goods, services) to deliver a quality solution, within the agreed timeline and within the agreed budget	(Aiken, 2002; Fitz-Gerald & Carroll, 2004; Gallegos, 2005; Holland & Light, 1999; Parth & Gumz, 2003; Trepper, 1999; Ulfelder, 2001)		X	X		
<b>R12:</b> Lack of sufficient knowledge, skills, experience and abilities of the project manager and project team to implement the ERP solution	(Addison, 2001; Aiken, 2002; Champy, 2005; Fitz-Gerald & Carroll, 2004; Gallegos, 2005)		X	X		
<b>R13:</b> Project deliverables do not meet business requirements	(Holland & Light, 1999; Sayana, 2004; Trepper, 1999; Ulfelder, 2001)		X	X	X	
<b>R14:</b> Insufficient communication from the project team to project stakeholders	(Gallegos, 2005; Holland & Light, 1999; Hsu, 2004; Musaji, 2005; Trepper, 1999; Ulfelder, 2001)		X	X	X	
<b>R15:</b> Insufficient or poorly controlled budget for ERP solution design and implementation	(Donovan, 2002; Holland & Light, 1999; Pang, 2001; Trepper, 1999)		X	X	X	

Project Execution Risks						
<b>R16:</b> Poor understanding of ERP solution capabilities	(Addison, 2001; Aiken, 2002; Gallegos, 2005; Holland & Light, 1999; Trepper, 1999; Sayana, 2004)	X				
<b>R17:</b> Business requirements are incomplete or not received in timeously	(Addison, 2001; Holland & Light, 1999; Gallegos, 2005; Musaji, 2005; Parth & Gumz, 2003; Trepper, 1999; Ulfelder, 2001)		X	X	X	
<b>R18:</b> Inadequate design of application security and user administration process	(Addison, 2001; Aiken, 2002; Musaji, 2005)			X		
<b>R19:</b> Inadequate transfer of ERP skills and knowledge from vendors/contractors to the organisation's staff	(Addison, 2001; Aiken, 2002; Gallegos, 2005; Musaji, 2005; Pang, 2001; Tomb, 2006)			X		
<b>R20:</b> Failure to identify all data conversion requirements and interfaces to and from the ERP system	(Addison, 2001; Aiken, 2002; Gallegos, 2005; Musaji, 2005; Trepper, 1999)			X		
<b>R21:</b> Insufficient system, integration and user acceptance testing	(Addison, 2001; Aiken, 2002; Holland & Light, 1999; Gallegos, 2005; Pang, 2001; Parth & Gumz, 2003; Sayana, 2004)			X	X	

Figure 5: SAP System Implementation Key Risks

## CHAPTER 4

### PRINCE2 PROJECT MANAGEMENT METHOD

#### 4.1. PRINCE2 PROJECT MANAGEMENT METHODOLOGY OVERVIEW

In this chapter, the author provides an overview of PRINCE2 (**PR**ojects **IN** **C**ontrolled **E**nvironment) methodology, describes project management processes, components and techniques, and shows how they interact and relate to each other.

PRINCE2 is a project management methodology developed by the UK Office of Government Commerce. According to the Office of Government Commerce (2002) PRINCE2 applies three key elements to each project: **Processes**, which drive the project management, **Components** and **Techniques**, which are used by each of the processes to effect the management of the project. PRINCE2 was developed and launched in 1996 in response to user requirements for improved guidance on project management of all projects, not just information systems. PRINCE2 is “based on the experiences of scores of projects, project managers and project teams, who have contributed, some from their mistakes or omissions, others from their successes” (Office of Government Commerce, 2002: 1).

A watermark of a university crest is visible in the background of the text. The crest features a shield with various symbols, topped with a crown and a crest. Below the shield is a motto scroll with the Latin text "Pectora roburant cultus recti".

The main advantages of PRINCE2 are:

- Establishment of effective project governance structures.
- Revision of business benefits realisation throughout project lifecycle.
- Managing in stages, which ensures that we can only “bite what we can chew”.
- Extensive use of controls for project initiation, planning, delivery management and closing.
- Product-based planning.
- Project assurance function.

(Office of Government Commerce, 2002: 1-24)

PRINCE2 is designed for “application on any type of project in any environment. It contains a complete set of concepts and project management processes to ensure a properly run and managed project. However, the way in which the PRINCE2 method



is applied in the project will vary considerably, and tailoring the method to suit the circumstances of a particular project is critical to its successful use” (Office of Government Commerce, 2002: 9).

According to PRINCE2, “a project is temporary by nature and it is created to achieve a specified business benefit or objective. When the work has been completed, the project is disbanded” (Office of Government Commerce, 2002: 7).

Within a PRINCE2 project environment, each project undertaken must:

- Address all processes concerned by establishing an effective project management environment.
- Have a clearly defined business case, including the benefits and risks of the venture.
- Demonstrate a properly defined and unique set of products to meet a specified Business Case – a “product” may be a tangible one, such as a computer, a document or a piece of software, or it may be intangible, such as cultural change or a different organisational structure, all of which are called “products” within PRINCE2.
- Have a corresponding set of activities to construct the products.
- Identify appropriate resources to undertake project activities.
- Have a finite and defined life cycle.
- Identify an organisational structure with defined responsibilities and ownership.
- Include a set of processes with associated techniques, which will help plan and control the project and bring it to a successful conclusion.

(Office of Government Commerce, 2002: 6-11)

A PRINCE2 project is divided into a number of Management Stages, each forming a distinct unit to achieve a specific management purpose. Like the project, a stage is driven by a series of processes, and has a defined set of products and activities, a finite life cycle, control elements and an organisational structure. The delivery of these products to the agreed quality standards marks the completion of the Management Stage. (Office of Government Commerce, 2002: 1-5)

PRINCE 2 defines:

- The organisation of the project and its stages.
- The processes, which drive the undertaking.
- Basic project management techniques.
- A set of business, management and quality controls, which ensure that the project is proceeding to expectations and plan.

The above, together with the products of the project and the activities, which produce them, the project business case, all encompassed within the Quality Management framework, make up the PRINCE2 environment.

(Office of Government Commerce, 2002)

“PRINCE2 covers the management of the project and the management of project resources. It does not cover the specialist techniques involved in the creation of deliverables. These are extensively covered in Project Management Body Of Knowledge (PMBOK) developed by Project Management Institute (PMI) in the USA. PRINCE2 is aligned and it interfaces with PMBOK project management knowledge areas to enable information on such techniques as estimating, for example, to be provided for project management” (Office of Government Commerce, 2002: 8-9). The other area not covered by PRINCE2 is procurement management. PRINCE2 assumes that the project is run within the context of a contract. PRINCE2 considers contracting and procurement as specialist activities and can therefore be managed using the PRINCE2 method (Office of Government Commerce, 2002: 9).

#### **4.2. PRINCE2 PROJECT MANAGEMENT PROCESSES AND COMPONENTS**

PRINCE2 has a process-based approach to project management. “The processes define the management activities to be carried out during the project lifecycle. The process-based approach is a powerful feature of PRINCE2. The flexibility of the method is underlined by allowing organisations to choose their own destiny in identifying how to meet the requirements of any given process” (Office of Government Commerce, 2002: 11).

The PRINCE2 method consists of eight distinctive project management processes, covering the activities from setting up the project, through controlling and managing the project's progress, to the completion of the project. These processes are:

- Starting up a Project (SU)
- Initiating a Project (IP)
- Controlling a Stage (CS)
- Managing Stage Boundaries (SB)
- Managing Product Delivery (MP)
- Closing a project (CP)
- Directing a Project (DP)
- Planning (PL)

(Office of Government Commerce, 2002: 12-16)

Below is a summary of PRINCE2 project management processes:

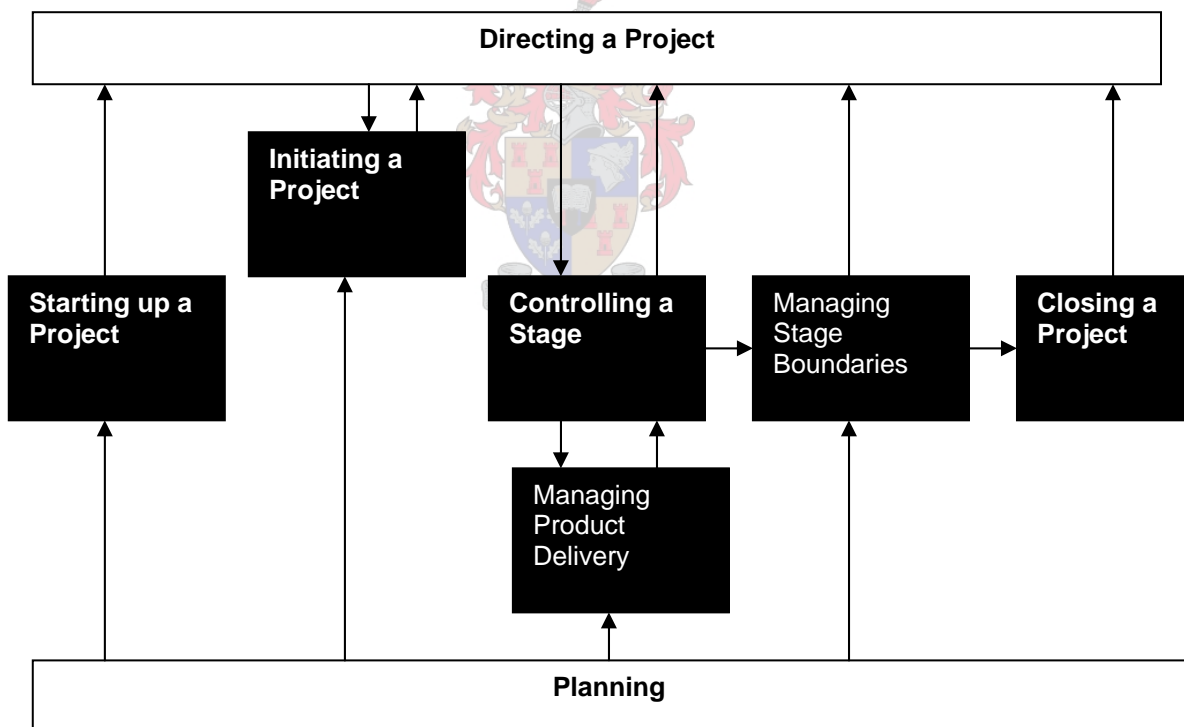


Figure 6: The PRINCE2 Process Model  
(Source: Office of Government Commerce, 2002)

In the next section, the author provides a brief overview of each PRINCE2 project management process, which is supported with flow diagrams of activities.

#### 4.2.1. Starting up a Project (SU)

This process is designed to ensure that the prerequisites for initiating the project are in place. The process produces a Project Brief that defines what needs to be done, why it needs to be done, the benefits to be achieved, who will need to be involved in the process and how and when it will be done. PRINCE2 defines six main features that should be established during this process:

- The design and appointment of a project team.
- The defined, agreed and signed-off Project Brief.
- The high-level Project Approach (project implementation approach).
- The customer's quality expectations.
- The Risk Log.
- The Initiation Stage Plan.

(Office of Government Commerce, 2002: 12)

This is a pre-project process, which looks to answer the question, "Does the organisation have a worthwhile and viable project?" before asking for commitment of resources to set up a project environment (Office of Government Commerce, 2002: 12). The activities and their relations within the Starting up a Project (SU) process are depicted in the diagram below:

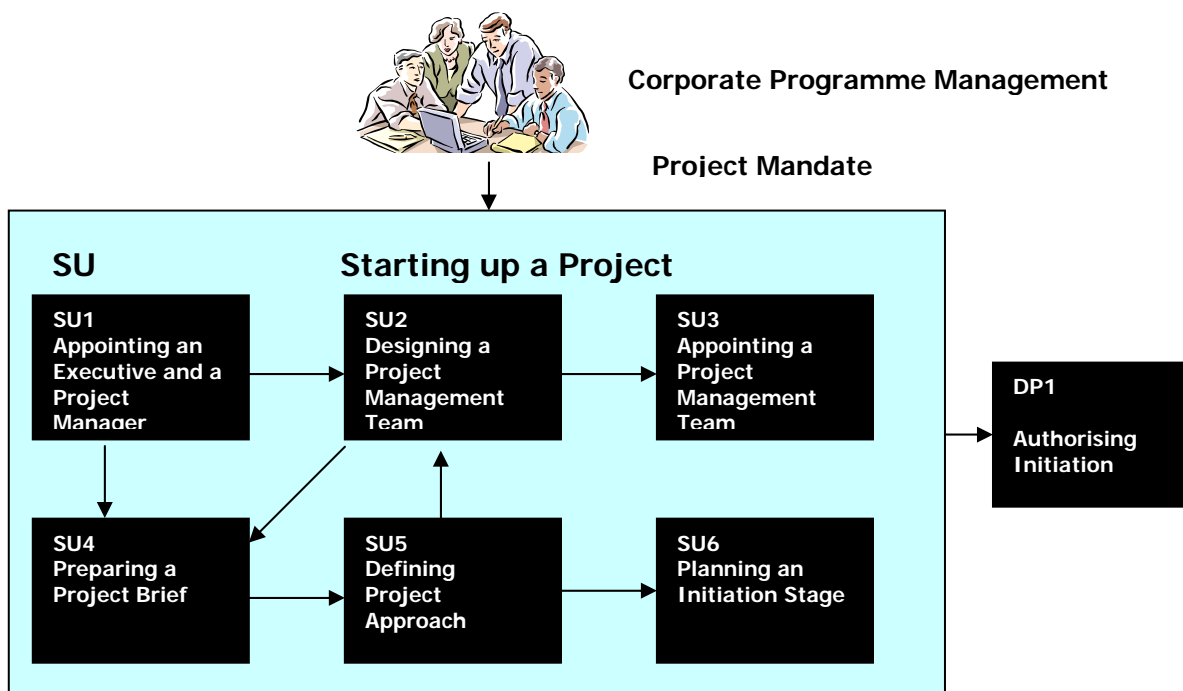


Figure 7: Starting Up a Project Process  
(Source: Office of Government Commerce, 2002)

#### 4.2.2. Initiating a Project (IP)

This process is designed to clearly define the what, why, who, when and how of the project that are outlined in the Project Initiation Document (PID). It plans the whole project in terms of its products, activities, resource usage and quality, as well as sets the baseline for the business benefits and risks. PRINCE2 defines the following activities to be performed in this process:

- Defining how the required product quality will be achieved.
- Planning and costing the project.
- Documenting and confirming that viable a business case exists for the project.
- Ensuring that investment of time and effort required by the project is justified, taking into account the risks to the project.
- Enabling and encouraging the Project Board to take ownership of the project.
- Providing the baseline for the decision-making processes required during the project's lifecycle and agreeing to the commitment of resources for the next stage of the project and authorising/approving the Stage Plan.

(Office of Government Commerce, 2002: 13)

The activities and their relations within the Initiating a Project (IP) process are depicted in the diagram below:

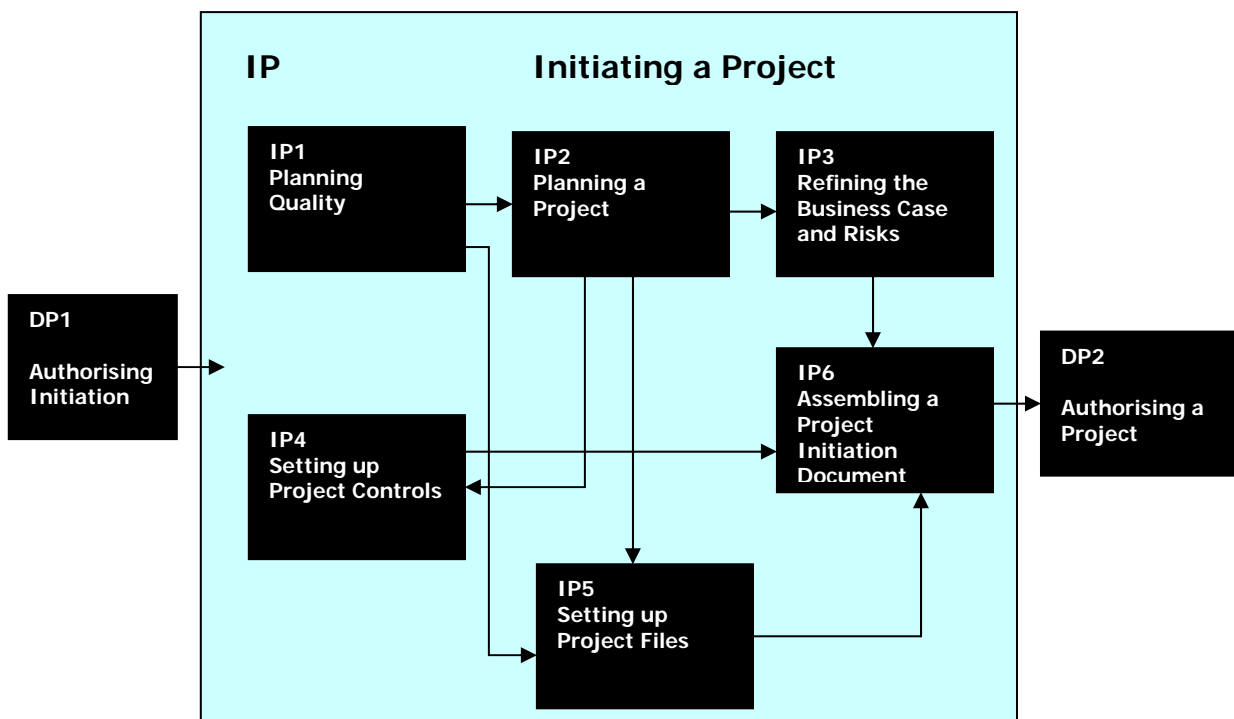


Figure 8: Initiating a Project Process  
(Source: Office of Government Commerce, 2002)

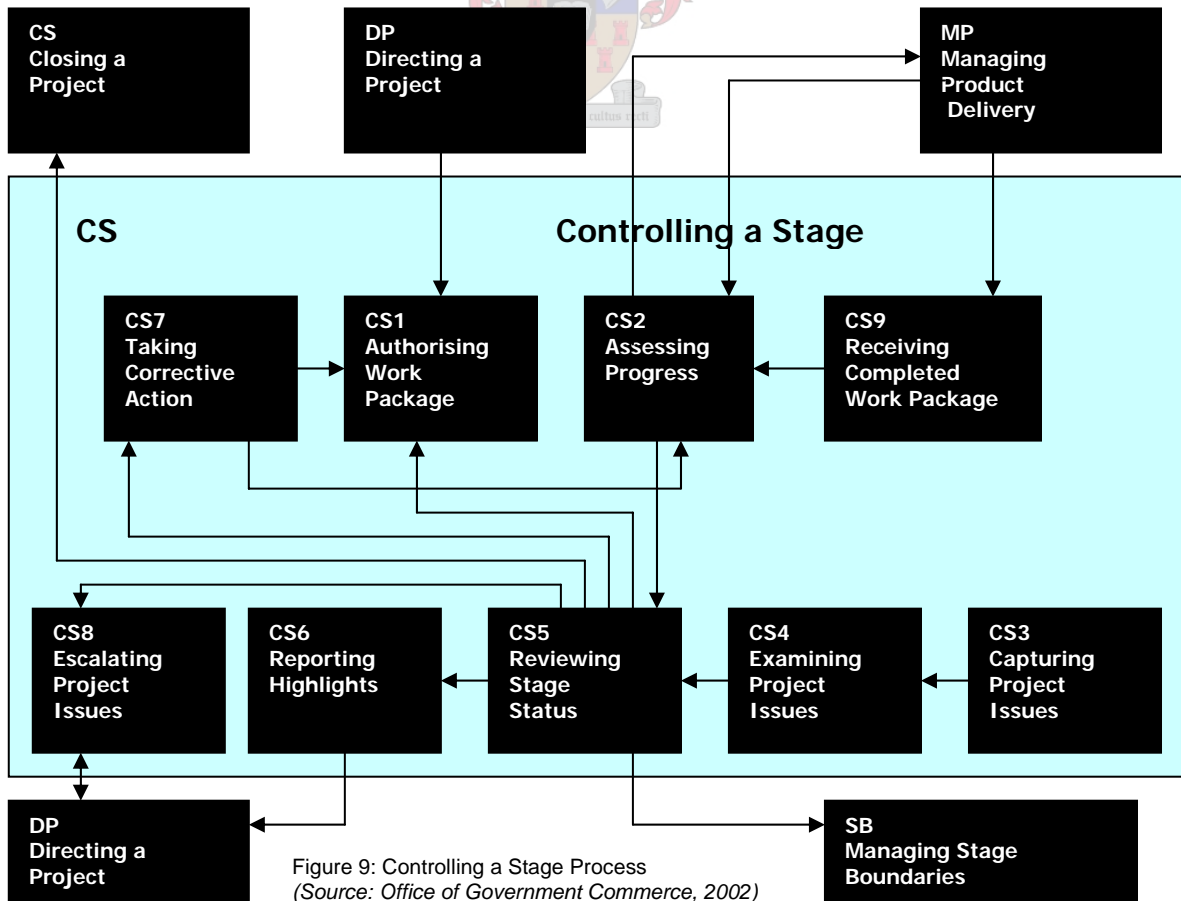
### 4.2.3. Controlling a Stage (CS)

This process is concerned with the day-to-day management of the project. The Stage Plan should be prepared for each phase of a SAP Implementation project. PRINCE2 defines the following activities to be performed in this process:

- Authorising work to create or change products.
- Collecting and reflecting actual versus planned results with regard to time, effort and budget.
- Assessing progress and reporting to senior management through Highlight Reports.
- Capturing proposed changes and errors, and escalating these where appropriate, to the Project Board.
- Regularly updating a Risk and Issue Log and a Stage Plan and taking any necessary corrective actions.

(Office of Government Commerce, 2002: 14)

The activities and their relations within the Controlling Stage (CS) process are depicted in the diagram below:



#### 4.2.4. Managing Product Delivery (MP)

The objective of this process is to ensure that planned products are created and delivered by the project team to the client/customer. PRINCE2 defines the following activities to be performed in this process:

- The Work Package Managers must negotiate the constraints within which the work is to be done with the Project Manager on behalf of their team.
- Making certain that work on products allocated to the team is effectively authorised and agreed to.
- Ensuring that work gets done through managing project delivery risks and issues, which includes maintaining and regularly updating a Risk and Issue Log.
- Assessing work progress and forecasts regularly through Checkpoint Reports, which are regular progress reports from the Team Manager to the Project Manager.
- Ensuring that completed products meet quality criteria through the Quality Log updates, giving the Project Manager a view of quality work being done.

(Office of Government Commerce, 2002: 15)

The activities and their relations within the Managing Product Delivery (MP) process are depicted in the diagram below:

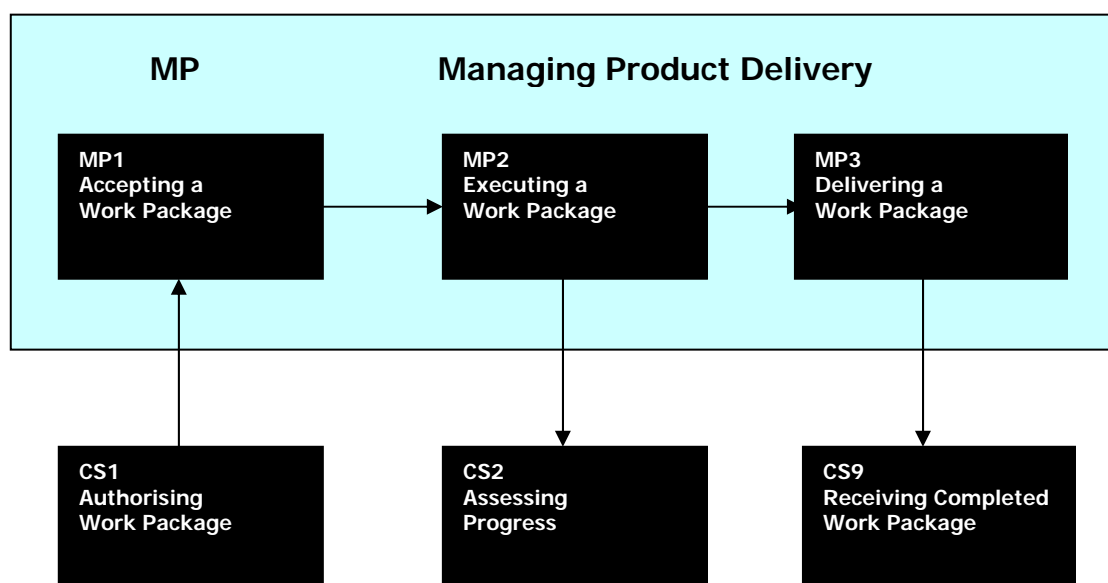


Figure 10: Managing Product Delivery Process  
(Source: Office of Government Commerce, 2002)

#### 4.2.5. Managing Stage Boundaries (SB)

This process produces information based on which the Project Board will take key decisions about whether to continue with the project or not. PRINCE2 defines the following activities to be performed in this process:

- Providing assurance to the Project Board that all products planned in the current Stage Plan have been completed as defined, through the End Stage Report, given by the Project Manager to the Project Board.
- Producing a current Stage Plan, actual versus planned, to show performance against the original Stage Plan.
- Preparing the next Stage Plan or Exception Plan, for which approval is sought;
- Revising a Project Plan, as and when required.
- Updating a Risk Log and presenting it to the Project Board.
- Revising a Business Case.
- Updating a Lessons Learned Log with any lessons learned from the current stage and identifying any changes to the structure or staffing of the project management team.

(Office of Government Commerce, 2002: 14)

The activities and their relations within the Managing Stage Boundaries (SB) process are depicted in the diagram below:

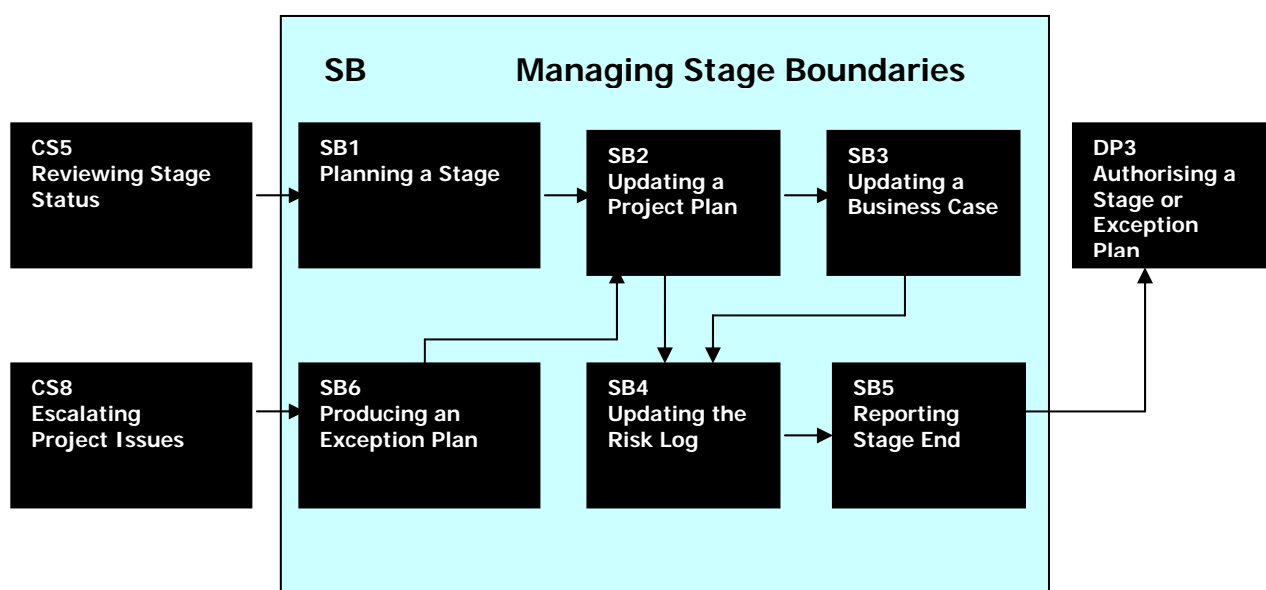


Figure 11: Managing Stage Boundaries Process  
(Source: Office of Government Commerce, 2002)

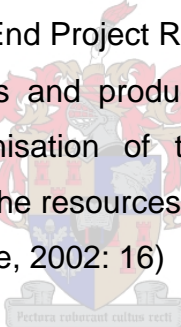


#### 4.2.6. Closing a Project (CP)

The purpose of this process is to execute the controlled closure of the project. PRINCE2 defines the following activities to be performed in this process, which are executed at the end of the project:

- Checking the extent to which the objectives set out in the Project Initiation Document (PID) have been met.
- Confirming client/customer acceptance of the product.
- Assessing to what extent all expected products have been handed over and accepted by the client/customer.
- Confirming that maintenance and operation arrangements are in place, including any relevant training.
- Making any recommendations for future work.
- Capturing lessons resulting from the project by completing a Lessons Learnt Report and preparing an End Project Report.
- Archiving the project files and producing a Post-Project Review Plan and notifying the host organisation of the intention to disband the project organisation and release the resources.

(Office of Government Commerce, 2002: 16)



The activities and their relations within the Closing a Project (CP) process are depicted in the diagram below:

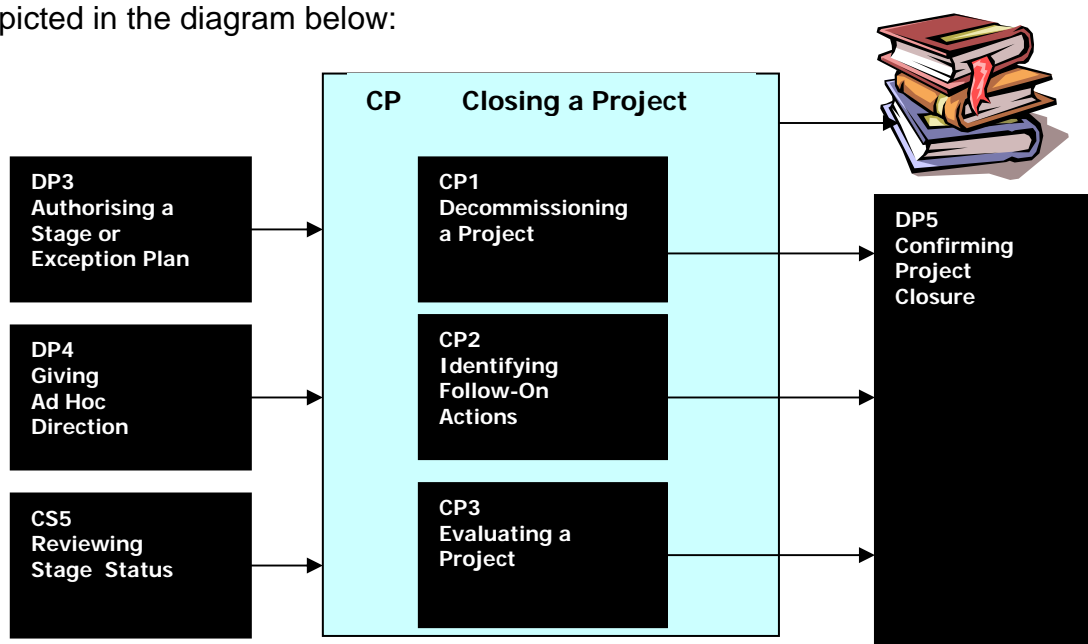


Figure 12: Closing a Project Process  
(Source: Office of Government Commerce, 2002)

#### 4.2.7. Directing a Project (DP)

This process provides authorisation for work to be carried out and resources to be committed to the project. This process is 'owned' by the Project Board, a group of executive decision makers, who typically represent business, users and suppliers. The Project Board manages by exception, monitors via progress reports, and controls through a number of decision points. PRINCE2 defines the following activities to be performed in this process:

- Ensuring that the project starts off on the right foot.
- Ensuring the commitment of resources after checking results at the Stage Boundaries.
- Providing an ad hoc direction via monitoring progress, providing advice and guidance, and reacting to major threats to achievement of the plan or benefits.
- Confirming the project outcome and bringing the project to a controlled closure.

(Office of Government Commerce, 2002: 13)

The activities and their relations within the Directing a Project (DP) process are depicted in the diagram below:

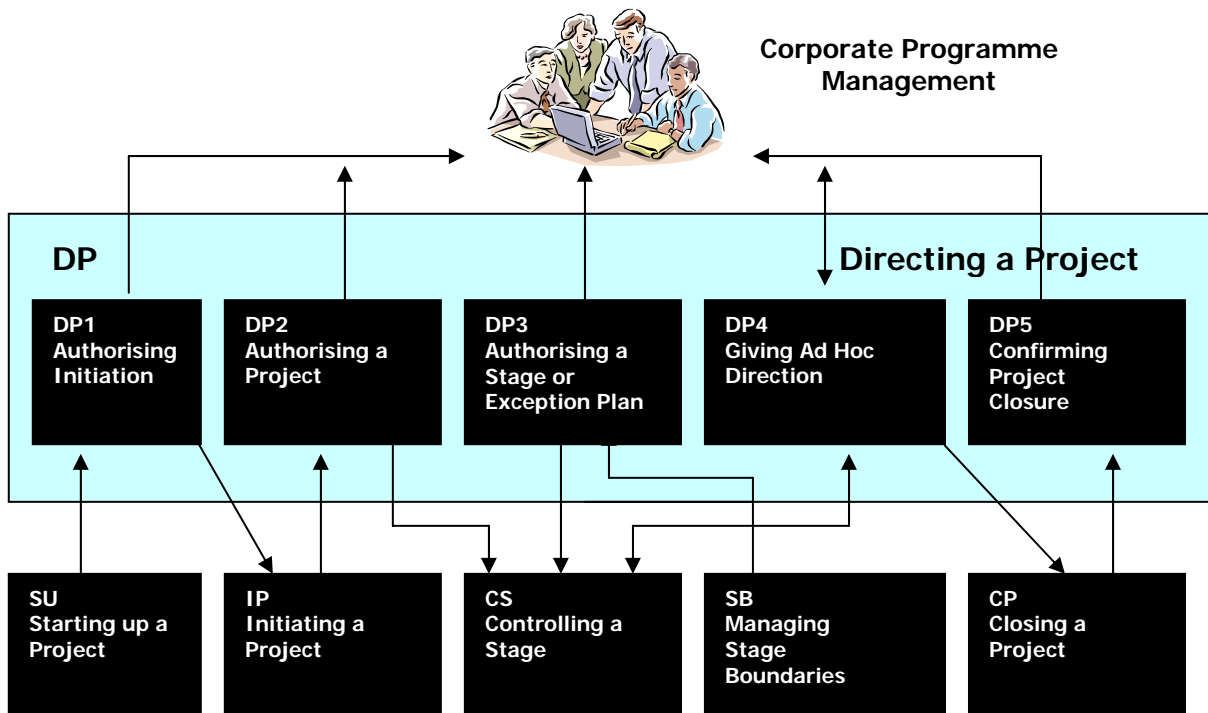


Figure 13: Directing a Project  
(Source: Office of Government Commerce, 2002)

#### 4.2.8. Planning (PL)

Planning is a repeatable process and plays an important role in all other PRINCE2 project management processes.

According to PRINCE2 the main product of this process is a Project Plan. However, apart from a Project Plan, this process produces the following documents:

- A Product Checklist, which is a table of the products to be produced by the work planned, with space for planned and actual dates for delivery of draft, quality-checked and approved products.
- The Risk Log, updated with any risk situation changes made as a result of the planning activity.

(Office of Government Commerce, 2002: 16)

The activities and their relations within the Planning (PL) process are depicted in the diagram below:

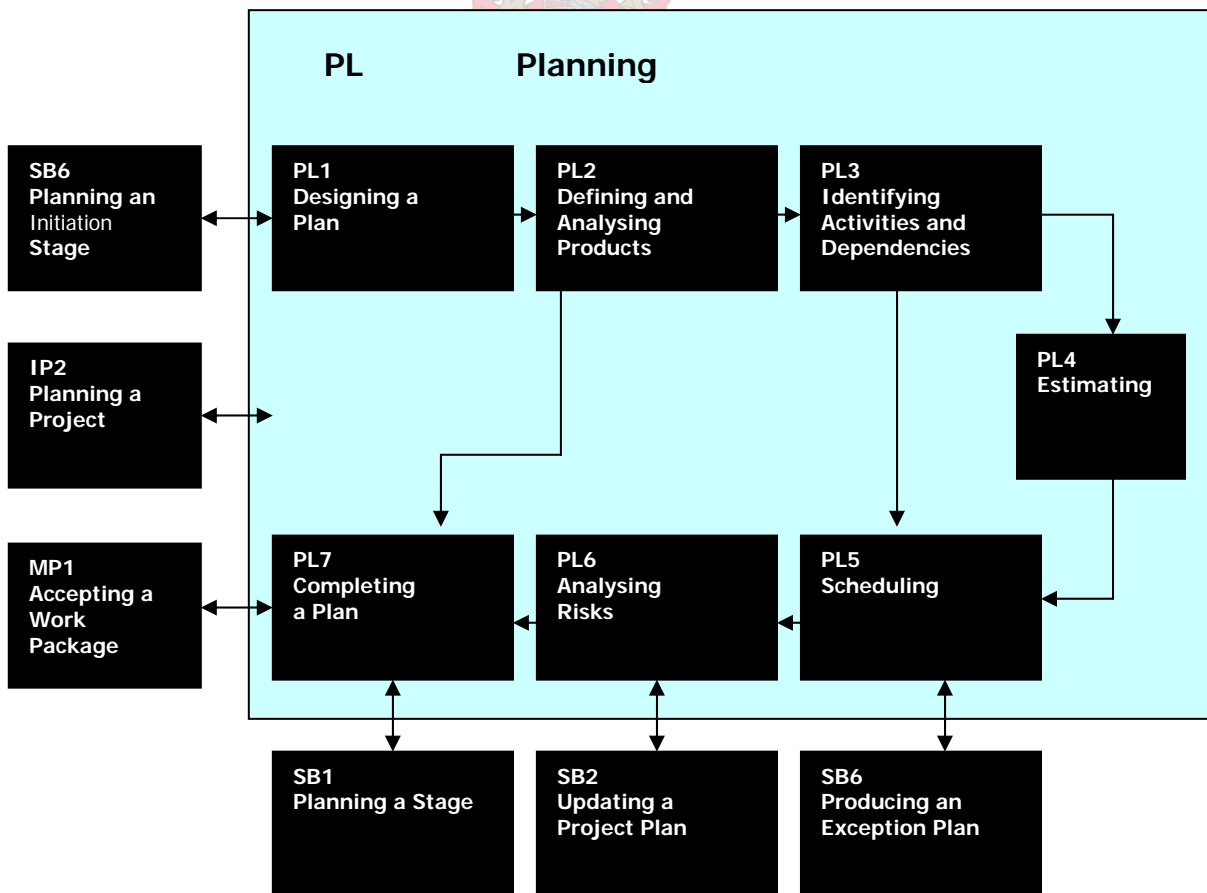


Figure 14: Planning Process  
(Source: Office of Government Commerce, 2002)

PRINCE2 also describes the components that are applied within the project management processes, which assist the management of the project. The diagram below shows the components positioned around PRINCE2 project management processes:

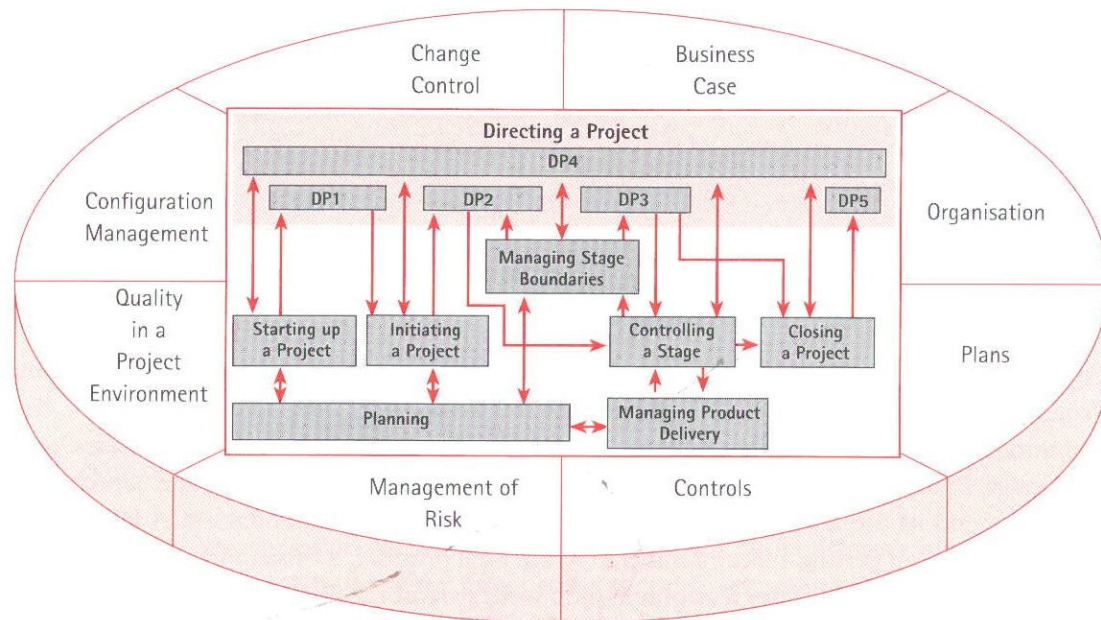


Figure 15: PRINCE2 Processes and Components  
(Source: Office of Government Commerce, 2002)

These components could be described as follows:

- **Organisation** – This component includes a structure of a project management team and a definition of the responsibilities and relationships (job descriptions) of all roles involved in the project. According to the size and complexity of a project, these roles can be combined and shared.
- **Plans** – This component includes a series of plans that can be tailored to the size and needs of a project. These plans typically include products, activities and resources. This component also provides a different approach to planning, which is based on products rather than activities.
- **Controls** – This component includes a set of controls, which facilitate the provision of key decision-making information, allowing an organisation to pre-empt problems and effectively resolve the problems. For senior management PRINCE2, controls are based on the concept of management by exception, i.e. the plan is agreed to and the manager should get on with it unless something is forecast to go wrong.

- **Management of Risk** – This component includes a definition of key moments when risks should be reviewed, it outlines an approach to the analysis and management of risk, and tracks these through all the processes.
- **Quality in a Project Environment** – This component ensures that a quality approach is incorporated into management and technical processes. It begins by establishing the customer’s quality expectations, and follows these up by laying down standards and quality inspection methods to be used, and by checking that these are being used.
- **Configuration Management** – This component includes tracking the components of a final product and their versions for release. There are many methods of configuration management available. PRINCE2 defines the essential facilities and information requirements for a configuration management method and how it should link with other PRINCE2 components and techniques.
- **Change Control** – This component ensures that change control is enforced with a change control technique and identification of the processes that apply the change control.
- **Business Case** – The existence of viable business case is the main control condition of a project. The business case is verified by the Project Board before a project begins and at every major decision point throughout the project. The project should be stopped if the business case becomes non-viable.

(Office of Government Commerce, 2002: 17)

### 4.3. PRINCE2 TECHNIQUES

The processes link to specific techniques. PRINCE2 assumes that most organisations already use some specific techniques and might wish to incorporate additional techniques that reflect their business environment and culture (Office of Government Commerce, 2002: 278). PRINCE2 lists three techniques, namely:

- **Product-based Planning** – The planning in PRINCE2 is concerned with planning product delivery. A “product” may be a tangible one, such as a computer, a document or a piece of software, or it may be intangible, such as cultural change or a different organisational structure. Within PRINCE2, these

will all be called “products”. This includes establishing what products are needed, determining the sequence in which each product should be produced, and defining the form and content of each product (Office of Government Commerce, 2002: 278). As part of this technique, the quality standards to which a specific product must conform are defined. There are three basic steps to this technique:

- Producing a Product Breakdown Structure (PBS).
- Writing Product Descriptions.
- Producing a Product Flow Diagram.

(Office of Government Commerce, 2002: 278-279)

- **Quality Review** – The quality review is a structured procedure designed to assess whether a product is ‘fit for purpose’ or conforms to requirements. According to PRINCE2 there are three basic steps in a quality review:
  - Preparation, which consists of confirmation that the product is ready for review; confirmation of the availability of nominated reviewers; assessment of the product against the quality criteria; gathering questions or suspected errors on a question list; annotation of minor errors on the product; return of the annotated product and question list to the compiler; and planning a review meeting.
  - Review Meeting, which consists of discussion; clarification and agreement on each of the point raised by the reviewers; agreement of the follow-up actions to address each agreed error; documentation on follow-up responsibilities; summary of the actions at the end of the meeting; agreement on the quality review outcome; and sign-off of the product.
  - Follow-up, which consists of notification to the Project and/or Team Manager of the quality review result; a plan of any correction work required; and sign-off of the product following successful correction work.

(Office of Government Commerce, 2002: 299-305)

- **Change Control** – Changes occur in any project and must be managed. The change control approach is focused on the changes to specialist products and

not management products. According to PRINCE2 the main principles applied in this technique are:

- If there are any changes to the product, its product description should be checked for any necessary changes;
- Once a product has been approved, the Project Manager should not authorise any work that would change it without the approval of the Project Board; and
- All changes are treated as issues and documented in the Project Issues Log. These issues are logged, analysed for technical, customer and business impact, and a decision made on whether to accept or reject the issue.

(Office of Government Commerce, 2002: 226)

#### **4.4. PRINCE2 COMPONENTS, TECHNIQUES AND CONTROLS IN THE PROCESSES**

The components, techniques and controls are all linked within project management processes to ensure the effective execution of the project. There are eight project management processes that drive the project management. They are supported by the components and techniques used by each of the project management processes to effect the management of the project. The diagram below illustrates the relationships and links between the processes, components and techniques.

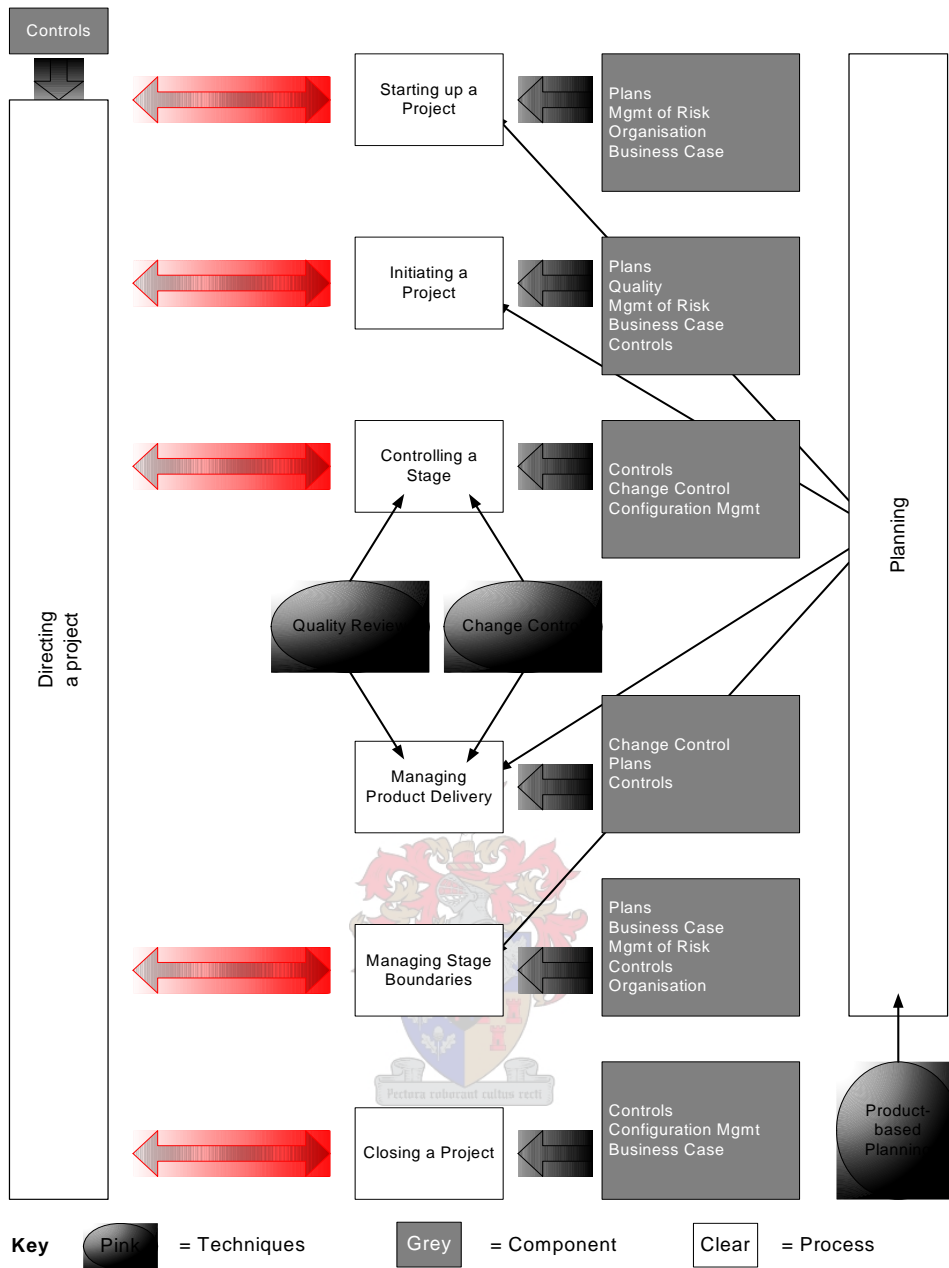


Figure 16: Use of the PRINCE2 components and techniques in the processes  
 (Source: Office of Government Commerce, 2002)



## CHAPTER 5

### MAPPING KEY RISKS OF ERP SYSTEM IMPLEMENTATION PROJECTS ACROSS PRINCE2 PROJECT MANAGEMENT PROCESSES AND SAP IMPLEMENTATION PHASES

#### 5.1. SAP IMPLEMENTATION KEY RISKS MAP

In this chapter the author maps the key risks of ERP System Implementation across PRINCE2 project management processes and SAP Implementation phases to show where the risks could materialise in the project lifecycle. These key risks are mapped based on the key objectives of each PRINCE2 project management process and each SAP Implementation phase, as discussed in Chapter 2 and 4. As mentioned in Chapter 2, for the purpose of this study the author uses the SAP Implementation process as a generic method of ERP solution implementation. This method is based on “best practices and case studies from various literature sources, and presents a collection of processes and products that make up a complete implementation method to allow any organisation to plan and execute the implementation of ERP system” (Anderson, 2003).

The “blank” boxes in SAP Implementation Key Risk Map (Figure 17) indicate that the risks are not applicable to these sections. For example, Starting-up a Project and Initiating a Project processes do not cross reference any risks to SAP Functional Development, as this phase commences after start up and initiation of the project as well as after completion of SAP Project Preparation and Blueprint. Another example is Closing a Project process, which does not cross-reference any risks to SAP Implementation phases except to SAP Go-Live phase. Closing a Project process occurs after the system has been planned, designed, built, tested and prepared for operational roll-out, therefore the risks could only be cross referenced to SAP Go-Live phase.

The key risks of ERP System Implementation Project are referenced as “R1, R2, R3, etc.”, as per their detailed description in Chapter 3.

Some of these key risks could materialise in a number of project management processes and SAP Implementation phases. However, the actions to address these risks differ as the project moves through its lifecycle. The key risks should be mitigated throughout the project lifecycle, therefore only a combination of all actions collectively taken to address a specific risk within each project management process, ensures that the risk is appropriately addressed.

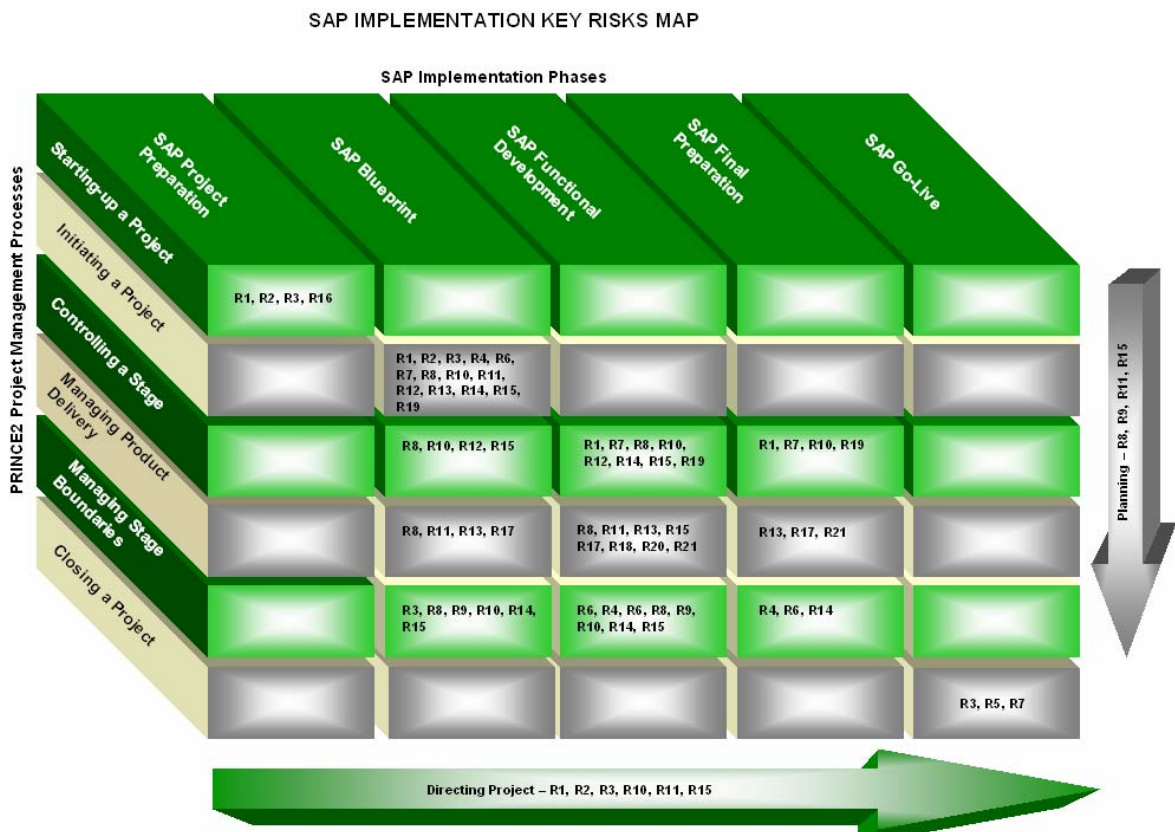


Figure 17: SAP Implementation Key Risks Map

## CHAPTER 6

### APPLYING PRINCE2 PROJECT MANAGEMENT DISCIPLINES TO ADDRESS KEY RISKS IN ERP SYSTEM IMPLEMENTATION PROJECTS

In this chapter, the author discusses PRINCE2 project management disciplines, which could be applied to address the key risks listed in the SAP Implementation Key Risks Map.

#### 6.1. SAP PROJECT PREPARATION

##### 6.1.1. SAP Project Preparation and Starting Up a Project

Office of Government Commerce (2002: 25-44) lists the following project management disciplines to be applied during Starting Up a Project to address key risks pertinent to SAP Project Preparation:

Key Risk	Project Management Disciplines
<p><i>R1: Lack of executive management commitment and support in ERP solution design and implementation.</i></p>	<p>To get anything done in the project, a decision maker and someone to undertake the planning need to be appointed. Therefore, the executive manager should be identified and assigned accountability for the SAP Implementation project, as well as an appropriate project manager should be selected and appointed. These individuals should be available, accept their role and be committed to carrying it out. Therefore, the job description covering the specific responsibilities of Project Sponsor and Project Manager should be defined and formally signed off by both parties.</p> <p>The Project Sponsor should establish a Project Board, which sufficiently represents the executive management (the business, senior user and senior supplier). The Project Board should serve as a</p>

	<p>decision-making body. The authority levels required of the Project Board members should match the needs of the project. The roles of the Project Board members should be defined and formally contracted. The Project Sponsor's responsibility during Starting Up a Project is to prepare and agree to a Project Brief with all relevant stakeholders. The Project Brief provides a full and firm foundation for the initiation of the SAP Implementation project. The Project Brief defines at a high level what needs to be done, why it needs to be done, the benefits to be achieved, who will need to be involved in the process, and how and when it will be done. During the preparation of Project Brief, it is important to agree to the customer quality expectations and to prioritise the user requirements. The customer quality expectations will also be used in the initiation stage to create a Project Quality Plan.</p> <p>The risks that come to light during this process should be documented in the Project Risk Log.</p>
<p><i>R2: The project is not organised and structured to enable delivery of a quality ERP solution.</i></p>	<p>The project management team should be clearly defined and it should be appropriate to the size and nature of the SAP Implementation project. The project team management structure should include the appointment of a dedicated Project Manager, Work Package Managers (sub-project managers), key project team members (TSO staff, key IT resources), Project Board (executive decision makers), Senior User (represents interests of all those who will use the system) and Senior Supplier (represents the interests of those designing, developing, facilitating, procuring and implementing</p>

	<p>the system). During this process, it is imperative to ensure that each individual understands and agrees on who is accountable to whom and for what, who is responsible for what and what the reporting and communication lines are.</p>
<p><i>R3: ERP solution does not enable the realisation of business benefits.</i></p> <p><i>R16: Poor understanding of ERP solution capabilities.</i></p>	<p>The external trigger for the project is a Project Mandate from the Executive Management of the organisation. The Project Mandate will typically be a “go ahead” to conduct a feasibility study. The purpose of the feasibility study is to answer the question, “Does the organisation have a viable and worthwhile project?” During this phase, a thorough study is conducted on the cost and benefit of acquiring and implementing a new system. The feasibility study should, at a minimum, include:</p> <ul style="list-style-type: none"> <li>• Analysis of current working practices and/or business processes to reveal the areas in business where there is duplication of effort, or where the procedures instituted in the distant past are carried out even though there is no longer any need for them.</li> <li>• Analysis of information channels to determine that all relevant data will be captured at the point where it can be used for decision making.</li> <li>• Analysis of alternative methods of handling or presenting the data.</li> <li>• Clearly identified cost savings or related business benefits.</li> <li>• Analysis of supporting services that will be required during the system installation period.</li> </ul>

	As part of the feasibility study, a high level business case is prepared, which describes the problem to be solved or opportunity to be pursued, and, as such, it forms the basis for business benefit measurement and tracking of the SAP Implementation project.
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## 6.2. SAP BLUEPRINT

### 6.2.1. SAP Blueprint and Initiating a Project

Office of Government Commerce (2002: 45-65) lists the following project management disciplines to be applied during Initiating a Project to address key risks pertinent to SAP Blueprint:

<b>Key Risk</b>	<b>Project Management Disciplines</b>
<p><i>R1: Lack of executive management commitment and support in ERP solution design and implementation.</i></p>	<p>The appropriate control and monitoring framework should be established. The main objective of this framework is to ensure that decisions are allocated to people equipped and authorised to make those decisions. During this process, it is important to assess whether the controls in this framework are appropriate to the risk, scale and complexity of the SAP Implementation project. This framework includes:</p> <ul style="list-style-type: none"> <li>• Identification of reporting requirements from the Project Management to the Project Board.</li> <li>• Allocation of various levels of decision making to appropriate management.</li> <li>• Definition and documentation of decision-making procedures.</li> <li>• Inclusion in the project plans, where appropriate, of the decision-making authorities, responsibilities and monitoring mechanisms.</li> </ul>

	<ul style="list-style-type: none"> <li>• Establishment of information needs associated with each decision-making process and monitoring mechanism to satisfy these needs.</li> </ul> <p>The Project Board has an overall responsibility for the outcome of the project, while delegating day-to-day management to the Project Manager. Therefore, the Project Board members should meet on a regular basis to monitor the progress of SAP Implementation. The roles and responsibilities of the Project Board members in the project should be defined and formally contracted.</p> <p>The Project Manager should establish a formal reporting process on the SAP Implementation progress, which includes achievements of the current period, achievements expected in the next period, actual and potential issues and suggestions concerning their resolution, as well as progress against the Project Plan.</p> <p>The Project Assurance function should be established, and, in the PRINCE2 environment, it should be a part of the role of each Project Board member. The Project Board members can delegate some of the work to other individuals as long as they are independent of the Project Manager. Therefore, the Project Board cannot delegate any of its assurance responsibilities to the Project Manager.</p>
<p><i>R2: The project is not organised and structured to enable delivery of a quality</i></p>	<p>The Project Manager should be responsible to facilitate human resource allocations to the project, including the allocation of Work Package Managers.</p>

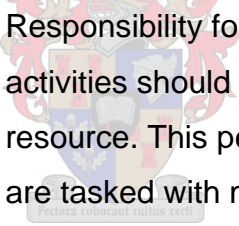


<p><i>ERP solution.</i></p>	<p>The Project Manager should identify team requirements, i.e. roles and responsibilities, to ensure the “right people” are selected to be on the project and these individuals are available and not over-allocated.</p> <p>Roles and responsibilities, as well as the areas of accountability for project delivery, should be defined, formally contracted and linked to the individual’s performance contract.</p>
<p><i>R6: Lack of buy-in and support from stakeholders into the ERP solution design and implementation.</i></p> <p><i>R4: The design and implementation of ERP solution disrupts/negatively impacts the business operations (people, processes, technology).</i></p> <p><i>R14: Insufficient communication from the project team to project stakeholders.</i></p>	<p>A formal approach for managing change should be developed and adapted as needed, as the change moves through the organisation or scope of the project. Such an approach should start with Executive Management and then engage key stakeholders and leadership at the various levels in the organisation. The change management approach should be fully integrated into project design and decision-making process. The Project Board should nominate a Change Owner, a single figure, as the head of the change effort, in whom responsibility rests and to whom questions and problems are ultimately referred.</p> <p>SAP Implementation results in significant change in the organisation’s operational practices and business processes. The impact on the staff (human resources) is significant, for example, change of job description, upskilling, multiskilling, retrenchment, etc. Therefore, the Project Manager should assess whether the services of professional Human Resources practitioner(s) and/or professional trainers to whom work process/technology training are</p>



generally outsourced is required. It is essential that this time-consuming piece of work is scoped at the outset of the project, included in the project plan, and that suitably qualified and experienced resources are contracted.

The change management approach includes development of the Change Management Plan. This plan facilitates buy-in to and ownership of the vision for the change, which should be articulated and confirmed at the outset of the project. The Change Management Plan should be aligned with milestones in the Project Plan to ensure timely and appropriate generation, collection, dissemination, storage, and ultimate disposal of information.



Responsibility for delivery of change management activities should be assigned to a dedicated project resource. This person should ensure that those who are tasked with making the change have the right skills, abilities and experience to manage all the issues – technical, organisational and political – that will arise. Alternatively, the Project Manager should ensure that this individual is provided with sufficient training.

A comprehensive Communication and Support strategy, which will facilitate the passage through resistance to change and enhance stakeholder commitment, should be defined. As part of this process, all stakeholders outside the project management team should be identified. Their information needs should be agreed to and

	<p>documented in the Communication Plan. This includes communication activities, method of frequency, communication channels, milestones and timelines. Project stakeholders should be communicated on SAP Implementation project milestones and deliverables, as well as on how the project progresses against these milestones. The Communication Plan forms part of the overall Change Management Plan.</p>
<p><i>R3: ERP solution does not enable the realisation of business benefits.</i></p>	<p>The Business Case should be reviewed to ensure that:</p> <ul style="list-style-type: none"> <li>• The strategic objectives that the SAP Implementation project is expected to address are still achievable.</li> <li>• Recent external events did not affect any benefits quoted in the Business Case.</li> <li>• Additional business benefits that become apparent are incorporated in the Business Case.</li> <li>• There is proper measurement and recording of the achievement of each claimed business benefit.</li> <li>• The cost elements and financial case are properly calculated and refined as per project plan and the latest information.</li> <li>• The risks listed in the Business Case are reviewed/updated and contingency plans are created, where required.</li> </ul>
<p><i>R8: Poor definition of the ERP system implementation project scope and underestimation of the implementation timeline.</i></p>	<p>The Project Initiation Document (PID) should be prepared and formally signed off by the Project Board. This document serves as a “contract” between the Project Board and the Project Manager, where the Project Board takes ownership of SAP</p>

<p><i>R11: The ERP System Implementation Project does not have the necessary resources (people, goods, services) to deliver a quality solution, within the agreed timeline and within the agreed budget.</i></p> <p><i>R15: Insufficient or poorly controlled budget for ERP solution design and implementation.</i></p>	<p>Implementation and agrees to the commitment of resources to the first stage of the project.</p> <p>PID also provides a common understanding of the reasons for doing SAP Implementation, what key products the project will deliver, how and when it will be delivered and at what cost, the scope of what needs to be done, any constraints applied to the product or project, how the quality required will be achieved, what risks are faced, how the project will be controlled, the commitments that the Project Manager needs from the Project Board (next Stage Plan).</p> <p>As output of PID, the Project Plan is prepared, which clearly outlines the timescale, resource requirements, key milestones and costs. It is important that the project budget is based on the resource requirements (people, equipment and materials). The Project Board should approve the project budget specified in PID and the authorisation levels for project expenditure. It is imperative that in the project budget the capital and operating expenditure are listed separately. It is the responsibility of the Project Manager to monitor, report and update the project budget throughout project lifecycle.</p> <p>As part of this process, change control procedures and authorisation levels should be established. As part of the change control process, the authority levels should be defined as to who is permitted to authorise changes to what the project has to produce. It is a Project Board's responsibility to agree</p>
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to each change before it is implemented, or authority is assigned to a responsible individual for approval of each type of change.

According to the Office of Government Commerce (2002: 271), the control of change means the assessment of the impact of potential changes, their importance, their cost and a judgmental decision by management on whether to include them or not. Any approved changes must be reflected in the necessary corresponding change to schedule and budget. The control of changes is concerned with changes to specialist products, not management products. There are two main considerations in change control, namely:

- If a product is to be changed, its Product Description should be checked for the necessary changes.
- Once a product has been approved, the Project Manager should not authorise any work that would change it without the approval of the Project Board.

(Office of Government Commerce, 2002: 295)

Office of Government Commerce (2002: 271-272) treats all changes as types of Project Issue and they are handled through the Project Issue Log. The objective is to capture, log and categorise all Project Issues. After the initial assessment of the nature of each issue, two specific types of change can result:

- A Request for Change, which, for whatever reason, will cause a change to the specification or Acceptance Criteria of the

	<p>project or one of the project's products. Any additional cost to carry out the change will normally have to be funded by the customer.</p> <ul style="list-style-type: none"> <li>• An Off-Specification, covering errors or omissions found in work already conducted or planned for the future, which will result in agreed specification or Acceptance Criteria not being met. Additional costs to carry out this work will normally fall on any suppliers involved.</li> </ul>
<p><i>R10: The ERP Implementation Project risks materialise and/or issues are not resolved timeously.</i></p>	<p>Risk is a major factor to be considered during the management of any project. Project Management must control and contain risks if a project is to stand a chance of being successful. The task of risk management is to manage a project's exposure to risk (that is, the probability of specific risks occurring and the potential impact if they did occur). The aim is to manage that exposure by taking action to keep exposure to an acceptable level in a cost-effective way. Therefore, the Project Manager should establish a process relating to the management of project risks and issues (planning, identification, assessment, mitigating actions, ownership, monitoring and follow-up). This process should be communicated and understood by all relevant stakeholders.</p> <p>As part of this process, the Project Risk Log should be created, which outlines all risks that may impact SAP Implementation projects, their assessment and possible courses of action to reduce the risk to the acceptable level. Each risk should have an owner (the person who is best placed to observe the risk</p>

	<p>and the factors affecting it).</p> <p>As part of establishing a risk and issue management process, the risk/issue escalation process should also be defined, which clearly states what the risks/issues are, and when and how these risks/issues must be escalated to the Project Manager by Work Package Managers. The Project Manager is responsible for escalating to the Project Board the risks/issues that are beyond his/her authority to resolve. The project risks/issues are escalated through Exception Reports.</p>
<p><i>R13: Project deliverables do not meet business requirements.</i></p>	<p>Quality standards, objectives and requirements relevant to the SAP Implementation objectives should be identified, documented and communicated to project stakeholders. This should be aligned with the organisation's quality policy, regulations and standards.</p> <p>A key success factor of any project is that the outcome of the project conforms to the customer's quality expectations. This could only happen if these expectations are both stated and agreed to at the beginning of the project, together with the means of assessing the achievement of these within the final product.</p> <p>According to the Office of Government Commerce (2002: 255-261), the quality should be planned during Project Initiation. This includes determining the quality required for the products of the project, and to plan the project's approach to quality by:</p> <ul style="list-style-type: none"> <li>• Establishing the quality regime that will apply</li> </ul>

	<p>to the project and what Project Assurance arrangements will be employed.</p> <ul style="list-style-type: none"> <li>• Agreeing the customer’s quality expectations, including the criteria by which overall success of the SAP Implementation is to be measured.</li> <li>• Establishing the project Acceptance Criteria, which the SAP system must meet before the customer will accept the product.</li> <li>• Establishing the approach to be used within the project for the control of changes, including assigning quality management responsibilities and change control procedures (responsibilities, procedures, change budget and documentation).</li> <li>• Establishing the quality assurance needs for the project management products and activities.</li> </ul> <p>As output of quality planning, the Configuration Management and Project Quality Plans are prepared. These documents should be presented and signed off by the Project Board. The Project Quality Plan is supported by the Quality Log. The Quality Log lists details of all planned and actual quality checks in the project.</p>
<p><i>R7: The end ERP solution is not used effectively as business users are not ready to operate the new solution.</i></p> <p><i>R12: Lack of sufficient knowledge, skills, experience and abilities of the project manager and project team to</i></p>	<p>The Project Manager in conjunction with the Project Board should identify the training needs of organisation’s staff in relation to SAP knowledge and skills, and prepare a Training Plan. The Training Plan should clearly define what training is required for each role/function in the ERP environment, for example data centre specialists, network specialists, high availability specialists and end users. The</p>

<p><i>implement the ERP solution.</i></p> <p><i>R19: Inadequate transfer of ERP skills and knowledge from vendors/contractors to the organisation's staff.</i></p>	<p>Training Plan should be integrated into the Project Plan. The Project Plan should also make provision for on the job training to ensure the knowledge transfer from SAP contractors to the organisation's staff. The outcome of training should be formally evaluated throughout the SAP Implementation project and reported to the Project Board.</p>
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### 6.2.2. SAP Blueprint and Controlling a Stage

Office of Government Commerce (2002: 93-121) lists the following project management disciplines to be applied during Controlling a Stage to address key risks pertinent to the SAP Blueprint:

<b>Key Risk</b>	<b>Project Management Disciplines</b>
<p><i>R8: Poor definition of the ERP system implementation project scope and underestimation of the implementation timeline.</i></p> <p><i>R15: Insufficient or poorly controlled budget for ERP solution design and implementation.</i></p>	<p>The Project Manager should establish a regular reporting process on delivery progress (time, quality and cost) by Work Package Managers. This is done through Reviewing Stage Status. This process includes a regular progress assessment and reporting of the progress of work being carried out and the status of resources. This process also decides whether further Work Packages should be proposed and any plan modifications are required. The main objectives of this process are to check periodically that the current stage is kept within the tolerances set down by the Project Board and review the project status. The Stage Status is reported through Checkpoint Reports. The information from Checkpoint Reports is summarised in the Highlight Reports. The Highlight Reports provide the Project Board with summary information about the status of the stage and project at the frequency defined by the Project Board and serve as the means of passing out</p>



	<p>any other information to stakeholders defined in the Communication Plan.</p> <p>If either stage or project is forecast to deviate beyond its agreed tolerance boundaries, it no longer has the approval of the Project Board. Therefore, the change control procedures defined in the Project Initiation phase should be followed. These include the assessment of the impact of potential changes, their importance, their cost and a judgmental decision by management on whether to include them or not. Any approved changes must be reflected in the necessary corresponding change to schedule and budget. The Project Changes are treated as issues and they are presented to the Project Board through the Exception Report. It is the Project Board's responsibility to agree to each change before it is implemented or assign authority to a responsible individual for approval of each type of change.</p>
<p><i>R10: The ERP Implementation Project risks materialise and/or issues are not resolved timeously.</i></p>	<p>The Project Manager should review Risk and Issue Logs on a regular basis to ensure that:</p> <ul style="list-style-type: none"> <li>• All project issues and risks are captured and logged into the Project Issue and Risk Logs respectively.</li> <li>• Each issue and risk in the Project Issue and Risk Logs is assessed for its impact and alternative actions considered.</li> <li>• If the project issue relates to a previously identified risk or reveals a new risk, the Project Risk Log is updated.</li> </ul> <p>The Project Manager's responsibility is to decide for each Risk/Issue whether the resolution is within his authority or should be escalated to the Project Board</p>

	through Highlight or Exception Reports.
<i>R12: Lack of sufficient knowledge, skills, experience and abilities of the project manager and project team to implement the ERP solution.</i>	The Project Manager should ensure that the skills gap analysis is conducted and the training needs of the project team, various members of the SAP TSO (data centre specialists, network specialists and high availability specialist) and the end users, are identified. Based on the skills gap analysis, the Project Manager should ensure that adequate skills development, knowledge transfer and training are incorporated into the Project Plan.

### 6.2.3. SAP Blueprint and Managing Product Delivery

Office of Government Commerce (2002: 123-131) lists the following project management disciplines to be applied during Managing Product Delivery to address key risks pertinent to the SAP Blueprint:

<b>Key Risk</b>	<b>Project Management Disciplines</b>
<p><i>R8: Poor definition of the ERP system implementation project scope and underestimation of the implementation timeline.</i></p> <p><i>R11: The ERP Implementation Project does not have the necessary resources (people, goods, services) to deliver a quality solution, within the agreed timeline and within the agreed budget.</i></p>	<p>The work on the project should be delegated and agreed with individuals responsible for Work Packages (for example testing, interfaces, data migration). The Work Package should have a plan, which clearly defines the scope, timelines, products to be delivered, and cost and resource requirements.</p> <p>The Project Manager should ensure that sufficient resources are available to perform the work. A Work Package Manager should be appointed for each Work Package.</p> <p>The Project Manager and the Work Package Managers should formally agree what is to be delivered, what constraints apply, any dependencies and whether the requirements of the Work Package are reasonable and can be achieved.</p>

	<p>The Project Manager should establish a regular reporting process on delivery progress (time, quality and cost) by Work Package Managers. This is done through Reviewing Stage Status. This process includes a regular progress assessment and report of the progress of work being carried out and the status of resources. This process also decides whether further Work Packages should be proposed and any plan modifications required. The main objectives of this process are to check periodically that the current stage is kept within the tolerances set down by the Project Board and review the project status. The Stage Status is reported through Checkpoint Reports. As part of the reporting process, an issue escalation process should also be defined, which clearly states what the issues are, and when and how these issues must be escalated to the Project Manager.</p>
<p><i>R13: The project deliverables do not meet business requirements.</i></p> <p><i>R17: Business requirements are incomplete or not received in timeously manner therefore the existing business processes do not fit the integrated ERP solution.</i></p>	<p>The quality standards and procedures should be defined for each Work Package. The Project Manager should ensure that all products subject to quality review are identified, the product quality criteria defined, the quality reviews planned and incorporated into the Stage Plan, the individuals or groups who have a vested interest in the product under review identified as quality reviewers and their role agreed.</p> <p>According to Office of Government Commerce (2002: 260), the Project Quality Planning should cover the following aspects:</p> <ul style="list-style-type: none"> <li>• How each product will be tested against its quality criteria.</li> </ul>

	<ul style="list-style-type: none"> <li>• When each product will be tested against its quality criteria.</li> <li>• By whom each product will be tested against its quality criteria.</li> <li>• How acceptance will be notified.</li> </ul> <p>During Project Quality Planning it is important to ensure that appropriate measures are agreed with/between all parties as Customers and Suppliers may have different Quality standards.</p>
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#### 6.2.4. SAP Blueprint and Managing Stage Boundaries

Office of Government Commerce (2002: 133-148) lists the following project management disciplines to be applied during Managing Stage Boundaries to address key risks pertinent to the SAP Blueprint:

Key Risk	Project Management Disciplines
<p><i>R3: The ERP solution does not enable the realisation of business benefits.</i></p>	<p>As SAP Implementation is usually undertaken to deliver certain business benefits, the continuing correct focus of the project should be confirmed at the end of each stage. If necessary, the project can be re-directed or stopped to avoid wasting time and money.</p> <p>The Project Manager should ensure that at the end of each stage the Business Case is reviewed and the costs, benefits, key risks and timings that are stated in the Business Case are updated, where necessary. The review of the Business Case is imperative to ensure that:</p> <ul style="list-style-type: none"> <li>• The strategic objectives that the SAP Implementation project is expected to address are still achievable.</li> <li>• Recent external events did not affect any</li> </ul>

	<p>benefits quoted in the Business Case.</p> <ul style="list-style-type: none"> <li>• Additional business benefits that become apparent are incorporated in the Business Case.</li> <li>• The achievement of each claimed business benefit is properly measured and recorded.</li> <li>• The cost elements and financial case are properly calculated and refined as per project plan and the latest information.</li> <li>• The risks listed in the Business Case are reviewed/updated and contingency plans are created, where required.</li> </ul>
<p><i>R8: Poor definition of the ERP Implementation Project scope and underestimation of the implementation timeline.</i></p> <p><i>R9: Underestimation of the ERP solution complexity, integration and dependency requirements.</i></p> <p><i>R15: Insufficient or poorly controlled budget for ERP solution design and implementation.</i></p>	<p>Before the end of each stage except the final one, the next stage should be planned, together with a review and update of the Business Case, risk situation and overall Project Plan. The results of the Blueprint phase should be formally reported to the Project Board through the End Stage Report.</p> <p>This report compares the actual results of the stage in terms of costs, dates achieved and products produced with the original Stage Plan. A statement is made comparing the results with the agreed tolerances for the stage. The Project Manager gives a view on the continuing ability of the SAP Implementation to meet the Project Plan and Business Case, and assesses the overall risk situation.</p> <p>The next Stage Plan and the revised Project Plan accompany the End Stage Report. The report also identifies any variations from the previous versions of these plans and assesses any changes to the risk</p>

	<p>situation. If SAP Implementation is still viable in the Project Manager's view, a request to proceed to the next stage should accompany the End Stage Report. Through this process, the Project Manager provides the information needed for the Project Board to assess the continuing viability of the project, obtains authorisation for the start of the next stage, prepares the next Stage Plan and assures the Project Board that all products in the current Stage Plan have been completed as defined.</p> <p>If either stage or project is forecast to deviate beyond its agreed tolerance boundaries, it no longer has the approval of the Project Board. Therefore, the change control procedures defined in the Project Initiation phase should be followed. These include the assessment of the impact of potential changes, their importance, their cost and a judgmental decision by management on whether to include them or not. Any approved changes must be reflected in the necessary corresponding change to schedule and budget. The Project Changes are presented to the Project Board through the Exception Report. It is a Project Board's responsibility to agree to each change before it is implemented or assign authority to a responsible individual for approval of each type of change.</p>
<p><i>R10: The ERP Implementation Project risks materialise and/or issues are not resolved timeously.</i></p>	<p>At the end of Blueprint phase, the project delivery risks should be reviewed and updated, where necessary. Each risk should be examined to see if it has increased, disappeared, decreased, happened or stayed the same. This process should be carried in conjunction with planning for SAP Functional</p>

	Development as the Next Stage Plan can raise new risks or change existing risks. The Risk Log should be updated to reflect the changes. As part of this process, the Issue Log should be reviewed to determine whether there are any new project issues that are caused by (or could improve) the new risk.
<i>R14: Insufficient communication from the project team to project stakeholders.</i>	<p>The results of the Blueprint phase should be reported back to those who provided the resources and approved project execution so that progress is clearly visible to the project management team. This is done through the End Stage Report, which is submitted to the Project Board at the end of each stage.</p> <p>The Project Board is the project "voice" to the outside world and is responsible for dissemination of information in the End Stage Report to all stakeholders. As part of this process, a newsletter could be prepared to inform project stakeholders about the end stage achievement, products that have been delivered, challenges in the SAP Implementation facing the project team, lessons learnt, as well as the plans for the next stage.</p>

### 6.3. SAP FUNCTIONAL DEVELOPMENT

#### 6.3.1. SAP Functional Development and Controlling a Stage

Office of Government Commerce (2002: 93-121) lists the following project management disciplines to be applied during Controlling a Stage to address key risks pertinent to SAP Functional Development:

<b>Key Risk</b>	<b>Project Management Disciplines</b>
<i>R1: Lack of executive management commitment</i>	The Project Manager should regularly prepare and present a Highlight Report, which includes the



<p><i>and support in ERP solution design and implementation.</i></p> <p><i>R14: Insufficient communication from the project team to project stakeholders.</i></p>	<p>achievements of the current period, achievements expected in the next period, actual and potential issues and suggestions concerning their resolution and progress against the Stage Plan, to the Project Board. The Highlight Report also reports on the progress being made within the set tolerances.</p> <p>The Project Board should review the Highlight Report and make decisions to address the risks/issues listed in this report. The Project Board decisions should be documented in the meeting minutes. The Project Sponsor should ensure that the risks/issues are followed up through to the resolution at the next Project Board meeting. The Project Board should ensure that the Project Manager reports through the Exception Report on the risks/issues, which could lead to the project deviating outside its tolerance margins. It is the Project Board's responsibility to make decisions on project risks/issues and the Exception Reports that are beyond the Project Manager's authority.</p> <p>The Project Manager should communicate the project milestones and deliverables to project stakeholders, as well as on how the project progresses against these milestones. This information should be communicated through Highlight Reports, e-mail updates or newsletters.</p> <p>The Communication Plan prepared during Project Initiation should be reviewed to determine whether any additional reports must be sent out to stakeholders.</p>
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<p><i>R10: The ERP Implementation Project risks materialise and/or issues are not resolved timeously.</i></p>	<p>All project issues need to be captured and logged into a Project Issue Log. Each issue in the Project Issue Log should be assessed for its impact and alternative actions considered. The Project Issue Log should be reviewed regularly. If the project issue relates to a previously identified risk or reveals a new risk, the Project Risk Log should be updated. The Project Manager's responsibility is to decide for each issue whether the resolution is within his authority or it needs to be escalated to the Project Board through Highlight or Exception Reports.</p>
<p><i>R7: The end ERP solution is not used effectively as business users are not ready to operate the new solution.</i></p> <p><i>R12: Lack of sufficient knowledge, skills, experience and abilities of the project manager and project team to implement the ERP solution.</i></p> <p><i>R19: Inadequate transfer of ERP skills and knowledge from vendors/contractors to the organisation's staff.</i></p>	<p>The Project Manager should ensure that training and skills development conducted during the SAP Blueprint are formally evaluated and assessed. The additional training and knowledge transfer requests received from various sources, such as end-user requests, operations, data centre team, DBA group and systems management, should be evaluated, and training interventions should be arranged, where required.</p> <p>The Project Manager should also ensure that all training activities listed in the project plan are executed as intended. The results of training interventions should be formally reported to the Project Board.</p>
<p><i>R8: Poor definition of the ERP system implementation project scope and underestimation of the implementation timeline.</i></p> <p><i>R15: Insufficient or poorly controlled budget for ERP solution design and</i></p>	<p>The Project Manager should regularly review and assess the project progress. This is done through the process of Reviewing Stage Status. During this process, the information is collected for all work currently undertaken to enable assessment of the estimated time and effort to complete any unfinished work (including that not yet started), assessment of utilisation of resources and their availability for the</p>

<i>implementation.</i>	remainder of the stage (or project), update of the Stage Plan with actual achievements to date, identification of any variation between plan and actual progress, and identification of any points that need attention.
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### 6.3.2. SAP Functional Development and Managing Product Delivery

Office of Government Commerce (2002: 123-131) lists the following project management disciplines to be applied during Managing Product Delivery to address key risks pertinent to SAP Functional Development:

<b>Key Risk</b>	<b>Project Management Disciplines</b>
<p><i>R8: Poor definition of the ERP system implementation project scope and underestimation of the implementation timeline.</i></p> <p><i>R11: The ERP Implementation Project does not have the necessary resources (people, goods, services) to deliver a quality solution within the agreed timeline and within the agreed budget.</i></p> <p><i>R15: Insufficient or poorly controlled budget for ERP solution design and implementation.</i></p>	<p>Project Manager should regularly review and assess the project progress. This is done through the process of Reviewing Stage Status. During this process, the information is collected for all work currently undertaken to enable assessment of the estimated time and effort to complete any unfinished work (including that not yet started), assessment of utilisation of resources and their availability for the remainder of the stage (or project), update of the Stage Plan with actual achievements to date, identification of any variation between plan and actual progress, and identification of any points that need attention. The Stage Status should be reported through Checkpoint Reports. As part of the reporting process, any issues that require project management decision should be escalated. If either stage or project is forecast to deviate beyond its agreed tolerance boundaries, it no longer has the approval of the Project Board. Therefore, the Project Manager should ensure that the change control procedures defined in the Project Initiation phase are followed.</p>

	<p>The Project Manager should regularly assess the resource requirements and agree on the resource time and availability with business management. The Work Package Managers should notify Project Manager of any resource constraints in good time.</p>
<p><i>R13: The project deliverables do not meet business requirements.</i></p> <p><i>R17: Business requirements are incomplete or not received in timeously manner; therefore, the existing business processes do not fit the integrated ERP solution.</i></p>	<p>The Project Manager should ensure that Work Package Managers conduct Quality Reviews as stipulated in the Stage Plan. As per PRINCE2 (Office of Government Commerce, 2002: 303), the following steps in Quality Review activity should be followed:</p> <ul style="list-style-type: none"> <li>• <i>Preparation</i>, which consists of confirmation that the product is ready for review; confirmation of the availability of nominated reviewers; assessment of the product against the quality criteria; gathering questions or suspected errors on a question list; annotation of minor errors on the product; return of the annotated product and a question list to the compiler; and planning a review meeting.</li> <li>• <i>Review Meeting</i>, which consists of discussion, clarification and agreement on each of the points raised by the reviewers; agreement on the follow-up actions to address each agreed error; documentation on follow-up responsibilities; a summary of the actions at the end of the meeting; agreement on the quality review outcome; and sign-off of the product.</li> <li>• <i>Follow-up</i>, which consists of notification to the Project and/or Team Manager of the quality review result; a plan of any correction work required; and sign off of the product following</li> </ul>

	<p>successful correction work.</p> <p>The Project Manager should ensure that all required changes to the product resulting from the Quality Reviews are agreed to and documented. The follow-up actions should be identified and allocated to responsible individuals.</p> <p>The Project Manager should regularly update the Quality Log with details of all Quality Review checks carried out.</p>
<p><i>R18: Inadequate design of application security and user administration process.</i></p>	<p>The Project Manager should ensure that the following are implemented during SAP functional development:</p> <ul style="list-style-type: none"> <li>• The System Security Strategy for the SAP should be defined and documented to ensure that the SAP system is secure, only authorised users have access to the system, and users' access rights are consistent with their requirements and in accordance with the organisation's security policies.</li> <li>• The SAP Authorisation Concept/Methodology is documented and communicated to all relevant stakeholders. The Authorisation Concept/Methodology should comply with the organisation's legal and audit requirements.</li> <li>• Users' rights and privileges should be defined and allocated. Users should be afforded only those rights and privileges necessary to perform their required job function.</li> <li>• The procedures for allocation of access rights to SAP users as well as users' authentication procedures for system access should be documented in the Security Administration</li> </ul>

	<p>procedure. This document should be distributed and formally signed off by all relevant stakeholders.</p> <ul style="list-style-type: none"> <li>• The security mechanisms that will be implemented at operating system and database level, as well as an overview of the controls to be implemented for the network topology, of which the SAP system will form part, should be defined and documented.</li> </ul>
<p><i>R20: Failure to identify all data conversion requirements and interfaces to and from the ERP system.</i></p>	<p>The Project Manager should ensure that the following are implemented for data conversion during SAP functional development:</p> <ul style="list-style-type: none"> <li>• The data purification and migration strategy, assumptions and plan should be adequately documented to ensure the completeness and accuracy of the data migration.</li> <li>• Roles and responsibilities for the sign-off of the: <ul style="list-style-type: none"> <li>○ data purification and migration strategy;</li> <li>○ data migration requirements;</li> <li>○ data migration assumptions;</li> <li>○ data migration rules (correction and transformation);</li> <li>○ data migration plan;</li> <li>○ data migration testing;</li> <li>○ any changes made to assumptions/procedures prior to or during the final data migration;</li> <li>○ data loading;</li> <li>○ data migration reconciliation process; and</li> <li>○ final data migration</li> </ul> </li> </ul> <p>should be clearly defined and understood to</p>

ensure business accountability.

- The Cutover Plan should be defined and documented to ensure the integrity of the data and that non-static source system data has not changed during the ECTL process.
- Procedures should be defined to adequately test and reconcile the end-to-end ECTL process.
- Procedures should be in defined to ensure that errors encountered are communicated and resolved in timeously.
- The audit trails/error logs should be adequately monitored to ensure that data extracted from source systems is complete.

The Project Manager should ensure that the following are implemented for interfaces management during the SAP functional development:

- All interfaces (automated and manual) are identified and documented along with key control procedures surrounding each interface or type of interface, i.e.:
  - Reports produced from each run specify the status of the run, errors produced, and control totals;
  - Access control over interface files;
  - Change control procedures surrounding interface program, interface tables (especially link to General Ledger maintenance process);
  - Correction procedures in the event of errors;
  - Re-start procedures; and

	<ul style="list-style-type: none"> <li>○ Procedures to ensure that the interface file is not processed twice.</li> <li>● Business signs off a list of identified interfaces to ensure validity, accuracy and completeness.</li> <li>● Roles and responsibilities for running interfaces and source systems are identified and documented. This should address how changes in the source system, especially new transaction types, are communicated to interface owners, and responsibility for monitoring interface and error resolution.</li> <li>● The criteria for interface testing is defined, communicated and agreed to.</li> <li>● The testing plan for interfaces is prepared.</li> <li>● The interface testing results, as well as any outstanding test issues are signed off by the interface owners.</li> <li>● The process for sign off of surrounding changes to design/configuration/documentation as a result of the testing process is defined, documented and communicated.</li> <li>● The post go-live owners for all interfaces and sources of data are identified, and their roles and responsibilities are formally contracted.</li> <li>● A contingency plan is defined in the event of failure to meet the test criteria or interface failure post go-live.</li> </ul>
<p><i>R21: Insufficient system integration and user acceptance testing</i></p>	<p>The Project Manager should ensure that the following are implemented during the SAP functional development:</p> <ul style="list-style-type: none"> <li>● The testing strategy should be adequately documented and communicated. The testing strategy should include:</li> </ul>

	<ul style="list-style-type: none"><li>○ aims and objectives,</li><li>○ scope of test;</li><li>○ test exclusions and rationale;</li><li>○ extent of user involvement;</li><li>○ system and environment to be used in test;</li><li>○ documentation standards; and</li><li>○ master data requirements for test, issues resolution process and parties responsible for sign off of testing.</li></ul> <ul style="list-style-type: none"><li>● A detailed testing plan should be prepared and agreed on by all relevant parties. The testing plan should clearly define the scope of testing and timelines, as well as the roles and responsibilities of parties involved in the testing.</li><li>● A dedicated Testing Manager should be appointed.</li><li>● Ownership for each test should be assigned to the responsible individual.</li><li>● Roles and responsibilities for sign off for testing documentation and test results should be defined and allocated.</li><li>● A contingency plan should be prepared in the event of failure to meet the test criteria.</li><li>● A process surrounding changes to configuration and customisation documentation as a result of the test and the implementation thereof should be defined and communicated.</li></ul>
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### 6.3.3. SAP Functional Development and Managing Stage Boundaries

Office of Government Commerce (2002: 133-148) lists the following project management disciplines to be applied during Managing Stage Boundaries to address key risks pertinent to SAP Functional Development:

Key Risk	Project Management Disciplines
<p><i>R6: Lack of buy-in and support from stakeholders into the ERP solution design and implementation.</i></p> <p><i>R4: The design and implementation of the ERP solution disrupts/negatively impacts the business operations (people, processes, technology).</i></p>	<p>A formal approach for managing change is developed during Initiating a Project, and the Change Management Plan is prepared. A Communication Plan forms a part of the Change Management Plan. The Project Manager should ensure that the Change Management Plan is executed as intended.</p> <p>Below are the main activities that should be executed in respect of change management and communication:</p> <ul style="list-style-type: none"> <li>• A Project Team Orientation workshop (including an introduction to Change Management, a team code of behaviour and sharing the vision/goals for the project).</li> <li>• Regular communication with all relevant business leaders, both formal and informal, (Business Owner, Senior Supplier, Change Champions, Change Leaders, etc.) to facilitate their buy-in to the vision for the project.</li> <li>• Regular communication sessions with the organisation's executive leadership team. These communication sessions should include discussions on change management risks and issues, the current level of staff morale and managing change going forward. These sessions should also include an update on the</li> </ul>

	<p>SAP Implementation progress, deliverables and milestones.</p> <ul style="list-style-type: none"> <li>• Active management of a stakeholders' feedback and issues related to change management and communication.</li> </ul> <p>To ensure successful management of human resource impact, the services of a professional Change Management Consultant or Human Resource Practitioner should be contracted. The activities include:</p> <ul style="list-style-type: none"> <li>• Identification of the Change Impact/Scope of Change from the perspective of the Human Resources professional who will bear responsibility for managing consultation with and transitioning of employees into new/changed roles, where applicable, from a Labour Relations perspective.</li> <li>• Negotiation with the trade union, where applicable, from a Labour Relations perspective.</li> <li>• Formal consultation with affected employees in respect of the business case for change and the process the organisation intends following in respect of implementing the anticipated change, where applicable, from a Labour Relations perspective.</li> <li>• Identification of competencies/selection criteria in respect of new/changed roles. Creation of a new recruitment profile.</li> <li>• Design and implementation of the relevant selection/transfer/downsizing processes, where applicable.</li> </ul>
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	<ul style="list-style-type: none"> <li>• Design and implementation of retraining and upskilling, where applicable.</li> </ul>
<p><i>R3: The ERP solution does not enable the realisation of business benefits.</i></p>	<p>SAP Implementation is usually undertaken to deliver certain business benefits. Therefore, the continuing correct focus of the project should be confirmed at the end of each stage. If necessary, the project can be re-directed or stopped to avoid wasting time and money. Therefore, the Business Case should be reviewed and the costs, benefits, key risks and timings stated in the Business Case updated, where necessary. The Project Manager is responsible to analyse whether anything happened external to the project that affects the Business Case, whether the Project Plan changed to the extent that it impacts the Business Case (cost or timeline), and whether it is impossible to achieve some or all of the identified benefits. Reviewing the Business Case is best done after any activities caused by reaction to risks have been added to the new Stage Plan. These activities or their cost may have an effect on the Business Case.</p>
<p><i>R8: Poor definition of the ERP Implementation Project scope and underestimation of the implementation timeline.</i></p> <p><i>R9: Underestimation of the ERP solution complexity, integration and dependency requirements.</i></p> <p><i>R15: Insufficient or poorly controlled budget for ERP solution design and</i></p>	<p>Before the end of each stage except the final one, the next stage should be planned, together with a review and update of the Business Case, risk situation and overall Project Plan. The results of the Functional Development phase should be formally reported to the Project Board through the End Stage Report.</p> <p>This report compares the actual results of the stage in terms of costs, dates achieved and products produced with the original Stage Plan. A statement is made comparing the results with the agreed tolerances for the stage. The Project Manager gives a</p>

*implementation.*

view on the continuing ability of SAP Implementation to meet the Project Plan and Business Case, and assesses the overall risk situation.

The next Stage Plan and the revised Project Plan accompany the End Stage Report. The report also identifies any variations from the previous versions of these plans and assesses any changes to the risk situation. If SAP Implementation is still viable in the Project Manager's view, a request to proceed to the next stage should accompany the End Stage Report.

Through this process, the Project Manager provides the information needed for the Project Board to assess the continuing viability of the project, obtains authorisation for the start of the next stage, prepares the next Stage Plan and assures the Project Board that all products in the current Stage Plan have been completed as defined.



If either stage or project is forecast to deviate beyond its agreed tolerance boundaries, it no longer has the approval of the Project Board. Therefore, the change control procedures defined in the Project Initiation phase should be followed. These include the assessment of the impact of potential changes, their importance, their cost and a judgmental decision by management on whether to include them or not. Any approved changes must be reflected in the necessary corresponding change to the schedule and budget. The Project Changes are presented to the Project Board through the Exception Report. It is a Project Board's responsibility to agree to each change before

	<p>it is implemented or to assign authority to a responsible individual for approval of each type of change.</p>
<p><i>R10: The ERP Implementation Project risks materialise and/or issues are not resolved timeously.</i></p>	<p>At the end of Functional Development phase, the project delivery risks should be reviewed and updated, where necessary. Each risk should be examined to see if it has increased, disappeared, decreased, happened or stayed the same. This process should be carried in conjunction with planning for the Final Preparation as the Next Stage Plan can raise new risks or change existing risks. The Risk Log should be updated to reflect the changes. As part of this process, the Issue Log should be reviewed to determine whether there are any new project issues that are caused by (or could improve) the new risk.</p>
<p><i>R14: Insufficient communication from the project team to project stakeholders.</i></p>	<p>The results of the Functional Development phase should be reported back to those who provided the resources and approved project execution so that progress is clearly visible to the project management team. This is done through the End Stage Report, which is submitted to the Project Board at the end of each stage.</p> <p>The Project Board is the project "voice" to the outside world and is responsible for the dissemination of information in the End Stage Report to all stakeholders. As part of this process, a newsletter could be prepared to inform project stakeholders about the end stage achievement, products that have been delivered, challenges in the SAP Implementation facing the project team, lessons learnt, as well as the plans for the next stage.</p>

## 6.4. SAP FINAL PREPARATION

### 6.4.1. SAP Final Preparation and Controlling a Stage

Office of Government Commerce (2002: 93-121) lists the following project management disciplines to be applied during Controlling a Stage to address key risks pertinent to SAP Final Preparation:

Key Risk	Project Management Disciplines
<p><i>R1: Lack of executive management commitment and support in ERP solution design and implementation.</i></p>	<p>The Project Manager is responsible for obtaining a mandate from the Project Board on the go-live date and operational roll-out approach.</p> <p>The Project Board should make a decision on the go-live date, resolve any outstanding issues and assign ownership for resolution of the issues, which could only be resolved post-implementation.</p> <p>The Project Board should ensure that the system, data and the business are ready for SAP operational roll-out by:</p> <ul style="list-style-type: none"> <li>• Identifying and assigning responsibility for the outstanding pieces of work required for implementation.</li> <li>• Understanding and taking into consideration for go-live date the effort required to complete all the outstanding tasks.</li> <li>• Ensuring that resources are available to complete outstanding pieces of work.</li> <li>• Identifying outstanding issues and decisions, assessing their impact on the ability to implement and resolving those in timeously.</li> <li>• Identifying dependencies on external factors</li> </ul>

	<p>and other players in the implementation.</p> <ul style="list-style-type: none"> <li>• Identifying risks associated with the implementation approach.</li> <li>• Conducting planning for operational roll-out to avoid negative impact on business as usual.</li> <li>• Having an integrated picture of the entire roll-out, synchronising business capacity and implementation roll out per release.</li> </ul>
<p><i>R7: The end ERP solution is not used effectively as business users are not ready to operate the new solution.</i></p> <p><i>R19: Inadequate transfer of ERP skills and knowledge from vendors/contractors to the organisation's staff.</i></p>	<p>The Project Manager should ensure that training and skills development conducted during the SAP Implementation project is formally evaluated and assessed. The additional training and knowledge transfer requests received from various sources, such as end-user requests, operations, data centre team, DBA group and systems management, should be evaluated and training interventions should be arranged before operational roll-out.</p> <p>The Project Manager should also ensure that all training activities listed in the project plan are executed as intended. The results of training interventions should be formally reported to the Project Board.</p>
<p><i>R10: The ERP Implementation Project risks materialise and/or issues are not resolved timeously.</i></p>	<p>The Project Manager is responsible to review Project Risk and Project Issue Logs to ensure that issues and risks that have a high impact on the go-live date and SAP operational roll-out are identified and appropriate actions are in place to resolve the issues or mitigate the risks.</p> <p>Where required, the project issues and risks should be escalated to the Project Board for an appropriate decision.</p>



#### 6.4.2. SAP Final Preparation and Managing Product Delivery

Office of Government Commerce (2002: 123-131) lists the following project management disciplines to be applied during Managing Product Delivery to address key risks pertinent to SAP Final Preparation:

Key Risk	Project Management Disciplines
<p><i>R13: The project deliverables do not meet business requirements.</i></p> <p><i>R17: Business requirements are incomplete or not received in timeously.</i></p>	<p>The Project Manager should ensure that all required changes to the product resulting from Quality Reviews have been implemented. The Quality Log should be reviewed and updated with the results of all Quality Review checks carried out. As part of this process, a Project Manager should ensure that final acceptance and sign off for products are obtained.</p>
<p><i>R21: Insufficient system, integration and user acceptance testing.</i></p>	<p>The Project Manager should ensure that all required testing was conducted as per the Testing Plan, the testing results are signed-off and all testing issues are satisfactorily resolved.</p>

#### 6.4.3. SAP Final Preparation and Managing Stage Boundaries

Office of Government Commerce (2002: 133-148) lists the following project management disciplines to be applied during Managing Stage Boundaries to address key risks pertinent to SAP Final Preparation:

Key Risk	Project Management Disciplines
<p><i>R4: The design and implementation of ERP solution disrupts/negatively impacts the business operations (people, processes, technology).</i></p> <p><i>R6: Lack of buy-in and support from stakeholders in</i></p>	<p>Change Management and Communication Plans should be reviewed to identify any outstanding change management and communication activities before go-live date. In addition, communication sessions with the organisation's leadership team should be conducted to brief them on SAP operational roll-out, discuss change management risks and issues, current level of staff morale and</p>



<p><i>ERP solution design and implementation.</i></p>	<p>managing change post-implementation. These sessions should also include an update on SAP final preparation progress.</p> <p>A communication newsletter on the final preparation progress and planned go-live date for the organisation's staff should be prepared to create an excitement and anticipation, and to request support from staff in operational roll-out.</p> <p>The leadership team should arrange presentations and briefings in the affected business units on the proposed SAP operational roll-out, and address the questions and issues from the staff members. The services of Change Management Consultants or Human Resource Practitioners should be contracted where formal consultation with affected employees in respect of the business case for change and the process the organisation intends following in respect of implementing the anticipated change is required. The leadership team should also communicate the implementation of the relevant selection/transfer/downsizing processes, as well as retraining and/or upskilling, where applicable.</p>
<p><i>R14: Insufficient communication from the project team to project stakeholders.</i></p>	<p>The results of the Final Preparation stage should be reported back to those who provided the resources and approved project execution so that progress is clearly visible to the project management team. This is done through the End Stage Report, which is submitted to the Project Board at the end of each stage.</p>

## 6.5. SAP GO-LIVE

### 6.5.1. SAP Go-Live and Closing a Project

Office of Government Commerce (2002: 149-162) lists the following project management disciplines to be applied during Closing a Project to address key risks pertinent to SAP Go-Live:

Key Risk	Project Management Disciplines
<p><i>R3: The ERP solution does not enable the realisation of business benefits.</i></p>	<p>The Business Case should be reviewed to identify whether there are any expected benefits whose achievement cannot be measured until the SAP system has been in use for some time. In this case, a recommended date and plan should be drafted for a post-project review, the benefits to be measured at that time and the measurements to be applied. As per PRINCE2 (Office of Government Commerce, 2002: 156-157), the post-project review aim is to assess the achievement of the benefits claimed in the Business Case and to determine whether:</p> <ul style="list-style-type: none"> <li>• The SAP Implementation achieved the benefits expected.</li> <li>• There is any identifiable trend of improving benefits.</li> <li>• Business users are happy with the system.</li> <li>• The system meets quality expectations.</li> <li>• The system is well supported as was expected.</li> <li>• The support staff is happy with what they have been given to support the system.</li> <li>• There have been any unexpected problems in the roll-out.</li> <li>• The system caused new problems.</li> </ul>

	<ul style="list-style-type: none"> <li>• There are any outstanding project issues that should be recommended for follow-up action by the operations and support team.</li> </ul>
<p><i>R5: Lack of business ownership of ERP solution processes and components during and post-operational roll-out.</i></p>	<p>The formal handover and lock-in process from the old to new structure should be defined and implemented as part of the project closure. As part of this process, the Project Manager in conjunction with the Project Board should clearly define and communicate the new structure, roles and responsibilities to ensure that business ownership for SAP components and processes is assigned and formally contracted with responsible individuals. Where necessary, the new business roles should be created. A formal performance agreement for each role in the SAP environment should be in place, including individual responsibilities, training needs and development areas.</p> <p>The above should be performed as part of the Project Closure. According to the Office of Government Commerce (2002: 151-153), the Project Closure will include:</p> <ul style="list-style-type: none"> <li>• Determining whether all products in the Project Initiation Document have been approved and delivered.</li> <li>• Confirming that the system can be operated and supported by ensuring that the correct operational and maintenance environment is in place.</li> <li>• Obtaining a formal agreement from the operational and support teams that they are ready to accept handover.</li> <li>• Considering if there are any contractual</li> </ul>

	<p>obligations that need to be addressed while decommissioning the project.</p> <ul style="list-style-type: none"> <li>• Confirming that the customer accepts the system and its components.</li> </ul>
<p><i>R7: The end ERP solution is not used effectively as business users are not ready to operate the new solution.</i></p>	<p>The Project Manager should ensure that training and skills development conducted during the SAP Implementation project is formally evaluated and assessed. The additional training and knowledge transfer requests received from various sources, such as end-user requests, operations, data centre team, DBA group and systems management, should be evaluated and training interventions should be arranged during or post operational roll-out.</p> <p>The Project Manager should include the additional training interventions in the Follow-on Action Recommendations. This document provides recommendations for further work, which the Project Board must direct to the appropriate audience for attention. The responsible individuals should be assigned to ensure that actions in the Follow-on Action Recommendations are implemented.</p>

## 6.6. DIRECTING PROJECT AND SAP IMPLEMENTATION PHASES

Directing a project process runs across all SAP Implementation phases. The risks and project management disciplines have already been discussed in the sections above. However, a high-level summary of risks and project management disciplines is provided below:

Key Risk	Project Management Disciplines
<p><i>R1: Lack of executive management commitment and support in ERP solution</i></p>	<p>The Project Manager should ensure that:</p> <ul style="list-style-type: none"> <li>• The project has a Sponsor, who owns the vision, provides clear leadership and direction,</li> </ul>

*design and implementation.*

sets up the delivery processes and structure so that the desired benefits are realised.

- The Project Sponsor is pro-actively involved in the implementation with personal accountability for its outcome, and is accountable for the governance arrangements.
- The Project Sponsor is responsible for the quality of key project information, manages the interfaces and communication with key stakeholders, manages the key strategic risks, maintaining alignment of the initiatives and projects to the organisation's strategic direction.
- The Project Board is established and it sufficiently represents the executive management. The roles of the Project Board members are formally contracted, communicated and understood. The Project Board serves as a decision-making body. The authority levels required of the Project Board members match the needs of the project.
- The Project Board is responsible for project resource allocation, project issue resolution and risk mitigation.
- There are regular Project Board meetings to monitor the project progress. The Project Board is responsible for ensuring that the project remains on course to deliver products/outputs of the required quality to meet the Business Case.
- Communication channels are established to ensure that stakeholders' expectations are managed and maintained throughout the

	<p>project life. The effectiveness of these channels is monitored on an ongoing basis in order to make adjustments in line with the changing needs of the stakeholders. The project milestones and deliverables, as well as the project's progress against these milestones are communicated to the project stakeholders.</p> <p>(Office of Government Commerce, 2002: 195-208)</p>
<p><i>R2: The project is not organised and structured to enable delivery of a quality ERP solution.</i></p>	<p>The Project Board with the support of the Project Manager should ensure that:</p> <ul style="list-style-type: none"> <li>• The project structure and reporting processes are clearly defined, documented and communicated.</li> <li>• Roles and responsibilities, as well as the areas of accountability for the delivery within the project are assigned, communicated, formally contracted and linked to the individual's performance contracts.</li> <li>• The project has a Sponsor. The Project Sponsor owns the vision, provides clear leadership and direction, and sets up the delivery processes and structure so that the desired benefits are realised.</li> <li>• A Project Board is established and it sufficiently represents the executive management. The roles of the Project Board members are formally contracted, communicated and understood. The Project Board serves as a decision-making body.</li> <li>• There are regular Project Board meetings to monitor the project's progress.</li> </ul> <p>(Office of Government Commerce, 2002: 195-208)</p>

<p><i>R3: The ERP solution does not enable the realisation of business benefits.</i></p>	<p>The Project Board in conjunction with the Project Manager should ensure that:</p> <ul style="list-style-type: none"> <li>• The project has a business case, which has been appropriately reviewed and approved by the relevant authority. The business case should include a benefits realisation plan that is put into practice upon implementation of the capability. The business case should effectively describe what the value is that the organisation will derive from the outcomes of the project and the associated cost.</li> <li>• The project has a benefit-tracking system in place for the business benefits identified in the business case to ensure the baselining, measurement and reporting of achievement of benefits.</li> <li>• The Business Case is reviewed and updated, as necessary, to provide the stimulus for ensuring that progress remains aligned to the strategic objectives. The reviews are executed on a regular basis by the Project Board to ensure that the Business Case reflects the benefits originally envisioned and is up to date with all additional benefits, as well as with benefits that will be realised.</li> <li>• If there are any project changes, the Business Case is adapted to reflect these changes to ensure the project remains aligned to the organisation's strategic direction.</li> </ul> <p>(Office of Government Commerce, 2002: 189-193)</p>
<p><i>R10: The ERP Implementation Project risks materialise and/or issues are</i></p>	<p>The Project Manager in conjunction with the Project Board should ensure that:</p> <ul style="list-style-type: none"> <li>• The process relating to the management of the</li> </ul>

<p><i>not resolved timeously.</i></p>	<p>project delivery risks and issues (planning, identification, assessment, mitigating actions, ownership, monitoring and follow-up) should be clearly defined, communicated and understood by all relevant stakeholders.</p> <ul style="list-style-type: none"> <li>• The risk and issue logs should be created, monitored and updated regularly.</li> <li>• The Project Manager should take responsibility for the management and communication of risks relating to the project delivery to the Project Board and Work Package Managers.</li> <li>• A process for managing existing project dependencies (external and internal), raising new dependencies, and formulating and implementing an agreed action plan should be defined and implemented at the outset of the project.</li> <li>• Project progress reports should be produced on a regular basis until completion of the project. All project team members should be instructed and trained to handle the reporting requirements within the defined project reporting structure.</li> <li>• As part of the reporting process, any issues that require Project Board decision should be escalated through Highlight or Exception Reports.</li> </ul> <p>(Office of Government Commerce, 2002: 239-252)</p>
<p><i>R11: The ERP Implementation Project does not have the necessary resources (people, goods, services) to deliver a quality</i></p>	<p>The Project Board in conjunction with the Project Manager should ensure that:</p> <ul style="list-style-type: none"> <li>• The resources are allocated and formally contracted to the project as per PID and Project Plan. The resource time and</li> </ul>



<p><i>solution within the agreed timeline and within the agreed budget.</i></p>	<p>availability are negotiated and formally agreed on with business management.</p> <ul style="list-style-type: none"> <li>• Any issues escalated to the Project Board on the resource contention or unavailability of required resources are resolved appropriately and timeously.</li> </ul> <p>(Office of Government Commerce, 2002: 217 - 238)</p>
<p><i>R15: Insufficient or poorly controlled budget for ERP solution design and implementation.</i></p>	<p>The Project Board in conjunction with the Project Manager should ensure that:</p> <ul style="list-style-type: none"> <li>• A project should be preceded by a feasibility study, which should include cost-benefit analysis. The cost identified in the cost-benefit analysis will include the estimated costs to complete the project and the cost to track and measure benefits realisation and a reasonable contingency to mitigate risk that might arise during the delivery.</li> <li>• Project funding requirements and authorisation levels for project expenditure should be defined, communicated and authorised by the Project Sponsor and Project Board.</li> <li>• The project budget should be authorised by the Project Sponsor and Project Board.</li> <li>• In the project budget, the capital and operating expenditure are specified separately.</li> <li>• Planned cost vs. actual expenditure should be monitored and reported on a regular basis to the Project Board. This reporting should clearly link the cost of the project with associated business benefit.</li> <li>• The budget should be reviewed whenever there is a significant change in the project. The changes in budget should be formally</li> </ul>

	<p>submitted to the Project Board for approval.</p> <ul style="list-style-type: none"> <li>• The Integrated change control process should be defined and implemented to manage project changes (budget, time and scope) when and as they materialise.</li> </ul> <p>(Office of Government Commerce, 2002: 217-238)</p>
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**6.7. PLANNING AND SAP IMPLEMENTATION PHASES**

The planning process runs across all SAP Implementation phases, except the go-live. The risks and project management disciplines have already been discussed in the sections above. However, a high-level summary of risks and project management disciplines is provided below:

Key Risk	Project Management Disciplines
<p><i>R8: Poor definition of the ERP Implementation Project scope and underestimation of the implementation timeline.</i></p> <p><i>R9: Underestimation of the ERP solution complexity, integration and dependency requirements.</i></p> <p><i>R11: ERP Implementation Project does not have the necessary resources (people, goods, services) to deliver a quality solution within the agreed timeline and within the agreed budget.</i></p> <p><i>R15: Insufficient or poorly controlled budget for ERP solution design and implementation.</i></p>	<p>The Project Manager should ensure that:</p> <ul style="list-style-type: none"> <li>• The Project Plan is constructed by identifying the products required and then the activities and appropriate resources necessary to deliver them.</li> <li>• The Project Plan covers management needs as well as the customer's products. The Project Board reviews and approves the Project Plan.</li> <li>• Time is allowed for planning because it is a time-consuming exercise. Planning for the next stage should start towards the end of the current stage. Any resource constraints that became obvious during planning are referred to the Project Board.</li> <li>• When the availability of resources has been discussed with line managers, any agreement reached with them is formally documented.</li> <li>• The Past Lessons Learned Reports and</li> </ul>

	<p>historical information on the projects of similar nature are used for reference.</p> <ul style="list-style-type: none"><li>• The risks inherent in the plan are identified and assessed. Each high risk or critical activity is allocated a resource in which management has confidence.</li></ul> <p>(Office of Government Commerce, 2002: 209-216)</p>
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## CHAPTER 7

### SUMMARY AND CONCLUSION

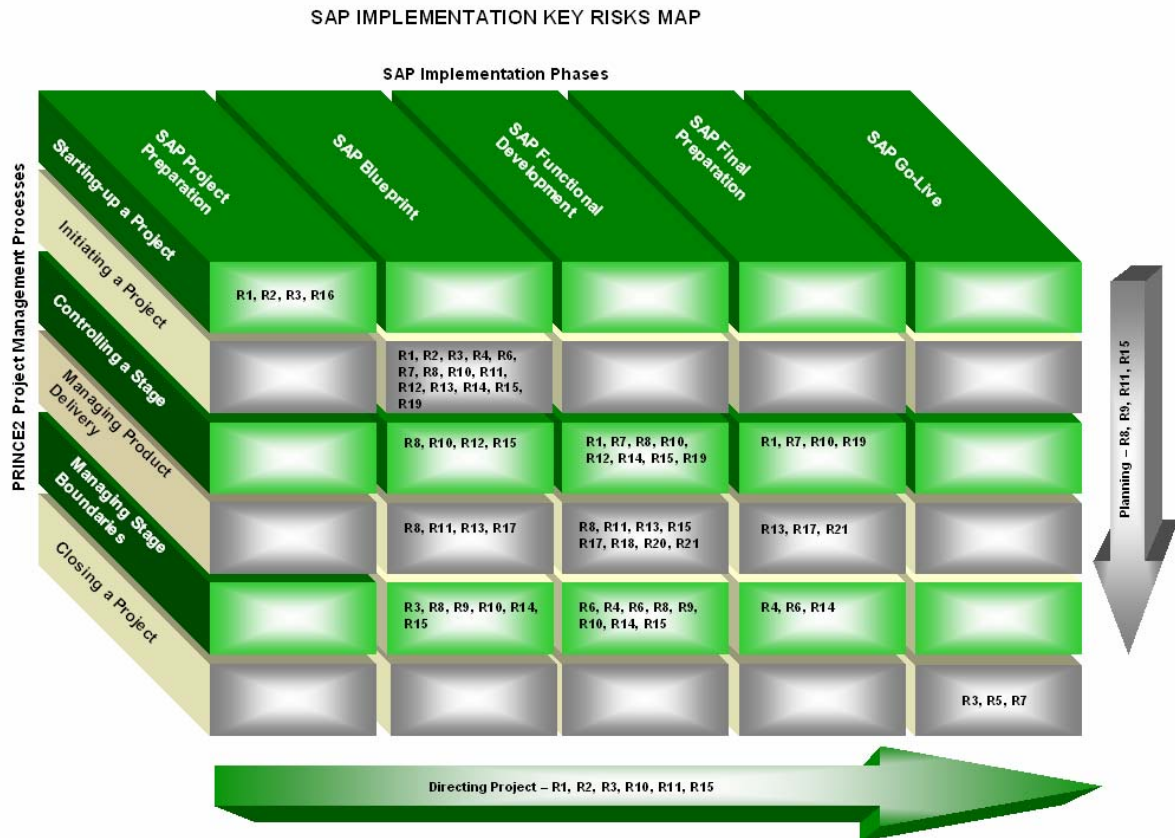
The road from the initial idea to the actual realisation of benefits from investments in the implementation of the ERP solution is clearly a rocky one. According to Standish Group International (1999), corporate companies in the USA alone spend more than \$275 billion each year on approximately 200,000 application software development projects. Many of these projects fail, but not for lack of money or technology; most will fail because of the lack of project governance and skilled project management.

The purpose of this study was to discuss how key risks relevant to ERP System Implementation Projects could be addressed by applying PRINCE2 project management disciplines. The statement of the problem, the purpose of the study, the methodology applied and the limitations of the study were provided in Chapter 1.

In Chapter 3 of this report, the author briefly discussed the characteristics of the ERP system and its implementation process. For the purpose of this study, the SAP Implementation process was used as a generic method of ERP solution implementation. Therefore, the author provided a detailed overview of SAP Implementation phases, activities and deliverables. The author also identified key risks relevant to ERP System Implementation Projects across three main risk criteria, namely Business Environment, Project Management and Project Execution. These key risks were then mapped onto SAP Implementation phases, namely Project Preparation, Sizing and Blueprinting, Functional Development, Final Preparation and Go-Live.

The report also provided an overview of PRINCE2 project management processes, components and techniques, and described the interaction between them. This was outlined in Chapter 4. The PRINCE2 project management method is an established and proven best practice in project management, and it is designed to be applied in any type of the project in any environment.

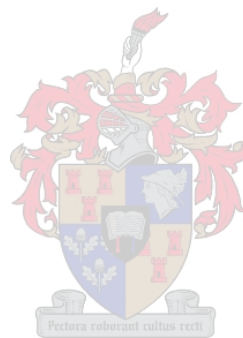
The key risks of ERP System Implementation Projects were mapped across SAP Implementation phases and PRINCE2 project management processes in Chapter 5. The latter is graphically represented in the SAP Implementation Key Risks Map below:



The PRINCE2 project management disciplines that could be applied to address these key risks within each PRINCE2 process and SAP Implementation phase were discussed in detail in Chapter 6.

In conclusion, organisations need to understand the risks (“what could go wrong?”) in ERP System Implementation Project and where these risks could materialise in the project lifecycle before investing vast amounts of money and significant effort in implementing the ERP solution. However, understanding risks is not sufficient. Therefore, a good project management method should be applied to guide the project through a controlled, well-managed, visible set of activities to achieve the desired results and realise the envisaged business benefits. By effectively applying

PRINCE2 project management disciplines, organisations can ensure that the risks of ERP System Implementation Projects are effectively addressed.



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