

Unit standard ID:	Unit standard title:
252032	Develop, implement and evaluate an operational plan
15219	Develop and Implement a strategy and action plans for a team, development or division
252022	Develop, implement and evaluate a project plan
252020	Create and manage an environment that promotes innovation
252044	Apply the principles of Knowledge Management

LEARNER GUIDE

Manage Operations

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Dear Learner

This Learner Guide contains all the information to acquire all the knowledge and skills leading to the unit standard:

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252022	Develop, implement and evaluate a project plan
252020	Create and manage an environment that promotes innovation
252044	Apply the principles of Knowledge Management

You will be assessed during your study. This is called formative assessment. You will also be assessed on completion of this unit standard. This is called summative assessment. Before your assessment, your assessor will discuss the unit standard with you.

It is your responsibility to complete all the exercises in the Assessor Guide. The facilitator will explain the requirements of each exercise with you. You will also be expected to sign a learner contract in your assessor guide. This contract explains responsibility and accountability by both parties.

On the document “Alignment to NQF”, you will find information on which qualification this unit standard is linked to if you would like to build towards more credits against this qualification.

Please contact our offices if you would like information with regards to career advising and mentoring services.





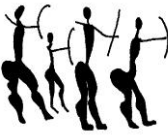
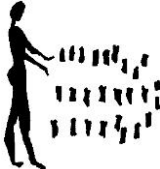

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Enjoy the learning experience!

Key to Icons

	<p>Important Information</p>
	<p>Quotes</p>
	<p>Personal Reflection</p>
	<p>Individual Formative Exercise</p>
	<p>Group Formative Exercise</p>
	<p>Summative Exercise</p>
	<p>Note-pad: Supplementary Information</p>

Alignment to NQF

Element of programme	
1. Name of programme	Manage Operations
2. Purpose of the programme	<ul style="list-style-type: none"> To build competence of first- and second-line supervisors to compile an operational plan for their business unit This programme is intended for managers in all economic sectors. These managers would typically be second level managers such as heads of department, section heads or divisional heads, who may have more than one team reporting to them. <p>The qualifying learner is capable of:</p> <ul style="list-style-type: none"> Selecting a work-based project for a unit. Scoping a work-based project for a unit. Developing a project plan. Developing tools to measure key performance parameters. Implementing the plan and evaluate project progress. <ul style="list-style-type: none"> Form part of the qualification to equip supervisors and frontline managers with skills to manage innovation and knowledge
3. Duration of the programme	8 days
4. NQF level	Level 5
5. NQF credits	32 credits
6. Specific outcomes	<p>US 252032 SO1: Develop operational strategies for a unit. SO2: Develop an operation plan for a unit. SO3: Implement an operational plan. SO4: Monitor, measure and evaluate the achievement of goals and objectives.</p> <p>US 15219 SO1: Develop a strategy for the department/division/section. SO2: Develop action plans for the department/division/section. SO3: Implement action plans. SO4: Review action plans.</p> <p>US252022 SO1: Select a work-based project for a unit. SO2: Scope a work-based project for a unit. SO3: Develop a project plan. SO4: Develop tools to measure key performance parameters. SO5: Implement the plan and evaluate project progress.</p>

	<p>US252020 SO1: Analyse own unit in terms of opportunities for innovation. SO2: Demonstrate understanding of the techniques for promoting creativity. SO3: Develop a plan for creating an environment conducive to innovation. SO4: Lead a team through a creative thinking process.</p> <p>US252044 SO1: Demonstrate knowledge and understanding of the concepts and components of knowledge management. SO2: Analyse a unit according the entity's knowledge management policies and procedures. SO3: Develop a knowledge management implementation plan for a unit.</p>
<p>7. Assessment criteria</p>	<p>US 252032</p> <p>1.1. The strategic plan of an entity is examined to determine the purpose of a unit in contributing to the achievement of the entity's strategy.</p> <p>1.2. Operational strategies for achieving the purpose of a unit are developed and recorded.</p> <p>1.3. The operational strategy of a unit is aligned with the overall strategy of an entity.</p> <p>1.4. A systematic process is followed to develop goals, objectives and performance standards that are clear, concise, measurable and achievable</p> <p>1.5. Stakeholders are involved in the formulation of the goals, objectives and performance standards of a unit to obtain their commitment.</p> <p>2.1. The operation plan is developed to transform the goals and objectives into tasks, responsibilities, time frames, performance measures, resource needs and contingencies.</p> <p>2.2. Measurable parameters are validated against customer and unit performance requirements.</p> <p>2.3. Monitoring systems are described in the operational plan to enable the measurement of progress and results against the performance standards.</p> <p>2.4. Feedback on the operational plan is obtained from team members to promote buy-in in the implementation of the plan.</p> <p>3.1. The operational plan is implemented, with amendments where necessary, to meet the specified goals, objectives and performance standards.</p> <p>3.2. Optimal use of available resources is ensured during implementation to promote cost-effectiveness.</p> <p>3.3. The use of control measures by first line managers is encouraged in the areas of their responsibility.</p> <p>4.1. The performance of the unit is monitored against the goals, objectives and performance standards in the plan using established monitoring systems.</p> <p>4.2. Performance reviews are conducted to measure inputs and outputs of team members against the operational plan.</p> <p>4.3. Recommendations on corrective action are implemented with the agreement of the responsible first line managers.</p>

4.4. Results are evaluated in terms of the teams' contribution to the performance of a unit.

US 15219

- 1.1. The strategic plan of the organisation is analysed with a view to aligning the operations of the section/department with it.
- 1.2. The mission statement of the section/division/department reflects the mission statement and strategic plan of the organisation.
- 1.3. Objectives are clear and reflect the mission statement for the department/division/section.
- 1.4. Departmental/divisional/sectional objectives contribute to the achievement of the strategic plan.
- 1.5. Stakeholders are involved on the process.
- 2.1. The action plans are in accordance with the strategy.
- 2.2. The action plans are complete and include provision for contingencies.
- 2.3. The action plans are documented to show tasks, responsibilities, timeframes, performance measures and resource needs.
- 2.4. Existing organisational tools for implementing strategy are included in plans.
- 2.5. Stakeholders are involved in the process.
- 3.1. Strategy and action plans are communicated to the team, department or division.
- 3.2. Implementation matches specified action plans.
- 3.3. Implementation makes optimum use of available resources.
- 4.1. Reviews are conducted of the implementation against departmental/divisional/sectional objectives.
- 4.2. Results are communicated to stakeholders throughout the process.
- 4.3. Amendments are made to plans if necessary, to ensure efficiency and effectiveness of department/division/section.

US252022

- 1.1 Project alternatives are considered in relation to their viability in achieving unit objectives.
- 1.2 The decision on the preferred alternative is motivated in terms of viability, cost and results.
- 1.3 The scope of work and deliverables are defined in relation to the unit objectives.
- 1.4 The principal work activities are determined that will be required to achieve the unit objectives.
- 1.5 The potential risks are identified and analysed in relation to the likelihood of risks materialising.
- 1.6 Change processes that are essential to project success are described in terms of their contribution to the project results.
- 1.7 The overall objectives of the plan are described with reference to the achievement of unit objectives.

- I.8 The sponsor, project team and other stakeholders are described with their contributions to the project.
- I.9 A work breakdown structure (WBS) is developed to describe the main activities of the project and the interrelationship between them.
- I.10 The project activities, required performance levels and quality criteria are stipulated and communicated to team members and other stakeholders to promote quality and effectiveness.
- I.11 The project plan is checked for accuracy, completeness and compliance to internal and external requirements.
- I.12 A Gantt chart is developed for managing and evaluating the time dimension.
- I.13 A budget is developed for managing and evaluating the cost dimension.
- I.14 Quality parameters are developed for managing and evaluating quality.
- I.15 The measurement tools are communicated to team members to promote a common understanding of requirements.
- I.16 Project implementation is monitored and evaluated against the plan, the stipulated performance criteria and quality requirements.
- I.17 Project results are monitored to establish progress and effectiveness.
- I.18 Deviations from the project plan are identified and analysed in order to take corrective action.
- I.19 Corrective actions are implemented to ensure the achievement of project objectives.
- I.20 Results are evaluated against the scope and objectives of the project.

US252020

- I.1 Identify features of an environment that promotes innovation.
- I.2 Analyse own unit in relation to the features of an environment conducive to innovation.
- I.3 The findings of the analysis are interpreted to determine whether the current environment promotes innovation.
- I.4 Areas for improvement are identified based on the analysis conducted.
- I.5 Creativity and innovation techniques are identified in terms of generally accepted theory and practice.
- I.6 Three techniques for promoting creativity are explained with practical examples.
- I.7 The role of the unit manager in creating an environment conducive to innovation is described with reference to continuous improvement and innovation of the unit.
- I.8 The processes, actions and approaches necessary to create an environment conducive to innovation are recorded in the plan.
- I.9 The implementation of the plan is described with reference to the environment and availability of resources.

	<p>I.10 The plan is promoted within the unit in order to encourage commitment.</p> <p>I.11 Techniques for promoting innovation and creativity are applied to generate ideas for a new or improved process, project or product.</p> <p>I.12 A number of alternative solutions are generated in relation to the process, project or product.</p> <p>I.13 The best alternative is selected from the solutions generated based on evaluation criteria.</p> <p>I.14 A concept is developed for implementation in accordance with the entity's policies and procedures.</p> <p>I.15 The concept is recorded and communicated for implementation.</p> <p>US252044</p> <p>I.1 The driving forces of the knowledge economy are explained with examples.</p> <p>I.2 The components of a system for institutionalising knowledge management are described according to accepted knowledge management theory and practice.</p> <p>I.3 The importance of knowledge management in managing the knowledge assets for achieving competitive advantage is explained in relation to an entity.</p> <p>I.4 The results of managing knowledge are explained in relation to an entity.</p> <p>I.5 Analyse the current practices in a unit in relation to the knowledge management policies and procedures of an entity.</p> <p>I.6 Compare the knowledge management practices of a unit to those of other units in an entity.</p> <p>I.7 Interpret the findings of the analysis to identify strengths and weaknesses.</p> <p>I.8 Consolidate the findings in a report with recommendations on improvements within a unit and an entity.</p> <p>I.9 The role of the unit manager in implementing the knowledge management plan is described in relation to other role players in the entity.</p> <p>I.10 An operational plan is developed for managing knowledge in a unit in relation to the policies and procedures of an entity.</p> <p>I.11 The operational plan is promoted within a unit and an entity in order to encourage commitment.</p> <p>I.12 The implementation of the plan is described in accordance generally accepted knowledge management theory and practice.</p>
<p>8. Critical cross-field outcomes</p>	<p>US252032</p> <p>Identify and solve problems in developing and implementing an operational plan in a unit.</p> <p>Work effectively with others to obtain cooperation in implementing an operational plan.</p>

	<p>Organise and manage oneself and one's activities in developing and implementing an operational plan for a unit.</p> <p>Collect, evaluate, organise and critically evaluate information required to develop an operational plan.</p> <p>Communicate effectively with team members and other stakeholders in developing and implementing an operational plan.</p> <p>Use science and technology for recording information required for developing an operational plan and tracking and evaluating its implementation.</p> <p>Demonstrate an understanding of the world as a set of related systems by aligning the unit's strategy and operational plans with the strategy of the organisation.</p> <p>US 15219</p> <p>Identify and solve relating to the implementation of the strategy.</p> <p>Work effectively with others in gathering inputs.</p> <p>Organise and manage oneself and one`s activities in developing and implementing action plans.</p> <p>Collect, evaluate, organise and critically evaluate information concerning the organisational strategic plan.</p> <p>Communicate effectively to stakeholders throughout the process.</p> <p>Use science and technology for recording all plans.</p> <p>Demonstrate an understanding of the world as a set of related systems and how the department/divisional strategy effects the organisational strategy and vice versa.</p> <p>In order to contribute to the full personal development of each learner and the social and economic development of society at large, it must be the intention underlying any programme of learning to make an individual aware of the importance of: Developing entrepreneurial opportunities.</p> <p>US252022</p> <p>Identify and solve problems in considering project alternatives and selecting the preferred option.</p> <p>Work effectively with others when managing the implementation of a project plan.</p> <p>Organise and manage oneself and one`s activities in managing the members of the project team.</p> <p>Collect, evaluate, organise and critically evaluate information to develop a clear and workable project plan.</p> <p>Communicate effectively with individuals and teams when delegating tasks and responsibilities.</p> <p>US252020</p> <p>Identify and solve problems in order to generate innovative solutions.</p>
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	<p>Work effectively with others when generating new ideas.</p> <p>Organise and manage oneself and one's activities when participating in creative and innovative processes.</p> <p>Collect, evaluate, organise and critically evaluate information when generating ideas.</p> <p>Communicate effectively with stakeholders on innovative ideas generated.</p> <p>Use science and technology to assist with idea generation and to record ideas.</p> <p>Demonstrate an understanding of the world as a set of related systems and how innovations in one area could impact on another.</p> <p>In order to contribute to the full personal development of each learner and the social and economic development of society at large, it must be the intention underlying any programme of learning to make an individual aware of the importance of:</p> <p>Participating as responsible citizens in the life of local, national and global communities.</p> <p>Developing entrepreneurial opportunities.</p> <p>US252044</p> <p>The learner is able to identify and solve problems in which responses show that responsible decisions using critical and creative thinking have been made in relation to managing knowledge in a unit.</p> <p>The learner is able to work as a member of a team in promoting sound knowledge management practices in a unit.</p> <p>The learner can organise and manage him/herself and his/her activities responsibly in managing the knowledge in a unit.</p> <p>The learner can collect, organise and critically evaluate information and applying this in managing the knowledge in a unit.</p> <p>The learner can communicate effectively using visual, mathematics and language skills in the modes of oral and/or written presentations in communicating with team members in relation to managing the knowledge in the unit.</p> <p>The learner can demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation in applying knowledge of and insight into the complexity of managing knowledge.</p>
<p>9. Learning assumed to be in place</p>	<p>It is assumed that learners are competent in:</p> <p>Communication at NQF Level 4.</p> <p>Mathematical Literacy at NQF Level 4.</p> <p>Computer Literacy at NQF Level 4.</p>
<p>10. Essential embedded knowledge</p>	<p>Processes for developing clear, measurable and achievable goals, objectives and performance standards.</p> <p>Elements of an operational or business plan.</p>

	<p>Techniques for identifying strengths and weaknesses.</p> <p>Approaches to and tools for implementing actions.</p> <p>Systems for monitoring and evaluating the implementation of operational plans.</p> <p>Methods and techniques for the planning and implementation of projects.</p> <p>Budgeting.</p> <p>Delegation of authority, responsibility and accountability.</p> <p>Features of an environment conducive to creativity and innovation.</p> <p>Features of a culture of enquiry and risk taking.</p> <p>Creative thinking techniques.</p> <p>Problem solving techniques.</p> <p>Management practices that inhibit creativity, risk taking and innovation.</p> <p>Theory and principles of knowledge management.</p> <p>Intellectual property.</p> <p>Intellectual capital.</p> <p>Knowledge economy.</p> <p>Organisational learning.</p> <p>Learning organisation.</p> <p>Creation, sharing and storage on knowledge.</p>
11. Range statement	<p>The learner is required to apply the learning in respect of his/her own area of responsibility.</p> <p>Unit refers to the division, department or business unit in which the learner is responsible for managing and leading staff.</p> <p>Entity includes, but is not limited to, a company, business unit, public institution, small business, Non-Profit Organisation or Non-Governmental Organisation.</p> <p>Operational plan includes a business plan.</p> <p>This Unit Standard relates to once-off projects and events that must be planned and implemented in a unit.</p> <p>Unit refers to the division, department or business unit in which the learner is responsible for managing and leading staff.</p> <p>Entity includes, but is not limited to, a company, business unit, public institution, small business, Non-Profit Organisation or Non-Governmental Organisation.</p>
12. Recognition of Prior Learning (RPL)	<p>RPL can be applied in two instances:</p> <ul style="list-style-type: none"> • Assessment of persons who wish to be accredited with the learning achievements. • Assessments of learners to establish their potential to enter onto the learning program.

13. Learning Materials	Learner Guide, Assessor Guide, Facilitator guide, Learner POE Workbook, Unit Standard Guide
14. Links of the programme to registered unit standards, skills Programmes, or qualifications	Registered qualification: Title: National Certificate: Generic Management ID: 59201 NQF: Level 5 Credits: 164

Introduction

Have you ever found yourself so completely focused on the flurry of daily tasks, that you could find no time or ability to plan for the long-term, as it is taking 100% of your effort to keep things together? You become so focused on “fighting fires” that there is not an opportunity to take a step back and make improvements to daily operations. The result is absolute chaos and stress.

Business planning have a ‘strategic’ and an ‘operational’ element. For your business to succeed you must be able to balance the different roles and utilize strategic and operational plans.

Although we will focus on Operational Planning during this course, it can never be seen in isolation of the strategic plan of the organisation. The strategic plan is usually developed by the Management committee of an organisation, and focuses on the Vision, mission, values and strategic goals of an organisation. The strategic cycle usually spans over 3 to 5-year cycles.

The operational plan is usually developed by the operational units of a company and focus on objectives and action plans which should be achieved during the operational cycle (usually one year). The old cliché becomes strikingly evident when operational planning is discussed: **IF YOU FAIL TO PLAN, YOU PLAN TO FAIL.**

We trust that the guidelines in this course will provide you with the tools you need to lead your operational unit not only to performance, but to excellence!

Enjoy!

PART I

Learning Unit I: Operational Planning versus Strategic Planning

Unit Standards

252032	Develop, implement and evaluate an operational plan
15219	Develop and implement a strategy and action plans for a team, department or division

Specific Outcomes

US 252032: SOI: Develop Operational strategies for a unit

I.1. The strategic plan of an entity is examined to determine the purpose of a unit in contributing to the achievement of the entity's strategy.

I.2. Operational strategies for achieving the purpose of a unit are developed and recorded.

I.3. The operational strategy of a unit is aligned with the overall strategy of an entity.

I.4. A systematic process is followed to develop goals, objectives and performance standards that are clear, concise, measurable and achievable

I.5. Stakeholders are involved in the formulation of the goals, objectives and performance standards of a unit to obtain their commitment.

US 15219 SOI: Develop a strategy for the department/division/section

I.1 The strategic plan of the organisation is analysed with a view to aligning the operations of the section/department with it.

I.2 The mission statement of the section/division/department reflects the mission statement and strategic plan of the organisation.

Learning Outcomes

At the end of this Learning Unit you will demonstrate an understanding of:

- The definitions of strategic and operational planning
- The complementary roles of strategic vs operational planning
- How the Company Strategy forms the basis of the operational planning

- The mission/vision/values of a business unit

Critical Cross-field Outcomes

<ul style="list-style-type: none"> • Identify & solve problems • Work as member of a team • Organise and manage • Use Science and technology for recording of all plans 	<ul style="list-style-type: none"> • Collect, organise and critically evaluate • Communicate effectively • Understand the world as integrated set of related systems
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INTRODUCTION

Operational Planning is putting your company's strategy to work, which means that company strategies should be broken down into departmental strategies, which should further be broken down into goals, objectives and action plans.



Definitions:

A Strategic Plan is an organization's summary of the development process and the presentation of core directions, including setting a vision, mission and strategic goals.

An Operational Plan is an annual work plan explaining how the goals of the strategic plan will be implemented and what budget and processes are required.

Strategic planning helps you to pull back the lens, get a big picture view and consider future scenarios. It gives you the best opportunity to maintain control, avoid serious pitfalls and capture opportunities. Thinking strategically about your company involves creating a vision for where you want to be in 2, 5 or 10 years. Strategic planning is not just for big companies and has benefits no matter what your scale or goals. Your defined goals might include increasing the size of your company, sales or method of production. Goals may also include environmental and sustainability targets or to sell the business.

Operational planning focuses tightly on the day to day operations with no more than a 12-month cycle. Depending on the company's activities, the manager might want to further break things down to daily, weekly, monthly or seasonal activity segments. Operational planning focuses on adjusting and developing controls, increasing efficiencies and reducing time and costs. The purpose of an operational plan is to effectively execute the goals identified in the strategic plan. Operational planning will determine where to focus attention and where you can take a step back. In addition to informing human resource decisions (such as hiring additional help), operational planning can identify areas where you should look at outside professional assistance (accountant, technical advisor or shared administrative assistant).

Operational plans answer key questions such as "Who is doing what?", "What are the day to day activities?", "How will the suppliers and vendors be used?", "What are the labour requirements?"

and “What are the sources of raw materials?” Specific plans can be developed for human resources, production, facilities, logistics and distribution.

The key to developing both strategic and operational plans is for the higher-level management to step back from the daily activities, and allow business units to manage their own performance, obviously with agreed upon and controlled targets. It requires the allocation of time and a mental shift to ensure objectivity.

IMPLEMENTING STRATEGY

Before we turn our attention to Operational Planning, we first need to understand where and how operational planning links with strategic planning. Although the lines are not solid and clear, one could broadly say that strategy is the process of compiling a vision, mission and strategic goals for the long term. These must be broken down into annual goals and action plans, which is then the operational plan.

One can therefore say that the ‘gray area’ starts where the strategy must be implemented. Strategy implementation can be defined as the process that turns strategic plans into a series of action tasks and ensures that these tasks are executed in such a way objective of the strategic plan are achieved. In other words, strategy implementation is the communication, interpretation, adoption and enactment of strategic plans. It is clear from this definition that strategy implementation deals with translating thoughts or the strategic plan, into action. It is the phase in which management aligns or matches leadership, organisational culture, organisational structures, reward system and resource allocation with the chosen strategy or strategies.

Strategy implementation is an essential component of the strategic management process as it deals with the strategic change required within an organisation to make the new strategy work and to achieve the desired results. It is significant that it has often been considered the most difficult part of the strategic management process. Research has indicated that it is must easier to formulate a strategic plan than to implement it and that it is at the implementation stage that strategies often fail. Research has also indicated that the real value of strategy can only be recognised through implementation and the ability to implement strategy is considerably more important than the quality of the strategy itself. Strategy implementation poses a challenge to management not only in terms of the motivation of employees but also in terms of the required discipline, commitment and sacrifice.

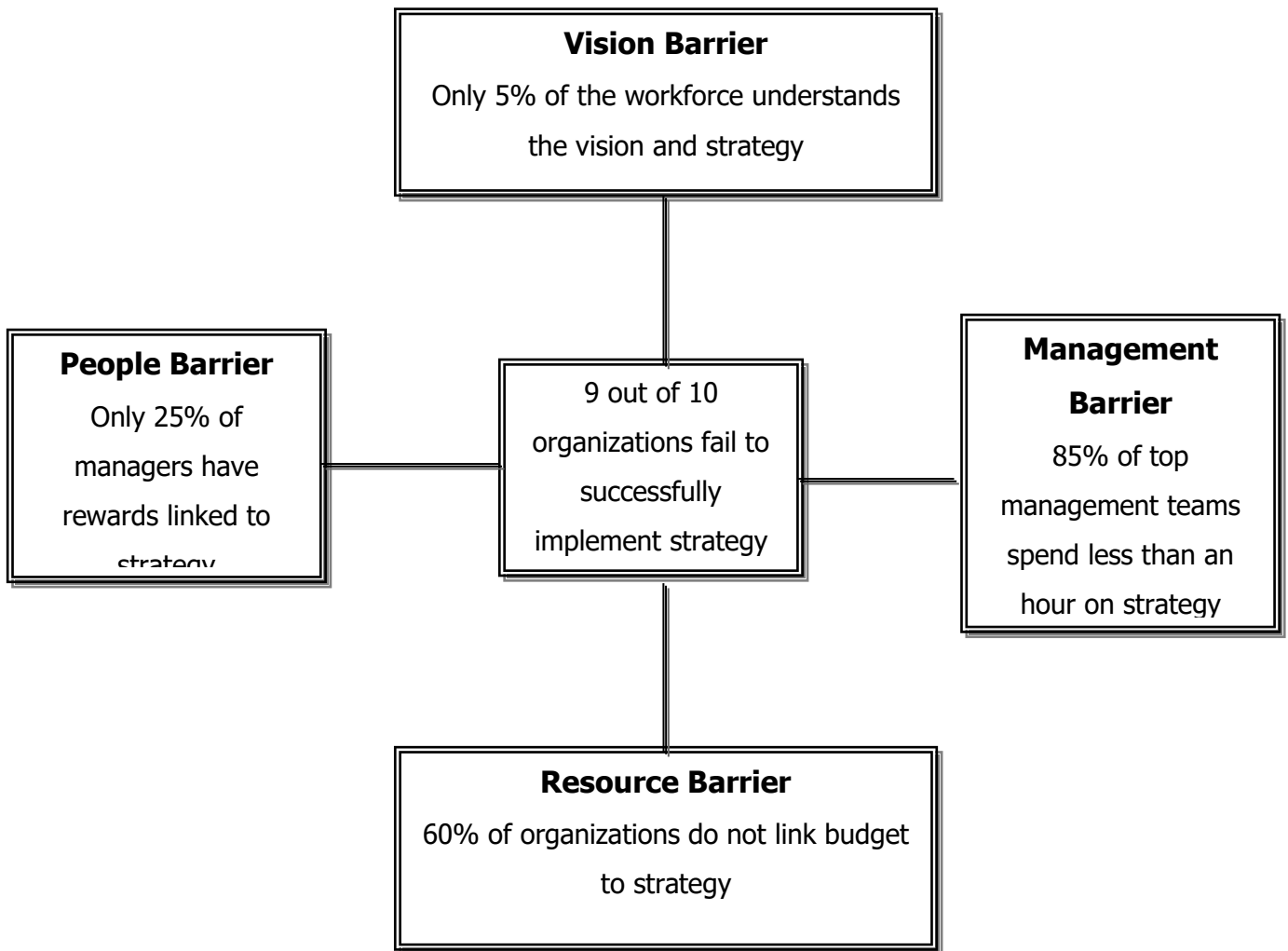
BARRIERS TO STRATEGY IMPLEMENTATION

Before the drivers and instruments that aid managers in strategy implementation are introduced, it is perhaps worthwhile to identify some of the problems organizations often experience when attempting to implement their chosen strategy or strategies. Some of these problems include:

- The coordination of implementation effort is not sufficiently effective.
- Leadership and direction provided by top and middle managers is inadequate.
- Goals have not been sufficiently defined and are not well understood by employees.
- The formulators of the strategy are not involved in implementation or have left before the implementation is finished.
- Key changes in responsibilities of employees have not been clearly defined.

The Balanced Scorecard Collaborative, a company founded and led by the creators of the balanced scorecard, has found that nine out of ten organizations fail to implement strategies and a few as 10 percent of effectively formulated strategies are effectively implemented. They identified four barriers to strategy implementation.

These are diagrammatically depicted in the figure below.



GUIDELINES FOR IMPLEMENTING STRATEGIC PLANS

The following guidelines will help ensure that the plan is implemented.

1. When conducting the planning process, involve the people who will be responsible for implementing the plan. Use a cross-functional team (representatives from each of the major organization's products or service) to ensure the plan is realistic and collaborative.
2. Ensure the plan is realistic. Continue asking planning participants "Is this realistic? Can you really do this?"
3. Organize the overall strategic plan into smaller action plans, often including an action plan (or work plan) for each committee on the board.
4. In the overall planning document, specify who is doing what and by when (action plans are often referenced in the implementation section of the plan). Some organizations may elect to include the action plans in a separate document from the strategic plan, which would

include only the mission, vision, values, key issues and goals and strategies. This approach carries some risk that the board will lose focus on the action plans.

5. In an implementation section in the plan, specify and clarify the plan's implementation roles and responsibilities. Be sure to detail particularly the first 90 days of the implementation of the plan. Build in regular reviews of status of the implementation of the plan.
6. Translate the strategic plan's actions into job descriptions and personnel performance reviews.
7. Translate the strategic plan's actions into job descriptions. If people know the action plans will be regularly reviewed, implementers tend to do their jobs before they're checked on.
8. Be sure to document and distribute the plan; including inviting review input from all.
9. Be sure that one internal person has ultimate responsibility that the plan is enacted in a timely fashion.
10. The chief executive's support of the plan is a major driver to the plan's implementation. Integrate the plan's goals and objectives into the chief executive's performance reviews.
11. Place huge emphases on feedback to the board's executive committee from the planning participants.

Consider all or some of the following to ensure the plan is implemented:

12. Have designated rotating "checkers to verify, e.g., every quarter, if each implementer completed their assigned tasks.
13. Have pairs of people be responsible for tasks. Have each partner commit to helping the other to finish the other's tasks on time.

SHARING THE COMPANY VISION, MISSION AND GOALS

When all mini-business units share the vision, mission and goals of the organisation, this will lead the organisation to world class performance. A shared vision, mission and goals make it possible for organizations to make the 'dream' a reality. Goals for better quality, speed, lower costs etc. must be formulated based on the company goals.

In order to compile your operational plan, one should first review the company's vision, mission, values and goals.

- **Vision:** Is like a beacon in the night – people can see where they are headed. It gives shape and direction to your organization's future and it helps people in setting goals which lead that way. When you review your company vision, get answers to the following questions:
 - Where does our company want to go?
 - When will it be there?
 - What will things be like when we get there?

- **Mission:** A clear, agreed-upon mission statement communicates the essence of your organisation to your stakeholders and to the public. It states what you are doing and who you are.
 - What are we busy with?
 - What is the problem or need we are trying to address?
 - What makes our organisation unique?
 - Who are the beneficiaries of what we do?
 - How do we do things?

- **Values:** Values are deeply held views about what we find worthwhile. Values answer the question: "What is important to us?"
Questions to ask when analyzing your company values include:
 - How we want to behave towards team members
 - How we want to behave with customers
 - How we like to spend our time

Our own values are the borders we have no intention of crossing and we expect others to feel the same way. When they do not, trouble is inevitable.

However, as with individuals, there may be a difference between what the organisation says it values and what it rewards. For example, valuing “long term relationships with customers” is not necessarily compatible with running sales incentive competitions.

Examples of organisational values include:

- | | | |
|--------------------------------|--|------------------------|
| ⇒ Achievement | ⇒ Decisiveness | ⇒ Integrity |
| ⇒ Advancement
and promotion | ⇒ Ethical practice | ⇒ Leadership |
| | ⇒ Excellence | ⇒ Loyalty |
| ⇒ Competence | ⇒ Frame | ⇒ Money |
| ⇒ Competition | ⇒ Freedom | ⇒ Personal |
| ⇒ Co-operation | ⇒ Inner Harmony | ⇒ Personal development |
| ⇒ Power
and authority | ⇒ Responsibility
and accountability | ⇒ Wisdom |
| | | ⇒ Working alone |
| ⇒ Privacy | ⇒ Status | |
| ⇒ Reputation | ⇒ Truth | |

OPERATIONAL PLANNING IN PERSPECTIVE

So, the question is: How does one go about 'translating' strategy into an operational plan?

The question where the operational plan fits into the bigger picture should first be answered. The diagram below shows the total organisational planning structure, which includes operational planning:



As indicated, vision and mission are usually seen as the strategic part of the planning process, whereas setting goals, objectives, action plans and tactics are normally part of the operational planning process.

It should however be recognised that the lines are not as solid as depicted in the diagram.

- The strategic planning process includes a process of setting company goals and objectives, which would later be broken down into departmental goals and objectives
- The operational planning process, although more focused on the goals, objectives, action plans and tactics of an operational unit, could include that the unit design their own vision and mission, aligned with that of the company.

For the purpose of this course we will focus on the operational planning process. Before we start off with the process of operational planning, we should however know where our department fits into

the bigger picture of the organisation. For that purpose, in our first exercise, we will review our company vision, mission and strategic plan.

INTERACTING WITH OUR STAKEHOLDERS

Stakeholders play a critical role in successful businesses. Among other things they are approvers, contribute to solution development, remove obstacles, offer the business perspective and are advocates and influencers. Stakeholders play a fundamental role in planning, etc.

Stakeholder engagement and communication is a normal component of any initiative, but it's not always done most effectively. There are two things that must be remembered:

1. Inconsistency in communication. Basically, if you say you are going to keep them updated, then do so. In fact, go one step further and agree with them upfront how often they want to be updated and through what channels. Then there's no misunderstandings.
2. Not being listened to. This happens when the updating is more to tick a box than to get feedback or engage them in the conversation. Always keep the lines open both ways for feedback and don't leave their engagement so late that they have no opportunity to contribute because the solution has already been agreed. Don't pretend to want their feedback and then do nothing with it. And equally frustrating for them, don't forget that when you take their feedback, you need to let them know how it was used. Close that feedback loop.

Keeping your stakeholders informed and engaged takes work. The consequences of not doing this effectively feed through to project sustainability and returns.

Inconsistency and not allowing people to provide feedback and have input are some of the major mistakes that you can make with stakeholders.

TIPS FOR GATHERING STAKEHOLDER FEEDBACK & REACTION

Gathering stakeholder feedback throughout a project's life cycle helps a project manager keep a project on track. Project managers should use these tips for gathering stakeholder feedback and reaction to obtain timely input from the people (or groups) who have the potential to impact the project.

- slide 1 of 6

Project managers responsible for strategic planning typically benefit from identifying as many stakeholders and sponsors as possible at the beginning of their projects. By using these strategies and tips for gathering stakeholder feedback and reaction, project managers can ensure they get the right levels of input from the right people who have influence and power related to the effort at the right time.

- slide 2 of 6

Schedule and Run Stakeholder Team Meetings

Scheduling regular meetings helps a project manager communicate and manage expectations with stakeholders and sponsors about their roles in the project. Additionally, stakeholders get to hear about the concerns and perspectives of other people, who may be at odds with one another. The project manager, who is responsible for balancing all the concerns, needs to carefully prepare for these meetings to ensure all issues get handled in a constructive manner. Concerns about cost, quality and time may cause heated discussions.

Project managers should plan to manage conflict by establishing rules for the meetings, such as encouraging participation, discouraging interruptions, keeping to an agenda, maintaining courteous behavior, and assigning action items. Project managers should avoid scheduling meetings just for the sake of meeting but ensure the discussion results in productive outcomes. They should send email updates or arrange for personal phone calls, if the situation warrants privacy and discretion.

- ***Use Active Listening in All Stakeholder Conversations***

Using active listening techniques helps project managers gather stakeholder feedback and reaction efficiently. By paraphrasing or repeating what stakeholders say, project managers can ensure they truly understand their comments the first time. Particularly if project team members do not all share a primary language. Expending the extra effort to ensure effective communication usually results in successful project outcomes. By listening patiently to innovative ideas and using phrases, such as “in other words” or “if I can summarize your position,” a project manager validates all assumptions and verifies his understanding to avoid conflict and project disruptions.

- slide 4 of 6
- ***Create Action Plans***

After receiving input from stakeholders, project managers need to respond in a timely manner by creating an action plan. Whether feedback is obtained through surveys, feedback forms, meetings, personal interviews or other mechanisms, once issues arise, the project manager needs to figure out to handle the risks. Creating a document using a template or developing their own format, project managers should include information such as a brief problem summary, describe business impact, list

background information, and list actions each project team member will take to address stakeholder concerns.

- slide 5 of 6
- **Conclusion**

To most effectively gather stakeholder feedback and reaction, project managers should hold regular meetings with people or groups who have influence over project outcomes. By using active listening techniques and other effective meeting facilitation strategies, such as planning and sticking to an agenda, project managers ensure that a successful exchange of information will benefit the project. Handling reactions constructively usually involves creating an action plan that specifies roles and responsibilities for resolving project issues raised by stakeholders. Using these tips for gathering stakeholder feedback and reaction, project managers ensure that stakeholders remain invested in the project and contribute to its ongoing success.

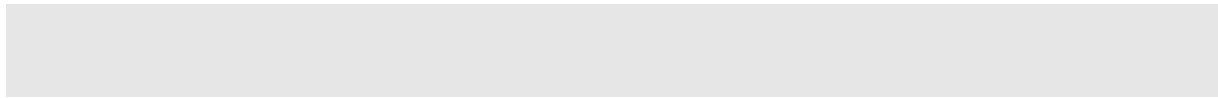
EXAMPLES:

Employees	Employee survey, training, performance evaluations, meetings
Suppliers	Quarterly reviews, standard communications, partnerships
Corporate customers	Quarterly reviews, one-on-one meetings, standard communications
Individual customers	User communities, standard communications
Developers (material)	User communities, standard communications
Policy makers	Individual meetings, standard communications
Investors	Quarterly reports, annual reports, shareholder meetings, virtual shareholder meetings, proxy process, regular meetings and discussions, presentations at investor events
Media	Ongoing interaction through meetings and discussions, virtual shareholder meeting, PR, website, blog and other social media initiatives.



Group Formative Exercise IA

Time Frame: 60 min



Learning Unit2:

Developing an Operational Plan for a Business Unit

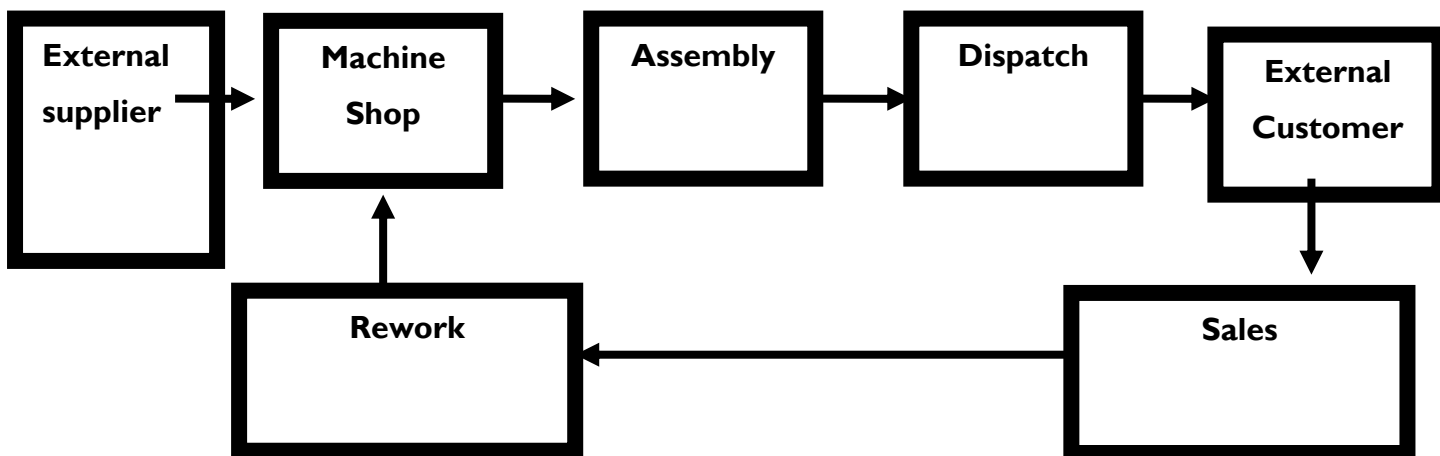
Unit Standards	
252032	Develop, implement and evaluate an operational plan
15219	Develop and implement a strategy and action plans for a team, department or division
Specific Outcomes	
<p>US 252032 SO2: Develop an operational plan for a unit</p> <p>2.1. The operation plan is developed to transform the goals and objectives into tasks, responsibilities, time frames, performance measures, resource needs and contingencies.</p> <p>2.2. Measurable parameters are validated against customer and unit performance requirements.</p> <p>2.3. Monitoring systems are described in the operational plan to enable the measurement of progress and results against the performance standards.</p> <p>2.4. Feedback on the operational plan is obtained from team members to promote buy-in in the implementation of the plan.</p> <p>US 15219 SO1: Develop a strategy for the department/division/section</p> <p>1.3 Objectives are clear and reflect the mission statement for the department/division/section.</p> <p>1.4 Departmental/divisional/sectional objectives contribute to the achievement of the strategic plan.</p>	
Learning Outcomes	
<p>At the end of this Learning Unit you will demonstrate an understanding of:</p> <ul style="list-style-type: none"> • The team as mini-business unit • Principles of goal setting and goal alignment, including methods to set operational goals • Compile an operational plan • Objectives of a plan 	
Critical Cross-field Outcomes	
<ul style="list-style-type: none"> • Identify & solve problems 	<ul style="list-style-type: none"> • Collect, organise and critically evaluate

<ul style="list-style-type: none">• Work as member of a team• Organise and manage• Use Science and technology for recording of all plans	<ul style="list-style-type: none">• Communicate effectively• Understand the world as integrated set of related systems
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THE TEAM AS A MINI BUSINESS UNIT

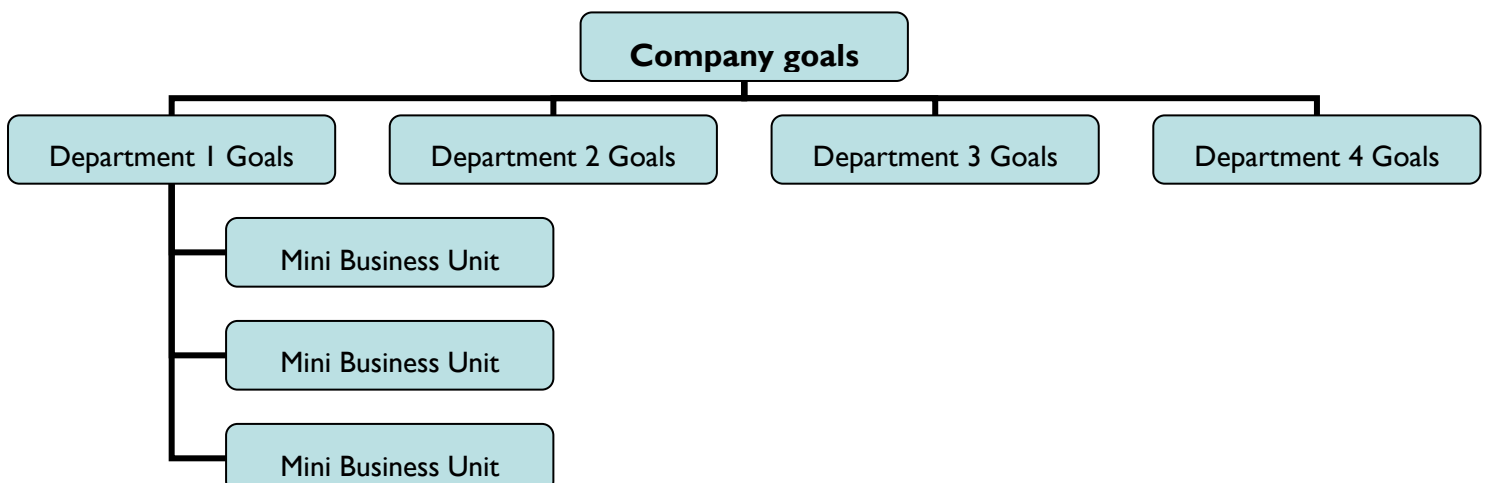
A company be a group of mini-business units or departments, linked together by customer-supplier relationships. When each mini-business unit is focusses on providing the other business unit with high quality, on time and cost-effective products, internal customers will be satisfied, which will ultimately lead to external customers being satisfied.

The diagram below shows the company as a group of mini-business units, linked together by customer/supplier relationships:



Goals and goal alignment

The most important part of implementing your company strategy (vision, mission, values and objectives) is to set goals. Goals should be **formulated and agreed upon at all levels** and aligned top-down and bottom-up. The diagram below shows the downward and upward cascading process:



To get buy in and co-operation across the company, it is essential that the goal setting process is done in a **participative fashion**. At each level of goal setting, key stakeholders should be identified and invited to participate in the goal setting process.

Strategic planning includes a process of setting goals for the organisation, which can be long term (3-5 year) goals but could also include short term goals.

Operational planning goal setting is breaking down these strategic goals into shorter term action orientated goals to be achieved in this operational cycle (1 year at most).

Cascading goals down into business and support unit goals, means the organisational level goals (the first Tier) is translated into business unit or support unit goals (the second Tier) and then later to team and individual goals (the third Tier). Cascading translates high-level strategy into lower-level objectives, measures, and operational details. Cascading is the key to organisation alignment around strategy. Team and individual goals link day-to-day work with department goals and corporate vision. Cascading is the key to organisation alignment around strategy. Performance measures are developed for all objectives at all organisation levels. As the goals are cascaded down through the organisation, objectives become more operational and tactical, as do the performance measures. Accountability follows the objectives and measures, as ownership is defined at each level. An emphasis on results and the strategies needed to produce results is communicated throughout the organisation.

KEY PRINCIPLES IN GOALS SETTING

Establishing strategic goals and objectives for your division

Take the information from your strategy analysis (external and internal) and convert it into a set of goals and objectives that will drive your division over the next 12 months.

This process of formulating strategic objectives is often relatively simple. The process can be summarized as follows:

- Key external issues and trends (opportunities and threats) – involves answering the question: ‘What do we intend to do about challenges that face us in the external environment?’
- Internal skills and resources – involve asking the question: ‘We now know what our strengths and weaknesses are. What do we intend to do about it in order to meet the challenges posed by the changing external environment?’

- Analysis of the constraints – requires asking the question: ‘What constraints do stakeholders impose on our future operations?’ ‘What restrictions - physical, human and financial- will we have to operate under?’

Given that organizations suffer from resource constraints and that it is not feasible to achieve every strategic objective, a process must be established whereby a ‘wish list’ can be converted into an actionable list of strategic goals and objectives for every division.

This can be achieved in two stages:

- It is necessary to allocate priorities to alternative objectives. The method of allocating priorities will vary from division to division, depending on the requirements of each of the available resources.
- Management must ensure that the strategic objectives conform to the following appropriate attributes:

- **Specific**

What is the exact scope of the objective? What is included and what is not?

What might be thought to be included but is being done by someone else?

What must be done with the outputs?

- **Measurable**

What measures will be used to know that the objective has truly been reached? When and how often will the process be measured? What measurement tools can be used to determine success? What format must the output take?

- **Achievable**

A delegated impossibility is still impossible! If there is doubt over whether the objective is achievable, then the first part of the process should be either to test feasibility or to identify what would have to be changed in order to make the rest feasible.

- **Realistic**

What may be a realistic task for a functional expert to undertake in a week, may not be realistic for a junior joiner in a month. A series of roll-out meetings might be scheduled in two weeks, but clashes with public and personal holidays could mean that a month will be required. The test for a good objective is that it always deals with the reality of how long it will take to do things, rather than how long we would like it to take if we could ignore inconvenient facts.

- **Time bound**

An objective without a clear specification of its timing priority is likely to be put at the bottom of the list. It will not get done. The simplest way to ensure that an objective will be

achieved is to agree on a realistic deadline, even for objectives that are not time critical for success.

This means that for every objective a specific method of measuring or monitoring must be identified and agreed upon. For every objective a specific time frame for monitoring or completion must also be agreed upon. This will mean that your objectives are truly **SMART**.

KEY RESULT AREAS

Key Result Areas (KRA's) group a division/department's goals and objectives into cohesive and related areas of strategic concern. This ensures that the division's effort is not a disjointed quest for a multitude of objectives, thus reducing fragmentation and isolation of issues.

The ultimate questions to be asked when testing your KRA's are:

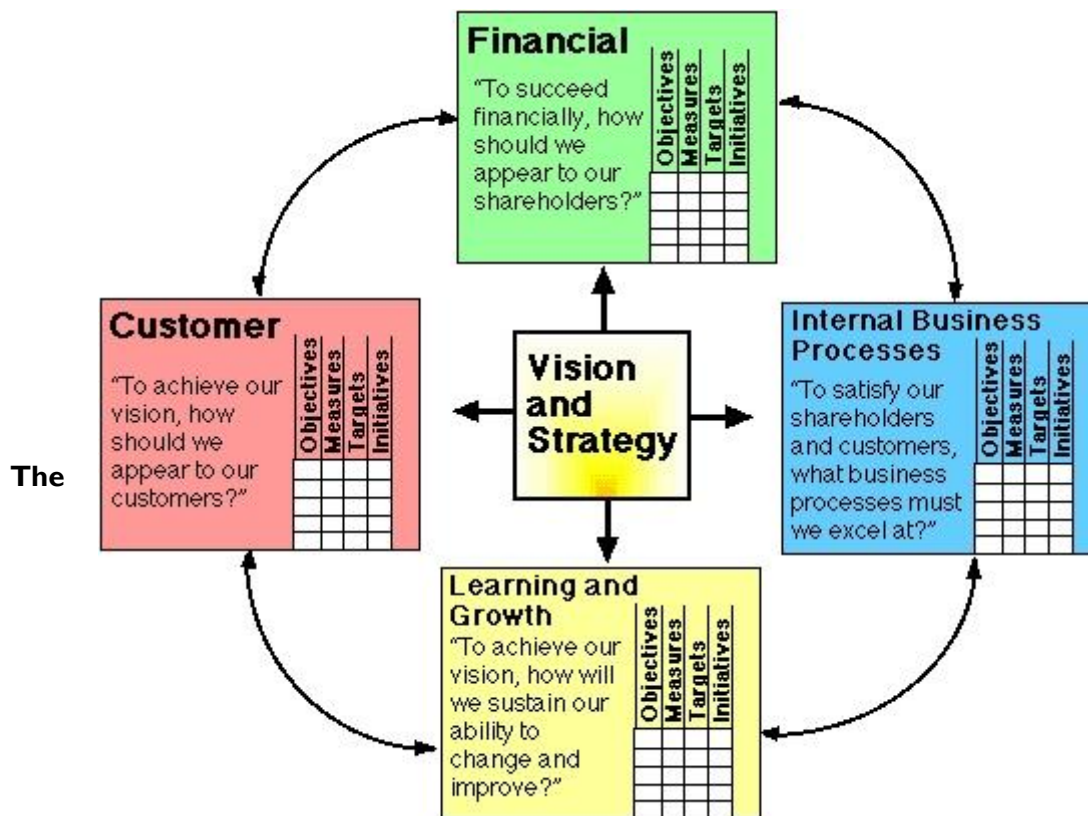
- "What is the purpose of my division?"
- "What are we supposed to achieve?"
- "How does my department contribute towards the existence of the organisation?"
- "Will achieving this KRA indicate that we are successful as a department?"

Once you have identified your Key Result Areas, you must identify specific goals and objectives, which will help you to achieve the department's specific KRA's.

THE BALANCED SCORECARD METHOD OF GOAL SETTING

In order to ensure that your goals focus on all important aspects of the business, the Balanced Scorecard provide a good framework. It was developed as a conscious move from traditional focus on only financial measures. Kaplan and Norton, the developers of the Balanced scorecard, advocated that one should not only focus on financial aspects when setting goals for your company, but also on business processes, learning and growth and customer requirements.

The Balanced Scorecard



Financial Perspective

Aspects which this perspective includes for analysis are:

- Sales
- Costs
- Cash flow
- Profit
- Cost/benefit analysis. This type of analysis assesses the following types of calculations:
 - Projected direct and indirect costs of the products and services offered by the organisation
 - Expected sales
 - Cost of purchasing similar products and services from competitors
 - Intangible benefits gained by the organisation or the client
 - Any other assumptions, risks and foreseeable changes to be considered

The Business Process Perspective

Analysis questions we could ask include:

- How well we do what we do (as reported in our management information and financial systems)?
- What is the impact of our in-house software systems?
- What is the impact of our office equipment and facilities?
- What is the impact of our relationships and interpersonal skills?
- What is the impact of our job and behavioral competencies?

The Customer Perspective

Businesses today have an increasing realization of the importance of customer focus and customer satisfaction. If customers are not satisfied, they will eventually find other suppliers who will meet their needs. Poor performance in this area is a good indicator of a decline in the future, even though the financial picture now may look good.

When doing strategic planning the focus is on external stakeholders such as customers, suppliers, advertising agencies and the recipients of Corporate Social Responsibility Programmes. When doing operational planning, the focus is on internal stakeholders, such as internal suppliers, customers, and departments to be consulted with.

Analysis questions we could ask include:

- What key stakeholders have been surveyed?
- What do key clients think of your customer service and product quality?
- How is your reputation?

Learning and growth (people perspective)

The appraisal should cover:

1. Levels of skill and expertise currently available
2. Future availability of the quantity and quality of people required
3. Moral
4. Climate of industrial relations

Other considerations:

Manufacturing

The areas to be considered are:

1. Productivity
2. Overall plant capacity
3. Degree to which plant is up to date and efficient
4. Use of new technology
5. Quality
6. Ability to meet deadlines
7. Effectiveness of planning and scheduling procedures

Distribution

Appraisals cover:

1. Capacity and coverage of distribution channels
2. Level of service to customers
3. Distribution costs

Administration

The appraisal headings are:

1. Use of information technology to process and disseminate data
2. Efficiency in processing data and providing information
3. Administration

FURTHER GUIDELINES IN SETTING PERFORMANCE OBJECTIVES

STEP I: Begin with the end in mind.

Performance measures are objective comparisons that provide evidence of an important performance outcome. It is of the utmost importance to decide which outcomes are most worth tracking right now. As the first step in deciding how to measure an outcome, write down what the outcome is, what the difference is you are trying to create (and thus want to track using a measure). Focus on one outcome at a time.

STEP 2: Be sensory specific.

When you have the end in mind, you are ready to get a handle on what specifically about your outcome you will measure. This is where you take care in your choice of words to describe the outcome as concretely as possible. Use "sensory" language - the language that describes what you and others would see, hear, feel, do, taste or smell if your outcome was happening now. Avoid those inert words that we so often see in our goal and objective statements, such as: efficient, effective, reliable, sustainable and quality.

STEP 3: Check the bigger picture.

Check the bigger picture for what could happen if you measure your outcome. What level of control do you have overachieving it? What might the unintended consequences of measuring the outcome be (both the positive and the negative)? What behaviour would the measures drive? Which other areas of performance might be sabotaged or limited? This is your first chance to change your mind about what's most worth measuring.

STEP 4: What's the evidence?

Now, get ultra-specific and figure out what the potential measures are that could let you (and everyone else) know that the outcome is being achieved. For each of your sensory rich statements from step 2, what could you count to tell you the extent to which it is occurring? Which of these potential measures would be the optimal balance between objectivity and feasibility?

STEP 5: Name the measure.

Naming your performance measures marks the point at which you know exactly what you will be measuring. Be concise, informative and deliberate, as you need to be able to continually and easily identify each measure as it moves through the steps of being brought to life and being used in decision making.

BALANCED SCORECARD PRINCIPLES FOR PERFORMANCE MEASUREMENT

Most of us have heard some version of the standard performance measurement clichés: "what gets measured gets done," "if you don't measure results, you can't tell success from failure and thus you can't claim or reward success or avoid unintentionally rewarding failure," "if you can't recognize success, you can't learn from it; if you can't recognize failure, you can't correct it," "if you can't measure it, you can neither manage it nor improve it," but what eludes many of us is the easy path

to identifying truly strategic measurements without falling back on things that are easier to measure such as input, project or operational process measurements.

Strategic performance measures monitor the implementation and effectiveness of an organisation's strategies, determine the gap between actual and targeted performance and determine organisation effectiveness and operational efficiency.

Good Performance Measures:

- Provide a way to see if our strategy and operational plan is working
- Focus employees' attention on what matters most to success
- Allow measurement of accomplishments, not just of the work that is performed
- Provide a common language for communication
- Are explicitly defined in terms of owner, unit of measure, collection frequency, data quality, expected value(targets), and thresholds
- Are valid, to ensure measurement of the right things
- Are verifiable, to ensure data collection accuracy

Let's work through an example of an operational plan:

When setting objectives, do it within the framework of the Balanced Scorecard categories, i.e. financial, business processes, learning and growth and customer/supplier requirements. It could be that there are other or additional focus areas that are specific to your business, e.g. "Safety in a heavy equipment environment". Caution should however be exercised to have no more than 6 broad areas of focus.

Step 1: Set objectives

Step 2: Agree on 'instruments of measurement/yardsticks

Step 3: Agree on frequency of measurement

Step 4: Agree on targets

Step 5: Agree on target dates

Step 6: Establish responsibility, accountability, consulted and informed

RACI Model

The RACI model can be used successfully in step 6. It is a straightforward model for identifying roles and responsibilities.

Responsible: The person who does the work to achieve the task, ie make getting the work done or making the decision. As a rule, this is one person only.

Accountable: The person who is accountable for the correct and thorough completion of the task. This is often the supervisor or manager who approves the work.

Consulted: The people who provide information to achieve the objective, and with whom there are two-way communication. This can include customers, suppliers, subject matter experts.

Informed: The people who should be kept informed of the progress, usually one-way communication. This could include higher level management, customers and suppliers.

EXAMPLE OPERATIONAL PLAN FOR A PRODUCTION DEPARTMENT

Topic	Objectives	Yardsticks	Frequency of measurement	Targets	Target date	RACI	Corrective Measures
Financial	Cost per unit of product (could further be broken down in running cost per machine/equipment)	Cost per ton	Monthly	(product specific)	Last Friday of month	R: First line Sup A: Manager C: Accountant/ subject matter expert I: Management	Meeting on costing will be held once per annum
	Budget vs cost (consumables) (could further be broken down in specific consumables, eg stationary, fuel, chemicals)	Budget vs cost	Monthly	Within budget/ set saving target	Last Friday of Month	R: First line Sup A: Manager C: Accountant/ subject matter expert I: Management	
Business Processes	Volume of production	Units	Per week	500	Every Friday	R: Operator A: First line sup C: Engineer/	

						Manager I: Customer/ supplier	
	Quality of production	Rejects	Per month	3	Last Friday of month	R: Operator A: First line sup C: Engineer/ Manager I: Customer/ supplier	
	Material Usage	Scrap	Per month	?? Ton	Last Friday of month	R: Operator A: First line sup C: Engineer/ Manager I: Customer/ supplier	
	Machine care	Breakdowns	Per month	?? times	Last Friday of month	R: Operator A: First line sup C: Engineer/ Manager I: Customer/	

						supplier	
	Safety	Nr of safety contraventions	Per week	?? times	Friday	R: Operator A: First line sup C: Engineer/ Manager I: Customer/ supplier	
Customer/ supplier focus	Customer feedback	Complaints/ complements	Per week/ month	?? times/ intensity	Last Friday of month	R: Operator A: First line sup C: Engineer/ Manager I: Customer/ supplier	
	Late or overdue supplies	Nr or % of late supplies	Per week/ month	?? Times	Last Friday of month	R: Operator A: First line sup C: Engineer/ Manager I: Customer/ supplier	

Learning & Growth	List skills which needs to be developed to optimise your departments functioning: <ul style="list-style-type: none"> • Equipment X training for Ms Z • Computer Program Z training for Mr A 	Competent ms Z Competent mr A	By end of June By end May		End of June End May	R: Robert A: Supervisor C: Training dept I: Manager	
	Implement Coaching for Mr X	Competent mr. X	End of Dec 2010				



Individual Formative Exercise 2A

Time Frame: 60 min



Individual Formative Exercise 2B

Time Frame: 60 min

Learning Unit 3:

Implement and monitor the Operational Plan

Unit Standards

252032	Develop, implement and evaluate an operational plan
15219	Develop and implement a strategy and action plans for a team, department or division

Specific Outcomes

US 252032: SO3: Implement an operational plan.

3.1. The operational plan is implemented, with amendments where necessary, to meet the specified goals, objectives and performance standards.

3.2. Optimal use of available resources is ensured during implementation to promote cost-effectiveness.

3.3. The use of control measures by first line managers is encouraged in the areas of their responsibility.

SO4: Monitor, measure and evaluate the achievements of goals and objectives

4.1. The performance of the unit is monitored against the goals, objectives and performance standards in the plan using established monitoring systems.

4.2. Performance reviews are conducted to measure inputs and outputs of team members against the operational plan.

4.3. Recommendations on corrective action are implemented with the agreement of the responsible first line managers.

4.4. Results are evaluated in terms of the teams' contribution to the performance of a unit.

US 15219: SO2: Develop action plans for the department/division/section.

2.1. The action plans are in accordance with the strategy.

2.2 The action plans are complete and include provision for contingencies.

2.3. The action plans are documented to show tasks, responsibilities, timeframes, performance measures and resource needs.

2.4. Existing organisational tools for implementing strategy are included in plans.

2.5. Stakeholders are involved in the process.

SO3: Implement action plans.

- 3.1. Strategy and action plans are communicated to the team, department or division.
 - 3.2. Implementation matches specified action plans.
 - 3.3. Implementation makes optimum use of available resources.
- SO4: Review action plans.
- 4.1. Reviews are conducted of the implementation against departmental/divisional/sectional objectives.
 - 4.2. Results are communicated to stakeholders throughout the process.
 - 4.3. Amendments are made to plans if necessary, to ensure efficiency and effectiveness of department/division/section.

Learning Outcomes

At the end of this Learning Unit you will demonstrate an understanding of:

- How to implement the operational plan
- Understand the principles of measuring team performance against targets
- How to use the dashboard system to monitor team performance
- How to use action plans for remedial action
- How to review action plans
- How to use daily shift meetings to monitor team performance
- How to implement a continuous improvement cycle in your business

Critical Cross-field Outcomes

- | | |
|---|---|
| <ul style="list-style-type: none"> • Identify & solve problems • Work as member of a team • Organise and manage • Use Science and technology for recording of all plans | <ul style="list-style-type: none"> • Collect, organise and critically evaluate • Communicate effectively • Understand the world as integrated set of related systems |
|---|---|

PUTTING THE PLAN INTO ACTION

All of us have heard the saying “if you fail to plan... you plan to fail”. Very true, but implementation is equally important to planning. No use to have the perfect plan, but it is not implemented well.

The Dashboard/Score board

To keep track of a soccer match, we have a large scoreboard, which should be visible to all spectators. As spectators, we get highly irritated if the scoreboard is hidden. Both players and spectators constantly keep an eye on the scoreboard, which serves as motivator to increase performance and feedback.

So why, if we are serious about business performance, are our scoreboards hidden in well-kept files?????

Advice given by modern business performance experts is to set up scoreboards like sports scoreboards, to track business performance. The benefits of this practice are unlimited, but include:

- People want feedback to know how they are doing, the scoreboard provides immediate feedback
- Measurement is the foundation of improvement
- The scoreboard motivates and inspires the team
- The scoreboard focuses the team on what is important
- The supervisor will recognise where assistance is required

A scoreboard could simply be a visual display of the operational plan, but better ways are to work with **graphs with target lines**. Important to keep the graphs updated on a weekly basis. Software programs could be developed to update it automatically as data are fed into the system.

Guidelines when preparing dashboard graphs:

- The scale of the graph must be appropriate
- It must be clear from the graph if the goal has been attained. A goal statement, target line and ‘trigger’ line are needed
- Daily performance must be summarised in monthly performance to see if objectives are met.
- Graphs must be easy to read (both size and lay-out)
- When targets are not met, an improvement action plan must be compiled

Action plan

An **action plan** is a plan consisting of one or more actions. The plan itself may have one or more goals, but it is not really necessary to have more than one goal.

In some ways, an action plan is a "heroic" act: it helps us turn our dreams into a reality. An action plan is a way to make sure your organisation's vision is made concrete. It describes the way your team will use its strategies to meet its objectives. An action plan consists of several action steps or changes to be brought about in your community.

Each action step or change to be sought should include the following information:

- *What actions or changes will occur?*
- *Who will carry out these changes?*
- *By when they will take place, and for how long*
- *What resources (i.e., money, staff) are needed to carry out these changes*
- *Communication (who should know what?)*

What are the criteria for a good action plan?

The action plan for your initiative should meet several criteria. Is the action plan:

- *Complete?* Does it list all the action steps or changes to be sought in all relevant parts of the community (e.g., schools, business, government, faith community)?
- *Clear?* Is it apparent who will do what by when?
- *Current?* Does the action plan reflect the current work? Does it anticipate newly emerging opportunities and barriers?

Why should you develop an action plan?

Because you certainly don't want to fail, it makes sense to take all the steps necessary to ensure success, including developing an action plan. There are lots of good reasons to work out the details of your organisation's work in an action plan. They include:

- To lend credibility to your organisation. An action plan shows that your organisation is well ordered and dedicated to getting things done.
- To be sure you don't overlook any of the details
- To understand what is and isn't possible for your organisation to do
- For efficiency: to save time, energy, and resources in the long run
- For accountability: To increase the chances that people will do what needs to be done

When should you create an action plan?

Ideally, an action plan should be developed within the first six months to one year of the start of an organisation. It is developed after you have determined the vision, mission, objectives and strategies of your group. If you develop an action plan when you are ready to start getting things done, it will give you a blueprint for running your organisation or business.

Remember, though, that an action plan is always a work in progress. It is not something you can write, lock in your file drawers, and forget about. Keep it visible. Display it prominently. As your organisation changes and grows, you will want to continually (usually monthly) revise your action plan to fit the changing needs of your team.

How to write an action plan

Preparing your plan

1. Determine what people and sectors of the community should be changed and involved in finding solutions. If you have been using the VMOSA (Vision, Mission, Objectives, Strategies, Action Plans) model, you might have already done this, when you were deciding upon your group's objectives. Again, try to be inclusive.

Convene a planning group in your team to design your action plan. This might be the same group of people who worked with you to decide your team's strategies and objectives. If you are organising a new group of people, try to make your planning committee as diverse and inclusive as possible. Your group should look like the people most affected by the problem or issue.

Once everyone is present, go over your organisation's:

- vision
- mission
- objectives
- strategies
- targets and agents of change
- proposed changes for each sector of the team/department or division

3. Develop an action plan composed of action steps that address all proposed changes.

The plan should be complete, clear, and current. Additionally, the action plan should include information and ideas you have already gathered while brainstorming about your objectives and your strategies. What are the steps you must take to carry out your objectives while still fulfilling your vision and mission? Now it's time for all the VMOSA components to come together. While the plan

might address general goals, you want to see accomplished, the action steps will help you determine the specific actions you will take to help make your vision a reality.

4. Review your completed action plan carefully to check for completeness. Make sure that each proposed change will help accomplish your team's mission. Also, be sure that the action plan taken will help you complete your mission; that is, make sure you aren't leaving anything out.

5. Follow through. One hard part (figuring out what to do) is finished. Now take your plan and run with it! Remember the 80-20 rule: successful efforts are 80% follow through on planned actions and 20% planning for success.

6. Keep everyone informed about what's going on. Communicate to everyone involved how his or her input was incorporated. No one likes to feel like her wit and wisdom has been ignored.

7. Keep track of what (and how well) you've done. Always keep track of what the team has done. If the team or division change (a new program or policy) took significant time or resources, it's also a good idea to evaluate what you have done, either formally or informally.

Keep several questions in mind for both yourself and others:

- Are we doing what we said we'd do?
- Are we doing it well?
- Is what we are doing advancing the mission?

You can address these questions informally (ask yourself, chat with friends and other people), as well as formally, through surveys and other evaluation methods.

8. Celebrate a job well done! Celebrate your accomplishments; you and those you work with deserve it. Celebration helps keep everyone excited and interested in the work they are doing.

After you've written your action plan: Getting employees to do what they said they would!

Every organisation has undoubtedly had this happen you plan, and you assign tasks to get everything you've planned to do accomplished. Everyone agrees (maybe they even offer) to do certain tasks, and you all leave with a great feeling of accomplishment. The problem? At the next meeting, nothing has been done. Besides tearing out your hair, what can you do?

Fortunately, there are several things you can try. It's particularly tricky in the case of volunteers, because you don't want to lean too hard on someone who is donating their time and energy to

begin with. Still, you can make it easier for employees to get things done (and harder to avoid work) without acting like the mean neighbor down the street. Some of these gentle reminders include:

- Regular phone calls from staff members asking others how they are doing with their tasks. This should be a supportive call, not a "are you doing what you're supposed to" call. The person calling can offer emotional support "how are you doing?" as well as see if the group member needs any other assistance. A friendly call such as this be helpful, give the member the sense that he is a very important part of the group, and serve as a great reminder to do what he said he would do.
- Distributing the action plan in writing to all members, with names attached to specific tasks. (Additionally, this can be a great time to ask for feedback before the plan becomes "official.")
- Making sure timelines (with due dates) are complete, clear and current.
- At regular group meetings, such as committee meetings or board meetings, ask members to report on accomplishing the tasks they have set out to do. Consider making this a regular part of the meeting.
- Celebrate the accomplishment of tasks. It's important that getting something done means something and is recognized by the group.

Follow up on the action plan regularly. You are asking members to be accountable, and to get things done on a regular basis. If they have agreed, you should help them fulfill their commitment as best you can.

When a target is continuously met or exceeded, three possible actions can be taken:

- The team must be given positive feedback.
- A reward for excellent performance can be negotiated with higher management.
- The target could be set too low, in which case it should be reviewed and adjusted. Just make sure that this process is done in a participative style to ensure buy-in from all involved.

Remember that when the targets are not met, actions plans are necessary. Three possible actions could result:

- Ask 3 questions if targets are not met:
 - What happened?
 - What must we do about it now?
 - What must we do to prevent this from happening again?
- Daily routine operational issues could cause the poor performance, e.g. Absenteeism, poor performance of a group/individual, machine failure.

- If the improvement goal is too steep, it could be necessary to break it down in sub-goals/action plans.
- Innovation ideas might be suggested by the team to improve the performance. To implement such ideas, we need action/project plans.

Example of an Action plan template

Action	Responsible Person	Target Date	Communication	Resources

Daily Team Communication

The best way to communicate with the team is by means of a pre-shift meeting, which in an operational unit, should be done daily. The purpose of such a meeting is to review performance, plan for the day and address problems.

A typical agenda for daily team/shift meetings should include:

- Update/present updated graphs (One of the team members can get this responsibility)
- Review previous days performance
- Review customer feedback
- Address problems experienced
- Agree on goals and actions for the day
- Discuss performance improvement suggestions and agree on follow up actions

Remember to keep the meeting short and to the point. Always stick to the agenda. More personal or other issues should be addressed before or after the meeting. Always start and finish on time.

Review Performance of the unit

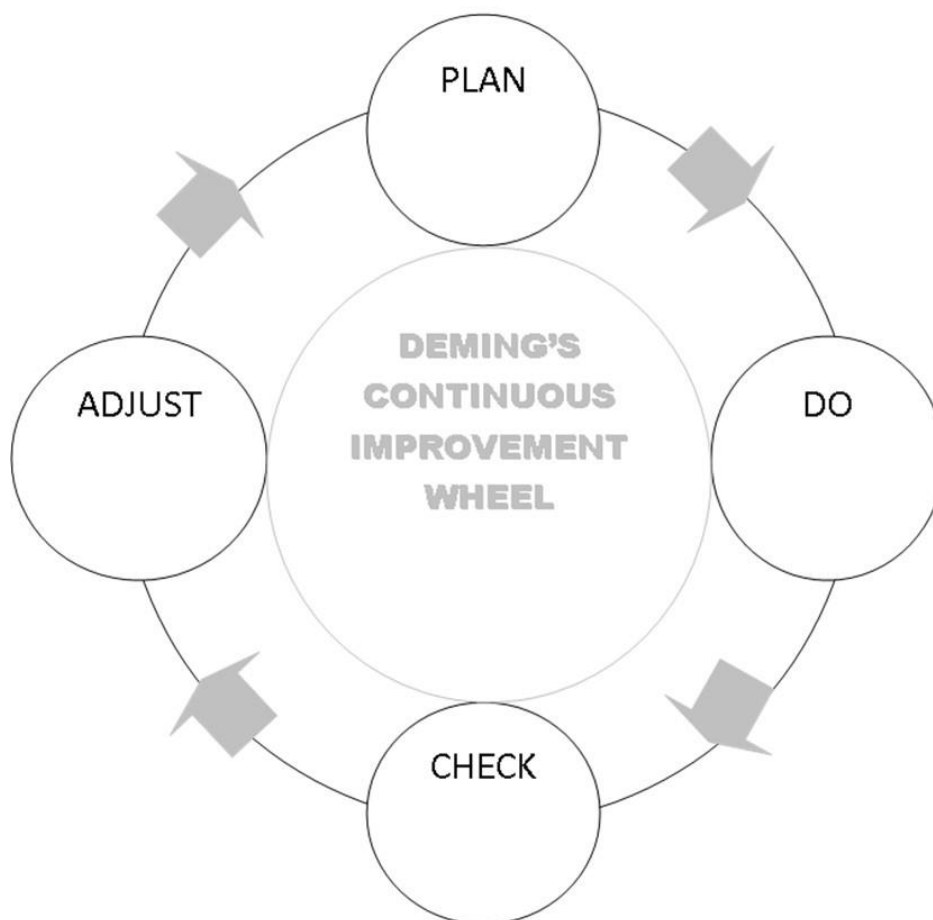
- Review the relevant business and team performance plan.
- Take note of individual goals and objectives that was agreed upon.
- Place emphasis on both performance and development objectives.
- Have the objectives been achieved or not and to what extent?
- Identify negative achievements and identify possible reasons why goals and objectives were not achieved.

- Identify positive achievements and identify possible reasons why goals and objectives were achieved.
- Identify gaps and possible reasons for these gaps.
- Formulate constructive criticism in advance, focusing on both good and poor performance.
- Plan ways in which you will maintain and enhance self-esteem throughout the discussion.
- Think about how to create a positive atmosphere in the meeting (by not being defensive, demonstrating good ideas, listening to the other person carefully, maintain self-esteem, asking for clarification, etc.).

CONTINUOUS CYCLE OF IMPROVEMENT

To remain competitive, companies need to find a way to continuously improve their performance. Dr Edwards Deming, an American Professor and father of the “Total Quality Movement” of the 1960’s, developed a cycle, called the Continuous Improvement Wheel. The principles of this wheel have enabled Toyota in Takaoka to set world class benchmarks in the motor industry. This plant was able to implement over 60 improvement ideas per person per year.

The Deming Cycle or Continuous Improvement Cycle looks as follows:



Plan

- Describe the results you want
- Clarify the standards (time, cost, quality etc.)
- List activities to achieve results
- Prioritise activities
- Determine the timing and duration of each
- Prepare a visual network to illustrate the activity sequence
- Draw a bar chart and display
- Allocate people and resources

Do

After planning, the plan must be implemented. Action is the most important.

Check

This step involves evaluation and measurement. The results of the 'do' step are checked. Progress is compared to set targets and indicated in a visual manner.

Adjust

This step involves standardisation of further improvements. If the results are as planned and required, the current method is captured in an Operating Procedure to ensure future success. When results are not as planned, the necessary adjustments need to be made and the cycle is repeated.

REVIEWING OF ACTION PLANS

It is necessary that you review your action plans from time to time. Priorities within your organisation might change, employees involved in your projects leave the organisation, etc. You must decide when you will review your action plan, e.g. weekly, monthly, depending on the type of project the action plan was developed for.

The easiest way to do so is to add a column "Corrective Measures" to your original document and indicate the changes that you have decide on.

Keep in mind that your stakeholders must be informed of any changes.

Example of an Action Plan Review template

Action	Responsible Person	Target Date	Communication	Resources	Date of review	Corrective measures



Individual Formative Exercise 3A

Time Frame: 60 min



Group Formative Exercise 3B

Time Frame: 60 min



Individual Formative Exercise 3C

Time Frame: 60 min



Individual Formative Exercise 3D

Time Frame: 60 min



Summative Exercises S1-S2

Time Frame: 82 hours

PART 2

Learning Unit I: Project Management Principles



Trying to manage a project without project management is like trying to play a football game without a game plan.

K. Tate (Past Board Member, PMI)

Unit Standard

252022	Develop, implement and evaluate a project plan
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Specific Outcomes

All

Learning Outcomes

Understand and reflect on Project Management knowledge and its definition

Understand the relationship between Projects, Programmes and Portfolios

Be able to describe the characteristics of a Project Manager, his/her responsibilities and interaction with Stakeholders

Be able to identify the PMBOK areas and their importance

Explain the critical constraints of a project

Grasp an overview of Project Scope, Deliverables and describe the Project Life Cycle

Critical Cross-field Outcomes

Identifying	Working
Organising	Collecting
Communicating	

Introduction

The number of projects, Programmes and portfolios is growing at an exponential pace, worldwide. In the past thirty years project management has been a discipline which has developed tremendously and increased in visibility.

More and more different kinds of projects are managed professionally. In the past, construction and defense projects dominated the scene. Now they are still important but are in the minority. We are dealing with projects in, for instance, information and communication technology (ICT), organisational development, product development, marketing changes, production development, research, events, political projects, legislation projects, educational projects and social projects in many different sectors of the economy.

The question “Is project management necessary?” is rarely asked today. The relevant questions are:

- What are the deliverables, methods and tools of professional project management?
- What constitutes quality in project management?
- How competent should the project personnel be for a given project, phase, and area of responsibility?
- How good is the project management of a project?


To be professional, the discipline of Project Management must have rigorous standards and guidelines to define the work of project management personnel. These requirements are defined by collecting, processing and standardizing the accepted and applied competence in project management.

Project quality is defined as fulfilling the requirements agreed for the project. Project management quality is defined as fulfilling the requirements agreed for the management of the project. The optimum situation for a project organisation is that all the people, the project teams and resource providers involved in project management are competent to carry out their work and to take individual responsibility.

The goal of a project is to produce the deliverables defined in the business case. Strategic considerations as well as the benefits for the organisation are transferred to the business case. Therefore, strategy itself isn't an issue for the project manager. If the project does support the business unit strategy, it may get a higher priority in relation to other projects, which makes life easier for the project manager, but the project still must deliver according to the business case. The

project manager is not responsible for achieving the business benefits of the project, which accrue to and are largely realised by the organisation once the project is delivered.

In most organisations the project owner is held accountable for realisation of the benefits. The project is often not about changing the organisation; it may, however, include educating people to fulfil their roles in a different way. If the project concerns organisational change, then the change to be implemented as an outcome of the project is managed by line management, not by the project team. Where the deliverables are well defined and specified at the outset and the organisation doesn't change these too much during the project, then the delivery of the project to the required timeframe and costs are usually manageable.

	<p>Projects, Programmes and Portfolios</p> <ul style="list-style-type: none">• A project is a time and cost constrained operation to realize a set of defined deliverables (the scope to fulfil the project's objectives) up to quality standards and requirements.• A programme is set up to achieve a strategic goal. A programme consists of a set of related projects and required organisational changes to reach a strategic goal and to achieve the defined business benefits.• A portfolio is a set of projects and /or Programmes, which are not necessarily related, brought together for the sake of control, coordination and optimisation of the portfolio in its totality.
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A project management office (or programme management or portfolio management office) is part of a permanent organisation. Its roles are typically to provide support, to set standards and guidelines for the managers of the different projects and Programmes, to collect project management data from the projects, to consolidate these and to report to some governing body. It must ensure that the projects are aligned to the organisation's strategy and vision. This is generally performed through business case management.

The project manager should identify all the stakeholders, what their interests are, and sequence both in order of importance to the project.

Taking this competence element into account will improve the chances of a successful project. The project is constrained by its context and may be adjusted to meet the stakeholders' needs. Their expectations also need to be managed.

To help manage the stakeholders, project managers may develop internal and external networks, both formal and informal, among those associated with the project (e.g. companies, agencies, managers, experts, employees, and opinion leaders).

All the stakeholders can influence the project either directly or indirectly. Influences such as stakeholders' interests, project management organisational maturity and project management practices, standards, issues, trends and power have a bearing on the way the project is conceived and developed.

Project managers should be diligent in maintaining current information regarding stakeholders and the people representing those parties. This is especially the case if a new party becomes involved with the project or if a representative change, in which case the project manager should consider the impact of the change and ensure that the party or representative is appropriately informed about the project.

Possible process steps:

1. Identify and prioritise the stakeholders' interests.
2. Analyse their interests and requirements.
3. Communicate to stakeholders, which of their requirements will be fulfilled or not fulfilled by the project.
4. Develop a strategy to cope with the stakeholders.
5. Include stakeholders' interests and expectations in the requirements, objectives, scope, deliverables, time schedule and costs of the project plan.
6. Place under risk management the threats and opportunities represented by the stakeholders.
7. Identify the decision escalation process between the project team and the stakeholders.
8. Ensure the stakeholders are satisfied in each project phase.
9. Carry out the stakeholders' management plan.
10. Execute, communicate and manage changes in the stakeholders' plan.
11. Document the lessons learnt and apply to future projects.



Individual Formative Exercise 4A

Time Frame: 120 min

The Project Manager

A project manager (PM) needs to wear many different hats and therefore the PM needs to be generalist rather than a specialist. The PM needs to be multi-skilled in order to manage the complexities and to meet the heavy demands in a project.

Young identified the following responsibilities of a PM:

- Selecting the core team with the project sponsor
- Identifying and managing the project stakeholders
- Defining the project and securing stakeholder approval
- Planning the project and securing stakeholder approval
- Identifying and managing the risks
- Securing resource commitments and allocating resources to the work
- Monitoring and tracking project progress
- Solving the problems that interfere with progress
- Controlling costs
- Leading the project team
- Informing stakeholders of progress status
- Delivering the project deliverables and benefits
- Managing performance of everyone involved with the project.

Kerzner [1:157] identified the following basic characteristics of a PM:

- Honesty and integrity
- Understanding of human resource problems
- Understanding of project technology
- Business management competence (management principles and communications)
- Alertness and quickness
- Versatility
- Energy and toughness
- Decision-making ability

Let us consider some of the skills a Project Manager need. The following is not only considered as skills but can more likely be referred to as a set of values that need to be displayed by the project manager:

- **Credibility**

The PM needs both ethical and administrative credibility. Technical credibility refers to the technical knowledge to direct the project. Although the PM does not need to have a high level of expertise, the stakeholders need to perceive the PM as a person with enough technical knowledge to successfully manage the project. Administrative credibility refers to the ability to perform various administrative responsibilities with apparently effortless skill. These responsibilities include, amongst others, keeping the project on schedule and within budget constraints and reporting on project progress on a regular basis.

- **Leadership**


The PM needs to possess various leadership qualities to effectively manage the team members. Enthusiasm, optimism, energy, tenacity and courage must be part of the PM's attitude and behaviour in leading the team members. The PM must know and believe in the vision, share it with the stakeholders and bring the vision to life. The PM as leader must influence the stakeholders positively through effective communications and by being visible (being available for the stakeholders, especially in times of crisis). Taking all this into consideration, it is apparent that the PM also needs to be a great motivator.

- **Sensitivity**

The PM must be politically sensitive: in his dealings and negotiations with various stakeholders, he needs to sense the feelings; priorities; agendas and personal objectives of the individuals involved and keep everybody happy without jeopardizing the successful achievement of the project. The PM also needs to sense interpersonal conflict on the project team or between team members and outsiders. Rivalries, jealousies, friendships and hostilities are issues the PM needs to deal with. The PM also must sense when somebody is trying to cover-up failures. In this sense, technical sensitivity comes to play.

• **Management skills**

Not only is the PM a leader, but also a manager. The PM needs to be a competent problem-solver; decision-maker; communicator; entrepreneur; planner; organizer; controller and facilitator. These “soft skills” are essential attributes of a successful PM.

	<p>Personal Reflection</p> <p>1) Write down the three skills you regard as the most important for a project manager and list them in order of importance concerning your own project. Motivate your selection.</p>
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Project Management Body of Knowledge (PMBOK)

It is also very important to consider the knowledge areas as defined by the Project Management Institute Body of Knowledge (PMBOK).

The project manager needs to be able to apply the required skills from each of the knowledge areas. He is not required to be the specialist on each but need to be able to understand and interpret the relevant information from each of the knowledge areas.

The PMBOK describes project management under the following nine knowledge areas:

- Project Integration Management – integrates the three main project management processes of planning, implementation and control.
- Project Scope Management – includes the processes required to ensure that the project includes all the work required and only the work required, to complete the project successfully.
- Project Time Management – includes the process required to ensure timely performance of the project.
- Project Cost Management – includes the process required to ensure that the project is completed within the approved budget.
- Project Quality Management – includes the process required to ensure that the project satisfy the needs for which it was undertaken.
- Project Human Resource Management – includes the process required to make the most effective use of the people involved with the project.
- Project Communication Management – includes the process required to ensure proper collection and dissemination of project information.
- Project Risk Management – includes the process concerned with identifying, analyzing, and responding to project risk.
- Project Procurement Management – includes the process required to acquire goods and services from outside the performing project team or organisation.



Individual Formative Exercise 4B

Time Frame: 30 min

The Project Organisation

The project organisation is a group of people and associated infrastructure with an arrangement of, authority, relationships and responsibilities aligned to the business or function's processes. This competence element covers the design and the maintenance of appropriate roles, organisational structures, responsibilities and capabilities for the project.

Project Scope and Deliverables

The project scope defines the boundaries of a project. If the boundaries of the project, programme, or portfolio are not properly defined and if additions to and deletions from the project, programme or portfolio are not properly documented, then the situation tends to get out of control. From the point of view of the stakeholders the scope embraces the totality of all the deliverables, which are included in a project.

The solutions within the scope gradually evolve from the initial concept of the project to the final deliverables, through the documents that define those deliverables in more and more detail as they are developed. From the view of the stakeholders the scope and deliverables represent the total content (functional, technical and user interface characteristics) included in the project.

The project should deliver all that is described within its scope. In some types of project, the scope also includes the geographical and user's environment where new systems or changes to existing systems delivered by the project will be operated. In defining the scope of a project, it is also important to stipulate what is out of its scope.

The deliverables of a successful project, programme or portfolio are tangible or intangible assets created by the project, programme or portfolio for the customer. They are represented by drawings, schematics, descriptions, models, prototypes, systems and products of various kinds.

Deliverables are not only the product sold or service put into use after project closure, but also the operational processes, organisational changes and human resource changes needed for a successful organisation to operate. The project deliverables may be classified in terms of their priority (must have; nice to have; if there is time), by agreement with the stakeholders. Those of

lower priority may not be delivered if there are time constraints. The configuration and specification of the deliverables must comply with the project requirements and objectives.

Project management should understand and manage the content of the project, the work requirements and the timeframe.

The Critical Constraints of a Project

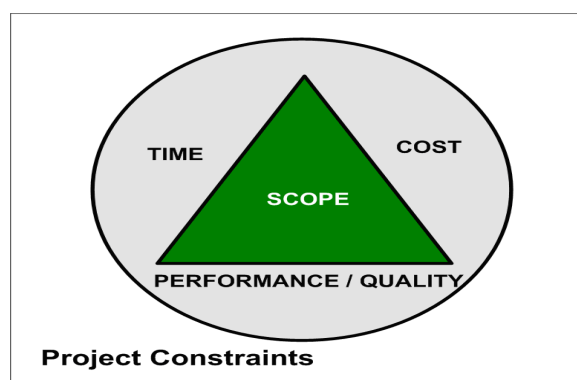
Projects need to be managed within certain critical constraints. Young [4:80] regards these constraints, as those things that are imposed on the project, knowingly or unknowingly that you have no real control over. To identify the key constraints, some fundamental questions can be asked [4:81], such as:

- What is the available budget?
- Is there a specific cash flow requirement to be satisfied?
- Is there a critical date when the project must be completed?
- What minimum resources are required and are those available?
- What external resources are required, and can these be funded?

The key objectives of project management are to meet specified performance within cost and on schedule [3:22]. We can derive from this that the most critical constraints faced by the project manager are:

- Time (schedules)
- Cost (financials)
- Quality (results/performance)

These constraints can be depicted as follows:




The picture above indicates that the company resources must be managed and controlled within the constraints of time, cost and performance. Good customer relations are also necessary in order not to alienate the customer and to ensure further business from the customer.

Time, cost and quality/performance interact constantly, and it is necessary to determine a balance between them. The balance between these three constraints in terms of precedence and priority is called the “preference” of the project. The preference can change or move during the project due to external and internal factors, which will result in certain trade-offs to be considered [2:5]. It is thus important to determine the preference of the project and to manage it accordingly.

Maylor adds more factors that can cause a constraint on the project, like financial, legal, ethical, environmental, logic, activation, time, quality and indirect effects [1:4].

Other Constraints:

- financial
- legal
- ethical
- environmental
- logic
- activation
- time
- quality
- indirect effects

	<p>Individual Formative Exercise 4C</p> <p style="text-align: right;">Time Frame: 30 min</p>
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The Project Lifecycle

Projects are characterized by different phases. These phases are collectively known as the lifecycle of the project. Because projects all differ in terms of scope and complexity, different phases may be applicable to any one project. Recall the earlier example of staging the Olympic Games versus relocating offices? However, there are five general processes present in almost every project, namely initiating, planning, executing, controlling and closing [2:12]. Different types of lifecycles are present in different types of industries that make sense in specific projects [8:357]. The type of industry as well as the type of project will determine to a large extent which type of lifecycle will be applicable.

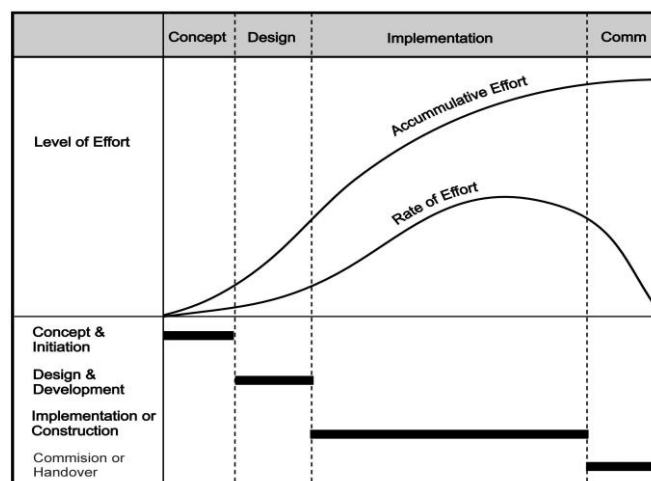
Let us consider some examples: It is generally agreed that any project goes through a basic of four phases in its life cycle.

The phases are laid out as follows, with some examples of processes followed:

PHASES	<i>Concept & Initial Phase</i>	<i>Design & Development Phase</i>	<i>Implementation or Construction Phase</i>	<i>Commissioning & Handover Phase</i>
PROCESS	Feasibility Study	Design Product Detailed Schedules WBS (Work Breakdown Structure) CPM (Critical Path method) Budgets	Award contracts Issue instructions Procure Equipment & Services Manufacture the product or solve the problem	Start-up & test product Has problem been solved? Produce as-built drawings & operation manuals
OUTPUT	Feasibility Project Proposal Implementation Strategy	Baseline Plan (design & schedule)	Certificate of completion	Close-out Report

PROJECT LIFE CYCLE WITH PROCESS & OUTPUT PER PHASE

The project life cycle and the work breakdown structure have come to the forefront in later years as some of the key frameworks or structures for subdividing the project’s scope of work into manageable phases or also known as work packages. The following figure shows the comparison between the accumulative effort over the total duration of the project and the rate of effort over the duration of the project.



PROJECT LIFE CYCLE INDICATING THE LEVEL OF EFFORT



Individual Formative Exercise 4D

Time Frame: 60 min




Reflection – Learning Unit I

In this module, the following outcomes were covered:

- Understand and reflect on Project Management knowledge and its definition
- Understand the relationship between Projects, Programmes and Portfolios
- Be able to describe the characteristics of a Project Manager, his/her responsibilities and interaction with Stakeholders
- Be able to identify the PMBOK areas and their importance
- Explain the critical constraints of a project

- Grasp an overview of Project Scope, Deliverables and describe the Project Life Cycle

List outcomes which may require further clarification:

	<p>Notes:</p> <p>Please use extra pages where necessary and reference accordingly</p>

Learning Unit 2: Project Conceptualization and Selection



The single best payoff in terms of project success comes from having good project definition early.

RAND CORPORATION

Unit Standard	
252022	Develop, implement and evaluate a project plan
Specific Outcomes	
Select a work-based project for a unit.	
Scope a work-based project for a unit.	
Learning Outcomes	
Understand Project Selection models in determining project viability	
Be able to develop and define the Project Definition	
Ensure project activities are identified to attain project goals in helping to achieve the strategic unit objectives.	
Identify potential risks and analyse these in relation to the likelihood of risks materialising. i.e. Complete a Risk Analysis	
Be certain the change processes that are essential to project success are described in terms of their contribution to the project results.	
Critical Cross-field Outcomes	
Identifying	Working
Organising	Collecting
Communicating	

Project Conceptualization

Project requirements are derived from customer needs, which are driven by opportunities and threats. A business case and a project strategy are developed. A strategy is a high-level view of how to attain the vision/targets of the organisation at some point in the future. The strategy is reviewed at various time intervals (e.g. in a system's life cycle, during the project life cycle and in each of its phases), as well as in specific areas, for example in procurement.

The project goal is to provide value to the stakeholders. A project strategy is a high-level view of how to attain the project goal. The project objective is to produce the agreed end results, especially the deliverables, in the timeframe required, within budget and within acceptable parameters of risk. The project objectives are the set of targets that the project, programme and portfolio managers should attain to provide the expected project benefits to the stakeholders.

The project development phase covers development of the project plans and carrying out the feasibility study. A realistic project appraisal is important in the first phases of a project. Project appraisal and selection covers the analysis of a proposed project, and the decision to invest in the project in preference to other competing projects or to other parts of the business. It is a prerequisite that there is adequate justification to support the request for project authorization.

Once a project has been approved for investment, the project owner should produce a project charter or project definition that defines the scope of the project, its objectives and deliverables, budget, timeframe, review points and team membership.

An ongoing project review process will provide an assessment of achieved project objectives as compared to the project objectives and success criteria agreed at the outset. The outcome of a project may be considered more successful by some stakeholders, but less successful by others.

Possible process steps:

1. Gather, document, and get agreement on project requirements.
2. Develop a business case and project strategies and place them under change management.
3. Define project objectives, appraise the project, carry out a feasibility study, and establish a project plan.
4. Communicate progress and changes.
5. Validate requirements at key points in the project life cycle.

6. Assess compliance with project objectives and requirements and seek authorization for the project.
7. Set up project review process.
8. Document the lessons learnt and apply to future projects.

Project Conceptualization and Feasibility Study

As part of the feasibility study, it is important to make the right choice, especially where future investments are crucial for the long-term survival of the company. Project selection should be based on both numeric as well as non-numeric, meaning that not only the financial viability should be the only factor considered, but also the following examples:

- Will this project enable the company to enter new markets?
- Will the project enable the company to gain market share?
- Will the project require new equipment? Can the company afford the new equipment?
- Is the project consistent with current business?
- Will the project use underutilized workforce?
- Will the project improve customer service?
- Can the project be managed with existing personnel?
- Will the project impact workforce safety?

Projects are the result of conceived ideas, either internal or external to the organisation. Internally, a management decision may be the start of a project; an individual may recognize an opportunity to change something for the better; or a problem may arise which will fuel the necessity of a project. Externally, an idea by a potential customer may result in a request for proposal (RFP) or a request for quotation (RFQ), often in the form of an invitation to tender. Regardless of how the idea or opportunity was generated, the organisation often needs to scrutinize multiple possibilities and then decide whether funding and resources are available to realistically turn the idea into an active project. Project selection is thus a vital activity to ensure that the organisation does not over-commit resources and fail to deliver desired results.

Project Selection

By making use of numeric as well as non-numeric selection models, it allows objectivity in decision-making.

How Should Projects Be Selected?

Project selection can be regarded as the process of evaluating individual projects or groups of projects and then choosing to implement some set of them so that the objectives of the parent organization will be achieved. In order to select the right projects, decision-aiding models are used in practice. Let us consider the following types of models that can be used in the screening process:

- **Quantitative Models**
- **Qualitative Models**

Quantitative Model

Quantitative or Numeric Models invariably focus on financial data to support a project proposal. The data generated varies widely, but may include information on:

- Return on investment
- Return on net assets
- Breakeven and payback period
- Cost of risks
- Net present value and/or internal rate of return
- Cost/benefit analysis
- Sensitivity analysis
- Market data.

Many organizations using project evaluation and selection models use profit/profitability as the sole measure of acceptability. The main disadvantage of these models is that it focuses on one decision criterion alone, eg. Payback period. Other numeric/quantitative models often used are scoring models, where a variety of criteria/factors is considered and scored to determine whether a project qualifies or not. The criteria can also be weighted according to their value in contributing to the company objectives at the time.

A detailed list of factors can be developed as appropriate based on:

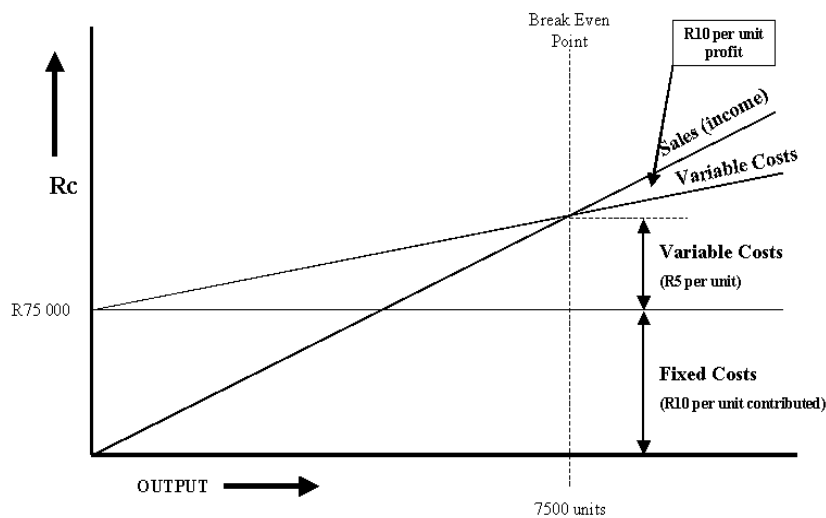
- Technology
- Marketing
- Finance
- Manufacture
- Personnel
- Administration

Cost Break-Even Analysis

Your project manufactures a product which sells for R15 each. The variable cost per unit is R5, which covers labour and material, leaving R10 per unit as a contribution towards fixed costs. The fixed costs are R75 000 per year, which covers all the overhead costs. The break-even point is reached when the contribution equals the fixed costs.

$$\begin{aligned}\text{Break-even} &= \frac{\text{Fixed Costs}}{\text{Contribution/unit}} \\ &= \frac{\text{R75 000}}{\text{R10}} \\ &= 7500 \text{ units}\end{aligned}$$

The following is a graphic display of the break-even calculation above, displaying every cost and when the contribution towards overheads starts turning into profit.



BREAK-EVEN ANALYSIS

Payback Period

This is a determining factor for projects where it is important to have a short time for the financial return to equal the original investment. Consider the following example as a demonstration of the next numeric models.

Year	Cash-Flow (Vendor A)	Cash-Flow (Vendor B)
0	(R35 000)	(R35 000)
1	R 20,000	R 10,000
2	R 15,000	R 10,000
3	R 10,000	R 15,000
4	R 10,000	R 20,000
Payback Period	2 years	3 years

PAYBACK PERIOD [Burke 4:60]

This is a very simple and easy method to use and uses available accounting information to determine cash flow. It gives a fair idea of future cash-flow requirements and helps in making decisions about the project. The biggest problem with this method is that it does not consider the time value of money.

Return on Investment (ROI)

To determine the return on investment (ROI) it is important to first calculate the average annual profit (A.A.P.), which is the investment deducted from the total gains, divided by the number of years the project is running.

$$\text{A.A.P.} = \frac{(\text{Total gains}) - (\text{Total outlay})}{\text{Number of years}}$$

$$\text{ROI} = \frac{\text{A.A.P.}}{\text{Investment}} \times \frac{100}{1}$$

ROI is expressed as a percentage, thus what is the percentage return on the original investment for or on behalf of any investor into the project.

Year	Cash-Flow (Vendor A)	Cash-Flow (Vendor B)
0	(R35 000)	(R35 000)
1	R 20,000	R 10,000
2	R 15,000	R 10,000
3	R 10,000	R 15,000
4	R 10,000	R 20,000
Total gains	R 55,000	R 55,000
Profit	R 20,000	R 20,000
ROI	14.29%	14.29%

RETURN ON INVESTMENT (ROI)

Net Present Value (NPV)

The previous numeric models did not consider the time value of money, meaning that there is a cost of capital (known as inflation) that lowers the value of money over time. It is thus important for projects running over a long time to consider this fact. This is called the Net Present Value of the project returns, in other words, the net value of the money earned by the project over the period.

To calculate the NPV it is important to determine the discount cash-flow (DCF), as a multiplier per year for the estimated income produced by the project. The following example is based on a 10% cost of capital.

Year	Cash-Flow (Vendor A)	Cash-Flow (Vendor B)	DCF(10%)	PV A	PV B
0	-R 35,000	-R 35,000	1	-R 35,000	-R 35,000
1	R 20,000	R 10,000	0.9091	R 18,182	R 9,091
2	R 15,000	R 10,000	0.8264	R 12,396	R 8,264
3	R 10,000	R 15,000	0.7513	R 7,513	R 11,270
4	R 10,000	R 20,000	0.683	R 6,830	R 13,660
Total gains	R 55,000	R 55,000	PV	R 44,921	R 42,285
Profit	R 20,000	R 20,000	NPV	R 9,921	R 7,285
			Selection	B	

NET PRESENT VALUE (NPV)

Internal Rate of Return (IRR)

Where NPV considered or assumed that the inflation or cost of capital would not change over the period, the IRR calculation does consider that it might or will change over time.

Year	Cash-Flow (Vendor A)	Cash-Flow (Vendor B)	DCF (10%)	PV A	PV B
0	-R 35,000	-R 35,000	1	-R 35,000	-R 35,000
1	R 20,000	R 10,000	0.9091	R 18,182	R 9,091
2	R 15,000	R 10,000	0.8264	R 12,396	R 8,264
3	R 10,000	R 15,000	0.7513	R 7,513	R 11,270
4	R 10,000	R 20,000	0.683	R 6,830	R 13,660
Total gains	R 55,000	R 55,000	PV	R 44,921	R 42,285
Profit	R 20,000	R 20,000	NPV	R 9,921	R 7,285
			Selection	A	

INTERNAL RATE OF RETURN (IRR) based on Discount rate 10%

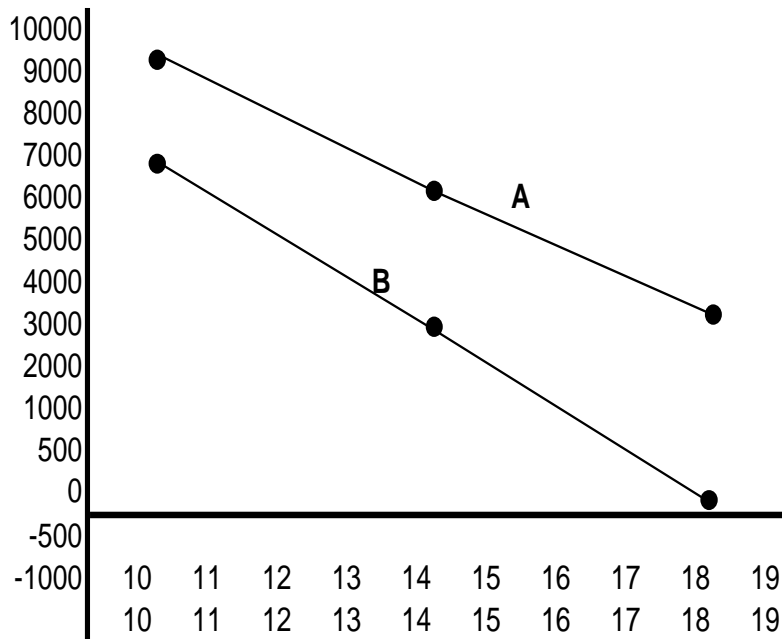
Year	Cash-Flow (Vendor A)	Cash-Flow (Vendor B)	DCF(14%)	PV A	PV B
0	-R 35,000	-R 35,000	1	-R 35,000	-R 35,000
1	R 20,000	R 10,000	0.8772	R 17,544	R 8,772
2	R 15,000	R 10,000	0.7695	R 11,543	R 7,695
3	R 10,000	R 15,000	0.675	R 6,750	R 10,125
4	R 10,000	R 20,000	0.5921	R 5,921	R 11,842
Total gains	R 55,000	R 55,000	PV	R 41,758	R 38,434
Profit	R 20,000	R 20,000	NPV	R 6,758	R 3,434
			Selection	A	

INTERNAL RATE OF RETURN (IRR) based on Discount rate 14%

Year	Cash-Flow (Vendor A)	Cash-Flow (Vendor B)	DCF(18%)	PV A	PV B
0	-R 35,000	-R 35,000	1	-R 35,000	-R 35,000
1	R 20,000	R 10,000	0.8475	R 16,950	R 8,475
2	R 15,000	R 10,000	0.7182	R 10,773	R 7,182
3	R 10,000	R 15,000	0.6086	R 6,086	R 9,129
4	R 10,000	R 20,000	0.5158	R 5,158	R 10,316
Total gains	R 55,000	R 55,000	PV	R 38,967	R 35,102
Profit	R 20,000	R 20,000	NPV	R 3,967	R 102
			Selection	A	

INTERNAL RATE OF RETURN (IRR) based on Discount rate 18%

The following graph is a graphic display of the results from the IRR calculations displaying that Vendor A is performing much better than Vendor B against the constraints of the cost of capital.



NPV FOR VENDORS A AND B

Therefore, the project from Vendor A would be chosen based on the internal rate of return on capital.

Qualitative Model

Qualitative or Nonnumeric Models, as the name implies, do not use numbers as inputs. There are four numeric models that are commonplace in many organizations:

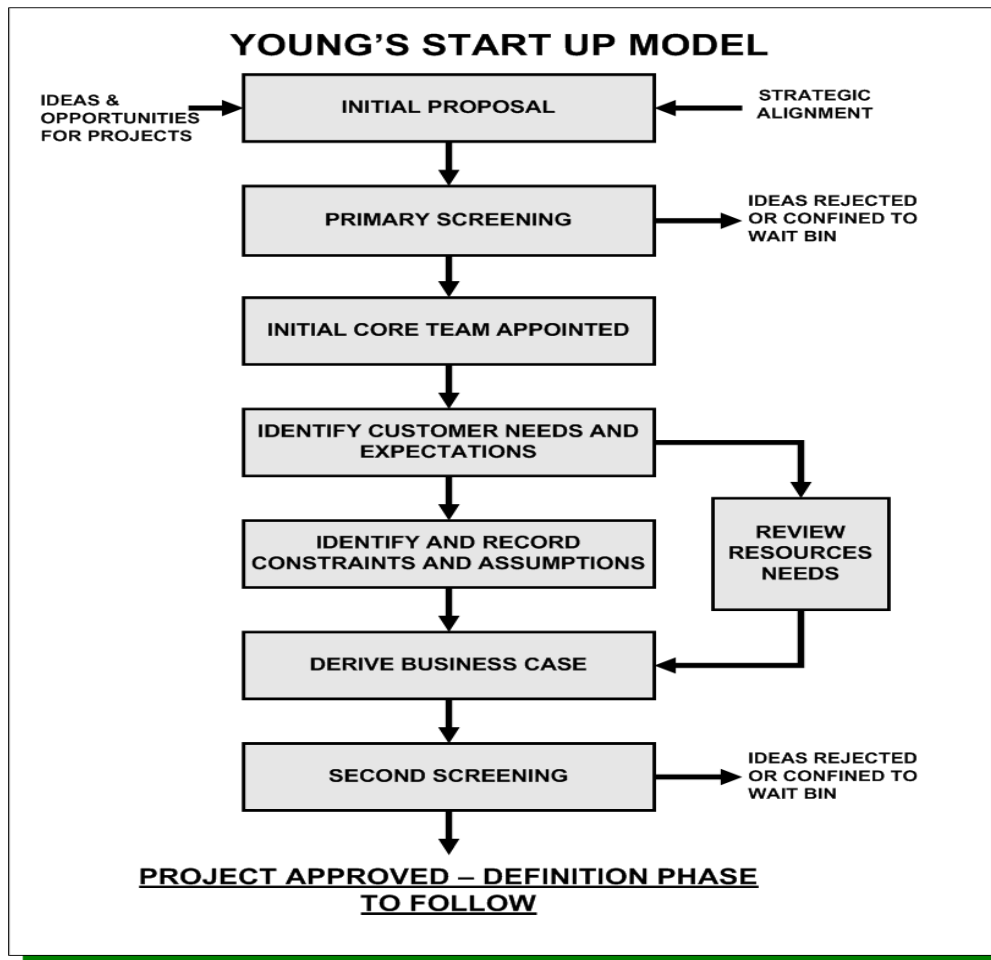
- **The sacred cow:** Where a senior and powerful official in the organisation suggests a project and the project is undertaken regardless of the possibility of failure. The project is "sacred" in the sense that it will be maintained until successfully completed or until the official personally recognizes the idea as a failure and terminates it.
- **The operating necessity:** Where a project is funded in order to protect or maintain an operating system under threat. An example could be the installation of additional power generators as backup where a problem with regular power failures is experienced. Cost/benefit analysis is often used in the decision-making process.
- **The competitive necessity:** Where a project is undertaken to maintain the organisation's competitive position. The refurbishment of a hotel is an example of such a project. Investment in an operating necessity project takes precedence over a competitive necessity project, but both types of

projects may bypass the more detailed numeric analysis used for projects deemed less urgent or important to the survival of the organisation.

- **Comparative benefit model:** This model is often used when a variety of projects important to the organisation need to be considered and no formal method of selecting projects exists. A selection committee then decides which projects will benefit the company most and those projects are then funded. A rating system is often used to prioritise projects in order of importance.

Many organisations use more than one model to select projects. Quantitative and qualitative models can be used in combination with one another or two numeric models can be used simultaneously. The main objective is to ensure that the right project(s) is selected and funded. Once a project is selected, a process is required to start-up the project. A project manager is appointed at this stage, who needs to manage the process from this point onwards.

Young proposes the following start-up process:



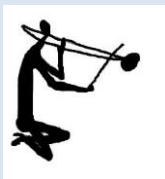
Once the initial proposal has passed the first screening (using one or more of the selection models discussed earlier), customer needs must be defined that will ultimately allow the project team to produce deliverables specifically designed to meet the customer's expectations. A clear understanding of these needs will allow the development of the requirements that drive the planning process. Effort must be made to:

- Understand the customer – explore priority and relative importance to other activities
- Understand the customer's environment in which they must operate
- Use political skills – not all customers are equal, and some needs cannot be addressed
- Demonstrate technical competence and awareness of the customer's technical needs
- Convert ill-defined needs into practical solutions
- Keep an open mind and a creative approach
- Analyse the mixed signals received through personal influences on needs
- Attempt to expose the hidden expectations.

A clear statement of need should be the end-result, which can be reflected to the customer for validation and acceptance with no ambiguity. Once the customer needs have been identified and accepted, project constraints need to be identified. This should be done in conjunction with the customer in order to gather the information required to guarantee success.

Assumptions about various aspects of the project also need to be clarified and recorded. These assumptions should later be validated as the project is implemented. A final screening must take place once all the relevant information has been gathered. A kick-off/launch meeting should then be held with the project sponsor and the other stakeholders. This meeting should be used to ask as many questions as possible and to clarify all issues that still need attention.

The outcome of the meeting must be that technical scope is established; the participants accept basic areas of performance responsibility and some tentative overall schedules and budgets are spelled out. It is also the ideal opportunity for the project manager to showcase his ability to lead the project team. After this meeting a formal project definition can be developed.

	<p>Individual Formative Exercise 5A</p> <p>Time Frame: 60 min</p>
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Scoring Models

A scoring model lists several desirable factors on a project selection pro-forma along with columns for Selected and Not Selected. The scoring model is also a combination of numeric and nonnumeric information made available by different sections within the project setup.

Factors	Select	Do Not Select	Weighting
Profit greater than 20%	X		
Enter new market		X	
Increase market share	X		
New equipment required		X	
Use equipment not being utilized	X		
No increase in energy requirements	X		

No new technical expertise required	X		
Use underutilized workforce	X		
Manage with existing personnel		X	
No outside consultants required		X	
No impact on workforce safety	X		
No impact on environment issues		X	
Payback period less than 2 years	X		
Consistent with current business	X		
Offer good customer service	X		
TOTAL	10	5	

TICK SHEET FOR SCORING PROJECTS

The importance for using a scoring model is to encourage objectivity in selecting a project. It is also important to make use of a wide range of selection criteria to cover the whole of the project; not only the financial ability thereof. To bring in a weighting per item is to make sure that there is no assumption that all items have the same importance, but to prioritise by importance to address all needs.

The importance of keeping the list short and function ensures that not too much management time is wasted by trivial factors. With most factors structured by senior management ensures that they, the tick sheet, reflect the company goals and objectives.

Project Definition

The information derived from the conceptualization and selection process should now be used to draw up a preliminary statement of the project objectives and associated specifications.

This preliminary document is called a project brief and the contents include:

- The project origins – a need or opportunity statement
- The project rationale – why is it necessary now?
- The benefits of the project – to the customer as well as your organisation
- The project budget if known at this stage
- The current timescale and expected deadlines – subject always to detailed planning later.

The project brief is an executive summary and in combination with the original business case/proposal creates a project charter or definition. This project charter / definition serves as the foundation of project definition.

Project definition (or scope statement) is a very important activity as it determines the cost, time, quality and resource requirements of the project. Adequate time should be spent on this activity, because failure to derive all the relevant data for this foundation will lead to a poorly defined project with a considerably reduced chance of achieving a successful outcome. An estimated seventy five percent of projects seem to fail due to poor project definition.

What should be included in the project definition? Young [59-65] identified the following elements:

- A project organisation chart: A list to show who (team members) is involved in the project, with names, positions, contact numbers, and any other information deemed important.
- A stakeholder list: A list of everybody with an interest in the project, containing names, positions, whether they are internal/external to the company, ranking of importance to the project, etc.
- A statement of requirements: A document recording needs and expectations identified, how these needs can be met in practice, which needs cannot be satisfied yet and why, assumptions made at this stage, and what the project is about and what is not included.
- A project objectives statement: The objectives should be defined in conjunction with the customer, and should include a statement of background, the project purpose, the overall project objective, the primary project deliverables and expected delivery dates, the primary benefits, the cost of the project, and the skills required. This data may also be incorporated in the statement of work (SOW).
- Statement of work (SOW): This document will include the purpose statement, scope statement, deliverables, goals, cost, schedule, list of stakeholders, chain of command, agreements, assumptions and communication plan. Process specifications, customer specifications, standard operating procedures, quality standards, purchasing procedures, and other useful data can also be included.
- A risk assessment: Risks need to be identified and assessed and can be recorded in a project risk assessment log. Risk management is a continuous process throughout the lifecycle of the project, and it is important that the team be focused on the risks.

Once the project manager has reviewed the project definition and ensured that all relevant information has been included, he can seek the approval of the project sponsor and customer. Approval of the project definition will lead to the detailed project planning stage.



Individual Formative Exercise 5B

Time Frame: 30 min



Group Formative Exercise 5C

Time Frame: 30 min



Reflection – Learning Unit 2

In this learning unit, the following outcomes were covered:

Understand Project Selection models in determining project viability

Be able to develop and define the Project Definition

Ensure project activities are identified to attain project goals in helping to achieve the strategic unit objectives.

Identify potential risks and analyse these in relation to the likelihood of risks materialising. I.e.

Complete a Risk Analysis

Be certain the change processes that are essential to project success are described in terms of their contribution to the project results.

List outcomes which may require further clarification:



Notes:

Please use extra pages where necessary and reference accordingly

Learning Unit 3: Project Planning



Running a project without a WBS is like going to a strange land without a roadmap.

J. Phillips

Unit Standards

252022	Develop, implement and evaluate a project plan
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Specific Outcomes

Develop a project plan.

Develop tools to measure key performance parameters.

Learning Outcomes

Ensure that the scope of work and deliverables are re-defined in relation to the unit objectives.

Check that principal work activities are determined in accordance with the unit objectives previously identified.

Ensure that potential risks analysed are considered in the project plan

Change processes that are essential to project success are described in terms of their contribution to the project results.

Identify the overall objectives of the plan with reference to the achievement of unit objectives.

Describe how the sponsor, project team and other stakeholders contribute to the project.

Be able to develop a work breakdown structure (WBS) and describe the main activities of the project and the interrelationship between them.

The project activities required performance levels and quality criteria are stipulated and communicated to team members and other stakeholders to promote quality and effectiveness.

The project plan is checked for accuracy, completeness and compliance to internal and external requirements.

Critical Cross-field Outcomes

Identifying	Working
Organising	Collecting
Communicating	

Introduction to Project Planning

In the first module, we have considered various project management concepts and fundamentals. Amongst others, we have established what the main responsibilities of the project manager are and who the other stakeholders on a project might be. At this stage, you should have a good understanding of the “what” of project management, but you are probably curious about the “how” of the various phases of a project.

In this learning unit, we will discuss the key stages of phase one: project initiation.

Project initiation comprises of the following key stages:

- Project conception and start-up;
- Project definition; and
- Project planning.

These stages are essential to get the project off to a good start and although it is a time-consuming phase, it can save the project manager and all the other stakeholders a lot of despair once implementation gets under way. Remember, the key objectives of project management are to meet specified performance within cost and on schedule!

Once the project manager has reviewed the project definition and ensured that all relevant information has been included, he can seek the approval of the project sponsor and customer. Approval of the project definition will lead to the detailed project planning stage.

It is important that the overview is to be verified first, before further effort is committed to planning at a detailed level. To make sure that all project requirements and stakeholder needs are fully understood and correctly interpreted before committing to too much detail. Meetings with all stakeholders are crucial in the beginning to fully understand their requirements for the project.

Project Planning

With the project definition as foundation in place, detailed planning can commence. This stage is of vital importance, since the project plan will guide the project from beginning to end. If planning is not done properly, it may have disastrous consequences on the constraints later. The main purpose of project planning is to:

- Identify everything that needs to be done
- Reduce risks and uncertainty to the minimum

- Establish standards of performance
- Provide a structured basis for executing the work
- Establish procedures for effective control of the work
- Obtain the required outcomes in the minimum time.

The questions to ask during the planning stage are: what, when, where, why, who, how and how many? All activities required to complete the project must be precisely delineated and coordinated. The necessary resources must be available when and where they are needed and in the correct amounts. Some activities must be done sequentially, but some may be done simultaneously. Where do we start?

Before we consider this process in more detail, we need to clarify some common terminology used:

- A milestone: a clearly identifiable point in a project or set of activities that commonly denotes a reporting requirement or completion of a large or important set of activities.
- An event: an end state for one or more activities that occurs at a specific point in time.
- An activity: a parcel of work of the project comprising several tasks, each of which may be carried out by different people, requiring resources and time to complete.
- A task: a relatively small piece of work carried out by one person.
- A sub-task: an even smaller piece of work that is part of a task.
- Concurrent activities: activities (or tasks) that can be carried out simultaneously or parallel to one another.
- Series activities: activities (or tasks) that need to be carried out in a sequence, i.e. one after the other, each strictly dependent on completion of the earlier activity.
- Duration: the real time that an activity or task will take to complete in working hours, days or weeks.

Planning can be broken down into the following sequential steps:

Develop a Work Breakdown Structure (WBS):

The WBS is a valuable tool in assisting the project team to organise the many work elements and to keep track of what is happening on the project. It describes all the work that needs to get done to complete the project, and forms the basis for costing, scheduling, diagramming and work assignments. The purpose of the WBS is to identify all the key activities and related tasks and sub-tasks that must be undertaken and completed.

The starting point will be to make a list of these activities in the sequence in which they will occur (Level 1). The next step will be to break each of these Level 1 activities down into various tasks (Level 2). Each task can then in turn be broken down into sub-tasks (Level3).

Continue the procedure until all meaningful tasks have been identified and each task can be individually planned, budgeted, scheduled, monitored and controlled. Remember that each activity has an outcome (event) associated with it. It should also be noted that the WBS does not show dependencies, just a task grouping under each key activity and that it is not time based.


Activity	Description of Activity or Task
a	
b	
c	
d	
e	
f	
g	
h	
i	
j	

Sequence the Key Activities:

Once the key activities have been identified in the WBS, they should be organised in a logical sequence to maximize concurrency. The duration of and people responsible for each activity should be disregarded at this stage, because it may result in errors in the project logic. An easy way to organise the activities in a logical sequence is to create a project logic diagram, whereby each key activity is written on a separate small card or self-adhesive note sheets. These cards can then be used to build a picture of the entire project, from start to finish. By making it visual (arranging cards on a table, or arranging the notelets on a wall), the project team can question and debate the validity of the logic as it grows. The notelets/cards can relate to arrows to show the logical flow of the

project. Provision should be made for both series activities and concurrent activities, focusing on the dependencies between activities.

Activity	Description of Activity / Task	Immediate predecessor activities
a		-
b		-
c		-
d		A
e		b,c
f		b,c
g		b,c
h		c
i		g,h
j		d,e

	<p>Individual Formative Exercise 6A</p> <p>Time Frame: 45 min</p>
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Assign Responsibility:

The project manager needs to ensure that the work is done on time and according to quality specifications. Responsibility for the implementation of each key activity should be assigned in a fair and even way to the various team members, whereby:

- The work to be done is identified at the detailed task level
- The dependencies are clearly identified
- The time estimates are accurate and subject to constant scrutiny
- The work gets done on time in accordance with the quality specifications

- Regular monitoring is maintained
- Regular accurate status reports are issued
- Problems and issues are alerted promptly to the project manager.

Determine the Duration of Activities:

The next step is to estimate and forecast the duration of each key activity. An estimate is a decision about how much time is required to complete an activity at an acceptable standard of performance. The “size” of the activity and the amount of “effort” required in completing the work need to be determined. Duration is the conversion of effort considering the number of people involved, their capacities and an allowance for non-productive time.

Duration is never the same as the schedule, since it is measured in real working days that take non-available days, weekends, public and staff holidays into account.

In forecasting duration, it is also essential to make provision for contingencies. Murphy’s Law requires that a buffer be built into the estimated duration of each activity. This can be done by developing four time estimates for each activity:

- the most likely time (estimated time required if normal problems and interruptions occur),
- the optimistic time (estimated time required if virtually no problems occur),
- the pessimistic time (estimated time required if problems and interruptions of an unusual nature occur)
- and the expected time (some form of weighted average of the most likely, optimistic and pessimistic time estimates).

Schedule the Project:

Project scheduling is the conversion of the WBS into an operating timetable. It serves as a basis for monitoring and controlling project activity and, taken together with the plan and budget, is probably the major tool for the management of projects.

The basic approach to all scheduling techniques is the development of a network diagram that graphically portrays the sequential relations between the tasks in the project.

Such networks are powerful tools to ensure the timeous implementation and control of the various project activities and have the following benefits:

- It is a consistent framework for planning, scheduling, monitoring and controlling the project
- It illustrates the interdependence of all activities, tasks, work packages and work elements
- It denotes the times when specific individuals must be available for work on a given task
- It aids in ensuring that the proper communications take place between departments and functions
- It determines an expected project completion date
- It identifies so-called critical activities that, if delayed, will delay the project completion time
- It also identifies activities with slack time that can be delayed for specific periods without penalty or from which resources may be temporarily borrowed without harm
- It determines the dates on which tasks may be started – or must be started if the project is to stay on schedule
- It illustrates which tasks must be coordinated to avoid resource or timing conflicts
- It also illustrates which tasks may be run, or must be run, in parallel to achieve the predetermined project completion date
- It relieves some interpersonal conflict by clearly showing task dependencies
- It may, depending on the information used, allow an estimate of the probability of project completion by various dates or the date corresponding to a priority probability.

In order to create a network diagram, the following steps must be followed:

- Make a list of all the activities that must be performed (use the WBS).
- Establish the interrelationships between activities: determine which activity starts the project and which activity ends the project; determine which activity precedes and which one follows a given activity; determine which activities can run concurrently.
- Identify the milestones you would like to specify.
- Lay out the activities and milestones on a network.
- Review the logic and practicality of the network.

Common networking techniques include the Program Evaluation Review Technique (PERT) and the Critical Path Method (CPM). We will discuss these techniques first and then look at a simple way to convert PERT/CPM data into a graphic format that is easier to work with and understand.

PERT/CPM:

PERT and CPM are quite similar and will be discussed in a combined way. Originally, PERT primarily focused on the time element of projects and used probabilistic activity time estimates to determine the probability that a project could be completed by some given date. CPM though, used deterministic activity time estimates and was designed to control both the time and cost elements of a project, time/cost trade-offs. In CPM, activities can be “crashed” (expedited) at extra cost to speed up the completion time.

Both techniques identified a project critical path whose activities could not be delayed and indicated activities with slack (or float) that could be somewhat delayed without lengthening the project completion time. These techniques are similar in the sense that one can estimate probabilistic CPM times and one can “crash” PERT networks.

PERT/CPM is based on representing the activities in a project by boxes (nodes) and showing the interdependencies between the boxes/nodes by means of arrows. All the nodes are connected, providing a visual picture of the flow of the project through its various paths. The PERT/CPM diagram or network is identical to the logic diagram we discussed earlier: each card/notelet for a key activity will be represented in the network by a node. This format for developing a network is known as the AON (activity-on-node) network.

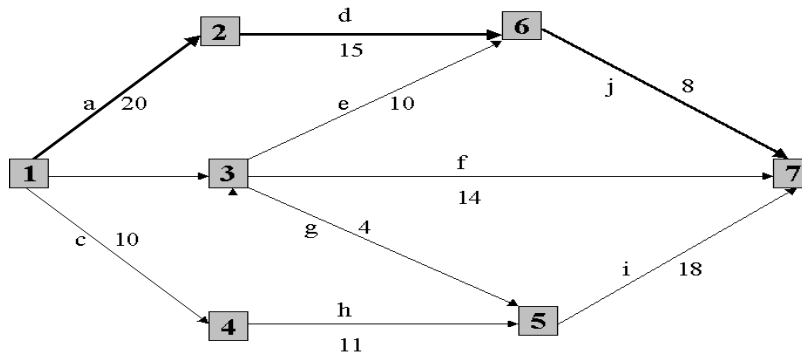
Another format is an AOA (activity-on-arrow) network, where arrows represent activities and nodes represent events. Let us work through an example to illustrate the network technique in the AOA format:

Activity	Description of Activity / Task	Expected time	Immediate predecessor activities
a		20	-
b		20	-
c		10	-
d		15	a
e		10	b,c
f		14	b,c
g		4	b,c

h		11	C
i		18	g,h
j		8	d,e

Take note that we should start the network by identifying those activities with no predecessors. In this case activities a, b and c qualify and they can be drawn from the starting node. Next, we need to consider those activities that have certain successors. Activities d to j qualify.

The trick is to now present them on the network in a way that makes sense. Once this is done, the estimated times can also be filled in, where after the critical path and time can be determined. The completed network should look as follows:



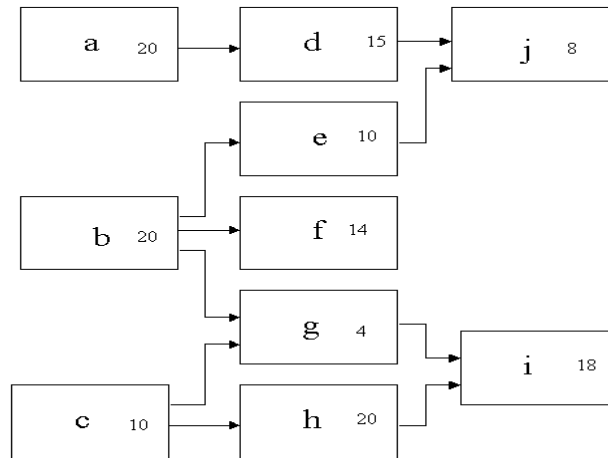
Activity-on-arrow

Event 1 represents the start of the project and event 7 the finish. In order to establish the critical path (the longest path through the network that will determine the shortest time to complete the project – the critical time), we need to calculate the total times of all the paths leading from start to finish:


$$\begin{array}{ll}
 \text{a-d-j} = 20 + 15 + 8 & = 43 \text{ days} \\
 \text{b-e-j} = 20 + 10 + 8 & = 38 \text{ days} \\
 \text{b-f} = 20 + 14 & = 34 \text{ days} \\
 \text{b-g-i} = 20 + 4 + 18 & = 42 \text{ days} \\
 \text{c-dummy-e-j} = 10 + 0 + 10 + 8 & = 28 \text{ days} \\
 \text{c-dummy-f} = 10 + 0 + 14 & = 24 \text{ days} \\
 \text{c-dummy-g-i} = 10 + 0 + 4 + 18 & = 32 \text{ days} \\
 \text{c-h-i} = 10 + 11 + 18 & = 39 \text{ days}
 \end{array}$$

The longest path is a-d-j taking 43 days, meaning that 43 days is the shortest time within which the entire project can be completed. 43 days is hence the critical time and a-d-j the critical path, which is

usually indicated on the network as a heavy line. Can you identify the critical activities, i.e. those activities that, if delayed, will delay the completion of the project? Which activities are non-critical?

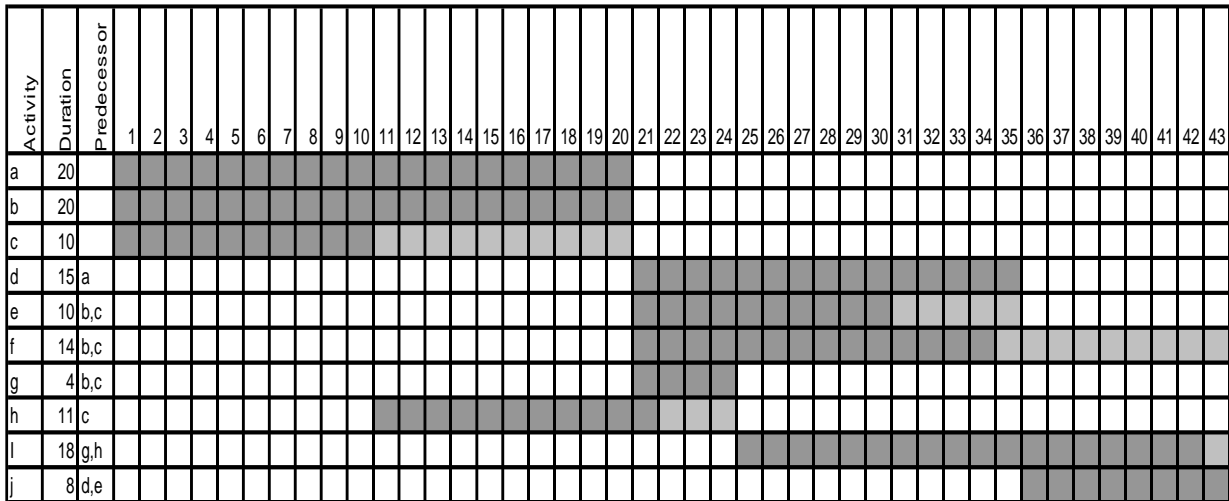


Activity-on-node

	<p>Individual Formative Exercise 6B</p> <p>Time Frame: 30 min</p>
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The Gantt Chart

Once a network diagram has been developed, the information can be depicted on a Gantt chart – utilizing the same WBS as a template for the Gantt chart. This is a very useful tool that was developed by Henry Gantt during World War I. It is a scheduled graph that displays the various activities, their duration and other information in a visual format. Our previous example will look as follows on a Gantt chart (note the use of the same elements of the WBS as a template):




The light grey areas on the chart depict float or slack time, or additional time that may be used on the activity without threatening the schedule. Take note that the critical activities (a, d and j) do not have any float time, because if these activities are delayed, it will result in late completion of the project. If a calendar bar is included across the top of the chart, it allows the inclusion of non-working days such as weekends and holidays. If the critical time is longer than a deadline that might have been set for project completion, the use of the Gantt chart assists in expediting, sequencing and reallocating resources among activities. The chart is also helpful in keeping track of the progress of the project.

The Gantt chart can also show some other valuable information such as:

- Milestones: special checkpoints usually indicated by a triangle or a diamond symbol
- Project meetings: indicated by a filled circle or dot
- Project reviews (e.g. audit): indicated by a filled square
- Key decision points: often called “gates”.

And using legend descriptions for various chart references.

	<p>Individual Formative Exercise 6C</p> <p>Time Frame: 40 min</p>
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Determine the Resource Requirements:

Resources include the time, people, money, equipment and facilities used to complete the project. The allocation of time (scheduling) has been discussed in the previous paragraphs. The allocation of physical resources needs to be considered as well.

Physical resources such as labour-hours and machine-hours are often fixed and if the required resources for a project are higher or lower than the resource capacity, optimization becomes a problem (underutilization/insufficient supply). If the project schedule can be adjusted to smooth the use of the resource, project delays may be avoided, and the project will not be saddled with the high cost of excess resources allocated “just to make sure”.

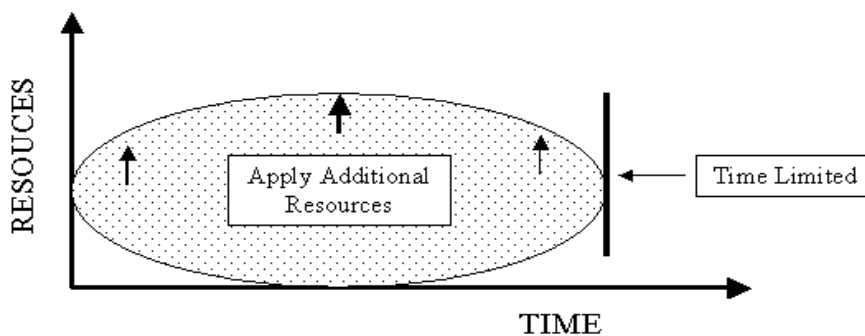
EXAMPLE:

The scope of work determines that 12 tons of steel needs to be erected and experience dictates that the work can be done in 150 man-hours per ton and the men work 10-hour shifts, thus:

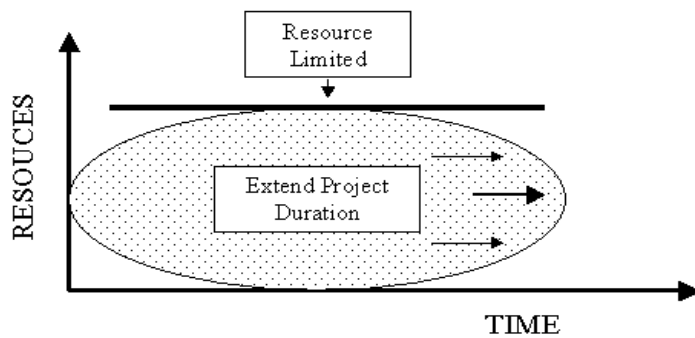
$$\frac{12 \text{ tonnes} \times 150 \text{ man-hours per tonne}}{10 \text{ hours per day}} = 180 \text{ man-days}$$

It is important to remember when resources are planned for the project, that different scenarios need to be considered:

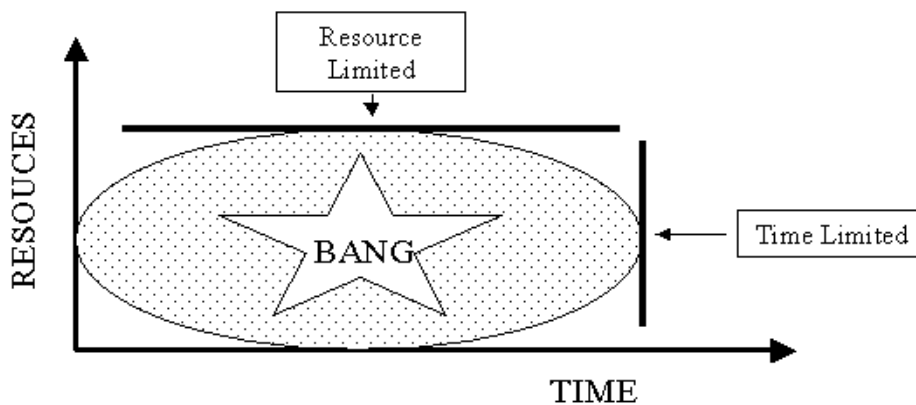
Time-Limited Resource Scheduling:



Resource-Limited Resource Scheduling:



Time & Resource-Limited Resource Scheduling:



The challenge for the project manager is to find the best trade-offs among resources (including time) throughout the duration of the project. The project team has to determine the total loading and availability from project activities on each resource for each time period of the project's duration (resource loading) and then even out the demand for various resources required by shifting activities within their slack allowances (resource levelling).

If it is necessary to speed up a project, two techniques may be considered: crashing the project, which means that you attempt to expedite an activity by the application of additional resources, e.g. overtime, special equipment or additional staff and material. This will obviously result in higher costs; therefore, a time/cost trade-off must be made.

The second technique is known as fast-tracking, mostly used in the construction industry, where the design and construction of a building are overlapped, resulting in shorter project duration.

EXAMPLE:

Allocation of Resources per activity over time duration

#	1	2	3	4	5	6	7	8	9	10	11
A	2	2									
B			2	2							
C			6	6							
D					3	3					
E					1	1	1	1			
F									2		
Total	2	2	8	8	4	4	1	1	2		

No. of Resources Required per unit duration

10											
9											
8											
7											
6											
5											
4											
3											
2											
1											

REVISED: Allocation of Resources per activity over time duration

#	1	2	3	4	5	6	7	8	9	10	11
A	2	2									
B					2	2					
C			6	6							
D							3	3			
E					1	1	1	1			
F									2		
Total	2	2	8	8	3	3	4	4	2		

REVISED: No. of Resources Required per unit duration

10											
9											
8											
7											
6											
5											
4											
3											
2											
1											

The example indicates the comparison and rectification of resources assigned to activities. It is important to compare with the resources available, so that resource smoothing can be done where necessary. The best way of doing so is to create a resource histogram as in the above example. The resource forecast is normally derived from the Bar Chart based on Early Start and the assumption that resources are unlimited (as a first step plan).

RESOURCE TABLE: utilizing the WBS template previously formed

Activity or Task Number	Resource Type	Quantity per day	Resource Duration	Lead Time
A	Welder	2	2	0
B	Welder	4	4	2
C	Welder	3	2	6

Determine the project cost and budget:

In order to develop a project budget, the project team must forecast what resources will be required, the quantity of each, when they will be required and how much they will cost – including the effects of potential price inflation. Uncertainty plays a major role in the budgeting process and must be catered for. Costs that need to be calculated include:

- Capital equipment costs
- Resource direct costs
- Revenue costs for the project team
- Indirect costs, e.g. overheads.

There are several budgeting methods. Let us consider two common ones:

Top-down budgeting: Available historic data concerning similar activities and the estimates of top and middle managers are collected to calculate the overall project cost as well as the costs of Level I activities in the WBS. The cost estimates are then passed on to lower level managers, who continue the breakdown into estimates for the specific tasks and sub-tasks all the way to the lowest level.

Bottom-up budgeting: The WBS is once again consulted and the individual budgets and schedules of elemental tasks are constructed from the lowest level up to the highest level. The task budgets are then aggregated to determine the total cost of the project. Once a project reserve and a profit figure has been added, the final project budget can be arrived at.

PROJECT ESTIMATING

When it comes to projects and the optimal benefits thereof, estimation becomes crucial to the project manager. The problem with estimation is not necessarily the focus on the financials of the project, but the other information contributing to the accuracy of the financials. The factors that influence the financial accuracy of the estimation is the following:

- Project Specifications
- Time
- Resources required and available
- Materials
- Equipment
- Risks

The quantified accuracy of the above factors determines the accuracy and reliability of the estimate of any project. Burke sees project estimating as the quality and accuracy of the estimate as the best approximation based on time available, techniques employed, information available, expertise and experience of the estimator. According to Maylor, the changes that have the greatest influence can be discussed in terms of inputs, constraints and mechanisms.

The following explanation gives a better idea of what is meant by each factor of influence:

Inputs – the customer can change the project brief, the longer the project duration, the more certain that changes will be initiated by the customer.

Constraints – any influence like time, interest rates, investor confidence, money availability, etc. can change the estimation rapidly.

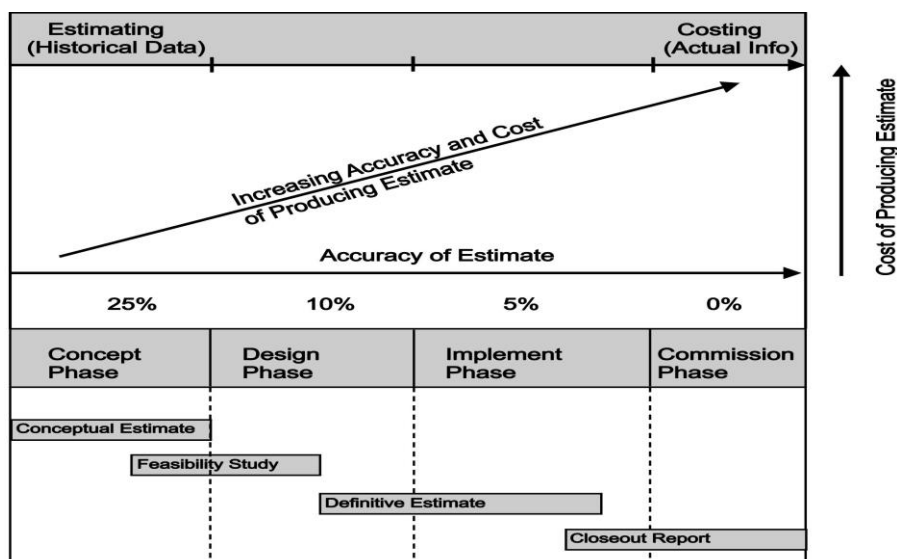
Mechanisms – the availability of resources like people, equipment and material are always difficult to predict especially when Just-in-time is considered.

In project estimation, two general approaches can be considered and even advisable to make use of both in checking accuracy of estimate. The two approaches are as follow:

Top-down: This is where a certain amount of money is allocated for the project and need to be distributed or divided between the different sub-projects.

Bottom-up: This is where a work breakdown structure is used to do a financial roll-up in order to get a budget or financial requirement.

The following diagram can be considered in understanding the different phases of the project playing a role in the accuracy of the estimate.



ESTIMATING COST CONTINUUM [Burke]

Estimating a project is concerned with the financials of the project and therefore it is important to understand all the costing elements. The different project costs are categorised as follow:

- Direct costs – this is the cost directly involved with making the project happen.
- Indirect costs – also revered to as overhead costs.
- Time related costs – all cost increases over time as the project progresses.
- Labour costs – this include costs directly involved with the cost of labour; things like medical insurances, sickness benefit, annual holiday, training courses, protective clothing, car allowance, housing allowance, subsistence allowance, pension, tool allowance, etc.
- Material and equipment costs – also known as procurement cost include the departments like drawing office, buying office, quality department, planning office, warehouse, accounts, production, etc.


- Transport costs – this include costs like ex-works (purchaser’s responsibility to pay, arrange, load, transport and insure), FOB (Free on Board), CIF (Cost, Insurance and Freight) and DDP (Delivered Duty Paid).
- Preliminary and general costs (P&G) – including the cost of establishing the site office, site supervision, insurance and performance bonds, plant-hire, equipment, carnage, etc.
- Project office costs – all costs referring to the running of the project office like project team’s salary, rent, water, electricity, office equipment, telephone, travel, security, training, marketing, etc.
- Project team costs – all salaries of the different team members.

The main difference between estimating and costing is that in many if not all instances, estimating is seen as a quick method for pricing a project based on incomplete data and costing is defined as a detailed price based on a complete bill of materials (BOM) and parts list. A final estimate will then be figures compiled from all sources available and relevant to the project. Table is a further detailed breakdown of the project content or structure to lead to the detailed work breakdown structure (WBS).

The following tables can be used as a format to consider in putting together all the relevant data per category:

WBS	Labour	Material	Equipment	Transport	Total
1.					
2.					
2.1					
3.					
3.1					
Project Man. Fee					
Sub-Total					
Profit					
TOTAL					

ESTIMATING FORMAT FOR DETAIL

	<p>Individual Formative Exercise 6D</p> <p style="text-align: right;">Time Frame: 30 min</p>
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The budget provides the project manager with a control mechanism, and it serves as a standard for comparison, a baseline from which to measure the difference between the actual and planned use of resources. At this stage, we have a project plan that includes:

- A list of key activities
- A responsibility outlines
- A network diagram
- A Gantt chart
- A resource sheet

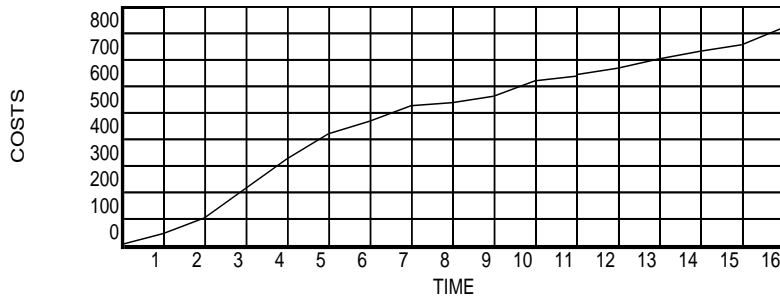
Thus, it is advisable to do a pro-forma cash-flow forecast that will be based on estimated figures and during the duration of the project a comparison can be made between the pro-forma and the actual cash-flow statement.

The following example will also be of value during the planning and setting up of the budget in conjunction with the BAR-chart as a guide.

Activity	DAYS															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
A	50	50														
B			50	50	50											
C			10	10	10	10	10	10								
D			50	50												
E						10	10	10	10	10						
F									30	30	30	30	30	30	30	
G					30	30	30									
H																50
Expense/day	50	50	110	110	90	50	50	20	40	40	30	30	30	30	30	50
Accumulated	50	100	210	320	410	460	510	530	570	610	640	670	700	730	760	810

BARChart and CASH FLOW FORECAST

The expense S-curve is another method of modelling the cash flow providing a link between the CPM and the budget. The S-curve is also often referred to as the BCWS or better known as Budget Cost for Work Scheduled.



S – CURVE

Project Management Tools

The project team can compile and/or use a range of project management tools that will assist in the planning as well as the implementation of a project. The project manager can use these tools to monitor and control the implementation of the various project activities.

Below is a summary of a range of tools available:

Project Process Flow Chart:

This is a chart that indicates the process flow of project activities.

Project life cycle chart:

The chart indicates the various phases of the project, resources required, duration per phase, total duration.

Product life cycle chart:

When the project involves the development of a product, this chart will indicate when the project cycle starts and finishes and when production of the new product starts.

Planning document:

When planning (general and/or detail) are undertaken, this document assists the team to plan thoroughly.

SOW - Statement of Work:

Work that must be performed is defined and stated in this document.

WBS - Work Breakdown Structure:

The WBS breaks down the specific work into fine detail, indicates who's responsible for it and on which level work will be performed.

Responsibility matrix:

Responsibilities are reflected on a matrix that is manager friendly.

Task list:

This is a list of all the tasks/work that need to be done. It may include duration, individuals involved, resources needed, etc.

Skills requirement worksheet:

This is none other than a skills audit for each job/task that must be done. It indicates where there are enough skills or an absence of skills for a job.

Skills inventory:

This is a total skills audit of all the members on the project team.

Network diagrams:

It consists of Gantt, CPM- PERT and Precedence network diagrams.

Schedules:

Schedules reflect the duration of activities, starting times/dates and finishing times/dates

Zero-base budget:

This is a way of establishing the priorities and getting down to the bottom line for a changing project based on the cost of getting things done.

Budget tracking chart:

The actual expenses versus the budget for the expenses are reflected and compared on the graph at a given point in time during the project life cycle.

Project priority worksheet:

The worksheet prioritizes work/jobs and offers trade-off options for a given time and indicates precedence.

Risk management / analysis worksheet:

Risks are identified, assessed, solutions developed and controlled via this tool.

Internal report:

Any reporting regarding to the project can be reflected in this form of report. The format, detail and topics on reporting can be customized and included in the report pro forma.

IT software Programmes:


Examples of IT software that are available in the market are: Fast Track, Artemis, Knowledge Plan, Quick Gantt, Turbo project, Mesa Systems, Microsoft Project, Project Home Page Plan, Primavera, Project Scheduler, Project Envision, On Target, Timeline & Web Project.


**Reflection – Learning Unit 3**

In this module, the following outcomes were covered:

- Ensure that the scope of work and deliverables are re-defined in relation to the unit objectives.
- Check that principal work activities are determined in accordance with the unit objectives previously identified.
- Ensure that potential risks analysed are considered in the project plan
- Change processes that are essential to project success are described in terms of their contribution to the project results.
- Identify the overall objectives of the plan with reference to the achievement of unit objectives.
- Describe how the sponsor, project team and other stakeholders contribute to the project.
- Be able to develop a work breakdown structure (WBS) and describe the main activities of the project and the interrelationship between them.
- The project activities required performance levels and quality criteria are stipulated and communicated to team members and other stakeholders to promote quality and effectiveness.

The project plan is checked for accuracy, completeness and compliance to internal and external requirements.

	<p>Notes:</p> <p>Please use extra pages where necessary and reference accordingly</p>

	<p>Group Formative Exercise 6E</p> <p>Time Frame: 45 min</p>
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Learning Unit 4: Project Implementation and Evaluation



The reasonable man adapts himself to the world; the unreasonable one persists in trying to adapt the world to himself. Therefore, all progress depends on the unreasonable man

George Bernard Shaw 1856-1950, Irish playwright and critic

Unit Standard	
252022	Develop, implement and evaluate a project plan
Specific Outcomes	
Implement the plan and evaluate project progress.	
Learning Outcomes	
Describe how project implementation is monitored and evaluated against the plan, using the stipulated performance criteria and quality requirements.	
Demonstrate how project results are monitored to establish progress and effectiveness.	
Show and describe how deviations from the project plan are identified and analysed in order to take corrective action.	
Explain a range of possible corrective actions to be implemented to ensure the achievement of project objectives.	
How results are evaluated against the scope and objectives of the project.	
Critical Cross-field Outcomes	
Identifying	Working
Organising	Collecting
Communicating	

Introduction

***“Planning without action is futile,
Action without planning is fatal.”***

In the previous learning module, we have considered the various stages of project initiation. The result of this phase in the lifecycle of the project is a detailed project plan, covering resources, cost estimates, time estimates, assigned responsibility and so on. It is now time to put the plan to test. It is easy to argue that implementation will be a straightforward process if the planning was done properly, but unfortunately practice has learnt that it is fraught with difficulties and crises [2:21]. The way in which the plan is executed and implemented will ultimately determine success or failure. This implies that the project manager and his team should carefully monitor and control project progress to keep the actual performance as close as possible to the project baseline.

In this learning unit, we will consider some of the important issues the project manager needs to address to ensure efficient and effective project implementation.

Setting the stage for Project Implementation and Evaluation

In order to ensure the efficient implementation of the project, the project manager first needs to confirm:

- The resource commitments
- The communication processes.

Confirming Resource Commitments:

The key activity owners (KAO's) per responsibilities identified should be asked to verify their task lists, making sure that no tasks have been forgotten. The duration of each task needs to be confirmed, including the start and end dates and the available float, if any.

A record of actual start and end dates must also be kept. The procurement of resources necessary for the project also needs to be confirmed. This includes verifying whether materials and services will be available when and where needed as scheduled in the project plan. We must bear in mind that materials and services can be from internal and/or external sources. Materials may come from local suppliers or need to be imported. Services may be provided by in-house specialists or by external consultants, specialists or contractors.

It is essential that the project manager verify that these materials and services will be available on time, in the right quantities and of the right quality. During implementation, these resources must be carefully monitored and controlled.

Confirming the Communication Processes

Without proper communication, a lot of conflict can be expected. It is essential that the necessary communication processes be identified and communicated to every stakeholder of the project. Good communication in the team, between the project manager and the team and between the project manager and the key stakeholders should be ensured. Feedback on the current progress of active tasks, problems encountered, problems anticipated, and technical difficulties encountered are needed throughout the implementation phase. An information system should be created, giving the project manager the information, he needs to make informed, timely decisions that will keep project performance as close as possible to the project plan.

The use of a communication plan ensures regular and timeous feedback on project progress.

We will focus on two communication mechanisms essential in the effective monitoring and tracking of the project:

Project status reports: The key stakeholders expect to receive regular feedback on project progress in the form of status reports. The frequency and format of these reports should be agreed upon even before the project is launched. Kerzner suggests that status reports be kept short and concise, containing pertinent information only.

A single page, standard template can be designed to ensure consistency and focus in reporting, recording: a concise summary of overall progress; a list of milestones due to be completed since the last report and their current status, e.g. on time or late; actions taken to correct any slipped milestones; forecasts for the project completion based on current information; reasons for any revision to earlier completion forecasts; any issues/problems still waiting for resolution; and costs to date compared to the budget.

The data contained in the report will depend primarily on whether it is a routine report, an exception report or a special analysis report.

Team members should issue status reports to the project manager and the project manager then report to the key stakeholders, e.g. the sponsor and management.

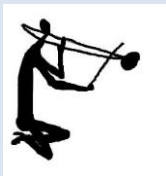
Meetings: Project review meetings are another important communication mechanism.

What kind of meetings may be required?

- one to one meeting with the project sponsor;
- one to one meeting with team members;
- project progress meetings with the team;
- problem solving meetings;
- meetings with stakeholders, e.g. the customer;
- project review meetings with other stakeholders.

These meetings can be highly structured or very much informal, but each meeting should have a definitive purpose. People often dread meetings; therefore, it is important to keep a meeting as short as possible, sticking to the agenda and ensuring a specific outcome is achieved. Status reports are often delivered at a face-to-face meeting, not necessarily always in a written format. Project progress meetings can be scheduled throughout the project and even be shown on the Gantt chart, whilst other meetings need to be scheduled as the need arises.

Once everything is in place, the project can be launched. This is often done by calling a launch meeting. A launch meeting can be regarded as a milestone in the project, after which all project work starts [4:127]. The aim of the launch meeting is to get everybody involved focused, informed and ready for the tasks ahead [2:22]. The meeting should be well planned, and the project team should be well prepared to address any concerns raised by the other stakeholders. The project plan is discussed in some detail at this meeting and acceptance and commitment to the work ahead is sought. The project manager should use the meeting to make sure everybody understands exactly how the project will be executed and to what extent everyone will be involved.



Individual Formative Exercise 7A

Time Frame: 15 min

Controls and Performance Measures

The following control elements serve to highlight the benefits of project management to a firm's internal control and compliance posture:

Documentation - Of key importance is the proper documentation in accordance with internal and external requirements. The documentation can either be an engrained part of the methodology or project specific. In either case, it can be explicitly identified as tasks in the project plan and as required deliverables.

Mirroring of the Organization's Internal Controls - The project methodology of the firm can reflect the entity's internal control requirements; create various control points in the project management office, as well as within each project.

Coordination of Key Stakeholders - By involving key stakeholders as early on as possible, the costs and expectations surrounding the project are all better managed. Without proper coordination, compliance requirements may be introduced enter too late into the project to be cost-effectively included or be overlooked all together.

Management Oversight and Control - Project plans can include control gates that require the project team to report status through defined metrics and other criteria. This allows management to stay apprised of project status, risks, actual to estimated cost trends, and so on.

Requirements Definition - Not only must the functional requirements be factored into the project, but so must the compliance requirements. In the world of software, the application controls must be considered and implemented based on risk. It is always cheaper and more efficient to design controls into a system at the outset than to wait until the end of the project or after the system goes live to try and factor in compliance needs. Remember, that in this age, business requirements = functional needs + compliance requirements.

Risk Management - As mentioned in the outset, organizations face a multitude of legal and regulatory issues. The responses taken by the organization must be based on risk and this extends into projects as well. Actions taken in governing the projects, controls inserted into design plans and so on must all be done based on risk. Too few controls and compliance will be at risk and too many, or too complex, controls will cause inefficiency, over expenditures and possibly compliance problems.

Communication Plans -Part of project management entails communication of project status to the various stakeholders. Through formal communications, evidence is generated of awareness as to status, decisions made and so on. Furthermore, effective communications can help keep expectations in synch with the project will deliver.

Change Management - As requirements evolve, there must be formal processes in place to review change requests and make appropriate disposition. Unmanaged change can destroy a project.

Work Breakdown Structure - the planning and effort to generate work breakdown structures (WBS) and subsequent communication to the team provides ideal points to ensure that compliance related issues are properly identified and understood.

Task Management - Simply put, by assigning start dates, end dates and so on, the likelihood of tasks being performed increases dramatically. The probability of things being overlooked or forgotten decreases.

Project Reporting - In addition to reports being used to judge the health of the project, reports can be developed and leveraged to judge if internal control requirements are being met. For example, if management designates that expenditure cannot exceed 10% of the allotted amount, the use of variance reports can highlight that a control threshold is being met, at risk or violated.

Management Oversight - A PMO can liaison with management to ensure that projects are running as expected. Internal audit can either be a stakeholder on key projects or be one of the parties that is always included in communication plans.

Training - Not only is training a task area within projects, but it is also a requirement to running projects. People must be able to understand what they do and why. This also means that project management personnel need training on compliance requirements and management/organization expectations.

Testing - Formal test plans can be developed that not only include traditional functional and security aspects but compliance aspects as well.

Post Project Review - There is a tremendous amount that can be learned by studying both successful and failed projects. Don't miss the opportunity after each project to assess "lessons learned". This applies to compliance efforts as well.

Continuous Improvement Process

Regulatory pressures are only going to increase while the need to effectively manage the costs will logically follow. To achieve both means that there be a continuous improvement process.

Organizations must recognize that as these efforts take place, they must be managed as a series of projects with objectives, start date, end date, assigned resources and budget for all the reasons previously mentioned.

Project check list:

This tool has all activities/tasks that take place on a project in sequence. As an activity/task is performed, it gets ticked off, reflecting dates, individuals involved and outcomes/results.

Summary

Project management can be a means to implement and improve compliance initiatives in organizations as well as provide an avenue to implement proper controls on project-based initiatives of the firm. In their quests to meet the latest requirements within timeframes and budgets, organizations must not forget the importance project management.

In the previous modules, we have established that meeting the performance specifications within cost and on schedule, are the key objectives of project management. During the implementation phase of the project, the project manager needs to exercise careful control over the project constraints, i.e. performance, costs and time.

Control is the act of reducing the difference between plan and reality.

The control process comprises three operating modes:

Measuring: monitoring and determining progress by formal and informal reporting as well as observations

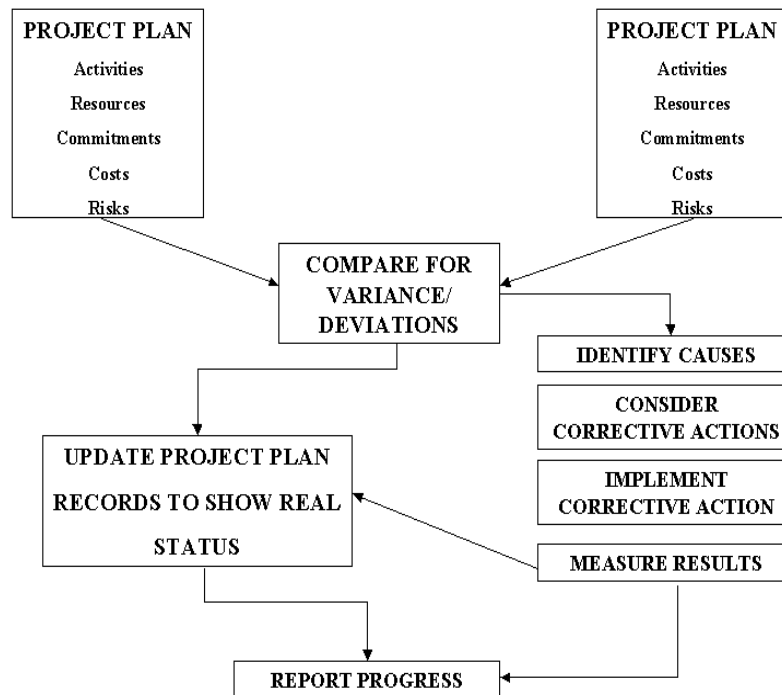
Evaluating: determining the cause of deviations from the project plan.

Correcting: taking corrective action in addressing the deviations.

A project control system should be used to facilitate the above-mentioned modes. A simple system that starts with a comparison of the actual results of work done with the desired results (the project plan).

Variations are identified; triggering a process whereby the possible causes are identified and evaluated. Several solutions need to be generated and considered, after which the best solutions are implemented. The results of the corrections are then measured. These corrective actions need to be recorded – the project plan is updated to reflect the real status of the project. Progress is then reported.

The system can be depicted as follows:



Variations/deviations are not only identified through formal measurements, but also through keen observations by the project manager who keeps a close watch on everything.

Managing by walking around (MBWA) is a technique well known in management circles; in the case of project management we might as well call it Monitoring by Walking Around. Monitoring is collecting, recording and reporting information concerning all aspects of project performance that the project manager or others in the organization wish to know, and is part and parcel of the control process. What should be monitored and consequently controlled?

Booyens identified the following things to monitor:

- The status of work
- The volume of completed work
- Costs and expenditures
- Attitudes of role-players – the team, stakeholders and customers
- Team cohesion.

Let us consider a few control topics important to the project manager:

Control of change:

Coping with changes and changing priorities have been reported as the most important single problem facing the project manager. Minor changes can be reacted to quickly, but significant change is much more serious and can have a demotivating effect on the project team unless it is something, they have sought in the interests of the project. Change can stem from the customer, the end user, the sponsor or from technical problems. The most common changes are due to the natural tendency of the customer and team members to improve the product or service. The customer may become aware of new demands and performance requirements during the project; new technologies may become available; or better ideas occur to the team as work progresses. Without control, a continuing accumulation of little changes can have a major negative effect on the project's schedule and cost.

How should change then be controlled?

- It is suggested that the use of a formal *change control system* be utilised:
- Review all requested changes to the project (both content and procedure)
- Identify all task impacts
- Translate these impacts into project performance, cost and schedule
- Evaluate the benefits and costs of the requested changes
- Identify alternative changes that might accomplish the same ends
- Accept or reject the requested changes
- Communicate the changes to all concerned parties
- Ensure that the changes are implemented properly
- Prepare monthly reports that summarise all changes to date and their project impacts.



Group Formative Exercise 7B

Time Frame: 60 min

Control of costs:

When performance becomes a problem due to things such as insufficient resources when required or changes required by the customer in specifications, cost implications arise. When time becomes a problem due to things such as incorrect task sequencing or unavailable resources when required, cost implications arise.

Cost need to be controlled due to typical problems such as:

- Technical difficulties requiring more resources
- Increased scope of work
- Too low initial estimates
- Poor or untimely reporting
- Inadequate budgeting
- Late corrective action
- Price changes of inputs.

It should be obvious that changes/problems regarding performance and time will result in cost issues.

In order to control costs accurately, data must be collected in a consistent and disciplined way.

For effective control, the project manager needs information on:

- The project budget as fixed in the business case/proposal
- The project operating budget, a cumulative total based on the WBS
- The costs incurred in the current accounting period
- The costs incurred to date from the start
- The work scheduled for completion according to the schedule in the current period
- The total work scheduled for completion to date
- The work completed in the current period
- The total work completed to date.

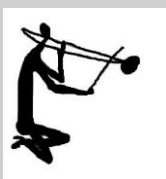
Costs need to be measured as work progresses and then be compared with the operating budget (as derived from the WBS). If any variances are identified, corrective action is required to minimize the consequences.

Project Evaluation

Project evaluation appraises the progress and performance of a project compared to the project's planned progress and performance. Project evaluation conducted in a formal way is called project auditing. The project audit is a thorough examination of the management of a project, its methodology and procedures, its records, its properties, its budgets and expenditures and its degree of completion. The focus of the audit may be the entire project or only a part of the project.

Meredith & Mantel make the following observations on a project audit:

- The audit report should contain at least the current status of the project, the expected future status, the status of crucial tasks, a risk assessment, information pertinent to other projects and any caveats and limitations.
- Audit depth and timing are critical elements of the audit because, for example, it is much more difficult to alter the project based on a late audit than an early audit.
- The difficult responsibility of the auditor is to be honest in fairly presenting the audit results. Data interpretation may even be required on occasion.
- Several essential conditions must be met for a credible audit: a credible evaluation/audit team, enough access to records and enough access to personnel.
- There are other issues that need to be monitored and controlled, such as conflict, which often arises when disagreements between stakeholders occur; ethical issues, especially in procurement management; *motivational levels* of the project team and so on. These issues are beyond the scope of this course, but it is recommended that you investigate and study them before embarking on an important project.

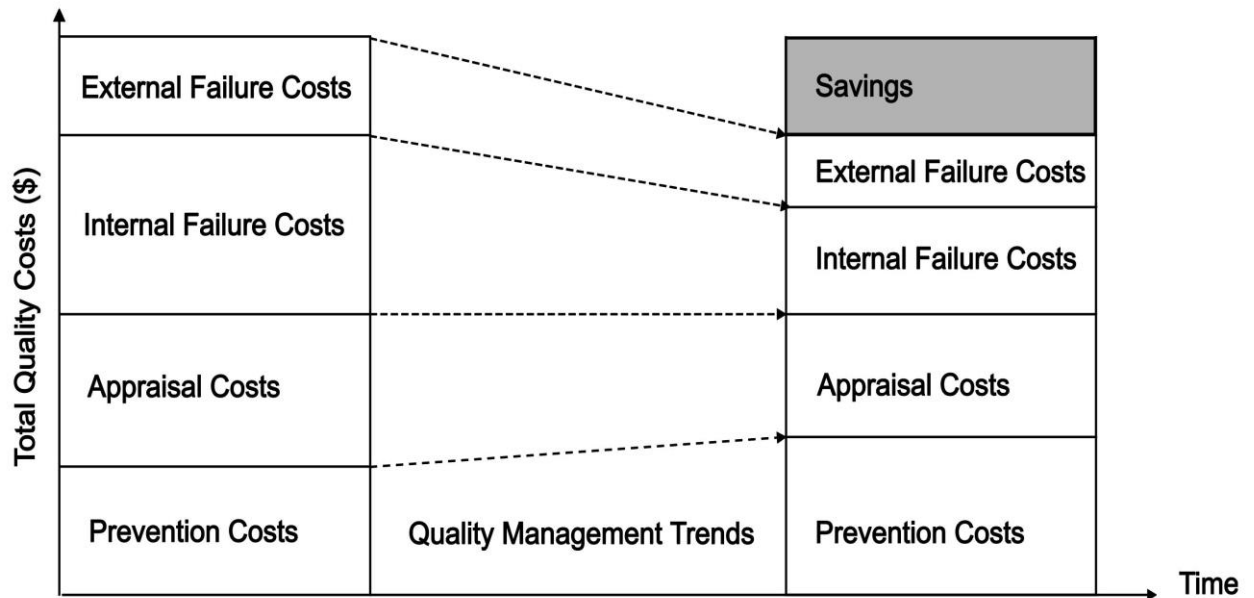


Individual Formative Exercise 7C

Time Frame: 30 min

Quality Management

Quality is of the essence for project management, as one of the forces in the triangle of forces of Time, Cost and Quality. Quality also has a major influence in the costing of a project, not only concerning the material, delivery and equipment cost, but also the cost of quality as can be seen from the figure below.



It is therefore also essential to plan quality as part of the project planning cycle and to work the plan in the implementation, monitoring and control cycle of the project.



Reflection – Learning Unit 4

In this module, the following outcomes were covered:

Describe how project implementation is monitored and evaluated against the plan, using the stipulated performance criteria and quality requirements.

Demonstrate how project results are monitored to establish progress and effectiveness.

Show and describe how deviations from the project plan are identified and analysed in order to take corrective action.

Explain a range of possible corrective actions to be implemented to ensure the achievement of project objectives.

How are results are evaluated against the scope and objectives of the project.

PART 3

Learning Unit I: What is Innovation?

Unit Standard	
252020	Create and manage an environment that promotes innovation
Specific Outcomes	
SO1: Analyse own unit in terms of opportunities for innovation	
Learning Outcomes	
At the end of this module, you will demonstrate an understanding of:	
<ul style="list-style-type: none">• The concept of innovation in business• The forms of innovation in business• The differences in intensity of innovation initiatives• Important factors in managing innovation• The stages in innovative capacity• Components of an innovative organisation• Factors inhibiting innovation	
Critical Cross-field Outcomes	
<ul style="list-style-type: none">• Identifying• Working• Organising• Collecting	<ul style="list-style-type: none">• Communication• Science• Demonstrating• Contributing

INTRODUCTION

The pace of business today requires creativity, new ideas and new product innovations on an almost on-demand basis. We know that those organisations that are consistently successful at managing innovation outperform their peers in terms of growth and financial performance.

However, managing innovation requires skills and knowledge, which is significantly different from standard management skills and expertise. Because most managers have not developed skills to manage innovation effectively, they simply do not manage it or manage it on an ad hoc basis, therefore innovation is not sustainable. A study in 2008 showed that only 12% of organisations successfully manage innovation, and only half of these do so consistently over time (Study by Jaruzelski & Dehoff as quoted by Tidd, J and Bessant, J).

The purpose of this course is to equip team leaders with the knowledge and skills to create and effectively manage an environment that promotes innovation.

The course covers the following:

- Learning Unit1 defines innovation and looks at the elements and management traits necessary to promote innovation.
- Learning Unit2 proposes a model of innovation which can be implemented according to the organisation's unique needs
- Module3 looks at creative thinking and problem-solving techniques
- Learning Unit4 explains the concept of knowledge management and how the effective implementation of a knowledge management system can assist in managing innovation.

Underpinning the whole concept of innovation, is the following equation:

Old problem → Old solutions → Old results
Old problem → New solutions → New results

DEFINING INNOVATION



Michael Jordaan, CEO FNB (42 Years old), defines innovation as follows:

Innovation is nothing without creativity but it is only when that creativity is brought into action that innovation is born. Innovation isn't simply the art of introducing something new to the world. More often, it's the art of introducing something better and smarter. Something that works.

Innovation is implementation. Innovation is a measurable, quantifiable outcome. Innovation is an abstract thought transformed into a concrete service or product. The very essence of innovation is work!

Julia Fourie, CEO of 'Here be Dragons venture capital' founded by Mark Shuttleworth defines Innovation as:

I see innovation and creativity as a result of something that you are such as curious about the world, such as having a passion to make things better / quicker / cheaper, enjoying challenging yourself to do more, wanting to do better than others (competing).

While being innovative to me is a result of this – it's not the end at all but just the beginning – because without implementing your idea, creativity would not be truly born and become sustainable and ultimately an inspiration to others to do.

Sir Richard Branson (1998) at a DTI Innovation Lecture, defined innovation as:

An innovative business is one which lives and breathes 'outside the box'. It is not just good ideas, it is a combination of good ideas, motivated staff and an instinctive understanding of what your customer wants.

The important elements emerging from these definitions of innovation are:

- Creativity put into action
- Measurable and quantifiable
- Curiosity about the world
- Passion to improve
- Sustainability
- Lives and breathes outside the box
- Good ideas + Motivated staff + Fulfilling customer needs =Successful Innovation

One can hardly speak about innovation without mentioning the name of Thomas Alva Edison, who registered over 1000 patents. Products for which he became famous, was the light bulb, 35cm film and even the electric chair. He created a business of around \$21.6 billion in 1920. He understood the interactive nature of innovation, being that both the technology push and the demand pull needs to be utilised. He realised that innovation is more than coming up with ideas, it is a process of growing them into practical use.

The four forms of innovation

When we talk about innovation, we talk about change. This innovative change can take four forms:

- Product innovation: changes the products/services the organisation offers
- Process innovation: changes the ways in which they are created and delivered
- Position innovation: changes in context in which the products are introduced
- Paradigm innovation: changing the underlying mental models of thinking and doing

The intensity of innovation

Innovation could be incremental, when we continue to do what we do, but better. It could also be radical, when we change things completely.

At the same time, the level of innovation could be different. Things can change on component level or on systems level.

To better explain this, let's look at the following graphical representation, as proposed by Tidd and Bessant:

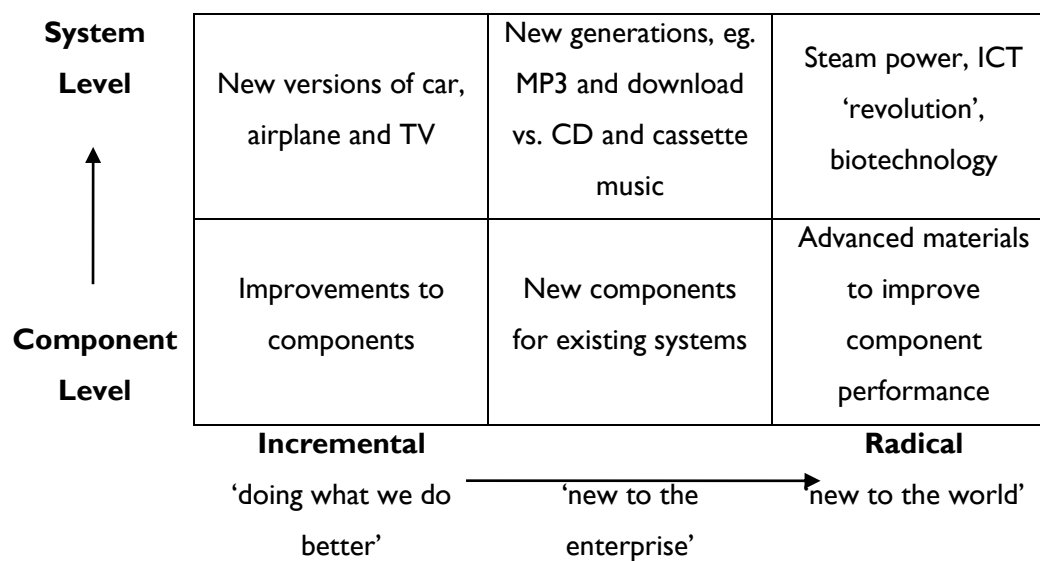


Figure 1: The intensity of innovation

Managing Innovation

The question inevitably comes up: can something that is supposed to be creative, free flowing, unbound be managed?

The answer to this question is: NO. What can be done is that an atmosphere that promoted innovation can be created and sustained by a management team.

How? The following core abilities are essential in a management team when creating an innovative environment:

- *Recognising*: Searching the environment for technical and economic clues to trigger the process of change
- *Aligning*: Ensuring a good fit between the overall business strategy and the proposed change – not innovating because it is fashionable or as a knee-jerk response to a competitor
- *Acquiring*: Recognising the limitations of the company's own technology base and being able to connect to external sources of knowledge, information, equipment, etc. Transferring technology from various outside sources and connecting it to the relevant internal points in the organisation
- *Generating*: Having the ability to create some aspects of technology in-house – through R&D, internal engineering groups, etc.
- *Choosing*: Exploring and selecting the most suitable response to the environmental triggers which fit the strategy and the internal resource base/external technology network

- *Executing*: Managing development projects for new products or processes from initial idea through to final launch. Monitoring and controlling such projects
- *Implementing*: Managing the introduction to change – technical and otherwise – in the organisation to ensure acceptance and effective use of innovation
- *Learning*: Having the ability to evaluate and reflect upon the innovation process and identify lessons for improvement in the management routines
- *Developing the organisation*: Embedding effective routines in place – structures, processes, underlying behaviours etc.

Although the management behaviors above are a picture of the ideal innovative management behaviors, they could at some point turn into a point where they create a negative atmosphere for innovation. When the routines become so entrenched that they become rigid, the organisation could be so committed to the ‘way we do things’ that these very behaviours become counterproductive to innovation. So.... It is imperative for innovation to not only build routines, but also to recognise when and how to destroy them and allow new ones to emerge.

Stages of innovative capacity

In the creation of an atmosphere of innovation, companies find themselves at different stages. These stages are represented by the following graph:

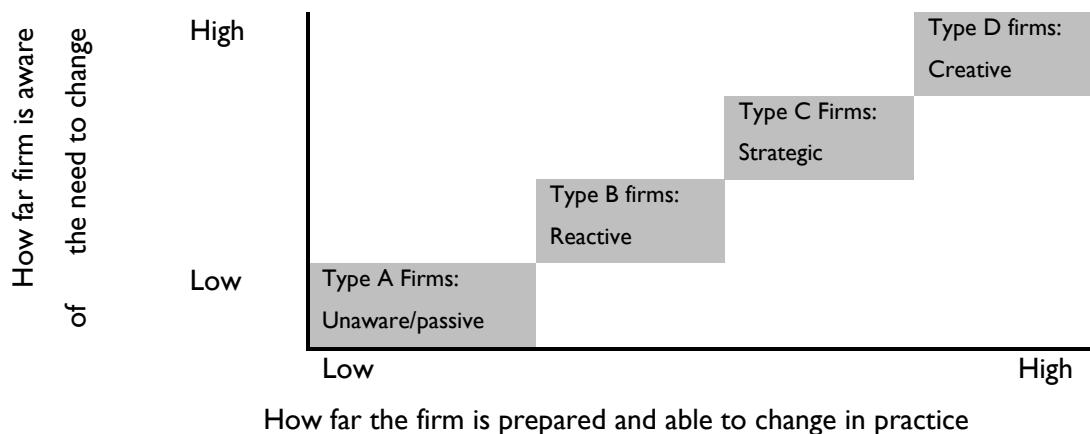


Figure 2: Stages of Innovative capacity (Hobday, Rush and Bessant 2005)

So, what are the characteristics of organisations at the different stages of innovative capacity?

Type A firms are unconscious or unaware of the need to innovate. They do not recognise the need to improve, do not know how to improve, cannot recognise triggers in the environment may waste resources by doing the wrong kind of adjustments.

Type B firms recognise the challenge to change, but do not know how to do it in the most effective way. Their external networks are poor, and they do not have internal resources to change. They change in reaction to problems they experience, eg. Low sales.

Type C firms are aware of their need to change. They have and are capable of developing strategies to change. They compete within the boundaries of existing markets but are unable to explore new markets or do radical changes.

Type D firms take a creative and proactive approach by using all available knowledge to create a competitive advantage. They have effective internal innovative strategies but are also able to rewrite the external 'rules' of innovation.

In summary, successful innovation management has two components:

1. Innovation is a process, not a single event, and needs to be managed as such.
2. The influences on the process can be managed to affect the outcome, simply – innovation can be managed!
- 3.

Components of an innovative organisation

So, how does the innovative organisation look. We will now discuss the components of such an organisation:

- *A shared vision, leadership and the will to innovate:* A clearly articulated and shared sense of purpose. Top management commitment
- *Appropriate structure:* Organisational design which enables creativity, learning and interaction. Finding a balance between 'organic and mechanic'
- *Key individuals:* Promoters, champions, gatekeepers and other roles that energize and facilitate innovation
- *Effective teamwork:* Appropriate use of teams to solve problems, requires investment in team selection and building
- *High involvement innovation:* Participation in organisation wide continuous improvement activity
- *Creative climate:* Positive approach to creative ideas, supported by relevant innovation systems
- *External focus:* Internal and external customer orientation. Extensive networking.

Innovative organisations means more than a structure; it is an integrated set of components that work together to create and reinforce the kind of environment which enables innovation to flourish.

Factors inhibiting Innovation:


Having looked at what a management team and organisation need to create an atmosphere in which innovation can flourish, it is also important to look at the factors that will do the reverse, i.e.

Inhibit innovation and creativity:

- Dominance of restrictive vertical relationships
- Poor lateral communication
- Limited tools and resources
- Top down dictates
- Formal restrictive vehicles for change
- Reinforcing a culture of inferiority, ie. The best ideas come from outside the organisation

- Unfocussed innovative activity
- Unsupported accounting practices.

The effect of these behaviors is that they inhibit innovation and creativity in an organisation. Developing a culture of innovation is not simple. It consists of a web of complex behaviors. Changing a culture cannot happen overnight; it happens through consistently displaying the right behaviors for a long period of time, so that it becomes a way of living.



Individual Formative Exercise 8

Time Frame: 45 min

Learning Unit 2: Building an Innovation Model

Unit Standard	
252020	Create and manage an environment that promotes innovation
Specific Outcomes	
SO3: Develop a plan for creating an environment conducive to innovation	
Learning Outcomes	
At the end of this module, you will demonstrate an understanding of:	
<ul style="list-style-type: none"> • The innovation models • Search: How can we find an opportunity for innovation? • Select: What are we going to do and why? • Implement: How are we going to make it happen? • Capture: How are we going to get benefits from innovation? 	
Critical Cross-field Outcomes	
<ul style="list-style-type: none"> • Identifying • Working • Organising • Collecting 	<ul style="list-style-type: none"> • Communication • Science • Demonstrating • Contributing

INTRODUCTION

Organisations that are successful innovators, become so over time. They accumulate technical resources and management capabilities through optimizing learning opportunities. This they do by doing, using, working with other companies and asking customers within an environment which seeks to continuously improve (rather than once-off genius ideas).

For exploring innovation further, we have built a model to assist managers to implement an innovative culture in the workplace. We have drawn from various existing models to come up with this one. We combined aspects of the linear innovation model of Tidd and Bessant (2009) with the circular model of Deming (1950). Then we also added aspects such as internal organisational influences and external environmental influences to complete our model.

This is the result:

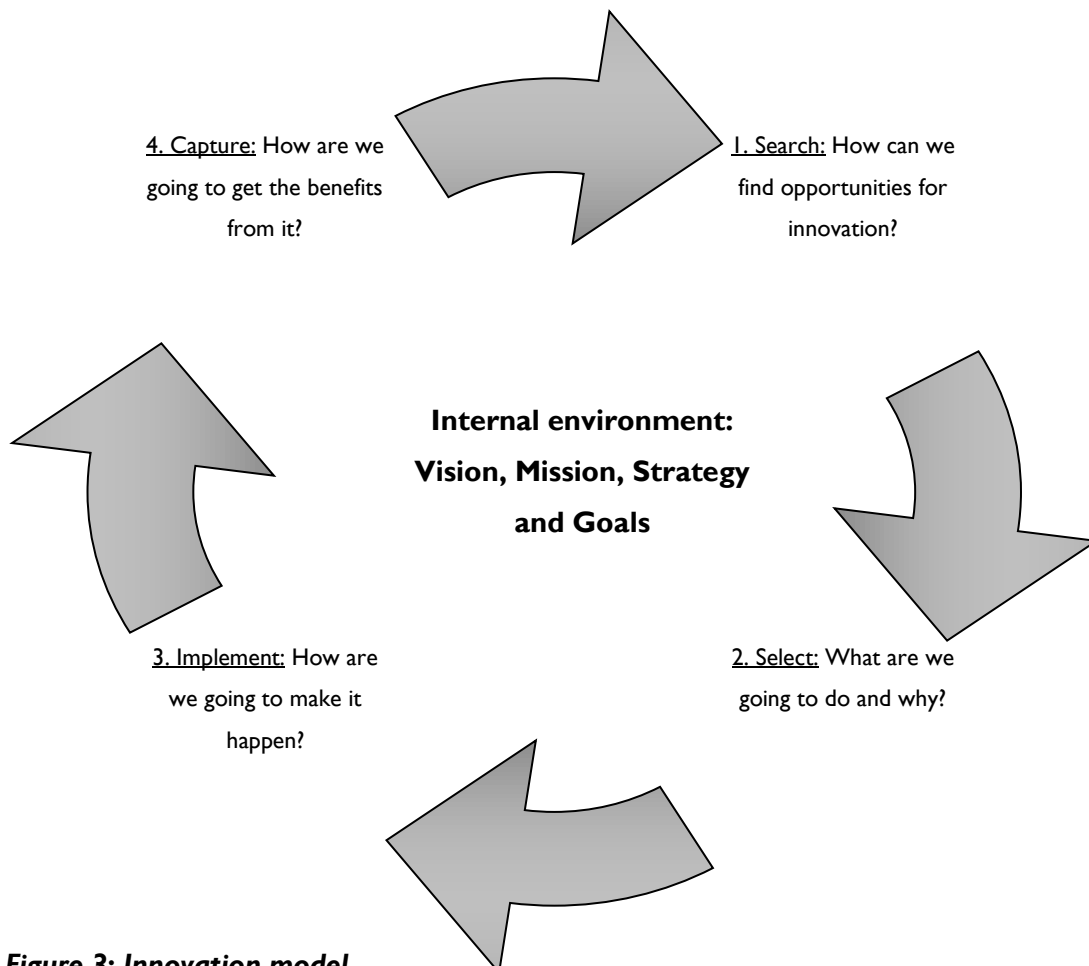


Figure 3: Innovation model

The rest of this Learning Unit will cover each step of the innovation process, giving guidance and ideas for managers on how to create the environment conducive to innovation.

I. Search: How can we find opportunities for innovation?

The first step in innovation is detecting signals in the environment about the potential for change. These could include new technologies available, market requirements, legislative pressure, competitor pressure. Most innovations, however, result from the interplay of several forces, some are pulling forces – the need to change, others pushing forces – new opportunities.

Some detailed sources of innovation are:

- *Shocks to the system*: events which change the world and the way we think about it and force us to think in other directions
- *Accidents*: Unexpected and surprising things which offer new directions for innovation. It is told that the invention of ‘sticky notes’ came about when an employee of the 3M company got the mix for a supposedly strong glue wrong. The sticky note was then developed from this batch of wrongly mixed weak glue. This became a billion-dollar product for 3M.
- *Watching others*: innovation arising from imitating or extending what others do – benchmarking, reverse engineering, copying.
- *Recombat innovation*: Ideas and applications in one world transferred to a new context. Innovation is not always a totally new idea. It could just be that the application of an old idea changes. The concept of fusion food is a good example – the makers of Lindt chocolates have recently introduced some interesting combinations to the old world of chocolate lovers. Unusual flavors such as chilli, extreme coconut, white chocolate with vanilla pods.
- *Regulation*: Changing rules of the game push and pull innovation in new directions. The drive towards conservation of the environment, have forced many companies to relook their production processes. It has also opened markets for environmentally friendly products.
- *Advertising*: Uncovering and amplifying latent needs
- *Inspiration*: The Archimedes moment. (It is said that Archimedes was once so excited about an invention, that he jumped out of his bath, ran into the streets to tell everybody, only to realize later that he forgot to dress himself.)
- *Knowledge push*: Creating opportunity by pushing the frontiers of science forward.
- *Need pull*: Necessity is the ‘mother’ of invention and innovation. Hyundai used their ‘Touch the market’ strategy to reintroduce their ‘Santa Fe’ to the Californian market. They spent a lot of time with their customers to find out what the ‘need pull’ factors were. They spent

time shopping with them, driving their roads, activities, lifestyle etc. The result was to fulfill the need of 'glamour mums' in the design of their car.

- Users as innovators
- Exploring alternative future and opening different possibilities

To move through this step effectively, it is important to have well developed mechanisms for identifying, processing and selecting information from the environment. The routines associate with successful scanning of the environment include:

- *Sending out scouts*: Send idea hunters to the frontiers to track down innovation triggers
- *Exploring multiple futures*: Use futures techniques to explore alternative possible futures; and then develop innovation options
- *Using the web*: Harness the power of the web. Through online communities and virtual worlds to detect trends
- *Working with active users*: Team up with product and service users to see the ways in which they change and develop existing offerings
- *Deep diving*: Study what people do, instead of what they say they do.
- *Probe and learn*: Use prototyping as a mechanism to explore emergent phenomena and act as boulder object to bring key stakeholders into the innovation process.
- *Mobilize the mainstream*: Bring mainstream users into the product and service development process.
- *Corporate venturing*: Create and deploy venture units
- *Corporate entrepreneurship and intrapreneuring*: Stimulate and nurture the entrepreneurial talent inside the organisation.
- *Use brokers and bridges*: Cast the ideas bet far and wide and connect with other industries
- *Deliberate diversity*: Create diverse teams and a diverse workforce
- *Idea generators*: Use creativity tools

The need for multiple approaches in the search for innovative ideas is very important. The challenge for management is to recognize that multiple methods when doing the search for innovation and choosing the correct method for the specific search. There are no rules in terms of which methods suits when – it is rather a question of management wisdom.

In the search phase it is imperative to become part of a network. Different kinds of networks include project teams, communities of practice, sectorial forums etc. (methods of idea generation – creativity tools)

2. Selection: What are we going to do and why?

Even the healthiest organisation cannot take unlimited risks, ie. Ideas must be selected. Only the best ideas that contribute towards the strategy of the company can be chosen. The purpose of this step is to develop the input into an innovative concept which can later be implemented.

This phase has three inputs:

- The flow of signals from the environment
- The current knowledge base within the organisation
- The 'fit' of the innovative concept in the overall organisational strategy

The innovation decision making process is more complex than a 'normal' decision making process where all the alternatives are clearly defined. Innovation by its nature is about uncertainty – so we do not know in advance if the innovation will work.

The only way to gain certainty is to start with the project and learn as we go along. So, innovation decision-making is a matter of calculating as best we can the risks associated with different options. The question could arise: 'Is innovation any different from gambling?'. Although some may argue that there are a lot of similarities, we like to believe that the management of innovation enables an organisation to ensure that these is a well calculated one.

This is what the funnel of innovation teaches us:

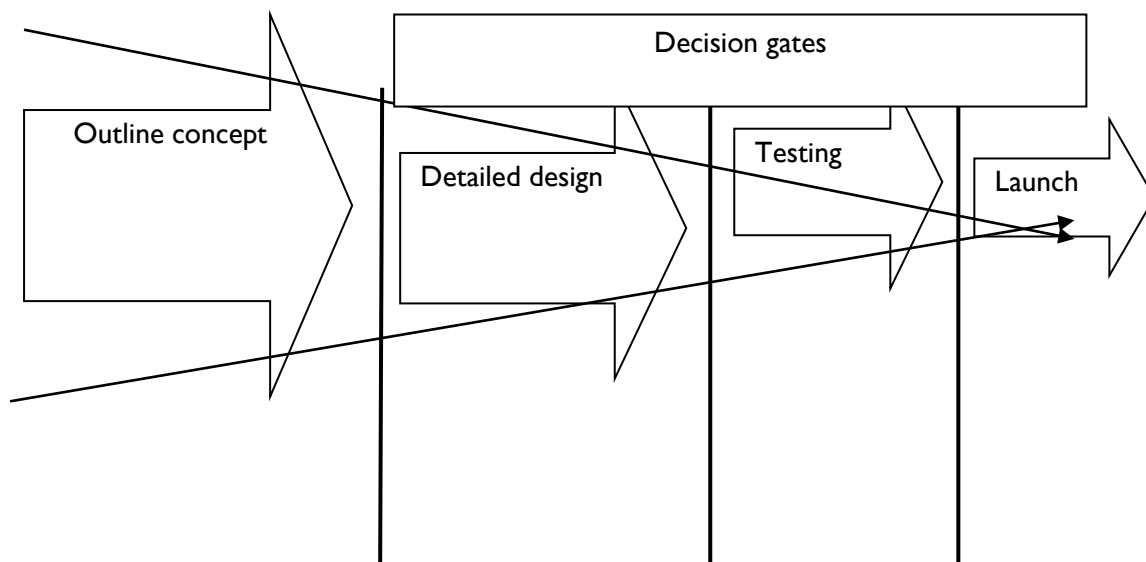


Figure 4: The innovation funnel (adapted from Tidd & Bessant, 2009)

Given this model, it is wise to not commit too much resources to a very uncertain project from the start, but rather to increase resources gradually as the project becomes more viable. It thus involves putting a series of 'gates' up to ensure that the resources are allocated step by step as the project shows success at the completed stage. If we look at the model above, the 'Stage gate system' would involve to put a gate of decision making after each arrow/stage, in other words to evaluate our progress and decide on our next actions, including what resources we need to allocate for the next stage.

The building of a business case could be part of the selection phase, but could also overlap with the next phase, which is implementation. This involves making a proposal to management which they will find attractive enough to allocate enough resources towards. Part of this phase could also involve the testing of the innovation in an experimental environment, i.e. simulation or prototyping.

3. Implementing: How are we going to make it happen?

After picking up the environmental signals and making the strategic decision to pursue the idea, the next step is to put the potential idea into reality. This phase consists of problem finding and solving, building up knowledge and competence to implement the ideas.

The three core elements of the implementation phase are:

- Acquiring knowledge: This step involves combining existing knowledge with new knowledge to offer a solution to the problem
- Executing the project
- Launching and sustaining the innovation

This phase be a funnel, moving from broad exploration to narrowed down problem solving and then solution phases. This is often the phase where the most problems with input and communication is experienced. This phase is also where the most time and money are spent, and which needs the highest level of commitment from participants.

4. Capture: How are we going to get the benefits from it?

The purpose of innovation is to get value from it, like commercial success, market share, cost reduction, changing the world.....

This step can be done in many ways. Starting with the most formal, such as patenting to the less formal such as the use of tacit knowledge.

Even if the first-round fail, it offers useful knowledge for future innovations – if we have captured the first process well. This learning can be technological or process learning. It takes a mature organisation to learn from their mistakes instead of only trying to fix blame.



Group Formative Exercise 9

Time Frame: 60 min

Learning Unit3: Creative Thinking Techniques

Unit Standard	
252020	Create and manage an environment that promotes innovation
Specific Outcomes	
SO2: Demonstrate an understanding of the techniques for promoting creativity	
SO4: Lead a team through a creative thinking process	
Learning Outcomes	
At the end of this module, you will demonstrate an understanding of:	
<ul style="list-style-type: none"> • Applying the following creative thinking techniques • Visualisation • Reverse thinking • Mind mapping • Scenario planning • Brainstorming • Idea generation questioning • Think tank • Block busting • Apply a Problem-solving model, using the above techniques 	
Critical Cross-field Outcomes	
<ul style="list-style-type: none"> • Identifying • Working • Organising • Collecting 	<ul style="list-style-type: none"> • Communication • Science • Demonstrating • Contributing

INTRODUCTION

In both the search phase as well as the selecting phase of innovation, it is necessary to generate ideas. In order to do this effectively, it is important to know and be able to use thinking techniques, either individually or in groups. The purpose of this Learning Units to introduce you to some thinking techniques which can be used to enhance your innovation process.

Applying Thinking Techniques

In a planning process, there are four fundamental questions:

- “Where are you now?”
- “Where are you going?”
- “Where do you want to be?” and
- “How are you going to get there?”

Visual ways of addressing these types of questions help the mind "to see." Seeing can help identify issues and opportunities, organize information, prioritize, clarify thinking and set goals on a personal and / or organizational level.

While there are many different thinking processes, the basic process involves expanding on ideas using key words and branches. The objective is to make a complex or thorny topic easier to understand, explore or remember. Did you know that dealing creatively with problems could be your way to developing intuition, healing relationships, empowering your organization, evolving the brain to a new level and personal transformation?

Problems, according to conventional ways of thinking, are obstacles to a goal. We learn to live with the unsolved ones which grow into the crises which dominate our lives. Creative thinking reverses this order and alters our perception of a difficult situation. A problem becomes a challenge and then, an opportunity. Creative thinking alone sees such opportunities.

Technique I: Visualization

A vision can be a mental picture of an "ideal" organization, relationship or life. Studies have shown that we are more likely to reach an objective if we can see it and can imagine the steps to reach it. Visioning is a common strategy in sports. Olympic skaters imagine themselves going through the steps and landing a perfect jump.

Visual thinkers create pictures or models of a problem in their mind, play with the visual, move it around, refine it and use it to raise more questions. A drawing or model helps push thinking further. Albert Einstein imagined himself traveling through the universe as a "man in a box" on a ray of light. This vision helped him develop the theory of general relativity. Visualization is the art and skill of creating a mental model of an event or situation. It is controlled, directed and purposeful. Peak performers visualize more and better than do others. They may have learned spontaneously to visualize events in vivid detail.

How Visualization Works: The body cannot distinguish between an event which is experienced and one which is vividly imagined. We cannot think or imagine without some level of physical response occurring. In visualization, thoughts and images lead to neurological patterns, which in turn, lead to muscular responses. With the repetition of a sequence of thoughts and images, in other words visualization, the associated pattern in the nervous system is strengthened and the responses that are imagined have a higher probability of occurring in the actual situation.

Skillful Use of Images: Visualization is different from internal narration or dialogue. Although words and thoughts can help to focus images, visualization involves primarily the use of mental images, not thoughts. Images or pictures are the primary content of visualizations because words cannot be generated at a fast-enough rate to describe events as they occur. Visualization engages a different part of mind than strictly rational, linear thinking. The development of skill in visualization involves imagery control: being able to control the series of images, the rate or tempo, enhance the vividness and precision, and translating intent or desire into pictures. Visualization is focused mental work that sharpens the real skills being viewed. By developing visualization skill, you can learn to construct visualizations that are powerful mental tools.

Technique 2: Reverse Thinking

The format of reverse thinking is to ask "What If" questions. Asking "What If" questions require you to break the cardinal rule. "Never assume anything." Suspend reality for a specified time period and assume freely. Making assumptions allows you to realign relationships and consider new options. Wilder questions and assumptions, the better. Why? Because when you allow yourself to concoct wild possibilities, you give your imagination the freedom it needs to develop kernels of substance that you may be able to adapt into viable and effective solutions.

Here's an example: Several years ago, a trade association was grappling with the problem of gaining the attention of legislators. Using reverse thinking, the group considered ideas by asking itself 'what if' questions: What if they sneaked into the legislature, hidden inside a Trojan horse? What if they

kidnapped members of the legislature and spirited them away to an isolated locale, so they could have their undivided attention?

These crazy ideas obviously couldn't be implemented, but these were kernels of possibility within them: to do something that would be attention getting, in short, to create a media "splash". The group worked further on this idea and came up with such a creative and effective media program, that they found themselves "splashed" on the front page of the Wall Street Journal soon afterward. Had they not considered the crazy "What If" possibilities, such a media campaign might never have occurred?

Using Reverse Thinking to Map Your Vision: You might be surprised by some of the innovative solutions that come from "What If" questioning. And when you're mapping out a vision for your organisation or yourself this technique can be extremely powerful. You might start by drawing a picture of how you see your business in the future – three, five or ten years from now. Be as detailed as possible. Include all facets of your life, organisation, people, products, customers. Your picture can be symbolic or realistic, colorful or monotone. When it's complete, hold it up and look at it intently. What elements within the picture surprise you? What new relationships are suggested? New products or services? Take these new thoughts and create "What If" questions out of them. What if your organisation was to become the largest market-share holder in Central Africa three years from now? What if your current cash cow was to be overtaken by your other products and services? What if your current customer base were to shrink by 20 % over the next five years?

These powerful questions can lead you to a whole new realm of possibilities and provide solid goals for you to work toward. Combine these goals with the power of technology and your business can be a major player!

Technique 3: Mind Mapping

Mind mapping is a very powerful technique for improving the way you take notes. By using mind maps you show the structure of the subject and linkages between points as well as the raw facts contained in normal notes. Mind maps hold information in a format that your mind will find easy to remember and quick to review.

Mind maps abandon the list format of conventional note taking. They do this in favour of a two-dimensional structure. A good mind map shows the 'shape' of the subject, the relative importance of individual points and the way in which one fact relates to the other.

Mind maps abandon the list format of conventional notes, often taking up one side of paper. This helps you to make associations easily. If you find out more information after you have drawn the main mind map, then you can easily integrate it with little disruption.

Mind maps are also useful for summarizing information; consolidating information from different research sources; thinking through complex problems and presenting information that shows the overall structure of your subject.

Mind maps are very quick to review, as it is easy to refresh information in your mind just by glancing at one. Mind maps can also be effective mnemonics. Remembering the shape and structure of mind map can provide the cues necessary to remember the information within it. They engage much more of the brain in the processes of assimilating and connecting facts than conventional notes.

Example of a mind map on time management skills:

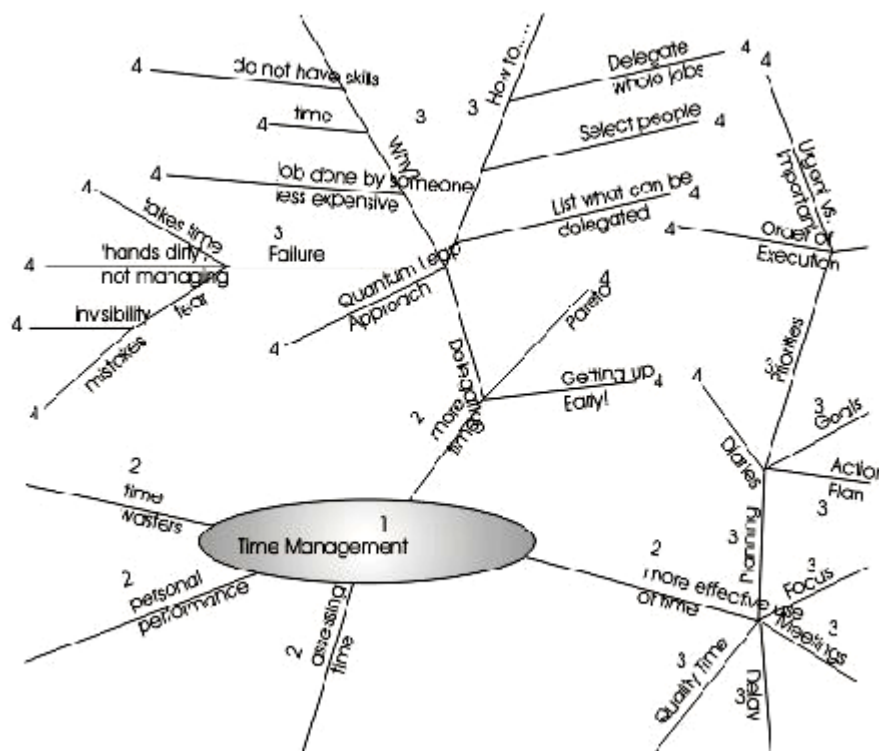


Figure 5: Mind Map

A complete mind map may have main topic lines radiating in all directions for the center. Sub-topics and facts will branch off these, like branches and twigs from the trunk of the tree. You do not need to worry about the structure produced, as this will evolve of its own accord.

Mind Mapping Method

To make notes on a subject using a mind map, draw it in the following way:

- Draw a circle in the middle of a blank sheet of paper and write a project, goal, dream or idea in the center of the circle.
- For the major subject headings, draw lines (spokes or branches) radiating out from the central circle. Label these lines with the subheadings.
- If you have another level of information belonging to the subheadings, draw these and link them to the subheadings
- For individual facts, thoughts or ideas draw lines out from the appropriate heading line and label them.
- Next, translate the ideas to an outline form and try to create some action steps based on your thinking.
- As you come across new information, link it into the mind map appropriately.

Technique 4: Scenario Planning

Scenario planning looks at what's going to happen tomorrow. It's focused on understanding what the future will look like. Scenario planning encourages business leaders to imagine not just one, but a variety of future possibilities. Scenario planning is an outstanding way to learn about the future through a deeper understanding of the major driving forces affecting all of us today.

In a group setting, executives engaged in scenario planning exchange knowledge and ideas, constructing a selection of "future stories" that expand their understanding of the current business environment and broaden their perception of future events.

"Driving forces," the most significant trends likely to affect the larger world, generally represent four categories:

- **Society** - Demographics, lifestyle changes, etc.
- **Economics** - Industry changes, competitive forces, changes in workforce, etc.
- **Politics** - Electoral, legislative, regulatory
- **Technology** - Innovations, etc.

Within this overall grouping are predetermined elements (large-scale forces that are relatively stable and predictable, such as population demographics) and critical uncertainties (forces that we can't predict, such as natural disasters, shifts in consumer tastes, new products devised by the competition, and so on).

The goal in scenario planning isn't to create one specific future. Instead, by drawing attention to key drivers and exploring how they push the future in different directions, planners create an array of possible futures resulting in the ability to make crucial decisions today.

Scenario Planning: The Process

The basic approach in scenario planning is two-folded:

- **Know your core competencies.** The starting point for any future thinking is knowing your strengths as they exist right now. Know your organization's strategic advantage as well in the marketplace.
- **Identify forces and trends.** Has your company taken the time to seriously pinpoint forces that affect your financial performance - now and in years to come?

In some industries, the driving forces are obvious, for example, the dominant influence of political and environmental sentiments on the forest industry. In the coming years, what if the environmental lobby becomes stronger or, conversely less influential?

Think about the Internet, which facilitates communication to and from any locality in the world. Now we don't need central meeting spaces any longer. How is your business different when all your customers and suppliers, as well as your competition, is in the same room and can talk to each other at the same time?

Guidelines to Constructing Scenarios

- **Look for patterns** - As you devise different versions of the future, look for common threads and / or underlying similarities.
- **Tell a story** - Convert apparently random scenarios into plausible, coherent stories.
- **Imagine, don't predict** - Don't confuse scenarios with predictions.
- **Test the impact** - What are the consequences for your company of each different scenario?
- **Break free of stereotypes** - Use scenario planning to challenge inbred or conventional assumptions.

- **Define a timeframe for each scenario.** Some events may occur in 20 years, some in two. But we can't work with indefinite, open-ended scenarios.
- **Determining how many scenarios to develop** - one, three or five. Five is the ideal number, although the disadvantage is that this is expensive, complex and time-consuming. A smaller, agile company should pick three and get going.
- **Include a wide variety of role players in scenario planning** – diverse in terms of gender, culture, organisational level. Suppliers, strategic partners and major customers could also be included

By postulating different views of where your business is headed, you gain a sharper sense of the environment you're working in. It's a great way to avoid being overly conservative in your thinking. You don't want to limit your organization's potential in today's competitive marketplace.

Through scenario planning, a business can take these pro-active steps:

- Identify internal and external factors currently affecting organizational performance.
- Draw company employees into a shared vision of the future.
- Devise contingency plans to respond appropriately to external changes.
- Challenge long-held internal beliefs.
- Incorporate the effects of change into long-range planning.

As a result of scenario planning, people within the company generally feel more confident about the future. There's less fear about what lies on the horizon. Instead, employees feel more empowered and flexible as events unfold around them.

Scenario planning is also useful for:

- Help anticipate change;
- Predict the elements of different scenarios and;
- Develop strategies to be able to shape possible future.

Technique 5: Brainstorming

Brainstorming is an excellent way of developing many creative solutions to a problem. It works by focusing on a problem and then coming up with very many radical solutions to it. Ideas should deliberately be as broad and odd as possible and should be developed as fast as possible. Brainstorming is a lateral thinking process. It is designed to help you break out of your thinking patterns into new ways of looking at things.

Group brainstorming can be very effective as it uses the experience and creativity of all members of the group. When individual members reach their limit on an idea, another member's creativity and experience can take the ideas to the next stage. Therefore, group brainstorming tends to develop ideas in more depth than individual brainstorming.

Brainstorming in a group can be risky for individuals. Valuable but strange suggestions may appear stupid at first sight. Because of such, you need to chair sessions tightly so that uncreative people do not crush these ideas and leave group members feeling humiliated.

Brainstorming is an idea generating technique. Its main goals are:

- To break us out of our habit-bound thinking; and
- To produce a set of ideas from which we can choose.

Brainstorming is useful for attacking specific (rather than general) problems and where a collection of good, fresh, new ideas (rather than judgment or decision analysis) are needed.

Brainstorming Guidelines

1. Suspend judgment: This is the most important rule. When ideas are brought forth, no critical comments are allowed. All ideas are written down. Evaluation is to be reserved for later. We have been trained to be so instantly analytic, practical, convergent in our thinking that this step is very difficult to observe, but it is crucial. To create and criticize at the same time is like watering and pouring weed killer onto seedlings at the same time.

2. Think freely: Freewheeling, wild thoughts are fine. Impossible and unthinkable ideas are fine. In fact, in every session, there should be several ideas so bizarre that they make the group laugh. Remember that practical ideas very often come from silly, impractical, impossible ones. By permitting yourself to think outside the boundaries of ordinary, normal thought, brilliant new solutions can arise. Some "wild" ideas turn out to be practical, too.

3. Tag on: Improve, modify, and build on the ideas of others. What's good about the idea just suggested? How can it be made to work? What changes would make it better or even wilder? This is sometimes called piggybacking, hitchhiking, or ping ponging. Use another's idea as stimulation for your own improvement or variation. As we noted earlier, changing just one aspect of an unworkable solution can sometimes make it a great solution.

4. Quantity of ideas is important: Concentrate on generating a large stock of ideas so that later they can be sifted through. There are two reasons for desiring a large quantity. First, the

obvious, usual, stale, unworkable ideas seem to come to mind first, so that the first, say, 20 or 25 ideas are probably not going to be fresh and creative. Second, the larger your lists of possibilities, the more you will have to choose from, adapt, or combine. Some barnstormers aim for a fixed number, like 50 or 100 ideas before quitting the session.

Brainstorming Process

1. Choose a recorder: Someone must be put in charge of writing down all the ideas. Preferably, the ideas should be written on a board or butcher papered walls so that the whole brainstorming group can see them. Lacking this, ideas should be put down on paper. In an ideal session, the recorder should be a non-participant in the brainstorming session, since it's hard to be thoughtful and creative and write down everything at the same time. But in small sessions, the recorder is usually a participant, too.

For a one-person brainstorming session, using an idea map on a large piece of paper is useful. Butcher paper on the walls is good, too. Large writing helps keep your ideas in front of you.

2. Organize the chaos: For groups of more than three or four, have a moderator to choose who will offer an idea next, so that several people don't speak at once? The moderator should prefer those with ideas that tag onto previous ideas, then those with new ideas. If necessary, the moderator will also remind members of the group not to inject evaluation into the session (in case a member tasks, sneers, says, "Oh, come on," and so forth).

3. Keep the session relaxed and playful: The creative juices flow best when participants are relaxed and enjoying themselves and feeling free to be silly or playful. Eat popcorn or pizza or ice cream or make paper airplanes or doodles while you work, even if the problem itself is deadly serious like cancer or child abuse. Don't keep reminding everyone that "this is a serious problem" or "that was a tasteless joke." As an aid to relaxation and stimulation to creativity, it is often useful to begin with a ten-minute warm-up session, where an imaginary problem is tackled.

Thinking about the imaginary problem loosens people up and puts them into a playful mood. Then the real problem at hand can be turned to.

Some imaginary problem topics might include these:

- How to heat a house more efficiently.
- How to light a house with a single light bulb.
- How to improve your travel from home to work.
- Inventing a new game for the Olympics.
- How to improve institutional food without increasing its cost.

4. Limit the session: A typical session should be limited to about fifteen or twenty minutes. Longer than that tends to become dragging. You should probably not go beyond thirty minutes, though thirty is the "ideal" length.

5. Make copies: After the session, neaten up the list and make copies for each member of the session. No attempt should be made to put the list in any order.

6. Add and evaluate: The next day (not the same day) the group should meet again. First, ideas thought of since the previous session should be shared (entered on the photocopied lists). Then the group should evaluate each of the ideas and develop the most promising ones for practical application.

During the evaluation session, wild ideas are converted to practical ones or used to suggest realistic solutions. The emphasis is now on analysis and real-world issues. Some brainstormers divide the ideas found to be useful into three lists:

A - Ideas of immediate usefulness: These are the ideas you will be able to use right now.

B - Areas for further exploration: These are ideas that need to be researched, followed up, thought about, and discussed more fully, and so on.

C - New approaches to the problem: These are ideas that suggest new ways of looking at the situation.

Note here that evaluation does not take place on the same day as the brainstorming session. This fact keeps the idea session looser (no fear that evaluation is coming soon) and allows incubation time for more ideas and time for thinking about the ones suggested.

Brainstorming Variations

Stop and Go: For stop and go brainstorming, ideas are generated for three to five minutes. Then the group is silent (and thinking) for three to five minutes. Then ideas are given out for another three to five. This pattern alternates for the entire session.

Sequencing: In this technique, the moderator goes in order from one member of the group to the next in turn or sequence. Each member gives whatever ideas he then has, and they are written down. If a member has no ideas, he just says, "Pass," and the next member responds. This movement in turn or around the table continues throughout the session. (Sequencing has been said to nearly double the number of ideas generated in a brainstorming session.)

Technique 6: Idea Generating Questions

Asking questions to stimulate curiosity and creativity has proven helpful for all kinds of endeavors, whether problem solving, product development, inventing or communication. A written list of mind-stimulating questions is useful because it reminds us of approaches and possibilities that we otherwise would not have in mind. Yes, it is sometimes possible to be creative in a thorough and even orderly way.

5 W & H Questions

These are the six key questions that can be used for creative thinking, these questions stimulate thinking about the idea in question and allow approaches to it from various angles.

Who? (Actor or Agent) Who is involved? What are the people aspects of the problem? Who did it, will do it? Who uses it, wants it? Who will benefit, will be injured, will be included and will be excluded?

What? (Act) What should happen? What is it? What was done, ought to be done and was not done? What will be done if X happens? What went or could go wrong? What resulted in success?

When? (Time or Timing) When will, did, should this occur or be performed? Can it be hurried or delayed? Is a sooner or later time be preferable? When should the time be if X happens?

Where? (Scene or Source) Where did, will, should this occur or be performed? Where else is a possibility? Where else did the same thing happen, should the same thing happen? Are other places affected, endangered, protected, and aided by this location? Effect of this location on actors, actions?

Why? (Purpose) Why was or is this done, avoided, permitted? Why should it be done, avoided, permitted? Why did or should actor do it? Different for another actor, act, time, place? Why that particular action, rule, idea, solution, problem, disaster and not another? Why that actor, time, location, and not another?

How? (Agency or Method) How was it, could it be, should it be done, prevented, destroyed, made, improved, altered? How can it be described, understood? How did beginning lead to conclusion?

These questions are especially useful for generating ideas for improving something (the evolutionary approach), but they also help to break thinking out of the evolutionary mode and put it into the

revolutionary mode by returning the thinker to the origin and purpose of the idea or solution. By returning to the roots of the problem, a new vision can be created.

What Questions to Ask When

Questions about a physical object:

- What are its physical characteristics?
- What sort of structure does it have?
- What other object is it like?
- How does it differ from things that resemble it?
- Who or what produced it?
- Who uses it? For what?

Questions about events:

- ❖ Exactly what happened (who, what, when, where, why, how)?
- ❖ What were its causes?
- ❖ What were its consequences?
- ❖ How is this event like or unlike similar events?
- ❖ To what other events was it connected?
- ❖ How might the event have been altered or avoided?

Questions about abstract concepts:

- How has the concept or term been defined by others?
- How do you define the term?
- What other concepts have been associated with it?
- In what ways has this concept affected the lives of people?
- How might the concept be changed to work better?

Questions about propositions:

- ✚ What must be established before readers will believe the proposition?
- ✚ What are the meanings of the key words in the proposition?
- ✚ By what kinds of evidence can the proposition be proved or disproved?
- ✚ What counterarguments must be confronted and refuted?
- ✚ What are the practical consequences of the proposition?

Note: Any complex topic will require you to begin with one kind of questioning and then move to another.

Technique 7: Think Tank

The term "think tank" (some prefer "reflection pool") is a relatively new. Most reference sources define a think tank in terms of an organization or group focused on the resolution of a problem or task, particularly in the realms of science and technology. However, it is believed that the think tank is better defined in terms of a process rather than a structure. Therefore, for the purpose of these guidelines, a think tank is defined as a process for in-depth consideration of issues and challenges whose relevance reaches beyond the individual person or program and the immediate time frame.

Key to the definition and the process itself are the concepts "in-depth" and "beyond the individual and immediate." An in-depth approach seeks not just to list but to analyze potential factors or proposed solutions. It releases and identifies underlying assumptions, and even challenges their essential validity. Participants must learn to question the question itself. Restated, the in-depth process goes beyond "how" to "why" and beyond "what" to "what if."

"Beyond the individual..." suggests a willingness to deliberately sacrifice relatively quick, concrete answers and solutions in favour of longer-term benefits and visionary ideas for a larger future.

Think Tank Technique

To illustrate, a starting question might be "how can we train paid staff on the utilization of volunteers?" In a straightforward problem-solving session, the group might immediately brainstorm possible approaches, then prioritize, evaluate and establish a plan for implementation. By contrast, a think tank might produce some unsettling but potentially energizing responses, such as:

- Will training help if they are not first motivated to work with volunteer staff?
- Why do we always assume that improving paid and volunteer staff relations means primarily educating the paid staff (rather than volunteers)?
- After decades of frustration, why are we still trying to get volunteers genuinely welcomed as partners with paid staff?
- Would the energy be better spent developing new avenues of direct volunteer services, e.g., entirely volunteer groups?

Such samples demonstrate why think tanks and think tankers are often misunderstood by more conventional or task-orientated individuals.

Of course, there is still room for problem solving in a think tank, but it is rarely all of it. Likewise, a think tank may produce a practical, specific action plan, although it should not be considered a necessary outcome.

What Can Be Expected from Think Tanks?

Unrealistic exceptions can poison any process, especially think tanks. From prior think tank participants, the following are some reasonable, expected outcomes:

- General mental challenge.
- Consciousness rising.
- Shift in focus / new approaches / fresh perspectives.
- Creative ideas.
- New and better questions and problem statements.
- Support and understanding of colleagues.
- Catharsis / ventilation.
- Renewal and rededication.

No one should expect all of these and every participant will bring their own set of expectations based on their own needs and ideas. Actual experience will differ from person to person and session to session.

The personal tone indicated in the above list is reflective of many think tanks or reflection pool sessions. Such a tone is to be expected when people in small groups are encouraged to take both emotional and intellectual risks with conventional assumptions, close to bedrock of personal and social values.

Target Group

Leaders of volunteers, community groups, non-profits, etc., who is:

- Mature and self-disciplined.
- Willing to share.
- Willing to take risks.
- Experienced.
- Visionary and creative.
- Explorers and chronic questioners.

- Comfortable with unconventional approaches.
- Committed to the idea and ideal of volunteerism.
- Willing to re-examine basic assumptions.
- Seekers of a broader perspective.

In most cases, the decision for participation should lie with the potential participant. Given a thorough background on what the think tank is about and for who it is and is not targeted, most individuals can make a suitable judgement of their own capacity to benefit from and contribute to the process. Some organizers prefer the invitational method of participant selection, using numerical criteria, such as number of years in leadership, education, publications, etc. However, it is believed that the important qualifications for think tank participation are based more in the character and style of the person and are far better judged from the inside (by the individual) than from the outside.

Our observation and experience suggest that some people become more rigid over the years and others more restless. Neophytes are often overwhelmed with the "how-to" and cannot devote time or effort to the "why's" and "what if's." However, their newness can just as likely infuse a group with fresh approaches and energy.

Group Size:

Ideally groups range between five and twelve participants. Larger groups can be facilitated by using a mix of general and break-out sessions, with the general session being as large as thirty but no larger.

Time Frame:

The "ideal" think tank allows time for the participants to become acquainted, adequate time for in depth discussion and wrap-up time. A pattern utilized by most "Challenge" think tank organizers has been to start on one evening, proceed over one full day and wrap-up by mid-afternoon of the third day. This pattern allows for the basic elements to take place and is functionally compatible with most people's work week or can be conducted over a weekend. However, limited time should not be a deterrent in the initiation of this process.

Some successful think tanks have been held on a one-day basis and there have even been one-evening gatherings. Much of the successes of abbreviated sessions will depend on the participants' level of think tank experience and congeniality and the time afforded by them and the organizer in pre-session preparation.

Climate:

If there is one hard and fast rule about think tanks it is: Establish a suitable climate!!! Key elements include:

- Atmosphere should be casual and attire informal.
- Meeting place should be free from interruptions, quiet, relaxed, comfortable and pleasing to the senses. Rural retreat centers are ideal, but quiet places in town have worked, too.
- Do away with barriers; participants should sit in an open circle – no tables, please!
- An understanding that participants are both students and teachers. Each brings his or her own expertise and experience to share openly, coupled with the open-mindedness to learn and receive.
- Understanding, tolerance and support of ideas; no idea or question is stupid. Genuine risk-taking cannot take place unless there is a firm and confirmed feeling of safety in expression of personal values and ideas.
- Confidentiality is the key to success. Participants must have the freedom to speak openly without fear of repercussions.

Think Tank Sequence

The chronology of any think tank is apt to vary considerably from one group to another. The following provides an idea of the average process.

- Climate setting: as discussed previously.
- Participants introduce themselves both as resources and as seekers, either in writing before coming together, informally during the social time, and / or during the first gathering of the group. Time limits and formality are taboos. This time of getting to know each other is crucial in setting the tone.
- Discuss to clarify relevant conditions, expectations, etc.
- Loosen up the mental process by discussing and practicing one or more exercises.
- Discuss, clarify and modify the starting question(s). Whenever possible, make the starting question(s) available ahead of time (if this is the focus of the think tank). Recognize that the starting question may not be the final, "best" or key question processed. In fact, the major achievement of a think tank may be to come out with a better question.
- The process matures as the group's energy comes to bear on the issue. Identification, enumeration and analysis of possible factors revolving around the issue are raised. Typically,

this includes identification and critical examination of underlying assumptions, and sometimes recommendations for future action.

- If recommendations do occur, discuss what to do about them. Options include the group taking primary responsibility, delegating to others or simply letting go as participants, having benefited from increased insight into the problem or issue discussed. At this point, the group may wish to decide on publication or some other sharing of think tank proceedings.

Facilitating the Think Thank

- Monitor participation, assuring that everyone has an opportunity to participate and that even the quietest participant adds something. This may mean interceding and asking for that person's ideas. HOWEVER, no one should be made to feel pressured into open verbalization. There are those who learn and gain through observation. The key here is assuring opportunity.
- Balance input, nothing not just who but what is being said and seeing that all sides of issues receive equal airing. And when the issue seems too one-sided, perhaps even turning to the aforementioned "devil's advocate" just to shake things up.
- Read-the-group, more than just listens, watch all the faces and body language that may reveal a person's attitude toward topics on the table. Waking up the daydreamers, extracting the silent rage, getting the headnodders to verbalize, are all important to the success of the process.

Summary

Think tanks provide a unique opportunity for individuals and groups to expand the thinking process. Think tanks are not for the faint-hearted. Participants will have to take risks and question basic assumptions, possibly touching the shaking the very roots of their philosophy. However, once a person assumes the practice of less limited thinking, of looking beyond the now and obvious to "what if?" and "why not?" then indeed there will be no limit to the creativity, energy and visionary thinking set free.

Technique 8: Block Busting

Many people complain of not being creative when in fact their creativity has merely been blocked. Once the blocks are removed, nearly everyone can exercise a high degree of creativity. Several techniques exist which will help remove the usual blocks to creativity, but before we discuss these, we should say a few words about the blocks themselves.

Sources of Blocking

Functional obsession arises when someone is unable to see beyond the historical or accepted use for an item, often identified by its name or label. Thus, for example, a screwdriver is a tool for tightening or loosening screws, just as its name says. A person suffering from functional fixation would be unable to see any other uses for the item. But, of course, a screwdriver can also be used as a paint can opener, an ice pick, a plumb bob, a paper weight and so on.

An interesting example of how people are almost by nature functionally fixated comes from an experiment. Several people were placed in a room where a short length of pipe containing a ping pong ball was anchored in the floor. The task of the people was to remove the ball from the pipe without damaging either. Several sets of people were given this same task. For some of the sets, a bucket of water was placed on the floor.

When this was the case, over 80 percent of the groups solved the problem by pouring water into the pipe and floating the ball out. For some of the other sets, a pitcher of ice water and some drinking glasses were placed on a table in the room. When this was the case, fewer than 40 percent of the groups solved the problem by using the water in the pitcher.

The pitcher of water and the drinking glasses so fixated them on the idea of refreshment that they could not see beyond the ostensible purpose of the pitcher to its use as a solution to their problem.

Block Busting Techniques

Uses For:

This is a simple technique that can be used for mental stimulation or practical application, depending on what you have in mind at the time. It is an excellent tool for breaking you out of a functionally fixated mindset. To use this technique, think of an item or object, usually a common one like a brick, toothpick, pencil or bucket, and set the task of thinking of all the possible uses for that object, without regard to what the object is normally used for, what it is named or how it is usually thought of. Sometimes a time limit, like three to five minutes, can be given. Other times a quantity limit, like 25 to 100 can be given. All the techniques of idea generation are used, from checklist to attribute analysis to random stimulation.

For example: What are the possible uses for a brick?

Ideas: doorstop, boat anchor, build a wall, build a walk, ballast, sanding block, powder and make dye, put on white background and make a sign (red letters), nut cracker, shoes, straightedge, red chalk, stop signal (use something green like a cucumber for go), heat reservoir, leaf press, paper weight, step stool, target for shooting, children's toys, scale weight standard, distance standard, definition of red, water holder (soaked), tamper, pattern maker (in soft material), pendulum weight, bell clapper, roofing material (crushed).

Improvements to:

"Improvements to" is the counterpart of "uses for." Whereas "uses for" concentrates on using a given item, often unchanged, for multiple purposes different from the item's original purpose, the "improvements to" technique focuses on altering an item to enhance its original, given purpose. The item in question can be any of several kinds and is not limited to objects.

Objects:

The first and most obvious "thing" to improve is an object, usually something common that most people would never think of changing. The classic, textbook example item is the coffee cup. Suggested improvements have included things like multiple handles, anti-skid, anti-tip over, anti-spill (lids), built-in heater, decorations, wheels, tea bag holder on side, insulated, self-brewing, and self-cleaning.

The improvements ideally should move away from obvious bolt-on things, but we might also think about more imaginative improvements.

Places, Institutions, Things:

In addition to the object, a second kind of thing that improvements for can be applied to is a place, institution or thing. For example, list ten ways to improve a college, or a marriage, or a shopping mall, or the local church, or the road system, or communications channels (telephone, TV, radio). Improvements to these areas require more thoughtful and elaborate proposals, often involving improvements in attitudes, beliefs, behaviour, relationships, or other non-tangible things, as well as changes in physical technology. A piece of wood and a tube of glue are no longer enough to effect improvement.

Ideas:

A third area of improvement is even more removed from wood and glue: the improvement of ideas or abstractions. How can we improve art or the writing of history or the application of personal values to our actions?

In all these cases, problem exploration (an exploration and articulation of needs) is usually the first step. What is there about a coffee cup that is deficient or that could be made better? What about shopping malls do you (and most people) dislike? How is the bulk of recorded or taught history insufficient or imperfect--what keeps it from being described as excellent?

Again, remember the constructive discontent philosophy. The coffee cup, the local church, the college, art, all may be good and suitable and "satisfactory" in what they do; to look for ways to improve them should not imply condemnation or rejection.

This "either its fine or it's bad" attitude often gets in the way of thinking calmly about improvements. In personal relationships, romantic or supervisor / employee, in techniques and policies, whenever someone suggests an improvement, the typical response is, "So what's so terrible about it now?" Be sensitive, therefore, to the ego needs of the human element involved in improving things. Don't rush into the cafeteria and declare that you are there to make the putrid food edible at last - think of the people who make it now.

An Idea List of Ways to Improve Something

- Simplify - remove complexity.
- Apply to new use.
- Automate.
- Reduce cost.
- Make easier to use, understand.
- Reduce fear to own, use.
- Make safer.
- Give more performance, capacity.
- Make faster, less waiting.
- Provide more durability, reliability.
- Give better appearance.
- Create more acceptances by others.

- Add features, functions.
- Integrate functions.
- Make more flexible, versatile.
- Make lighter weight - or heavier.
- Make smaller - or larger.
- Make more powerful.
- Reduce or eliminate drawbacks, bad side effects.
- Make more elegant.
- Give better shape, design, and style.
- Provide better sensory appeal (taste, feel, look, smell, sound).
- Provide better psychological appeal (understandable, acceptable).
- Provide better emotional appeal (happy, warm, satisfying, enjoyable, fun, likable, and “neat”).
- Aim toward ideal rather than immediate goals.
- Give larger capacity.
- Make portable.
- Make self-cleaning, easy to clean.
- Make more accurate.
- Make quieter.

Note: Remember that some of the major problems in modern living are too much noise, too much information, too many decisions, too much complexity, together with a general lack of quality and reliability. Intelligent addressing of these problems in connection with your idea should produce welcome improvements to it.

Proposed Problem-Solving Model

To end off this Learning Unit about ideas generation, we propose the following Problem-solving model. Those of you, who have done the Generic Management Qualification, would have stumbled across this model in a previous course.

It is important to realize that the creative thinking techniques proposed in this Learning Unit could be combined with this problem-solving model. To assist you with this, we will propose some techniques you have already learnt when introducing this model.

We propose the following problem-solving model:

- Assess the problem
- Identify solutions
- Plan and implement solutions
- Evaluate the result

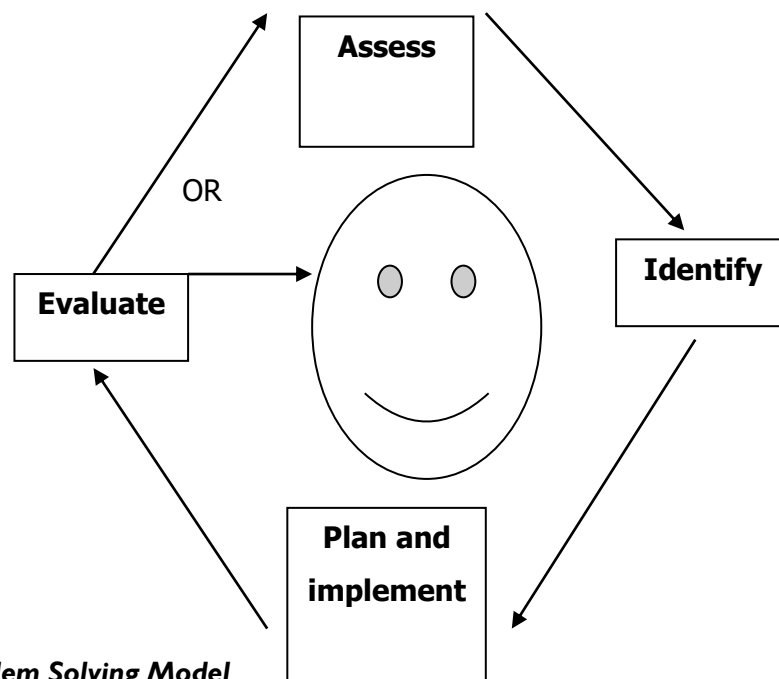



Figure 6: Problem Solving Model

Step 1: Assessment	Step 3: Plan and Implementation Solution
Become aware of the problem Gather information about the problem (<i>Block busting; mind mapping</i>) Identify the real problem / root cause (<i>5W&H questions</i>) Formulate the problem and alternative statements Look for the obvious	Plan for implementation (<i>Action plan</i>) Identify potential barriers (<i>Scenario planning, visualisation</i>) Identify potential consequences Implement solution Monitor to determine effectiveness and what should be changed or corrected


Step 2: Find Solutions	Step 4: Evaluate Outcome
Identify alternative solutions (<i>Brainstorming</i>) Gather information about solutions (<i>Scenario planning, mind mapping</i>) Choose the most effective solution (<i>Thinktank, visualisation</i>)	Has the problem been solved? Has the goal been reached? You learn from experience – both from mistakes and successes

Problem solving can be studied much more in depth. If you have done the generic management course, you would have done the in-depth problem solving and decision-making module. For the purposes of this course, you need only be able to apply the basic problem-solving techniques and apply the creative thinking techniques to it.



Group Formative Exercise 10A

Time Frame: 180 min



Individual Formative Exercise 10B

Time Frame: 30 min

Learning Unit 4: Knowledge Management

Unit Standard	
252044	Apply the principles of knowledge management
Specific Outcomes	
SO1: Demonstrate knowledge and understanding of the concepts and components of knowledge management	
SO2: Analyse a unit according to the entity's knowledge management policies and procedures	
SO3: Develop a knowledge management implementation plan for a unit	
Learning Outcomes	
At the end of this Learning Unit you will demonstrate an understanding of:	
<ul style="list-style-type: none"> • Terminology associated with knowledge management • Components of knowledge management • Stages of knowledge management • Summary of what a knowledge management system should include (checklist) 	
Critical Cross-field Outcomes	
<ul style="list-style-type: none"> ▪ Identifying ▪ Working ▪ Organising 	<ul style="list-style-type: none"> ▪ Collecting ▪ Communicating ▪ Demonstrating

KNOWLEDGE MANAGEMENT

Lots of companies have come to realize that the brainpower or intellectual capital of their employees is their competitive edge. The problem is though that a lot of companies drown in information but starve for knowledge. Knowledge management is a newly developed science of ensuring that companies leverage their knowledge bases by setting up a system to maximize the returns on all the knowledge the company has to offer.

Defining knowledge management

Knowledge management deals with the process of creating value from the organisation's intangible assets.

It involves a process of capturing, storing, and retrieving all the possible knowledge an organization has in a single data base, which in return, enables an organization to build connectivity internally as well as externally.

Internally departments can gain mutual understanding, learn from each other and become interdisciplinary 'hubs' of knowledge and innovation through an effective knowledge management system. Knowledge links to how external stakeholders also assist with mutual understanding, learning from each other and scanning the environment for innovation opportunities.

The goal of knowledge management is to create communities of practice and knowledge management forums within disciplines but also across disciplines. The concept of the Learning organization was introduced by Peter Senge in his revolutionary book: The fifth discipline in 1990. Senge said that organizations that will truly excel are those that discover how to tap people's commitment, develop the capacity to lead at all levels – he termed this 'team learning' and 'team thinking'.

TERMINOLOGY ASSOCIATED WITH KNOWLEDGE MANAGEMENT

Knowledge economy: An economy where knowledge is a critical factor of production.

Knowledge workers: A position in an organization that focus on the promotion, creation and facilitation of knowledge in order to better meet the organisation's mission, goals and objectives.

Information management: The management of facts and other data, as opposed to knowledge management, which is the broader term, including information, but also beliefs, perspectives, judgments, methodologies etc.

Knowledge assets: Assets such as knowledge about markets, products, technology which enables the organization to make a profit.

Intellectual property: IP refers to creations of the mind: inventions, literary and artistic works, and symbols, names, images, and designs used in commerce. Examples include patents, trademarks, Industrial designs, Geographical indications, Copyright.

Intellectual capital: All the knowledge, information and intellectual property which could be used in order to create wealth.

Ontology: In Information Technology ontology formally represents knowledge as a set of concepts within a domain, and the relationships between pairs of concepts.

Taxonomy: is one of those words that most people never hear or use. Basically, taxonomy is a way to group things together. Originating from Greek, taxonomy originally refers to the academic discipline of defining groups of biological organisms on the basis of shared characteristics and giving names to those groups. Applied to knowledge management, taxonomy would mean a group of concepts with shared characteristics.

Explicit, Implicit and Tacit Knowledge: In the KM literature, knowledge is most categorized as either explicit or tacit (that which is in people's heads). This characterization is however rather too simple, but a more important point, and a criticism, is that it is misleading.

A much more nuanced and useful characterization is to describe knowledge as explicit, implicit, and tacit.

- *Explicit:* information or knowledge that is set out in tangible form.
- *Implicit:* information or knowledge that is not set out in tangible form but could be made explicit.
- *Tacit:* information or knowledge that one would have extreme difficulty operationally setting out in tangible form.

THE KNOWLEDGE ECONOMY

The knowledge economy has been formed and expanding, based on the use of knowledge as unique, unrestricted and independent resource that cannot be substituted by other resources. It has transformed the knowledge into economic goods and income, in the most economic branches, not only in those directly associated to the highest technologies. Organizations have been increasingly transformed to innovation. In this case innovation has become not only the products and technology, but also the organization and interactions with customers.

The knowledge economy is characterized by the presence of a higher percentage of highly skilled employees whose jobs require special knowledge or skills. Unlike in the past, when the economy depended heavily on unskilled labor jobs and consisted primarily of producing physical goods, the modern economy is comprised more of services industries and jobs that require thinking and analysis of data.

The modern economy is also known as the post-industrial economy or the information economy – a reference to the central importance of information technology (IT), digital solutions and data.

In the new knowledge economy, the most valuable assets that a company owns are often intangible assets – such as patents, copyrights, or proprietary software or processes.

Knowledge management and competitiveness

Increasing the competitiveness of organizations and industry knowledge has enabled their sustainable economic growth and development. The knowledge-based interpretation thinks through knowledge,

as a corporate's most significant strategic resource, because this kind of asset will generate possible competitive advantages. Companies, that have more knowledge, are surely successful, but companies that use their knowledge in the right way to support strategy significantly will be even more successful. Moreover, when knowledge creates new knowledge, it can create greater value as well. In summary, the success of enterprises in the competitive marketplace relies mostly on the quality of knowledge, which is **applied** by enterprises to their key business processes. What gathering, managing and applying knowledge does to promote competitiveness are:

- **Competition:** the market is an increasingly high competitive area and knowledge-based management has been developing day by day. Therefore, where knowledge is developed and applied fast, a company are more competitive with services, product and relationships.
- **Customer focus:** The aim of each enterprise is developing value for customers. Knowledge development stimulates innovation and innovation bring better solutions and enhances the value proposition.
- **The challenge of a mobile employee:** employees have started to be retired sooner and the trend is increasing. This increasing mobility has led to loss of knowledge. Companies that manage knowledge reduces that impact of loss of expertise significantly by (i) replacing it in time/ transferring it to the younger generation and (ii) by keeping the know how in accessible data basis for the use of the next generation.
- **The global imperative:** because of globalization, enterprises have gotten foreign customers and supplier. Therefore, they need to create effective knowledge management as well to deal with other competitors.

Simply put: Organizations that manages to stay at the forefront of discovering new knowledge, have continuous learning and find ways in which to turn the learning into new goods and services, are the organizations that will be most competitive.

RESULTS OF MANAGING KNOWLEDGE

Knowledge management is a systematic approach to capturing and making use of a business' collective expertise to create value. The potential advantages of effective knowledge management are significant but, as with most processes, there are certain challenges to consider.

Some of the common **benefits of knowledge management** include:

- improved organisational agility
- better and faster decision making
- quicker problem-solving
- increased rate of innovation
- supported employee growth and development
- sharing of specialist expertise
- better communication

- improved business processes

A good knowledge management system will make it easy to find and reuse relevant information and resources across your business. This, in turn, can help you to:

- create better products and services
- develop better strategies
- improve profitability
- reuse existing skills and expertise
- increase operational efficiency and staff productivity
- recognise market trends early and gain an advantage over your rivals
- benchmark against your competitors
- make the most of your collective intellectual capital

DRIVERS OF THE KNOWLEDGE ECONOMY

The World Bank defines knowledge economies according to four pillars:

1. Institutional structures that provide incentives for entrepreneurship and the use of knowledge, in plain language: mechanisms of training, development and research
2. Availability of skilled labor and a good education system
3. Access to information and communication technology (ICT) infrastructures
4. A vibrant innovation landscape that includes academia, the private sector, and civil society working together to improve and renew systems.

KEY SUCCESSFACTORS ASSOCIATED WITH KNOWLEDGE MANAGEMENT

To better understand knowledge management, Liebowitz (1999) named the following aspects as the foundation of a knowledge management system:

- Organisations must create a knowledge sharing environment. Some do it by providing incentives, others by building it into the performance review. A study of 150 companies showed that people are not reluctant to share knowledge, but rather reluctant to use other people's knowledge, because they cannot put their personal stamp on it.
- Top management needs to be committed and put high value on knowledge sharing. Some methodologies to do this will be discussed in this module.
- It is important to distinguish between knowledge management and information management – they are not the same. Knowledge is information with a process applied to it so that it becomes wisdom or expertise. So, the IT process of storing information may be one aspect of knowledge management but cannot by itself be creating wisdom/expertise. The graph below explains this:
- Knowledge management is not something that can be done on the side-line; it needs to be integrated in the mainstream of organisation.

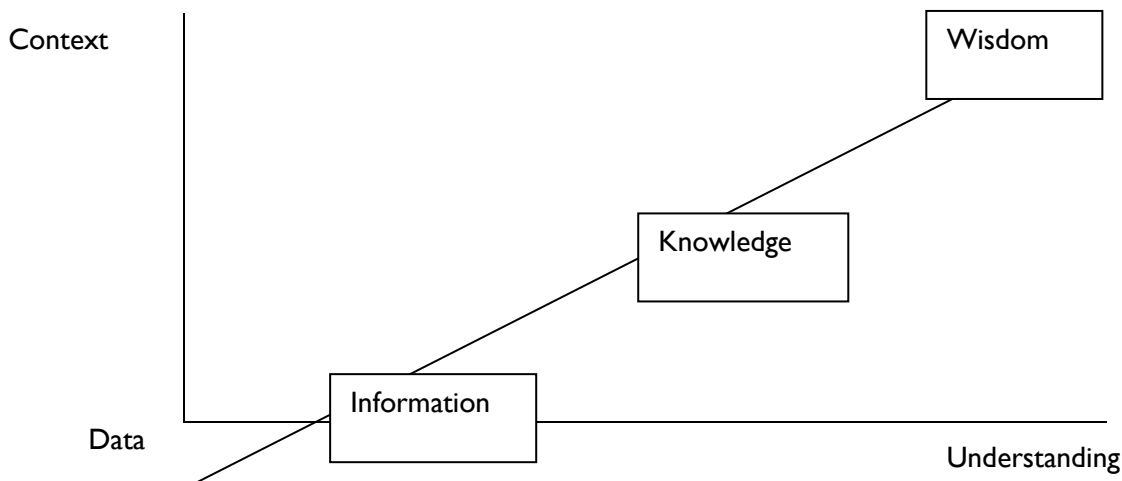


Figure : Evolution of knowledge (Bellinger, G 2004)

The value of Knowledge Management relates directly to the effectiveness with which the managed knowledge enables the members of the organization to deal with today's situations and effectively envision and create their future. Without on-demand access to managed knowledge, every situation is addressed based on what the individual or group brings to the situation with them. With on-demand access to managed knowledge, every situation is addressed with the sum of everything anyone in the organization has ever learned about a situation of a similar nature. Which approach would you perceive would make a more effective organization?

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COMPONENTS OF A KNOWLEDGE MANAGEMENT SYSTEM

A successful knowledge management program will consider these five areas:

- **People.** Your program should increase the ability of individuals within the organization to influence others with their knowledge.
- **Processes.** The processes you establish should include a practical and efficient way for the accurate identification, management and dissemination of knowledge.
- **Technology.** The technology you choose should enhance how you configure and use tools and automation to enable knowledge management. How will you store the knowledge/ lessons learnt and how will people be able to access it? Think of Whats app groups, emails, folder on the computer, a data base, etc.

- **Structure.** Organizational structures should transform to facilitate and encourage cross-discipline awareness and expertise. Think about the role players and what their roles would be.
- **Culture.** Your organization should establish and cultivate a knowledge-sharing, knowledge-driven culture for long-term success. How do you establish a culture of innovation and learning? Think posters, communicate's, weekly meetings, a 'learning notice board' etc.

WHAT DOES KM REALLY CONSIST OF?

So, what is involved in KM? The most obvious point is the making of the organization's data and information available to the members of the organization through portals and with the use of content management systems. Content Management, sometimes known as Enterprise Content Management, is the most immediate and obvious part of KM. To see the detailed list of contents, refer the end of this Learning Unit that summarises a checklist for the contents of a knowledge management system.

In addition to the obvious, however, there are three very important components are:

I. Lessons Learned Databases

Lessons Learned databases are databases that attempt to capture and to make accessible knowledge that has been operationally obtained and typically would not have been captured in a fixed medium. In the KM context, the emphasis is typically upon capturing knowledge embedded in persons and making it explicit.

Early in the KM movement, the phrase typically used was "best practices," but that phrase was soon replaced with "lessons learned." The reasons were that "lessons learned" was a broader and more inclusive term and because "best practice" seemed too restrictive and could be interpreted as meaning there was only one best practice in a situation.

The implementation of a lessons learned system is complex both politically and operationally. Many of the questions surrounding such a system are difficult to answer. Who is to decide what constitutes a worthwhile lesson learned? Are employees free to submit to the system un-vetted? Most successful lessons learned implementations have concluded that such a system needs to be monitored and that there needs to be a vetting and approval mechanism before items are mounted as lessons learned.

How long do items stay in the system? Who decides when an item is no longer salient and timely? Most successful lessons learned systems have an active weeding or stratification process. Without a clearly designed process for weeding, the proportion of new and crisp items inevitably declines, the system begins to look stale and usage and utility falls. Deletion, of course, is not necessarily loss and

destruction. Using stratification principles, items removed from the foreground can be archived and moved to the background but still made available.

All these questions need to be carefully thought out and resolved, and the mechanisms designed and put in place before a lessons-learned system is launched. Inattention can easily lead to failure and the tarring of subsequent efforts.

2. Expertise Location

If knowledge resides in people, then one of the best ways to learn what an expert knows is to talk with that expert. Locating the right expert with the knowledge you need, though, can be a problem. The basic function of an expertise locator system is straightforward: it is to identify and locate those persons within an organization who have expertise in an area. Such systems were commonly known as "Yellow Page" systems in the early days of KM. In recent years, the term expertise locator or expertise location has replaced yellow pages as being rather more precise.

There are now three areas which typically supply data for an expertise locator system, employee resumes, employee self-identification of areas of expertise, typically by being requested to fill out a form online, or by algorithmic analysis of electronic communications from and to the employee. The latter approach is typically based on email traffic but can include other social networking electronic communications such as Twitter and Facebook.

Commercial packages to match queries with expertise are available. Most of them have load-balancing schemes so as not to overload any expert.

Typically, such systems rank the degree of presumed expertise and will shift a query down the expertise ranking when the higher choices appear to be becoming overloaded. Such systems also often have a feature by which the requester can flag the request as a priority, and the system will then try to match higher priority requests with higher presumed (calculated) expertise rank.

3. Communities of Practice (CoPs)

CoPs are groups of individuals with shared interests that come together in person or virtually to tell stories, to share and discuss problems and opportunities, discuss best practices, and talk over lessons learned (Wenger, 1998). Communities of practice emphasize the social nature of learning within or across organizations. Conversations around the water cooler are often taken for granted, but in geographically distributed organizations the water cooler needs to become virtual.

Similarly, organizations find that when workers give up a company office to work online from home or on the road, the natural knowledge sharing that occurs in social spaces must be replicated virtually. In the context of KM, CoPs are generally understood to mean electronically linked communities. Electronic linkage is not essential, of course, but since KM arose in the consulting community from the awareness of the potential of Intranets to link geographically dispersed organizations, this orientation is understandable and inevitable.



Individual Formative Exercise I I A

Time Frame: 60 min



Individual Formative Exercise I I B

Time Frame: 60 min



Summative Exercise: 4 - 6

Time Frame: 75 hours

Glossary of Terms

Component	Description
1. Strategy	A KMS should be part of a strategy that identifies the key needs and issues within the organisation and provide a framework for addressing these.
1.1. Problem	A problem or opportunity facing the organisation needs to exist. What worldview justifies the existence of a KM system? (What point of view makes this system meaningful?)
1.2. Purpose / objective	A KMS should have an explicit Knowledge Management objective of some type such as collaboration, sharing good practice or the like.
1.3. Policy	Any KMS should be linked to an organisational policy
1.4. Governance	Any KMS must be managed properly and a governance framework that articulates roles and responsibilities is a necessary part of a KMS.
1.5. Culture	The culture, values and beliefs of the people within an organisation
1.6. Risk	What are the risks within an organisation to the success of a KMS?
2. Actors	People are central to any KMS and there are different participants with differing backgrounds and experiences.
2.1. Owner	Who owns the business process and has the authority to abolish this?
2.2. Source	Who/what currently holds the knowledge and where does it reside?
2.3. Clients	Who are the beneficiaries of this system? (Who would benefit or suffer from its operations?)
2.4. Managers	Who is responsible for implementing this system? (Who would carry out the activities which make this system work?)
2.5. Enablers	Who else needs to be involved to make the knowledge system work such as IT administrators or HR support staff?
2.6. Boundary Spanners	Those people who connect workgroups in the organisation
3. Infrastructure	Most KMSs will require some form of infrastructure to enable the
3.1. Facilities	What facilities are required to support the KMS function?
3.2. Equipment	What equipment is required to enable the KMS to function effectively?

3.3. Repositories	Where will the KMS store any information or knowledge?
3.4. Instruments	There may be a series of instruments, tools or templates required to support the capture, creation and sharing of the corporate knowledge. This might also include directories, taxonomies or ontologies.
3.5. Software	Any software solutions that enable or comprise the KMS
3.6. Networks	The social or electronic networks that enable a KMS
3.7. Hardware	Is there are requirement for any additional hardware
4. Functionality	KMSs are developed to support and enhance knowledge-intensive processes, tasks or projects of e.g., creation, construction, identification, capturing, acquisition, selection, valuation, organization, linking, structuring, formalization, visualization, transfer, distribution, retention, maintenance, refinement, revision, evolution, accessing, retrieval and last but not least the application of knowledge, also called the knowledge life cycle.
4.1. Logic	A KMS may be based on some underpinning logic or concept
4.2. Business rules	Any system requires business rules to control the operation of the system.
4.3. Transformation	What transformation does this system bring about? (What are the inputs and what transformation do they go through to become the outputs?). There should be a transformation mode identified:
4.4. Integration	Does the KMS need to integrate with any other system?
4.5. Tailoring	A KMS should sense the response of the client to the user of the KMS and preferably be able to adjust the mode, complexity, order and extent of the interaction being experienced by the client.
4.6. Administration	What administration is required in order to support the KMS?
4.7. Reporting	What reporting is required to support the management of the KMS?
4.8. Procedures	What processes need to be documented into procedures to be able to apply appropriate controls and guidance to support the KMS?
4.9. Content Management	What content management functionality is required to support the management of the KMS?

5. Delivery	Any KMS requires the delivery or facilitation of knowledge or a knowledge management service.
5.1. Mode	Synchronous Technique - Same Time, Same Place Asynchronous Technique (AT) - Different Time, Same Place Distributed Synchronous Collaboration (DSC) - Same Time, Different Place Distributed Asynchronous Collaboration (DAC) - Different Time, Different Place.
5.2. Facilitation	A KMS must have an interface where people interact with the system. This could be a facilitator or utilise technology via Visual, Audio or Experiential/tactile modes to facilitate the interaction of the user/client with the system.
5.3. Style	The effectiveness of a KMS can be enhanced through the adoption of a style that is consistent with the culture of an organisation. Style sends important messages to a client about the KMS.
5.4. Techniques	Delivery of a KMS may require the application of skills and techniques in order to be successful.
5.5. Access Control	A KMS should identify and target clients to enable appropriate personnel and lock out inappropriate personnel.
5.6. Accessibility	A KMS needs to be accessible to people with physical restrictions or a disability
5.7. Personalisation	A KMS should be able to be personalised to suit the client
6. Content	Some KMS will hold content to enable the system to function.
6.1. Lifespan	Content may be static, dynamic or compiled on the fly (mash-up)
6.2. Authoring	The content within a KMS needs to be effectively authored/prepared in a form that is usable to the client
6.3. Publishing	A publishing process and model needs to be in place to authorise and control release of content
6.4. Validation and referencing of Source	Content needs to be obtained from authentic sources and the sources need to be identified and verifiable.

6.5. Stewardship of the content	Ownership/stewardship of the content is important as a management process to ensure the effective delivery and utilisation of the KMS.
6.6. Review and update	Any content held by a KMS should be subject to a review and update protocol.
6.7. Security	Any classified content held by a KMS must be adequately protected.
6.8. Taxonomy	Content held by a KMS may need to be sorted into an appropriate structure to enable easy discovery and use.
6.9. Catalogue	Any content held by a KMS may require cataloguing in order to better manage the information.
6.10. Version Control	Any content held by a KMS should be subject to version control.
6.11. Disposal	Any content held by a KMS that is no longer relevant or valued should be disposed of.
7. Continuous improvement	A KMS should be regularly reviewed to ensure that it is meeting the objectives identified in the strategy and requirements.
7.1. Feedback	Feedback on the utility of a KMS is important to identify issues that need to be addressed.
7.2. Performance management	A Performance Management sub-system should include: Indicators, Levels/Measures, a collection process, analysis and reporting.
7.3. Review and Audit	Third party review or audit of the effectiveness of a KMS may be appropriate.
7.4. Benefits Realisation	Management of the KMS is required in order to ensure that the benefits are being realised and the organisation is achieving the objectives it set out to meet in the development and implementation of the KMS.

Term	Description
Project manager	For clarity, project managers will always be referred to in the male gender (he, him, himself or his) but it is clearly understood that the female gender would equally apply (she, her, herself or hers).

Statement of work	A document which defines the procurement requirements of the project in enough detail to enable potential suppliers to determine if they can meet those requirements
Supplier contract	An agreement between the Project Team and an external supplier for the acquisition of a defined set of products to meet the procurement requirements of the project
Tender document	A formal document included during the tender process which outlines the information required to provide the Project Team with the confidence that a supplier can meet the procurement needs of the project. The RFI and RFP are both examples of Tender Documents
Tender management	The process by which interested suppliers are identified, evaluated and selected for the supply of products (goods or services) to the project. This process entails formalising the procurement requirements and tender documentation, receiving tender responses and selecting a preferred supplier
Terms of reference	A document which outlines the purpose of the project, the way the project will be structured and how it will be successfully implemented
The labour, equipment and materials used to undertake a project	The process of identifying the resources required completing the project. This includes a list of the types of resources required and a schedule providing the use of, and activities undertaken by each resource
Time Management	The process within which time spent by staff undertaking project tasks is recorded against the project

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