

**BSBCRT411**

**APPLY  
CRITICAL  
THINKING  
TO WORK  
PRACTICES**

# **BSBCRT411**

## **Apply critical thinking to work practices**

Release 1

## **Learner Guide**

Aspire Version 1.1



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## Before you begin

This Learner Guide is based on the unit of competency *BSBCRT411 Apply critical thinking to work practices*, Release 1. Your trainer or training organisation must give you information about this unit of competency as part of your training program. You can access the unit of competency and assessment requirements at: [www.training.gov.au](http://www.training.gov.au).

### How to work through this Learner Guide

This Learner Guide contains a number of features that will assist you in your learning. Your trainer will advise which parts of the Learner Guide you need to read, and which Practice Tasks and Learning Checkpoints you need to complete. The features of this Learner guide are detailed in the following table.

Feature of the Learner Guide	How you can use each feature
Learning content	Read each topic in this learner guide. If you come across content that is confusing, make a note and discuss it with your trainer. Your trainer is in the best position to offer assistance. It is very important that you take on some of the responsibility for the learning you will undertake.
Examples	These highlight key learning points and provide realistic examples of workplace situations.
Practice Tasks	Practice Tasks give you the opportunity to put your skills and knowledge into action. Your trainer will tell you which Practice Tasks to complete.
Summaries	Key learning points are provided at the end of each topic.
Learning Checkpoints	There is a Learning Checkpoint at the end of each topic. Your trainer will tell you which Learning Checkpoints to complete. These checkpoints give you an opportunity to check your progress and apply the skills and knowledge you have learnt.

## Foundation skills

As you complete learning using this guide, you will be developing the foundation skills relevant for this unit. Foundation skills are the language, literacy and numeracy (LLN) skills and the employability skills required for participation in modern workplaces and contemporary life.

The following table provides definitions for each foundation skill.

Foundation skill area	Foundation skill description
Learning	<ul style="list-style-type: none"> <li>Reflects on own performance and seeks opportunities to improve own skills and knowledge</li> <li>Identifies the key themes and ideas to be explored and ways to response to and use diverse perspectives</li> </ul>
Numeracy	<ul style="list-style-type: none"> <li>Interprets and critically analyses numerical data to determine work process requirements</li> </ul>
Oral communication	<ul style="list-style-type: none"> <li>Articulates ideas and requirements clearly and persuasively using techniques appropriate to audience and environment</li> <li>Participates in a verbal exchange of ideas and elicits the view and opinions of others by listening and questioning</li> </ul>
Reading	<ul style="list-style-type: none"> <li>Interprets, evaluates and extracts relevant information from a range of texts for work requirements</li> </ul>
Writing	<ul style="list-style-type: none"> <li>Develops clear workplace documents appropriate to audience and context</li> <li>Selects appropriate channel, format, tone and content to suit purpose and audience</li> </ul>
Teamwork	<ul style="list-style-type: none"> <li>Seeks to establish interpersonal connections to facilitate work with a diverse range of people</li> </ul>
Initiative and enterprise	<ul style="list-style-type: none"> <li>Identifies the implications of legal and regulatory responsibilities on own work</li> <li>Adheres to implicit and explicit organisational procedures and policies, seeking advice from others if necessary</li> </ul>
Planning and organising	<ul style="list-style-type: none"> <li>Uses systematic processes to gather and analyse information required to make decisions</li> </ul>
Problem-solving	<ul style="list-style-type: none"> <li>Uses problem-solving skills to evaluate and challenge ideas and move towards solutions</li> </ul>
Technology	<ul style="list-style-type: none"> <li>Uses features and functions of digital tools and technologies to store and present information</li> </ul>

## What do you already know?

Use the following table to identify what you may already know. This may assist you to work out what to focus on in your learning.

Topic	Key outcome	Rate your confidence in each section
Topic 1 Establish the role of critical thinking in the workplace	1A Identify key characteristics of critical thinking processes	<input type="checkbox"/> Confident <input type="checkbox"/> Basic understanding <input type="checkbox"/> Not confident
	1B Evaluate situations in which critical thinking is applied in the workplace	<input type="checkbox"/> Confident <input type="checkbox"/> Basic understanding <input type="checkbox"/> Not confident
	1C Articulate the benefits of applying critical thinking practices in the workplace	<input type="checkbox"/> Confident <input type="checkbox"/> Basic understanding <input type="checkbox"/> Not confident
Topic 2 Lead the critical thinking process	2A Use critical thinking processes to identify limitations in work practices	<input type="checkbox"/> Confident <input type="checkbox"/> Basic understanding <input type="checkbox"/> Not confident
	2B Locate information on selected work practices for the development of solutions	<input type="checkbox"/> Confident <input type="checkbox"/> Basic understanding <input type="checkbox"/> Not confident
	2C Develop solutions for workplace limitations using critical thinking concepts	<input type="checkbox"/> Confident <input type="checkbox"/> Basic understanding <input type="checkbox"/> Not confident
	2D Develop a proposal for workplace limitations using a decision-making framework	<input type="checkbox"/> Confident <input type="checkbox"/> Basic understanding <input type="checkbox"/> Not confident
	2E Articulate and justify the decision-making process to relevant stakeholders	<input type="checkbox"/> Confident <input type="checkbox"/> Basic understanding <input type="checkbox"/> Not confident

Topic	Key outcome	Rate your confidence in each section
Topic 3 Develop a critical thinking mindset	3A Review decision-making practices in the work area	<input type="checkbox"/> Confident <input type="checkbox"/> Basic understanding <input type="checkbox"/> Not confident
	3B Seek feedback on use of critical thinking from relevant stakeholders	<input type="checkbox"/> Confident <input type="checkbox"/> Basic understanding <input type="checkbox"/> Not confident
	3C Identify areas for self-development	<input type="checkbox"/> Confident <input type="checkbox"/> Basic understanding <input type="checkbox"/> Not confident
	3D Develop a plan for future process evaluations	<input type="checkbox"/> Confident <input type="checkbox"/> Basic understanding <input type="checkbox"/> Not confident



## Topic 1 | Establish the role of critical thinking in the workplace

- 1A Identify key characteristics of critical thinking processes
- 1B Evaluate situations in which critical thinking is applied in the workplace
- 1C Articulate the benefits of applying critical thinking practices in the workplace

# 1A Identify key characteristics of critical thinking processes

Critical thinking allows us to uncover the reasons why we think the way we do.

We spend our days thinking. It is human nature to do so. However, not all of our thinking is rational and all of us are capable of having biased and irrational thoughts. We do not consciously decide to think illogically or narrowly, but emotions and instincts influence our thinking. Recognising when we base decisions on emotions and intuition, rather than logical reasoning, is key to developing critical thinking skills.

Critical thinking involves looking carefully at an issue and making a decision based on what you know, not what you feel.

## Egocentric and sociocentric motives

Our brains are hardwired to listen to our feelings and desires and act on them.

Humans are hardwired for survival. We are prone to react instinctively, rather than to think things through rationally. For example, when a manager gives us negative feedback, a common response is to initially reject it and become defensive, rather than seeing it as constructive and even fair. Our feelings and emotions are automatic, unconscious responses to things we perceive as threats or blocking us from achieving our desires.

Feelings and desires are not based on reason, nor do they lead to good decision-making.

Irrational thinking has two main streams:

- Egocentric thinking: only your own rights and perspective are considered
- Sociocentric thinking: your thinking is influenced by your peer group.

We are born with an egocentric outlook, and as we grow, we develop a more sociocentric view of the world.

### Egocentric thinking

- └ The motive is to validate your own way of seeing things. For example:
- I feel hungry. I want to eat dessert, even though I have been advised by my doctor to lose weight and improve my diet.
  - At work, I feel anxious about meeting a project deadline. I want to complete this task before I leave work today, even though I can complete it during work hours tomorrow.

### Sociocentric thinking

The motive is to validate the group's way of thinking. For example:

- It's my friend's birthday and it would mean a lot to her if I went to the party tonight. I will go even though I would prefer not to as I need to be up early tomorrow.
- I will agree with the team's decision and will not argue against it, even if I think the decision is the wrong one. I have only just joined this team and want to make a good impression.

Each of these types of thinking is essentially unconscious. By contrast, critical thinking requires conscious effort. Critical thinkers approach problems in a consistent and systematic way and consciously challenge their assumptions, beliefs and values.

## Defining critical thinking

**Critical thinking is a subset of our thought processes.**

Critical thinkers rigorously question ideas and assumptions, rather than accepting them at face value. They always try to determine whether ideas, data and evidence represent the whole picture.

In a popular children's story, Chicken Little gets hit on the head by an acorn. Chicken Little looks up at the sky and down at the ground and cannot see anything that struck her head, so she decides that the sky is falling. She cries out, 'Help, help, the sky is falling. I have to tell the king.' Chicken Little then proceeds to alert and convince all the other barnyard birds that the sky is falling, and the group proceeds to go and tell the king. On the way to the king, they encounter a fox who, on hearing their news, convinces the birds that the king is in the back of the fox's den and invites the birds in one at a time to meet the king, only to seal their fate in a flurry of feathers.

This story illustrates some important principles of critical thinking:

- Chicken Little used cause and effect reasoning even though the reasoning was flawed. Chicken Little failed to critically evaluate the cause of what hit her on the head or the assumptions she made. She also failed to consider any evidence that might support or disprove her thinking.
- On hearing that the sky is falling, the other barnyard birds fail to question and evaluate any evidence on whether this is true and they adopt the thinking of Chicken Little.
- The fox applies critical thinking and exploits the situation. He realises that the sky is not falling and, sensing how easily the birds can be convinced, lays a trap for them by convincing them the king is in his den.

Thinking, then, is the mental process of producing or forming thoughts. Thoughts can be produced without facts or evidence.

Critical thinking is understanding why we think in a particular way or what shapes our thinking. Critical thinking requires us to question the way we think about something. Unlike the barnyard birds, critical thinkers use reason and rigorously question ideas and assumptions, rather than passively receiving information.

## Critical thinking versus other types of thinking

There are many other types of thinking besides critical thinking; they include abstract, creative and analytical thinking.

Critical thinkers approach problems in a consistent and systematic way. They look for errors in reasoning, discrepancies in arguments and connections between ideas.

No doubt, you use other types of thinking at work and in your personal life. Some of the types of thinking you use are explained here. Compare them to critical thinking.

### Abstract thinking

This level of deep thinking is removed from the current facts and from specific examples of the concepts being thought about. Abstract thinking is the ability to think about objects, principles and ideas that are not physically present. Abstract thinking explores how everything relates to everything else and goes beyond concrete realities.

### Concrete thinking

This involves looking at things on the surface or at a periphery and using this information to solve problems. Concrete thinking uses reason in terms of facts, events, objects and specific examples.

### Divergent thinking

This type of thinking uses a linear or systematic approach to develop ideas in different directions. This thought process generates creative ideas by exploring many possible solutions, and always looks for more options.

### Convergent thinking

As the name suggests, this type of thinking is about coming together. It is a thought process that considers a limited, predetermined number of options. The right answer or course of action is selected from this narrow range of choices.

### Creative thinking

This type of thinking is often referred to as thinking outside the box. It uses a fresh perspective or suggests unorthodox solutions as a way of considering problems or situations. Creative thinking can be stimulated both by an unstructured process (such as brainstorming) and by a structured process (such as lateral thinking). It does not depend on past or current solutions and may use reason, logic, resourcefulness, imagination and innovation to find a solution.

### Analytical thinking

This thinking is also referred to as problem-solving. It involves working systematically and logically to resolve problems, identify causes and anticipate unexpected results. Personal experience and knowledge are used to manage issues that arise and other resources as necessary.

### Lateral thinking

This is problem-solving but uses an indirect or more creative approach rather than the traditional step-by-step problem-solving process. It addresses the problem in a lateral way, which can result in fresh ideas that may change the frame of reference for the problem and solution.

## Why critical thinking matters

**Critical thinking is the ability to engage in reflective and independent thinking.**

Critical thinking skills allow you to understand and make decisions based on all the available facts and data. Critical thinking skills are important because they help you solve problems, identify solutions and generate new ideas. Many workplace issues, such as process inefficiencies, resource allocation and workplace safety, can be improved by using critical thinking.

Applying critical thinking helps you to:

- gain a better understanding of why you think the way you do
- analyse and assess your own thinking and the way your desires and emotions motivate you and drive your thinking
- be more self-directed and self-disciplined in your thinking by identifying when you are driven by egocentric and sociocentric thinking
- apply intellectual standards to check the quality of reasoning about a problem, issue or situation
- develop effective problem-solving skills that can help you find a solution to difficult issues
- set aside your ego and be open to the ideas of others
- identify motives that validate your way of seeing things or the group's way of seeing an issue.

## Groupthink

Groupthink is the name given to the desire for group consensus at the expense of critical thinking.

Critical thinking supports informed and independent decision-making and avoids groupthink.

Groupthink is a term derived from George Orwell's book, *1984*. When groupthink occurs, the desire for group cohesion overrides the ability of people to challenge the group or offer an unpopular alternative view.

One of the most tragic cases of groupthink occurred on 28 January 1986 when the space shuttle *Challenger* exploded a little over a minute after launch, killing all seven crew members. The explosion was caused by a failed O-ring in the rocket booster fuel cells. An inquiry found that flawed decision-making was a major contributor to the incident.

On the morning of the launch, NASA was informed about the O-ring safety concern and engineers advised not to proceed with the launch. Anxious to launch the Challenger according to schedule, management ignored this advice and gave the all clear to launch, with disastrous consequences.

## Critical thinking techniques

To apply critical thinking techniques, we must question assumptions and consider different points of view.

In his book *Teaching for critical thinking* (2012), author Stephen Brookfield states that critical thinking happens when we uncover and check assumptions, explore alternative perspectives and take informed actions. In addition, he suggests that we use critical thinking when we analyse, clarify, question and test ideas.

Discover assumptions	<ul style="list-style-type: none"> <li>What assumptions are we making that influence how we think and act?</li> </ul>
Check assumptions	<ul style="list-style-type: none"> <li>Are our assumptions valid?</li> <li>Are our assumptions supported by evidence?</li> <li>Under what conditions do our assumptions make sense?</li> </ul>
See things from different perspectives	<ul style="list-style-type: none"> <li>What alternatives are there?</li> <li>Is there another way of looking at this?</li> </ul>
Take informed action	<ul style="list-style-type: none"> <li>Actions should be based on thought and analysis.</li> <li>Actions should lead to the desired results and be supported by evidence.</li> </ul>

## Critical thinking as a process

Critical thinking is a process that can be applied to an issue, problem or situation.

There are seven key steps in the critical thinking process. The following process includes similar steps to those outlined identified by Brookfield. This models goes somewhat deeper and involves seven key steps, starting with stating the question and ending with testing conclusions.

State the question or problem	The question or problem should be clear and precise	Express the question or problem in several ways to clarify its meaning
Gather relevant and sufficient information	Information should be based on data, facts, evidence and experiences	Look for information that opposes your position as well as information that supports it
Check assumptions	Identify and justify your assumptions	Consider how your assumptions are shaping your thoughts
Consider different perspectives	Seek the views of others	Be fair-minded when evaluating points of view
Interpret information correctly	Infer only what the evidence indicates	Interpret the information given, don't assume
Develop well-reasoned solutions and conclusions	Identify alternative solutions based on evidence gathered	Ask: What is the best possible solution/conclusion?
Test conclusions and solutions against relevant criteria and standards	Test solutions/conclusions against intellectual standards	Test against organisational criteria and best practice

## Intellectual standards

Intellectual standards provide a basis for testing your thinking.

Intellectual standards enable you to check the quality of your thinking. They are essentially a series of questions that you should ask yourself at various points in the critical thinking process. Paul and Elder suggest the following questions should be asked to determine whether intellectual standards have been applied.

<b>Clarity</b>	<ul style="list-style-type: none"> <li>▪ Could you elaborate further on that point?</li> <li>▪ Can you express that in another way?</li> <li>▪ Can you give me an example of what you mean?</li> </ul>
<b>Accuracy</b>	<ul style="list-style-type: none"> <li>▪ Should that be checked?</li> <li>▪ Is that really true?</li> <li>▪ How could you verify or test that it is true?</li> </ul>
<b>Precision</b>	<ul style="list-style-type: none"> <li>▪ Could you be more specific?</li> <li>▪ Could you give me more details?</li> <li>▪ Could you be more exact or precise?</li> </ul>
<b>Relevance</b>	<ul style="list-style-type: none"> <li>▪ How does that relate to the problem?</li> <li>▪ How does that connect to the question?</li> <li>▪ How does that help with the issue?</li> </ul>
<b>Depth</b>	<ul style="list-style-type: none"> <li>▪ How are you taking problems and issues into account?</li> <li>▪ What are some of the complexities of the issue?</li> <li>▪ What are some of the difficulties you need to deal with?</li> </ul>
<b>Breadth</b>	<ul style="list-style-type: none"> <li>▪ Do you need to look at this from another perspective?</li> <li>▪ Do you need to consider another point of view?</li> <li>▪ What would this look like from another point of view?</li> </ul>
<b>Logic</b>	<ul style="list-style-type: none"> <li>▪ Does all of this make sense?</li> <li>▪ Before you said this and now you are saying that. How can they both be true?</li> <li>▪ Does what you say follow from the evidence?</li> </ul>
<b>Significance</b>	<ul style="list-style-type: none"> <li>▪ Is this the most important problem to consider?</li> <li>▪ Is this the central idea to focus on?</li> <li>▪ Which of these factors is most important?</li> </ul>
<b>Fairness</b>	<ul style="list-style-type: none"> <li>▪ Do you have any vested interest in this issue?</li> <li>▪ Are you sympathetically representing the views of others?</li> <li>▪ Are you biased in your views?</li> </ul>

## Example

### Identifying the key features of critical thinking

Brian works in administration in the human resources department of a small company. His good friend, Michaela, is applying for a role in the company. Brian is part of the selection panel for this role and has offered to be a referee for Michaela. Michaela asks Brian if he has any tips for her when preparing for the interview. Brian has access to all the interview questions that the applicants will be asked and decides to send them to Michaela.

Consider the following:

- Has Brian thought critically about his actions?
- What influenced Brian to take the action he did?

The fact that Brian is a referee for Michaela is questionable. If part of the hiring process is to ensure objectivity, then Brian has a potential conflict of interest in being both a referee and part of the selection panel.

By sending Michaela a copy of the interview questions, Brian is giving her an unfair advantage over the other applicants. Brian's behaviour and thinking can be seen as sociocentric.

If you consider Brian's actions against the intellectual standards, it is the fairness standard that is not being met. If Brian was thinking critically, how would he answer the following two questions?

1. Do I have any stake or vested interest in this issue?
2. Am I sympathetically representing the views of others?

The answer to the first question is yes, and to the second question is no. Brian is not representing the views of his work colleagues or the other candidates.

## Practice Task 1

### Question 1

---

Briefly explain the difference between critical thinking and one other form of thinking, such as creative thinking or abstract thinking.

### Question 2

---

Which of the following are key steps in the critical thinking process? Tick all that apply.

- Considering different perspectives
- Going along with group consensus
- Stating the problem clearly
- Gathering relevant facts and information
- Appointing an external mediator

### Question 3

---

Draw a line to match each of the questions to the relevant intellectual standard.

- |             |  |
|-------------|--|
| » Relevance | » Is what you are saying based on evidence?    |
| » Logic     | » Can you give me an example of what you mean? |
| » Accuracy  | » How does that relate to this problem?        |
| » Clarity   | » Do we need to check if that is right?        |
| » Precision | » Can we get more specific details?            |

# 1B Evaluate situations in which critical thinking is applied in the workplace

Critical thinking can be applied in the workplace when making decisions.

Many job descriptions list 'critical thinking' as one of the skills that applicants need to have. Critical thinking is used (by both teams and individuals) to diagnose problems and identify possible solutions that may not be entirely obvious at first.

This is different to making a snap judgment or relying on emotions to solve a problem. Applying critical thinking means a team or individual is more likely to arrive at the best solution.

Employers value workers who know how to think critically because their creative solutions can help businesses to be innovative, competitive and efficient.

## Example

### Using critical thinking to complete a task

Lynette works in accounts payable for a medium-sized organisation.

Lynette's main job tasks are:

1. Assist with month-end closing of accounts
2. Communicate with vendors
3. Sort, code and match invoices
4. Process expense reports
5. Load invoices into the system
6. Reconcile accounts payable transactions
7. Produce monthly reports
8. Prepare and process electronic transfers and payments
9. Post transactions to journals and ledgers
10. Review and verify invoices and cheque requests

The particular skills Lynette requires are:

- attention to detail
- good judgment
- teamwork
- numeracy
- accuracy
- problem-solving
- time management.

### Using critical thinking to complete a task continued...

Several of Lynette's work tasks require her to think critically:

- Judgment and problem-solving are linked. Lynette exercises judgment when solving problems because it:
  - involves analysing evidence
  - involves questioning assumptions
  - involves an issue or a problem to solve
  - requires information
  - requires research to check on information and verify accuracy.
- Time management is about making choices on how to allocate time because it:
  - involves prioritising tasks based on need
  - requires sufficient information to reach a decision
  - involves uncovering assumptions.
- Teamwork is about working together to achieve mutual goals because it:
  - involves clarifying the goals
  - considers different perspectives
  - involves uncovering assumptions.

Many of Lynette's work tasks are routine and may not require critical thinking. However, she can apply critical thinking by looking at a task from a different perspective. For example, to produce a monthly report, Lynette accesses the reporting function in the accounting software package. This requires no critical thinking. However, when compiling the report, she applies critical thinking when she asks:

- Why is the report needed?
- What should the report include?
- Where has this data come from?
- Does this make sense?
- How can I check this data is accurate?

## When critical thinking can be applied

Critical thinking is applied in the workplace whenever you ask Why? What? and How?

We live in a digital age where technology makes available large amounts of information to inform a business's planning and decision-making. However, only people have the capacity to analyse and act on this information.

Critical thinking is the ability to question this information, asking questions, such as:

- **Why** is our customer satisfaction rating dropping?
- **Why** are applications down again this month?
- **What** caused this near miss?
- **What** is the relationship between this target and our strategic plan?
- **How** can we address this customer complaint?
- **How** can we increase sales?

The importance of critical thinking increases in line with the gravity of the decisions being made. Think of the decisions made by leaders to commit their country to war or the decision to launch the space shuttle Challenger referred to in the previous section. The consequences of such decisions are far-reaching and catastrophic for those involved. While not in the same league, decisions made by management boards to merge with other companies, retrench staff or close branches have financial and human consequences and must be made using critical thinking processes.

## Applying critical thinking to strategic decisions

Fundamental to most organisations is the notion of why they exist and what strategies they will pursue to achieve their goals.

Strategic plans involve broad strategies that the organisation will strive to achieve and the key initiatives they will pursue. The process of strategic planning calls for a critical analysis of the business environment in which the organisation exists, what products and services it produces, and what opportunities and threats exist.

Strategic decision-making usually involves one or more of the following critical thinking activities:

- Political, economic, social, technological (PEST) analysis
- Strengths, weaknesses, opportunities and threats (SWOT) analysis
- Feasibility studies, or product and service analysis
- Competitor analysis
- Resource requirements to achieve the plan
- Process mapping
- Product or service innovation or creation.

During any strategic planning process, it is essential to identify, analyse and evaluate any assumptions and information used to support decision-making. Questioning assumptions may involve reviewing:

- what people think
- how people act
- policy implications
- competitor behaviour
- stakeholder input and the weight attached to that input
- market performance
- impact of actions taken.

### Example

#### Using critical thinking processes to identify a strategic business opportunity

ACME Lighting specialises in designing and manufacturing light fixtures and ceiling fans for households. Its vision is to be the leading provider of innovative and technologically advanced lighting and ceiling fans, including producing energy-efficient products.

Its business plan includes goals to increase its share of the ceiling fan market by producing more energy-efficient designs.

Recent data from customer surveys revealed energy costs as a key motivational factor when customers are making purchasing decisions about ceiling fans.

ACME Lighting's latest ceiling fan uses as little energy as 2 cents per hour and can reduce running costs by as much as 20 per cent. The use of new innovative materials means that fans are lighter and quieter than ever before, and the components are more sustainably made by plantation-grown timber and bamboo.

ACME Lighting's product development arm produced a detailed business case describing where the fan would be manufactured, associated manufacturing costs per unit, shipping costs, sustainability manufacturing ratings and prototype testing, including data on energy efficiency and noise ratings.

An analysis of ACME Lighting's decision to develop a new energy-efficient fan reveals that it is:

- aligned to their vision and business plan goals
- fulfilling a customer need
- backed by a detailed business case
- supported by data from prototype testing.

## Applying critical thinking to operations

Critical thinking can be applied to a range of operational decisions.

Critical thinking should not only be applied in strategic planning sessions, critical thinking can be used when managing operations, when planning to implement change and when applying continuous improvement processes. In fact, any workplace issue, problem or decision will benefit from applying critical thinking.

Consider asking the following 'why/what/how' questions when making decisions or seeking to improve workplace operations.

Policies and procedures
<ul style="list-style-type: none"> <li>▪ Why were they written?</li> <li>▪ What purpose do they serve?</li> <li>▪ Why do we do things this way?</li> <li>▪ How can they be improved?</li> <li>▪ What will lead to more efficiencies?</li> </ul>
Work processes
<ul style="list-style-type: none"> <li>▪ What is the process?</li> <li>▪ Why is it required?</li> <li>▪ How is it implemented?</li> <li>▪ Why do we do things this way?</li> <li>▪ How else can we do this?</li> </ul>
Product or service
<ul style="list-style-type: none"> <li>▪ Why do we offer this product or service?</li> <li>▪ What do our customers want?</li> <li>▪ How do we market it to best reach our target group?</li> <li>▪ What other services or products can we offer?</li> <li>▪ What are our competitors offering?</li> </ul>
Systems
<ul style="list-style-type: none"> <li>▪ Why do we use this system?</li> <li>▪ How does the system benefit us?</li> <li>▪ How do we learn about new versions and upgrades?</li> <li>▪ What other way can we do this?</li> </ul>

### Governance

- What guides our decision-making?
- How are decisions made?
- Why do we have to follow laws and regulations?
- What other ways can we make decisions?

### Locations

- Why are we located here?
- What are the advantages to staff/customers?
- How do offsite locations communicate with head office?
- What are other ways of operating efficiently?

### Workplace issues

- How do we resolve workplace issues?
- What are the causes of workplace issues?
- How can we minimise workplace issues?
- What is the best way to address this issue?

### Planning

- How will we achieve our goals?
- What actions must we take?
- What extra resources are required?
- How are we currently performing against this plan?

### People

- What are our workforce needs?
- What training programs would benefit our people?
- How do we find new staff with talent and experience?
- What rewards and recognition program do we need?

### Innovation

- Why is innovation important to us?
- How do we apply innovative practices?
- How do we monitor new technologies and ideas?
- What new services can we offer customers?

## Example

### Applying critical thinking to a workplace problem

Anun is a team leader in a business that produces plastic pipes and fittings. He is in charge of despatching customer orders and uploading invoices for the main office to process. There have been complaints that customers' orders are delayed, and invoices are being sent before orders have been confirmed.

Anun is one of three team leaders that oversee this area. He organises a meeting with the other team leaders to discuss what they should do about the issue.

Anun leads the meeting and the three team leaders make decisions based on the following process:

1. State the question or problem – They agree that the issue is the time taken to fulfil customer orders. It is taking too long.
2. Gather information and check assumptions – They test several assumptions:
  - That the current online ordering system has been optimised
  - That the processing of customer orders is efficient
  - That the method of uploading invoices into the finance system cannot change
  - That the processing of customers' orders must be done weekly.
3. Consider different perspectives and interpret information – They review the following information in their meeting:
  - Current online ordering process
  - Invoicing data
  - Customer feedback
  - Previous reports and meeting minutes regarding the setup of the online ordering system
  - Invoicing schedule
  - Feedback from stakeholders, such as IT and Admin staff and software suppliers.
4. Develop well-reasoned solutions and conclusions – They agree on a solution and make a recommendation to the office manager. They provide evidence to substantiate the proposed change (the benefits the change will deliver) and submit an action plan of how to implement the change.

## Practice Task 2

### Question 1

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Think of a key process you use in your job role. Apply critical thinking to this process by answering the following questions:

a) What is a current issue or problem?

b) List three 'why' questions you could ask in relation to the issue.

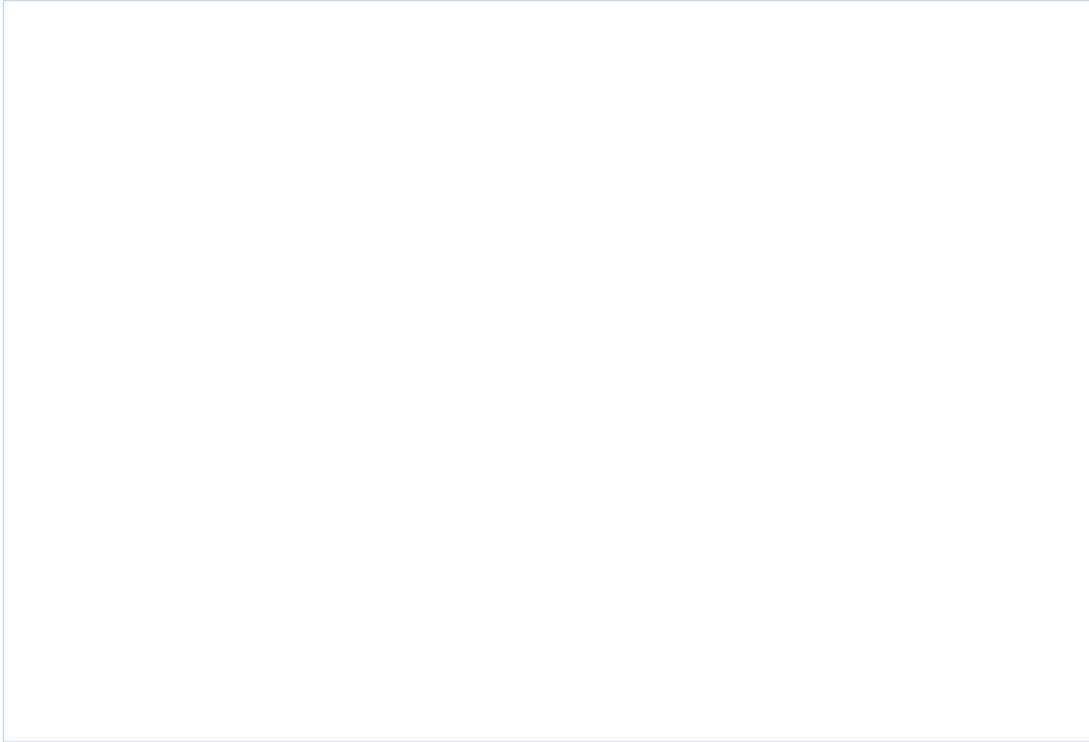
c) List three 'what' questions you could ask in relation to the issue.

d) List three 'how' questions you could ask in relation to the issue.

## Question 2

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Identify three situations where it would be appropriate to apply critical thinking in a workplace.



# 1C Articulate the benefits of applying critical thinking practices in the workplace

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Critical thinking contributes to workplace performance and benefits the business's stakeholders.

Organisations have a duty and a vested interest to perform to the best of their ability to satisfy the needs and expectations of all their stakeholders. Critical thinking is a tool that assists organisations to optimise their decisions, create efficiencies and innovate, which in turn benefits both internal and external stakeholders.

Organisations that encourage critical thinking skills are dynamic ones. They are well equipped to identify and adapt to changes in their environment. In workplaces with a critical thinking mindset:

- informed decisions are made to support the long-term sustainability of the business
- productivity, resource and efficiency issues are identified, analysed and addressed
- risks are identified, managed or avoided
- customers are provided with innovative services and products so that they remain loyal
- employees are engaged and involved in planning and identifying improvements and innovations.

Workplaces where employees are trained and encouraged to think critically and make decisions feel valued. They develop the confidence and skills to:

- use a range of problem-solving techniques
- explore new ideas
- make a substantial contribution to their team
- uncover inaccurate information and flawed logic
- save time and effort by focusing only on relevant information
- communicate effectively.

## Example

### Applying critical thinking to identify a workplace improvement

Jenna is a new employee. During her induction to the company, Jenna is shown:

- policies and procedures relevant to her role
- details of her key performance indicators (KPIs) and how and when her performance will be measured
- the organisational structure and reporting lines, so that she knows who to approach if she encounters any difficulties or has any questions.

After two weeks, Jenna approaches you to discuss some suggestions for changes in the way things are done.

Your immediate reaction and thoughts might be:

- Jenna is new and needs time to get to know our process before criticising it.
- The process was reviewed recently, and we are not changing it now.
- Jenna is bringing a fresh perspective and examining how we do things.
- I appreciate getting her feedback.
- There is a process for reviewing work practices that needs to be complied with as part of our quality assurance.
- The time is not right because there are other more important priorities.
- The process isn't broken, so why does she think it needs fixing? No one else has complained.
- We will log the idea in the continuous improvement register and get to it later.

Which of the above responses shows critical thinking at work and which of them is clouded by irrational thought?

## Risks of failing to apply critical thinking

There are certain risks involved in failing to apply critical thinking to practices in the workplace.

While the benefits of applying critical thinking in the workplace are clear, the flip side of not applying critical thinking is that it exposes the business to risk. These risks can negatively impact the organisation and its stakeholders. The lack of critical thinking may result in:

- poor judgment and uninformed decision-making
- failure to respond to changes in the business's environment
- short-term solutions that fail to consider the long-term health of the business

- loss of creativity and innovation among staff that may result in poor products, services or processes
- increase in costs of resources as a result of mistakes or assumptions
- failed business systems or procedures
- failure to innovate and meet the needs of customers
- poorly designed products, services or processes
- increased safety concerns and risks to employees
- unclear strategic direction and loss of efficiency.

## Example

### Applying critical thinking to avoid making assumptions

Moira is investigating whether her company should attend a conference as an exhibitor. She advises her boss that they shouldn't attend the conference this year because it will cost them \$3,000, which they cannot afford. She points out that they attended last year at a cost of \$1,250 and the delegate turnout was very poor, meaning they were not able to attribute any sales as a result of the conference. 'It will be a complete waste of money,' Moira tells her boss. 'I recommend we do not send anyone this year.'

Moira has made the following assumptions:

- The company cannot afford the \$3,000 required to attend the conference.
- The turnout will be terrible again this year based on last year's performance.
- There was no report on the impact of last year's conference on sales, therefore the conference had no impact.

When investigating the matter, Moira failed to note or make the following information available to her boss:

- There is money in the marketing budget to pay for the conference.
- A competitor of the company attended the conference last year and attributed the event to boosting their sales by five per cent.
- The conference is moving to a new, larger venue with better links to public transport.
- The conference has secured renowned international keynote speakers, and these have been widely publicised in trade journals and social media.
- The event company trebled its advertising budget for the conference and is now advising that there are limited seats remaining.

If Moira had considered all the factors and applied critical thinking, would this have changed her recommendation?

## Practice Task 3

### Question 1

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Briefly explain why critical thinking is important to a business.

### Question 2

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List five risks of failing to apply critical thinking.

### Question 3

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Explain how you could apply critical thinking to avoid the following situations in a business:

- a) having the same range of products and services year after year
- b) implementing a new process that drives away customers.

## Summary

- Thinking can be either rational or irrational.
- Critical thinking requires effort and commitment; it involves questioning, analysing, clarifying and testing ideas.
- Employers value employees who have developed critical thinking skills.
- A key purpose of critical thinking is to uncover and check assumptions.
- The process of critical thinking should lead to well-reasoned decisions that are underpinned by evidence.
- Intellectual standards provide a basis for testing our thinking against.
- Failing to think critically means you run the risk of making poor decisions.
- The argument for applying critical thinking increases as the gravity and consequences of the decision increase.
- Critical thinking is a tool that assists organisations to make decisions, grow, change and innovate.

## Learning Checkpoint 1

### Establish the role of critical thinking in the workplace

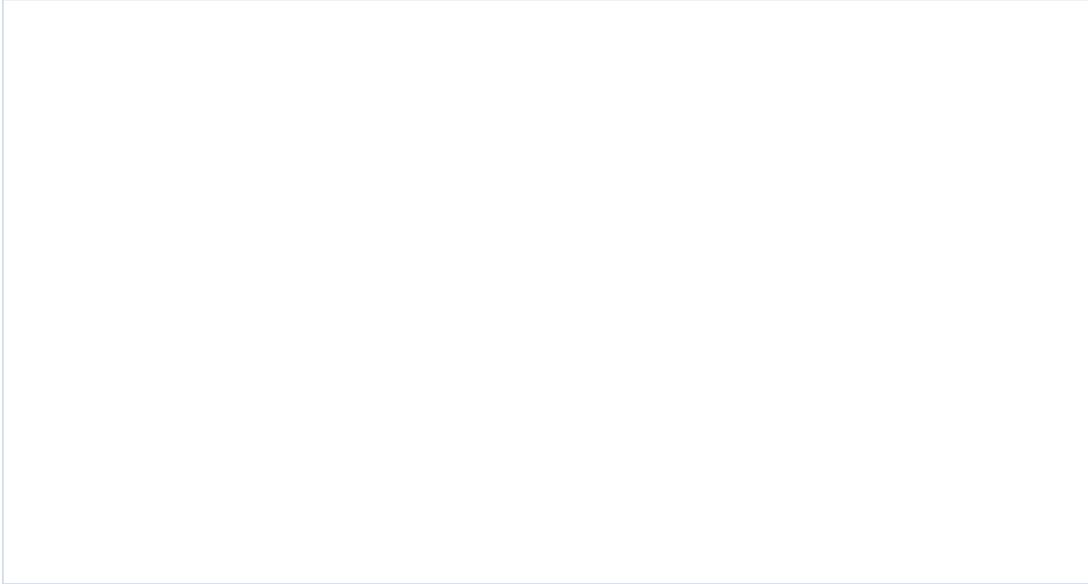
#### Part A

1. What are four things you do when you think critically?

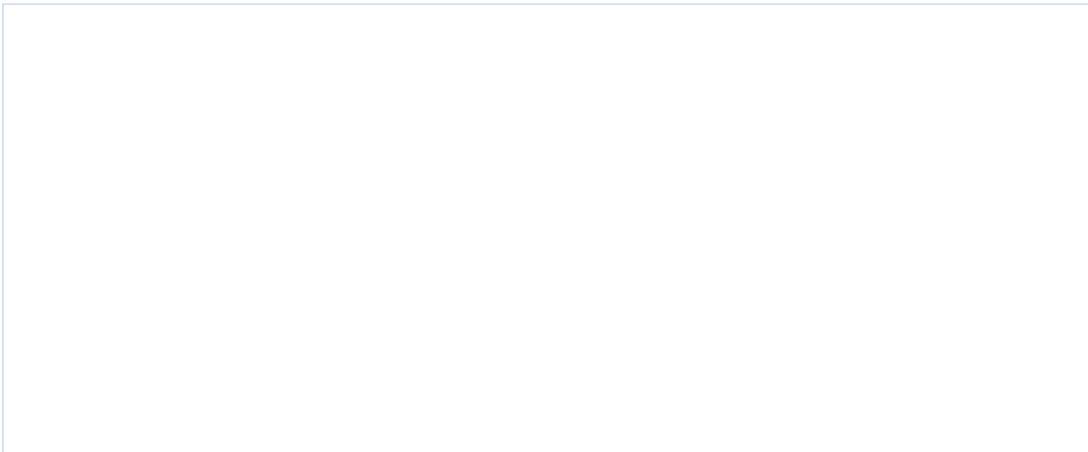
2. Why is critical thinking described as rational thinking?

3. How does critical thinking benefit an organisation's stakeholders?

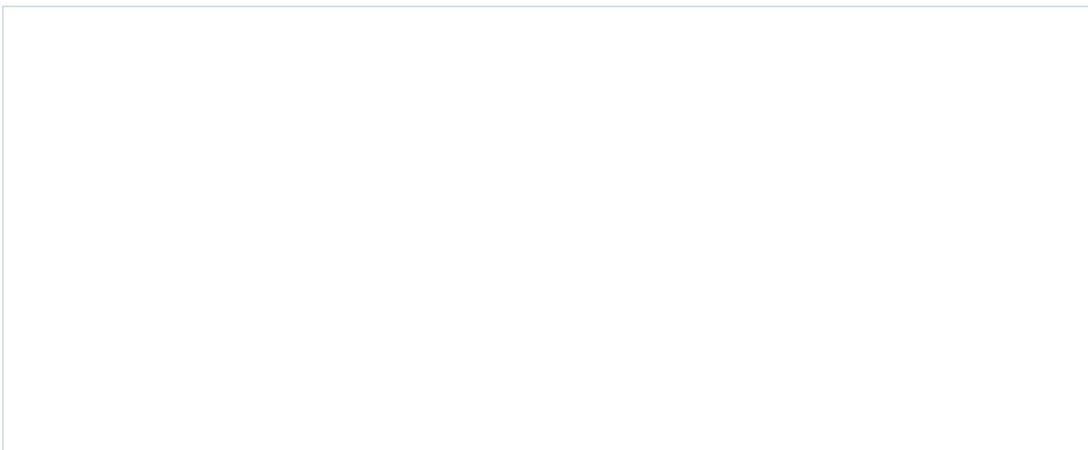
4. Explain three steps in the critical thinking process.



5. Identify three critical thinking activities that may be used when preparing a strategic plan.



6. Identify three benefits of adopting a critical thinking mindset.



## Part B

Read the following case study and then answer the questions that follow.

### Case study

Sara is the office coordinator at an online book supplier. A recent audit identified the following opportunities for improvement:

- File naming protocols
- Archiving procedures
- Use of document templates.

Sara's manager believes the audit findings are the result of poor induction training of the office team staff. She requests Sara to act immediately to rectify these problems.

1. Suggest three initial actions Sara should take using a critical thinking approach.

2. Sara decides to only consult those outside of the office team. Is this a good strategy? Give **two** reasons to justify your answer.

3. What are the three benefits of Sara applying critical thinking to address these audit findings?







## Topic 2 | Lead the critical thinking process

- 2A Use critical thinking processes to identify limitations in work practices
- 2B Locate information on work practices for the development of solutions
- 2C Determine solutions for workplace limitations using critical thinking concepts
- 2D Develop a proposal for workplace limitations using a decision-making framework
- 2E Articulate and justify the decision-making process to relevant stakeholders

## 2A Use critical thinking processes to identify limitations in work practices

Limitations in work practices can occur at any point in the evolution of an organisation's products and services.

Workplace practices are the way work is done in an organisation. These practices are documented in the policies and procedures. An organisation's workplace practices are designed to ensure compliance with a range of different legislation. All employees must follow established workplace practices and adhere to the policies and procedures that detail how tasks are to be done.

However, this does not mean all workplace practices are efficient and should not be challenged. Revisiting how work is done is a means of ensuring that an organisation remains competitive, efficient and adaptable.

Critical thinking processes can help to identify limitations in work practices and where changes are needed.

### The impact of work practices on organisational performance

Organisations need to apply critical thinking to both their strategic and operational activities if they are to remain competitive.

The business environment in which an organisation operates changes rapidly. Technologies, materials, customer needs and even legislation change. Adherence to existing workplace practices and an unwillingness to monitor market changes, competitors' activities and opportunities to innovate have caused many businesses to fail. The following two examples illustrate the importance of critical thinking when developing new products. Clearly Kodak's and Colgate's product development, innovation and market analysis practices had severe limitations.

#### Example 1: Kodak

Kodak dominated photography through most of the 20th century, producing photographic film and cameras, and capturing up to 90 per cent of the US market. Kodak employed over 140,000 people at its peak. However, Kodak failed to capitalise on the rise of digital photography even though it invented the first digital camera in 1975. Kodak was limited by its executive's view of the world and eventually filed for bankruptcy in 2012.

**Example 2: Colgate**

In 1982, toothpaste manufacturer Colgate launched a line of frozen foods called Colgate Kitchen Entrees. The marketing idea was that consumers would eat their Colgate meal, then brush their teeth with Colgate toothpaste. The brand extension failed, and consumers were not tempted to buy food products made by a toothpaste manufacturer.

On a more positive note, workplaces that train their employees to apply critical thinking in their workplaces have saved money and increased their productivity when employees have identified:

- more efficient production processes
- gaps in the market for innovative products or services
- potential hazards that could endanger workers' safety.

## Purpose of organisations

**Most organisations have developed a vision that defines their purpose and guides their work practices.**

Having a strong sense of purpose and a clearly stated vision defines an organisation. It gives employees a clear understanding of the goals they are working towards. The vision also helps employees understand what their contribution to the business means. A clear vision unites employees, makes their work more meaningful and informs their work practices.

If an organisation is privately owned, its purpose is to make profits for its shareholders or owners. A public organisation, such as a government department, exists to manage a particular area of public administration, and offer a service or product to different members of the community.

All organisations exist to provide products and services to their customers. They develop strategies, use resources, and implement systems and work practices to realise their goals. They operate within a governance framework to ensure they comply with legislation and all the activities they undertake align with their vision.

In simple terms, organisational activity may be expressed as:



There needs to be a clear and logical link between an organisation's vision, strategic plan and work practices. If an organisation's vision or strategy is unclear or vague, there is a greater risk of its work practices not delivering the desired outcomes to customers.

Critical thinking can be used to clarify and confirm these links exist, and highlight when these links are absent or weak. Critical thinking can be used to determine whether products or services:

- are defined by the needs of the target customers
- fulfil one or more needs of customers
- provide features and benefits to customers
- are differentiated from competitors' products or services
- align to and support the achievement of the organisation's strategic and business goals
- are supported by a business case that justifies the resources needed to deliver the product or service
- are appropriately supported by a marketing plan
- meet the quality standards required.

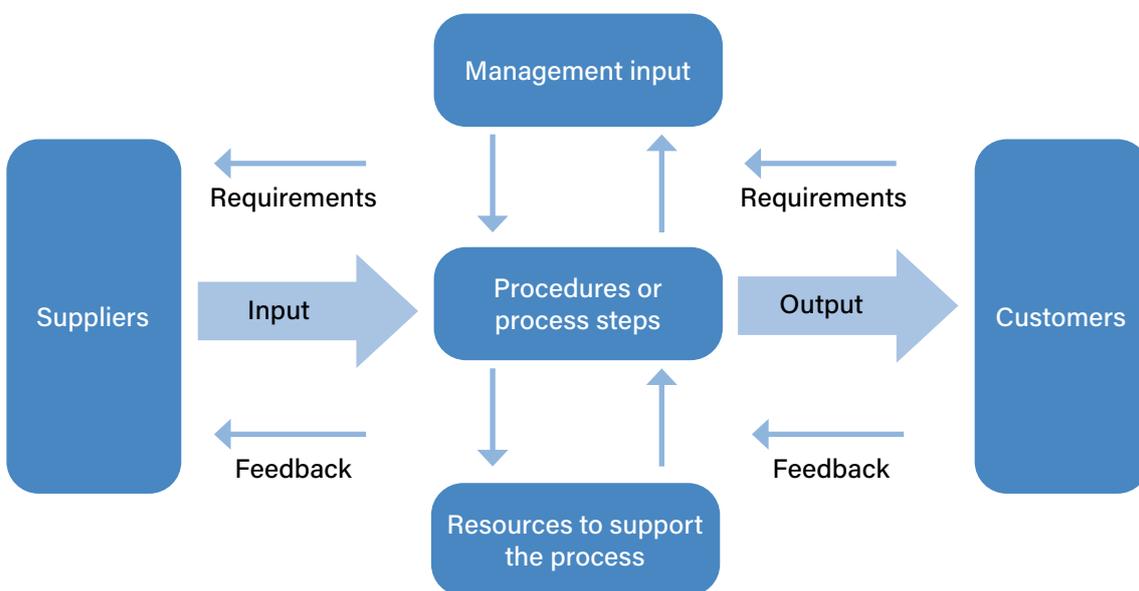
## What is a process?

A process describes a series of steps that convert inputs into outputs.

A process is a work practice or series of activities that produce an output. This output is a service or product that is delivered to customers.

Various resources will need to be used in a process, such as human resources, equipment, raw ingredients, time, money and energy.

A process model can be represented like this:



Customers hold the key in setting the requirements for a process's design.

Processes that are designed independently of customer requirements, or fail to change in light of customer feedback, are exposed when critical thinking is applied. Critical thinking asks 'Why?' For example:

- Why did we choose to design this process and not another one?
- Why did we design the process this way?

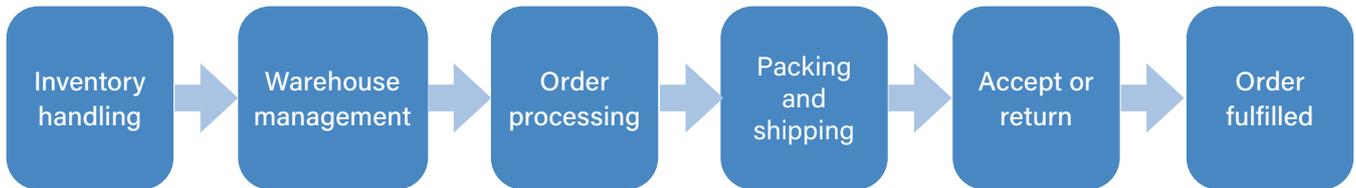
## What is a procedure?

Procedures contain detail on how individual tasks are done and they may be broken down further into specific work instructions.

A process will contain several procedures that guide staff at each stage as to how the work is to be done.

For example, an online retailer may have an order fulfilment process that looks like this. Each of these steps may have a separate procedure associated with it.

### Order fulfilment process



## Features and limitations of procedures

Critical thinking may be used to question the usefulness of established procedures and where there are opportunities for improvement.

Organisations use templates to document their procedures. Procedures are to be followed and understood by all employees and should:

- be clearly stated in plain and precise English
- allocate responsibility for completing tasks
- break up a task into steps
- address relevant legislative requirements, including safe work practices
- include timeframes for completion of work
- include quality of outputs to be produced
- define key terms.

However, workplaces are dynamic. Existing procedures may not reflect current work practices and may no longer be fit for purpose. Procedures are living documents that should grow and adapt with an organisation. Procedures need to be regularly reviewed to ensure their relevance and usefulness. Asking the following questions when reviewing workplace procedures is important.

- What is the purpose; why does the procedure exist?
- Does this procedure reflect how work is done?
- What is the scope of the procedure and what does it apply to?
- Are the definitions and key terms defined to ensure common understanding?
- Who is responsible for each part of the procedure?
- What resources are needed to execute the procedure?
- What are the required inputs and what outputs are produced?
- What are the steps in executing the procedure?
- What systems are needed to support the process, product or service?
- Is there a version control system in place so that only the latest version of the procedure is in use?

- Are related documents (for example, policies) listed?
- Is relevant legislation referred to in order to ensure the procedure complies with industry and legal standards?
- How is effectiveness of the process and the quality of the output measured?
- How is continuous improvement addressed?

While the purpose of workplace procedures is to guide staff on how tasks are to be completed safely to achieve the level of quality required, they do have limitations. They can be applied rigidly, make it difficult to implement change and stifle innovation. You will have heard statements, such as ‘But we’ve always done it this way’ or ‘I was just following the procedure.’ Rigidly adhering to procedures can restrict critical thinking in a workplace and stifle opportunities to improve work practices or products.

#### Limitations of workplace procedures:

- Is there a limited framework for decision-making?
- Does the procedure reflect the way work is carried out?
- Do restrictions need to be in place to avoid making rapid, risk-based decisions?
- Are there restrictions on autonomy to make responsive decisions?
- Are the procedures able to adapt to changing business conditions or rules?
- Is there a limited scope?
- Do personnel have the required knowledge and skills to implement the procedure?

## Legislative requirements

**Organisations must comply with all legislation that applies to their operations.**

All organisations are governed by laws, regulations and industry standards. These laws ensure that the workplace is safe, employees’ and employers’ rights are protected, and the organisation meets its obligations to government and consumers. Legislative requirements must be monitored when decisions are being made in an organisation and critical thinking processes should always involve consideration of these requirements. The following questions should be asked to confirm whether relevant legislative requirements have been considered:

- What legislation applies in our workplace practices?
- What is the purpose of this legislation?
- How is this legislation relevant to our workplace practices?
- Do decisions support compliance with this legislation?
- Are workplace practices consistent with this legislation?
- How does this legislation limit what we can do?
- What are the consequences of breaching this legislation?

To answer these questions, you must first understand what legislation impacts which parts of the organisation. Here are some examples.

Legislative area	Examples of legislation	Where it impacts	What it impacts
Work health and safety	<ul style="list-style-type: none"> <li>▪ <i>Work Health and safety Act 2011</i> (Cth)</li> <li>▪ <i>Occupational Health and Safety Act 2004</i> (Vic.)</li> <li>▪ <i>Occupational Safety and Health Act 1984</i> (WA)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Work practices</li> <li>▪ Accidents or injuries</li> <li>▪ Workers' compensation</li> </ul>	<ul style="list-style-type: none"> <li>▪ Employer obligations</li> <li>▪ Employee obligations</li> <li>▪ Health and safety representatives</li> <li>▪ Worker rehabilitation</li> <li>▪ Licences or registration for certain business activities</li> <li>▪ Workplace bullying and harassment</li> </ul>
Intellectual property	<ul style="list-style-type: none"> <li>▪ <i>Designs Act 2003</i> (Cth)</li> <li>▪ <i>Patents Act 1990</i> (Cth)</li> <li>▪ <i>Trade Marks Act 1995</i> (Cth)</li> <li>▪ <i>Intellectual Property Laws Amendment Act 2015</i> (Cth)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Patents</li> <li>▪ Trademarks</li> <li>▪ Product designs</li> <li>▪ Trade secrets</li> </ul>	<ul style="list-style-type: none"> <li>▪ Product development</li> <li>▪ Security of ideas, products and services</li> </ul>
Taxation obligations	<ul style="list-style-type: none"> <li>▪ <i>Goods and Services Tax Act 1999</i> (Cth)</li> <li>▪ <i>Australian Business Number Act 1999</i> (Cth)</li> <li>▪ <i>Fringe Benefits Tax Act 1986</i> (Cth)</li> <li>▪ <i>Income Tax Act 1986</i> (Cth)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Record-keeping obligations</li> <li>▪ Information management</li> <li>▪ Income tax</li> <li>▪ Goods and services tax</li> <li>▪ Capital gains tax</li> <li>▪ Fringe benefits tax</li> <li>▪ Superannuation</li> <li>▪ Stamp duty</li> </ul>	<ul style="list-style-type: none"> <li>▪ Pricing</li> <li>▪ Payments to staff</li> <li>▪ Invoicing</li> <li>▪ Cashflow</li> <li>▪ Accounting</li> </ul>

Legislative area	Examples of legislation	Where it impacts	What it impacts
Australian Consumer Law	<ul style="list-style-type: none"> <li>▪ <i>Competition and Consumer Law Act 2010 (Cth)</i></li> </ul>	<ul style="list-style-type: none"> <li>▪ Product safety standards</li> <li>▪ Misleading or deceptive conduct</li> <li>▪ Anti-competitive conduct</li> <li>▪ Consumer protection</li> </ul>	<ul style="list-style-type: none"> <li>▪ Product design</li> <li>▪ Marketing</li> <li>▪ Mergers and acquisitions</li> <li>▪ Market power</li> <li>▪ Customer service</li> <li>▪ Customer rights</li> <li>▪ Refunds</li> <li>▪ Warranties and guarantees</li> </ul>
Privacy	<ul style="list-style-type: none"> <li>▪ <i>Privacy Act 1988 (Cth)</i></li> </ul>	<ul style="list-style-type: none"> <li>▪ Collection, use, security and disposal of personal information</li> </ul>	<ul style="list-style-type: none"> <li>▪ Collection and use of customer data</li> <li>▪ Marketing</li> <li>▪ Database security</li> <li>▪ Information-sharing with other entities</li> </ul>
Employment	<ul style="list-style-type: none"> <li>▪ <i>Superannuation Guarantee Act 1992 (Cth)</i></li> <li>▪ <i>Fair Work Act 2009 (Cth)</i></li> <li>▪ <i>Age Discrimination Act 2004 (Cth)</i></li> <li>▪ <i>Racial Discrimination Act 1975 (Cth)</i></li> <li>▪ <i>Sex Discrimination Act 1984 (Cth)</i></li> <li>▪ <i>Disability Discrimination Act 1992 (Cth)</i></li> </ul>	<ul style="list-style-type: none"> <li>▪ Discrimination</li> <li>▪ Equal employment opportunity</li> <li>▪ Superannuation</li> <li>▪ Awards</li> </ul>	<ul style="list-style-type: none"> <li>▪ Recruitment</li> <li>▪ Employment contracts</li> <li>▪ Apprentices and trainees</li> <li>▪ Overseas employees</li> <li>▪ Rate of pay and employee entitlements</li> <li>▪ Complaints and disputes</li> <li>▪ Dismissing employees</li> </ul>
Online business	<ul style="list-style-type: none"> <li>▪ <i>Spam Act 2003 (Cth)</i></li> <li>▪ <i>Competition and Consumer Law Act 2010 (Cth)</i></li> </ul>	<ul style="list-style-type: none"> <li>▪ SPAM obligations</li> <li>▪ Privacy obligations</li> <li>▪ Consumer protection</li> <li>▪ Online security</li> </ul>	<ul style="list-style-type: none"> <li>▪ Internet-based marketing</li> <li>▪ Customer service</li> </ul>

Legislative area	Examples of legislation	Where it impacts	What it impacts
Tenders and contracts	<ul style="list-style-type: none"> <li>▪ <i>Competition and Consumer Law Act 2010 (Cth)</i></li> </ul>	<ul style="list-style-type: none"> <li>▪ Securing new business</li> <li>▪ Managing government and corporate opportunities</li> </ul>	<ul style="list-style-type: none"> <li>▪ Viability and security of business</li> <li>▪ Cashflow</li> <li>▪ Resourcing</li> </ul>
Corporate responsibility	<ul style="list-style-type: none"> <li>▪ <i>Corporations Act 2001 (Cth)</i></li> <li>▪ <i>Australian Securities and Investments Commission Act 2001 (Cth)</i></li> <li>▪ <i>Foreign Acquisitions and Takeovers Act 1957 (Cth)</i></li> <li>▪ <i>Insurance Act 1973 (Cth)</i></li> </ul>	<ul style="list-style-type: none"> <li>▪ Conduct and disclosure of companies</li> </ul>	<ul style="list-style-type: none"> <li>▪ Governance arrangements</li> <li>▪ Shareholder arrangements</li> </ul>

Australian and/or international standards may also apply to different industry sectors. Depending on the industry, standards may relate to:

- safety
- construction
- performance
- testing
- labelling
- information.

## Practice Task 4

### Question 1

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Which of the following are limitations of workplace procedures? Tick all that apply.

- Social media feedback
- The flexibility of the procedure
- The format in which the procedure can be accessed by staff
- Making the procedure available for the organisation's customer base
- The skills and knowledge of personnel

### Question 2

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What is the connection between an organisation's vision and its work practices?

### Question 3

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Why is it important to understand the impact of legislation on workplace procedures?

## Question 4

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Consider the order fulfilment process discussed earlier. List three examples of laws you may need to consider if you were designing or reviewing this process.

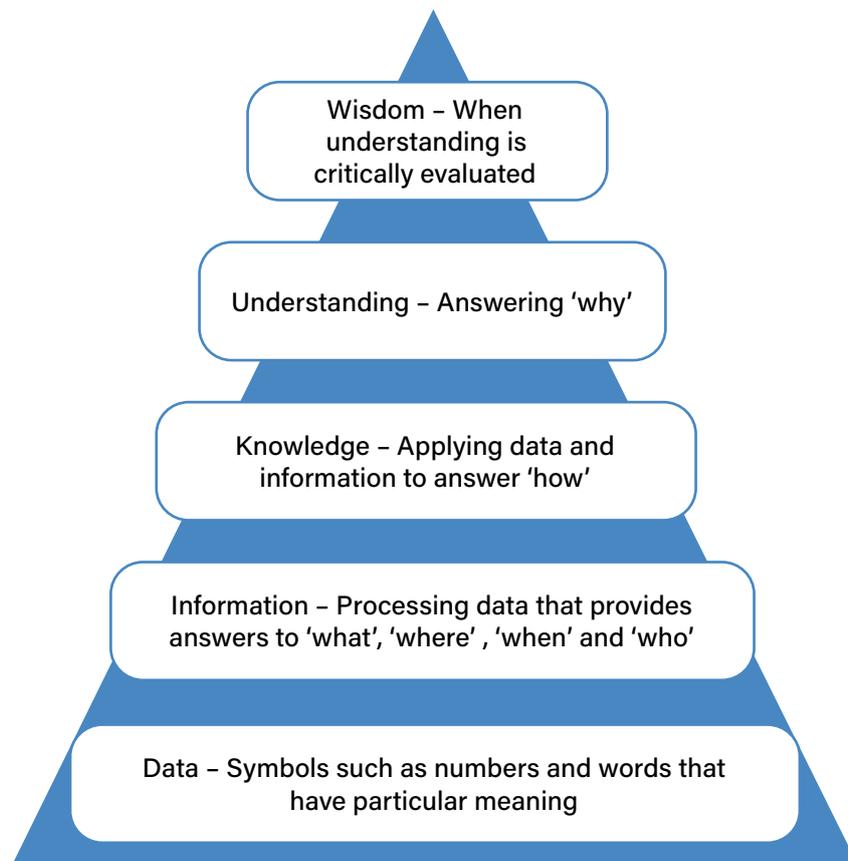


## 2B Locate information on work practices for the development of solutions

Critical thinking depends on gathering relevant and sufficient information.

Information plays a vital role in decision-making and critical thinking. The information you use to decide can be based on your own or others' experience, or on data and facts. You should exercise caution in deciding which information to use, ensuring its relevance and quality.

Organisations have multiple sources of current and historical data to assist with problem-solving and continuous improvement. Most organisations have policy and procedure manuals that detail how work practices are to be carried out and regularly report on their financial, production and quality performance. Individuals in an organisation are also a valuable source of organisational knowledge. When seeking to solve a workplace issue, accessing information from external sources is also worthwhile. It provides you with a broader perspective and allows you to identify best practices in your industry.



## Relevancy and sufficiency of information

The goal in critical thinking is wisdom. The starting point is data and information.

The DIKW Pyramid, developed by Russell Ackoff in 1989, makes a distinction between data, information, knowledge, understanding and wisdom. Data comes first, information is next, then knowledge follows and finally wisdom is on the top. The more we analyse data, the more knowledge and information we can extract. We can turn this knowledge and information into wisdom that guides our actions and decisions.

How do you determine if the data and information is relevant to the problem or question you are trying to solve?

There are three questions you should ask at various points in the critical thinking process:

1. How relevant is the information?	<ul style="list-style-type: none"> <li>How does it relate to the problem?</li> <li>How does it help to solve the problem?</li> </ul>
2. How sufficient is the information in regard to breadth?	<ul style="list-style-type: none"> <li>Do you need to look at this from another perspective?</li> <li>Do you need to consider another point of view?</li> <li>Do you need to look at this in other ways?</li> </ul>
3. How sufficient is the information in regard to depth?	<ul style="list-style-type: none"> <li>What factors make this a difficult problem?</li> <li>What are some of the complexities of this problem?</li> <li>What are some of the difficulties you need to deal with?</li> </ul>

## Gathering information

Relevant information should be gathered from a variety of sources.

When gathering information, it is important to differentiate between facts and opinions, and to consider the role of bias.

A fact is something that can be proven to be correct. There is evidence to support it.

An opinion is something that someone believes. It cannot be proven true or false.

When applying critical thinking, you should welcome a diversity of views and seek out a range of data and different subject matter experts for their knowledge and experience. We all have a tendency to accept without question the opinions of those in authority, or those with expert status. What you need is fact-based evidence, as well as expert opinion.

It is irrational to only gather information that supports a particular point of view. The intellectual standard of fairness means you must be impartial. Ask yourself the following questions to determine whether you may be biased:

- Do I have any stake in this issue?
- Am I sympathetically favouring certain views?
- Am I sourcing all the available evidence and opinions?

## Information sources

Critical thinkers use different information sources to gather a range of perspectives on the issue or problem being analysed.

Information technology means we can access numerous sources of information. Organisational internal systems store data related to business performance, finance and customers. External sources provide data related to the environment in which the organisation competes, including market trends, innovations and competitor activities. Accessing information from both internal and external sources allows you to develop a broad perspective and supports effective decision-making.

The different sources of information you can access, including people inside and outside your organisation, are detailed in the following table.

<b>Internal sources of information</b>	<ul style="list-style-type: none"> <li>▪ policy and procedure manuals</li> <li>▪ productivity data and reports</li> <li>▪ financial reports</li> <li>▪ marketing materials</li> <li>▪ customer survey data</li> <li>▪ safety management systems</li> <li>▪ intranet archives</li> <li>▪ experienced workers, supervisors and managers</li> <li>▪ training programs</li> <li>▪ audit reports</li> <li>▪ quality management systems</li> <li>▪ coaches and mentors.</li> </ul>
<b>External sources of information</b>	<ul style="list-style-type: none"> <li>▪ websites</li> <li>▪ government, industry and company reports</li> <li>▪ online blogs and social media</li> <li>▪ legislation</li> <li>▪ industry standards</li> <li>▪ conferences</li> <li>▪ market reports</li> <li>▪ financial reports</li> <li>▪ trade publications</li> <li>▪ equipment and product manufacturers</li> <li>▪ external coaches and mentors.</li> </ul>

It is important to understand and adhere to organisational policies and procedures for dealing with information and data. There may be rules about accessing, sharing and reproducing information, particularly when you are sharing commercially sensitive or private information outside the organisation.

## Verifying information

**Critical thinkers rely on information based on facts and not on opinions.**

With the proliferation of online information, we need to verify information before we pass it onto other people or base decisions on it.

Information can be verified if you can identify the source as reliable and can check on its accuracy. Remember the intellectual standards we mentioned in Topic 1? Applying these standards allows you to verify information. The more precisely you can define the problem or issue, the greater the chance that the information you gather will be relevant.

<b>Accuracy questions to ask include:</b>	<ul style="list-style-type: none"> <li>• How can we check on that?</li> <li>• How can we find out if that is true?</li> <li>• How can we verify or test that?</li> </ul>
<b>Precision questions to ask include:</b>	<ul style="list-style-type: none"> <li>• Could you be more specific?</li> <li>• Can you give me more details?</li> <li>• Can you be more exact?</li> </ul>

For example, the online publisher Wikipedia requires its users to reference information using verifiable citations so that others can check that the information has come from a reliable source. Wikipedia requires that the source material has been published and that the source publication has a structure in place for checking or analysing facts, legal issues, evidence and arguments.

## Interpreting numerical information

**An important consideration when gathering numerical data is determining its reliability.**

A phrase attributed to former British Prime Minister Benjamin Disraeli states: ‘There are three kinds of lies – lies, damn lies and statistics’.

Statistics, and what they infer, can be used to support a weak argument. But statistical data can be useful if you can verify its source, how the data was gathered and how the results were compiled and interpreted.

The message for critical thinkers is that whatever data you encounter and however it is presented, it must pass the intellectual standards we discussed earlier. That is, it must meet the following criteria:

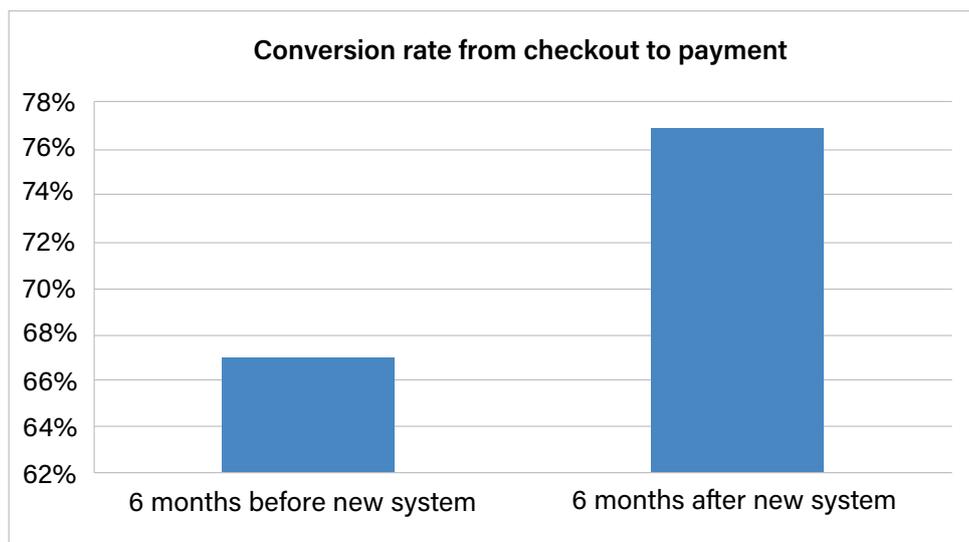
- Accuracy – Are the inferences correct?
- Relevancy – Does it relate to the problem or question?
- Logic – Does the evidence support the argument?

## Example

### Interpreting numerical information

BizOps, an online retailer, introduced new technology to try to reduce the number of abandoned shopping carts on its website. It wanted to improve the conversion rates to completed transactions; that is, from checkout to payment.

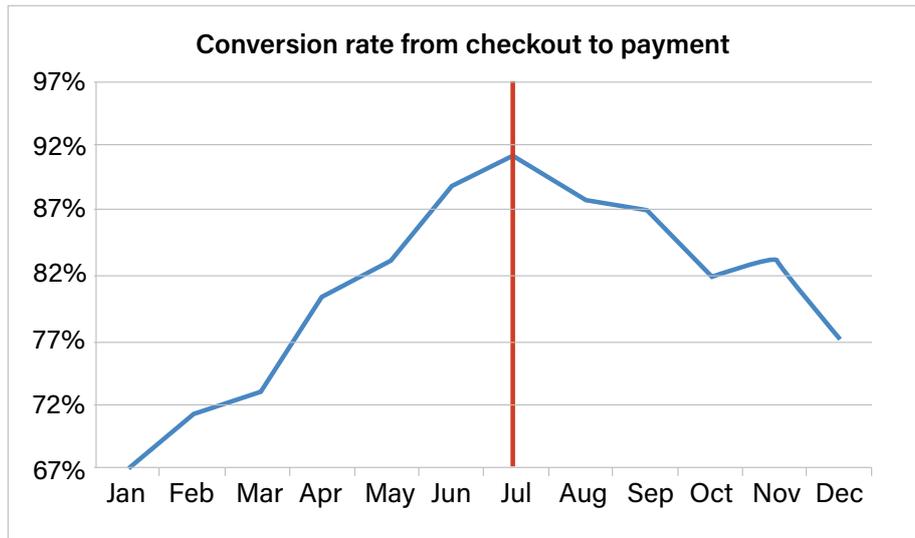
After trialling the new technology for six months, the following chart was presented by the business improvement team to the executive management of BizOps.



The chart above shows an improvement of 10 per cent over a 12-month period. The business improvement team concludes that the introduction of the technology was successful.

### Interpreting numerical information continued...

However, the chart below represents the same source data, showing the conversion rate for each of the six months leading up to the introduction of the new technology and the six months after. The vertical line shows the point at which the technology was introduced.



Comparing the two charts, is the conclusion of the business improvement team correct?

The average conversion rate in the six months either side of the point when the technology was introduced did indeed show an improvement. However, the conversion rates decrease after the technology was introduced.

A critical thinker would not say outright that the introduction of the technology caused the conversion rate to fall. Instead, they would investigate the cause of the fall in the conversion rate and the evidence to support it. In other words, it is not enough to assume that A led to B – there must be evidence to support this. Based on the data, you cannot conclude the technology made a difference.

## Example

### Locating information on selected work practices for the development of solutions

Online retailer BizOps wants to upgrade its online payment system. The senior management team commissions a report by an external consultant to critically evaluate the available options.

The consultant considers the following information sources:

- numerical data showing current usage of the online payment system and the potential weaknesses if the usage rate was to increase in line with business plan projections
- customer feedback on payment system functionality
- staff feedback on payment system functionality
- features of the current system used
- data security of the current system
- comparison of the current payment system with a market leader
- costs involved in transitioning from the current payment system to the consultant's recommended replacement, NowClick&Pay.
- The consultant presents his report and recommendations.

Although the senior management is happy with the analysis applied to internal information, it is not happy with the analysis applied to sourcing a replacement payment system.

The consultant failed to sufficiently and objectively review the available options and had only considered one option. He also failed to provide evidence to convince the senior management team that he had met their brief.

It was later revealed that the consultant had been a former employee of NowClick&Pay and was being paid a significant commission for any sales. It was also revealed that this was the system that the consultant was most familiar with and that he hadn't applied the same level of scrutiny when considering other options.

## Practice Task 5

### Question 1

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You have been asked to evaluate the effectiveness of your organisation's complaints-handling procedure. List five pieces of information that would assist your evaluation.

### Question 2

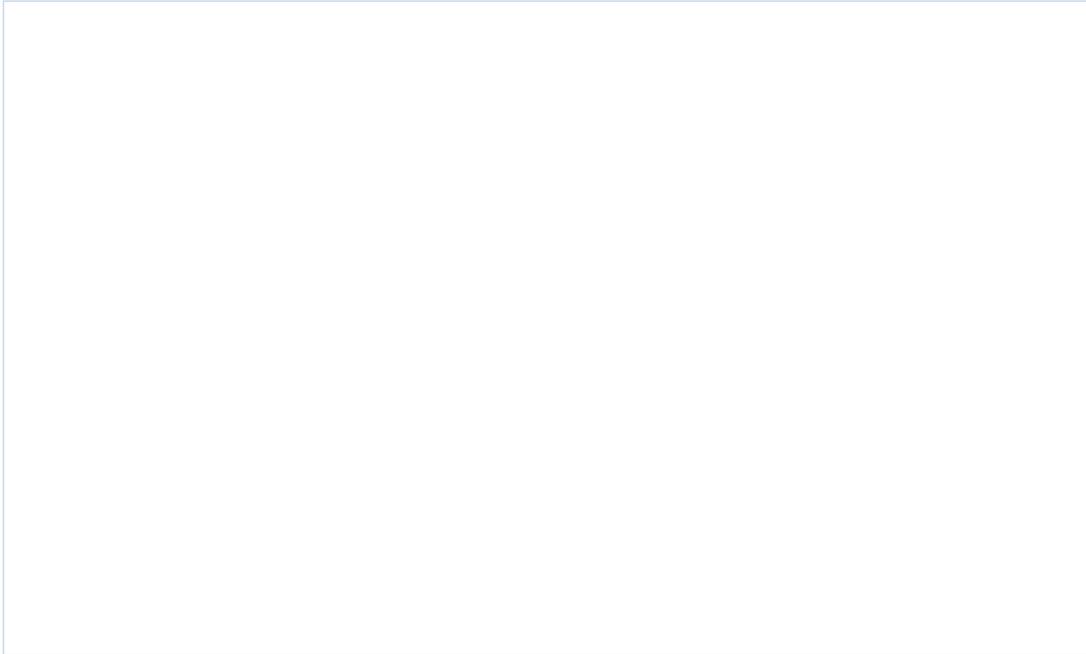
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Select two pieces of information identified above and explain how to verify each of these.

### Question 3

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You decide that you want to source information on complaints-handling from some external sources. Identify three sources of external information you could gather.



## 2C Determine solutions for workplace limitations using critical thinking concepts

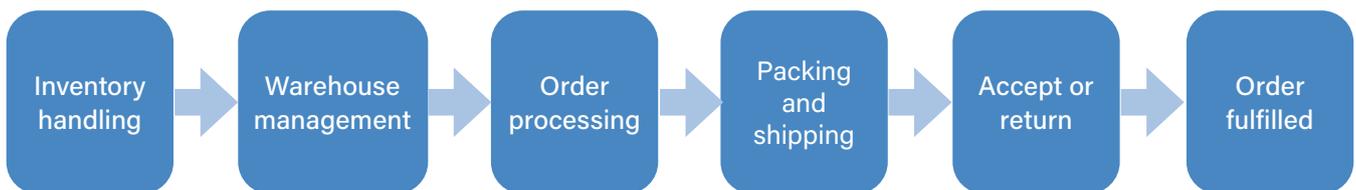
Products, services and processes can only be optimised if the thinking that led to their creation is sound.

Critical thinking can be applied to proposed or existing products, services and processes to evaluate their worth. By doing this we can uncover limitations in their purpose, design and scope, and develop solutions to address them.

### Applying critical thinking to processes

Before you can apply critical thinking to processes, you must first consider how procedures are performed and how they fit with the overall process.

Look again at the order fulfilment process from before.



Suppose this process forms part of the operations of an online retailer, BizOps, where customers select items in the online store, pay for them and then wait for delivery. When the items are delivered the customer decides to either accept or reject them based on BizOps's refund policy. If they accept the items, the order is said to be fulfilled. Inventory handling is the first procedure related to the order fulfilment process.

The inventory-handling procedure includes the following steps:

- Stock is received.
- Stock is temporarily stored and labelled.
- Stock is withdrawn, issued and moved through the order fulfilment process.
- Stock movement is tracked from the warehouse to the customer.

Applying critical thinking might include the following steps:

- Analyse and clarify the purpose of the process.
- Consider different points of view about the intent of the process.
- Understand the rationale behind the process and question its validity.
- Uncover and test assumptions about the product, service or process.

## Investigating limitations in processes

By asking a series of questions and testing the assumptions that have been made, you can expose the limitations that may exist in the inventory-handling procedure.

Critical thinking can be applied at a micro or macro level. It can examine the process as a whole, or can be used to drill down to the specific detail and question each step.

The aim is always to have sufficient information to make justifiable decisions or conclusions.

Here is an example of some critical thinking questions that may be applied when reviewing the inventory-handling procedure mentioned earlier.

<b>The stock</b>	<ul style="list-style-type: none"> <li>▪ Why does BizOps stock these particular items?</li> <li>▪ Who decides what is stocked, and on what basis did they make these decisions?</li> <li>▪ What amounts of stock are ordered?</li> <li>▪ What is the cost of storing this amount of stock?</li> <li>▪ What customer feedback is used in making these decisions?</li> <li>▪ Can stock be maintained in good condition? Does it store well?</li> </ul>
<b>Receiving stock</b>	<ul style="list-style-type: none"> <li>▪ Why is stock sent to these locations?</li> <li>▪ Have alternative locations been considered?</li> <li>▪ What are the advantages and disadvantages of these locations?</li> <li>▪ At what time of the day is stock received? Does it conflict with other activities?</li> <li>▪ What methods are used to receive and unload stock?</li> <li>▪ How quickly is stock unloaded and does it meet performance standards set?</li> <li>▪ What are the performance standards and how were they arrived at?</li> </ul>
<b>Temporary storage and labelling</b>	<ul style="list-style-type: none"> <li>▪ How is the decision made on where to store stock?</li> <li>▪ What criteria are used when labelling stock?</li> <li>▪ Does the labelling system make sense?</li> <li>▪ Is the labelling linked to the inventory database? If so, how?</li> <li>▪ How long can stock be stored for? What if it continues to take up space?</li> <li>▪ How is efficiency of storage measured?</li> </ul>

## Big picture questions

In addition to evaluating limitations in the steps of a procedure or process, there are often more global limitations that a critical analysis can address.

While a review of each step of a process may reveal some operational efficiencies, stepping back and applying a macro perspective can be helpful in evaluating the strengths and weaknesses of a process and where it can be improved.

Big picture questions to ask include:

- To what extent does the procedure allow personnel to make decisions, either autonomously or through reporting lines?
- What is the turnaround time on rapid decisions?
- To what extent does risk influence the ability of staff to make decisions?
- How flexible is the procedure or process in adapting to changes in business conditions or rules?
- What is the scope of the procedure or process and who does it apply to?
- What skills and knowledge are required by personnel to enact the procedure or process?
- What other procedures or processes, if any, is it dependent on?

If you apply critical thinking to the first question mentioned, you may find the following results:

- Personnel can make the following decisions autonomously:
  - What label to apply to stock
  - How the stock is to be stored
  - Where the stock is to be stored according to the warehouse plan
  - How the stock is to be tracked
- Decisions that may require supervisor or higher management approval may be:
  - The time of day stock can be received
  - Changes to the warehouse plan
  - Changes to the labelling criteria
  - The amount of stock to be kept onsite.
- Decisions that may only be made at an executive level may include:
  - Warehouse location
  - Shipping contractors
  - Performance indicators and measures
  - Performance expectations.

## Example

### Developing solutions for workplace limitations using critical thinking

Plants4+Us is a wholesale nursery that ships plants around Australia from three locations in Victoria, NSW and Queensland. It recently reviewed its packing and shipping procedure following a review of customer feedback over the last 12 months. Customer feedback included the following summary comments:

- Plants4+Us prices are the best in Australia when combined with shipping rates.
- If there was delay by up to two days, the quality of the product would be reduced.
- Delivery to major centres, such as capital cities, in cooler conditions was mostly without issue.
- Delivery to regional areas was often problematic and products would often arrive dehydrated or damaged.
- Delivery in warmer months was problematic for all destinations, with customers complaining of distressed plants such as wilting leaves and dehydration.

Plants4+Us secures a contract with a national courier company at low rates, allowing it to be very competitive on pricing. Plants4+Us is willing to implement a 10 per cent refund or replacement policy on its product, assuming that the volume of sales will compensate for this loss.

A nursery supervisor is asked to review the original decision to pack and ship plants according to the current procedure. She discovers the following:

- The way plants are being shipped hasn't been reassessed since the company started eight years ago.
- The shipping contract requires standard delivery and does not offer an express service.
- Nurseries are able to send plants with their root soil intact rather than bare-rooted stock, and although this makes for additional weight, the cost would not be too much higher.

In light of these findings, the supervisor proposes the following:

- Giving autonomy to nurseries to use express delivery for all regional areas all year round and for major centres in summer months.
- Changing the performance measure to not only be exclusively cost-based, but also to include savings in refunds and replacements.
- Making it mandatory for plants to be sent with root soil to all regional areas all year round, and to major centres in the warmer months.

Plants4+Us is reluctant at first to adopt this approach because it is fearful of rising costs. It agrees to trial the idea in one of its locations for six months.

## Practice Task 6

### Question 1

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Which of the following must be done before you can apply critical thinking to processes? Tick all that apply.

- You must consider how procedures are performed
- You must verify the information relating to the process
- You must consider how procedures fit with the overall process
- You must gather information from relevant stakeholders
- You must consider customer needs

### Question 2

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The steps in a complaints-handling procedure are as follows:

1. Listen to the complaint and be understanding towards the complainant.
2. Record the complaint.
3. Discuss options for fixing the problem.
4. Implement a solution.
5. Follow up with the complainant.

What are three questions you could consider to explore limitations in the final step of the process?

## 2D Develop a proposal for workplace limitations using a decision-making framework

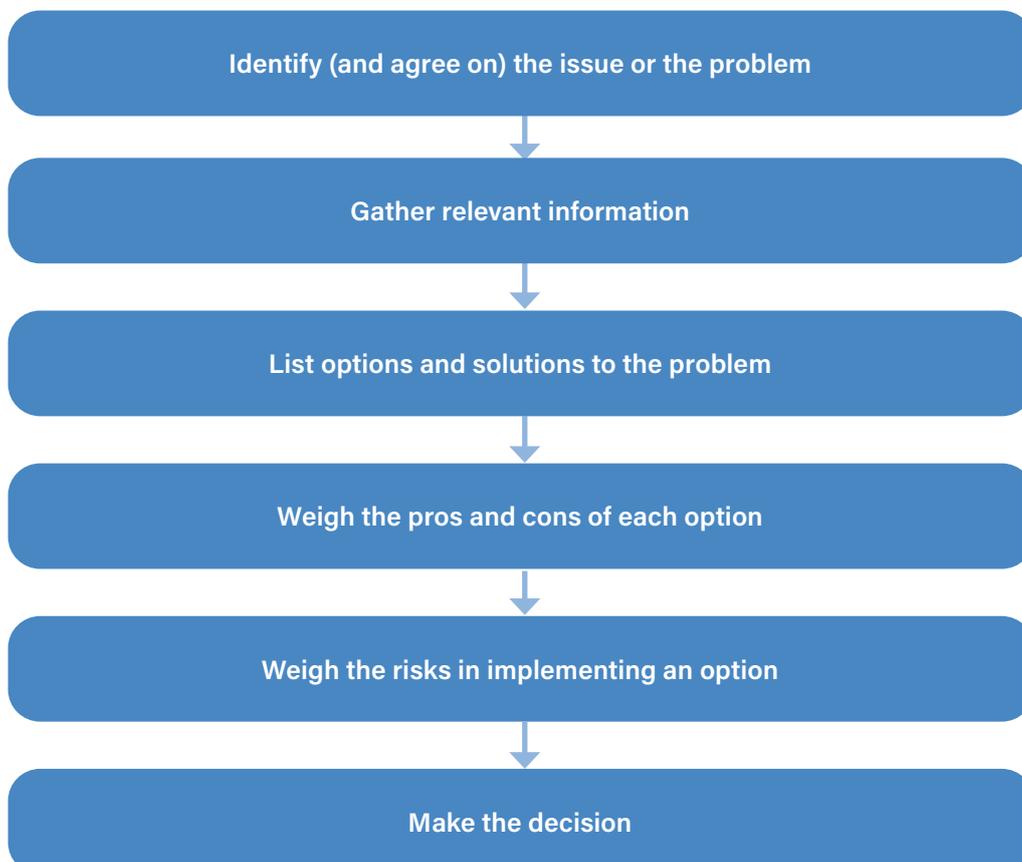
Good decision-makers have a structured framework they follow when making decisions.

Making effective decisions and winning support for a proposal is more likely when you apply a structured approach to decision-making.

### A decision-making framework

There are many models of decision-making, some of which have been designed for specific purposes.

Different decision-making frameworks are used in different industries and projects. For example, in high-risk, high-cost construction projects, a number of different types of decision-making frameworks will be applied. Whatever approach to decision-making is used, critical thinking is applied at each step of the process. A typical decision-making framework used in organisations is shown below.



The table below shows how critical thinking and intellectual standards can be applied to ensure the decision-making process is robust.

Steps in decision-making	Critical thinking techniques	Intellectual standards that apply
Identify and agree on the issue or problem	<ul style="list-style-type: none"> <li>Analyse the issue</li> <li>Clarify the issue</li> <li>Question the information</li> </ul>	<ul style="list-style-type: none"> <li>Clarity – Is everyone clear on the issue/problem?</li> <li>Precision – Can you precisely describe the issue/problem?</li> </ul>
Gather relevant information	<ul style="list-style-type: none"> <li>Analyse the information</li> <li>Understand the theories or concepts that are used</li> </ul>	<ul style="list-style-type: none"> <li>Relevance – Is the information relevant to the issue/problem?</li> <li>Accuracy – Are you able to verify all information included in the process?</li> <li>Precision – Does the information contain enough facts and details to make it useful?</li> <li>Significance – What is the most significant or important information to aid decision-making?</li> </ul>
List options and solutions for the decision	<ul style="list-style-type: none"> <li>Clarify the possible solutions</li> </ul>	<ul style="list-style-type: none"> <li>Clarity – Are options and solutions clear to all?</li> <li>Relevance – Are options and solutions relevant to the issue or problem?</li> <li>Fairness – Has everyone declared any bias or conflict of interest in relation to the proposed solutions?</li> </ul>
Weigh the pros and cons of each option	<ul style="list-style-type: none"> <li>Consider different perspectives</li> <li>Test assumptions</li> <li>Analyse the options</li> <li>Question the options</li> </ul>	<ul style="list-style-type: none"> <li>Depth – Which solutions address the complexities of the issue/problem?</li> <li>Breadth – Which solutions address the scope of the issue/problem?</li> <li>Logic – Do the proposed solutions make sense and will they address the core elements of the issue/problem?</li> </ul>
Weigh the risks in making the decision	<ul style="list-style-type: none"> <li>Consider different perspectives</li> <li>Test assumptions</li> <li>Analyse the decision</li> <li>Question the decision</li> </ul>	<ul style="list-style-type: none"> <li>Clarity – Are the risks clearly defined?</li> <li>Accuracy – Are the risks accurate?</li> <li>Relevance – Are the risks relevant?</li> <li>Depth and breadth – Have all the risks been identified?</li> </ul>
Make the decision	<ul style="list-style-type: none"> <li>Clarify the decision</li> </ul>	<ul style="list-style-type: none"> <li>Clarity – Is the decision clear?</li> <li>Logic – Is the decision logical and does it offer a viable solution?</li> </ul>

## Asking critical thinking questions

Every stage of the decision-making process involves asking questions of people and data.

Decision-making requires answers to questions. The answers to these questions provide you with the evidence on which to base your decision.

Elder and Paul (2012) distinguish three types of questions that critical thinkers find useful when gathering information.

<b>Judgment questions</b>	<ul style="list-style-type: none"> <li>▪ Answers will vary.</li> <li>▪ Involves seeking the best answer within a range of possibilities.</li> <li>▪ Requires evidence and reasoning.</li> <li>▪ Answers are evaluated using intellectual standards.</li> </ul>
<b>Preference questions</b>	<ul style="list-style-type: none"> <li>▪ May lead to a subjective opinion.</li> <li>▪ There are as many answers to a question as there are different human preferences.</li> <li>▪ No evidence or reasoning is required.</li> </ul>
<b>Process questions</b>	<ul style="list-style-type: none"> <li>▪ Involves fact-based questions.</li> <li>▪ Includes questions with an established procedure or method to find the answer.</li> <li>▪ Requires evidence and reasoning.</li> </ul>

Consider the following three questions about a marketing campaign:

- How do we decide which marketing medium mix to use?
- What colour scheme should we use to produce the branding for the campaign?

How do we launch the marketing campaign?

1. The first question is a judgment question and there will be a variety of answers depending on what evidence can support them and what reasoning has taken place.
2. The second question is a matter of opinion or preference. Answers will vary based on current trends and personal preferences.
3. The third question is a process question. The answer will identify an order to follow and when each step needs to be taken.

For example:

Judgment question: How do we decide which marketing mix to use for this product?	There are complexities involved and multiple inputs that need to be considered. These include: <ul style="list-style-type: none"> <li>▪ budget</li> <li>▪ timing</li> <li>▪ competitor marketing</li> <li>▪ target audience</li> <li>▪ prior experience.</li> </ul>
Preference question: What colour scheme should we use to produce the branding for the campaign?	This will depend on a number of factors, including: <ul style="list-style-type: none"> <li>▪ What options are available to use in the marketing mix?</li> <li>▪ What does the customer want from the product?</li> <li>▪ Where will customers look for this product?</li> <li>▪ What are the current trends?</li> <li>▪ What colours are competitors using to promote their products?</li> </ul>
Process question: How do we launch the marketing campaign?	This can be answered by referring to the procedure. For example, the following steps need to be completed: <ol style="list-style-type: none"> <li>1. Determine the target audience.</li> <li>2. Decide on a marketing mix.</li> <li>3. Determine the colour scheme.</li> <li>4. Design marketing material.</li> <li>5. Test the effect of the marketing materials on a focus group.</li> <li>6. Use feedback to make final changes.</li> <li>7. Launch the campaign.</li> </ol>

## Developing a proposal

The decision-making process may have led you to an optimal solution, but you need to be able to convince others to implement the solution.

Many organisations have a process for signing off on decisions made prior to their implementation. You may have to present information to others and obtain their approval to proceed with the proposal. Organisational policies and procedures provide guidelines for how to seek approval for your proposal.

Each organisation has its preferred formats and templates for proposals. Whatever format is required, the purpose of your presentation or written proposal is to show how you arrived at your decision and to convince decision-makers that your proposal should be approved.

Sample topics
1. The details of those involved in making the decision.
2. The issue on which the decision was based.
3. The purpose of resolving the issue.
4. An explanation of the critical thinking approaches used.
5. The source and sufficiency of information used.
6. An analysis of numerical data related to the issue.
7. Addressing assumptions about the issue.
8. Consideration of alternative perspectives.
9. An outline of the decision-making framework used.
10. An outline of the proposed solution and a justification for this decision.
11. An outline of the actions required to implement the solution and address the issue, including the required resources, costs, time frame, responsibilities, and any relevant policies and procedures.

When preparing your proposal, think about your audience. Keep in mind that in busy organisations, people do not have time to read long documents or listen to convoluted presentations. Any proposal you prepare should:

- be clear and concise
- use headings or a new slide to separate sections
- focus on the evidence and the data you have analysed
- identify the benefits of your proposal.

Don't pad out your proposal by cutting and pasting from other documents or talking about irrelevant details. Use language that everyone can understand and avoid jargon and acronyms. Don't include complex spreadsheets, your audience will not understand them. Summarise the key information you want your audience to take from the spreadsheet.

## Example

While some people like to read information or listen to a presentation, others are visual thinkers.

Software, such as PowerPoint and Prezi, can be especially useful when communicating your proposal.

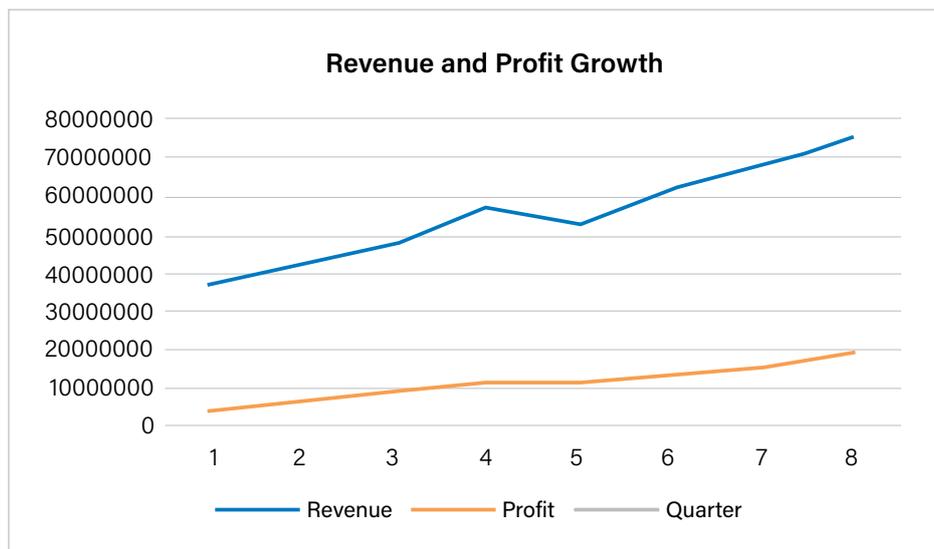
If your organisation has multiple offices, virtual conferencing tools, such as Skype, Zoom and Microsoft Teams, allow you to interact with others virtually and provide opportunities for participants to ask questions, share ideas and give feedback. You don't have to rely on written interaction when you can talk directly to an individual or group.

It is a good idea to visually convey numerical information. For example, you can read the following statement: 'This year sales increased by 50 per cent while profit jumped by 72 per cent compared to last year'. However, it can be much more meaningful to prepare a chart showing growth of revenue and profit over time, like the one below.

Regardless of the format and method used to present your proposal, make sure that you:

- have a well-written proposal — proofread your report or slides before publishing them
- include all the necessary details
- anticipate the questions your audience might ask
- prepare in advance and even rehearse a face-to-face presentation.

It is a good idea to ask a colleague to review your proposal before finalising it. Incorporate any of their worthwhile suggestions.



## Practice Task 7

### Question 1

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Number from 1 to 6 each step in the decision-making process.

- Make the decision
- List options and solutions to the problem
- Weigh the pros and cons of each option
- Identify (and agree on) the issue or the problem
- Weigh the risks in making the decision (or not making the decision)
- Gather relevant information

### Question 2

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Why is active listening an important skill for critical thinkers?

### Question 3

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Provide an example of a critical thinking technique that can be used at each step of the decision-making process.



## Question 4

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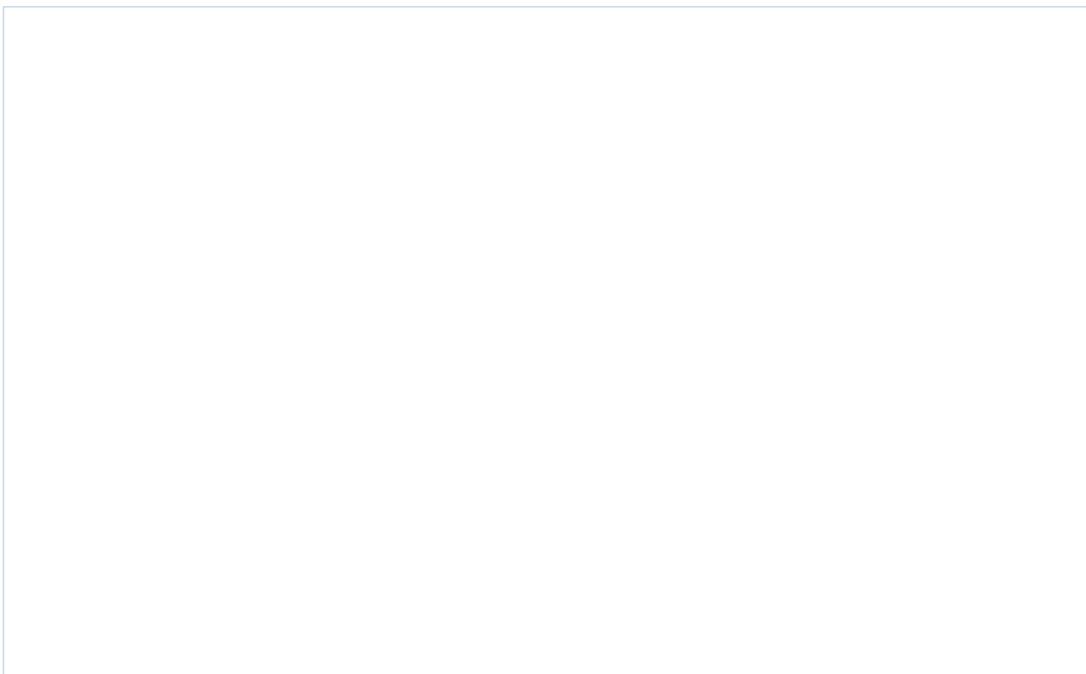
Identify three types of questions that can be used when applying critical thinking. Provide an example question for each question type.



## Question 5

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A colleague has asked you for some tips on how to present a proposal to senior management. Identify five tips you could provide.



## 2E Articulate and justify the decision-making process to relevant stakeholders

A critical aspect of any decision-making process is the ability to evaluate your reasoning.

Evaluating your reasoning is the first step towards justifying the decision-making process to relevant stakeholders. Consider the following questions to help you evaluate whether your reasoning will stand up to scrutiny, and whether you can justify the rationale for your proposal.

<b>Purpose</b>	<ul style="list-style-type: none"> <li>What is the purpose of the decision?</li> <li>Is it clearly stated?</li> <li>Is it justifiable?</li> <li>What are you trying to accomplish?</li> <li>Can you state your purpose clearly?</li> </ul>
<b>Question</b>	<ul style="list-style-type: none"> <li>What question are you trying to answer?</li> <li>Is the question well stated?</li> <li>Is it clear and unbiased?</li> <li>Does the question address the complexity of the issue?</li> <li>Are the question and purpose directly relevant to each other?</li> <li>Are there other ways to think about the question?</li> </ul>
<b>Information</b>	<ul style="list-style-type: none"> <li>Is the evidence and information relevant to the issue?</li> <li>Is the information accurate?</li> <li>Are the complexities of the issue covered?</li> <li>What information are you using to reach your conclusion?</li> <li>What evidence did you use to support your claim?</li> <li>What other information might you need?</li> </ul>
<b>Concept</b>	<ul style="list-style-type: none"> <li>Are the key concepts clarified?</li> <li>What is your main idea?</li> <li>Can you explain your idea clearly?</li> </ul>
<b>Assumptions</b>	<ul style="list-style-type: none"> <li>Has any information been assumed or taken for granted?</li> <li>What assumptions have led you to your conclusion?</li> <li>Is any bias evident?</li> </ul>
<b>Inferences</b>	<ul style="list-style-type: none"> <li>Is your line of reasoning explained well?</li> <li>How did you reach your conclusion?</li> <li>Is there another way to interpret the information?</li> </ul>

<b>Point of view</b>	<ul style="list-style-type: none"> <li>• Have you considered alternative points of view or lines of reasoning?</li> <li>• Are objections framed from other relevant points of view?</li> <li>• From what perspective are you looking at the issue?</li> </ul>
<b>Implications</b>	<ul style="list-style-type: none"> <li>• Have you considered the implications and consequences of your position?</li> <li>• If someone accepted your position, what would be the risks and implications?</li> </ul>

## Reaching defensible decisions

A defensible decision means that you can defend the thinking and reasoning that led to it.

A final decision and the process used to make that decision must be able to stand on their own merits. You can defend the thought processes that have transpired by using persuasive techniques, such as showing how problem-solving and critical thinking skills were used to reach conclusions and identify solutions. You should be able to show how you used a critical thinking approach to arrive at your decision. To justify your decision, you should be able to show that you have:

- consulted an appropriate range of stakeholders, and considered their views and perspectives
- sourced relevant and sufficient information from a range of reliable resources
- analysed the information and ensured that it was free of bias
- uncovered assumptions
- used a range of intellectual standards and held decision-makers to account
- based your reasoning on evidence
- considered a range of options for a solution and judged them on their merits
- declared potential conflicts of interest or bias
- worked within the parameters of policies and procedures to make decisions and obtain approval for them.

An important final step in the decision-making process is documenting the outcome. This provides an evidence trail if someone questions who made the decision and the reasons for this.

## Justifying decisions

You need to be able to demonstrate the reasons for your decision by putting forward a logical argument that led to it.

Here is a list of several different styles of arguments that can be used to help justify a particular decision or conclusion. As you read these, think about which ones have value, are logical and are based on sound reasoning.

<b>Anecdotal evidence</b>	<ul style="list-style-type: none"> <li>▪ This is an attempt to persuade by agreeing on a conclusion based on the experiences of one or more individuals.</li> <li>▪ Anecdotal evidence is often inaccurate but may provide evidence if several people have observed or experienced the same thing.</li> <li>▪ It is different from scientific evidence or proof-based findings from systematic observation or measurement.</li> </ul>
<b>Appeal to authority</b>	<ul style="list-style-type: none"> <li>▪ This argument provides evidence by referencing an expert's opinion on a particular subject.</li> <li>▪ You must be wary if the opinion is not unanimously held among experts or if the person's field of expertise is not relevant to the issue being discussed.</li> </ul>
<b>Circular reasoning</b>	<ul style="list-style-type: none"> <li>▪ This type of reasoning assumes that a belief is correct because it is supported by other beliefs, which may or may not be correct.</li> <li>▪ An example of circular reasoning is: I assume A is correct because it is supported by B; I assume B is correct because it is supported by C; I assume C is correct because it is supported by A.</li> </ul>
<b>Slippery slope</b>	<ul style="list-style-type: none"> <li>▪ This is an argument that requires us to believe that incremental causal changes will likely happen if we make certain decisions.</li> <li>▪ These arguments can lead us to believe that some decisions will result in changes for the worse without sufficient evidence that the changes are likely to actually happen.</li> </ul>
<b>One-sidedness</b>	<ul style="list-style-type: none"> <li>▪ This type of argument presents reasons to believe something while ignoring or marginalising the reasons against believing it.</li> <li>▪ It is also known as selective evidence, in which information or facts are cherry-picked and quoted out of context.</li> </ul>
<b>Justification</b>	<ul style="list-style-type: none"> <li>▪ This method uses evidence or reasons to convince others to believe something.</li> <li>▪ Observation, self-evidence, intuition and appeals to authority are examples of justification.</li> </ul>

## Example

### Justifying decision-making processes to stakeholders

AtoZ Distributors run a fleet of small tonnage trucks for delivering a variety of fresh produce to its clients. Half of the fleet is due to be replaced this year according to company policy. Jodie has been tasked with researching replacement vehicles, deciding which make and model to purchase, and presenting a proposal to the fleet manager and the finance team.

Jodie's research includes:

- interviews with drivers to determine the features required in the ideal truck
- discussions with truck manufacturers and distributors to determine initial costs, running costs, servicing costs and delivery time frames
- discussions with fleet management companies to explore leasing options
- discussions with suppliers to determine their current and future needs regarding storage requirements and projected volumes of cargo.

After gathering this information, Jodie calls a meeting with a cross-section of drivers and the fleet management team to present her proposal.

Jodie's proposal includes a summary of the evidence considered, such as independent performance data on a range of makes and models, and a comparison of costs over time when leasing compared to purchasing the vehicles. All her reasoning is backed by facts and data, and other relevant information. She has gathered information from a variety of independent sources.

Jodie makes the following proposals:

- Leasing all vehicles.
- Using a range of trucks to suit different client needs based on existing and future needs. The range includes:
  - smaller trucks for urban delivery to smaller business outlets, including cafes and restaurants
  - larger trucks for distribution to wholesalers and large hospitality clients, such as international hotels.

At the conclusion of the meeting, the group endorse Jodie's proposal and send it to the Executive for approval.

## Practice Task 8

### Question 1

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Read the following two paragraphs and comment on whether you consider the decision made by the marketing manager to be defensible.

The product design and marketing teams were deciding on the best date to launch a new product. They were using historical data, customer demographics, competitor comparisons, previous product launch campaigns and their success rates to help make their decision.

They arrived at a decision and put it to the marketing manager, who changed the date by two months, saying that the marketing team had too much on and couldn't devote time or resources until then.

### Question 2

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Explain why a variety of critical thinking techniques should be used in the workplace decision-making process.

### Question 3

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You are part of a meeting where a proposal to restructure the administration function of the business is being decided. The manager is proposing the restructure, arguing that a similar structure worked well at his previous job. He also argues that a management consultant he employed previously thinks it is a good idea.

Will you support a restructure based on these arguments? Give two reasons for your response.

## Summary

- The organisation's products, services and processes should reflect the organisation's vision and strategic goals.
- Legislation will act as both an enabler and an inhibitor of an organisation's workplace practices, and must always be considered in critical thinking.
- Limitations of workplace products, services and processes can occur at a macro or a micro level. Limitations can be exposed through careful and detailed analysis and by asking the right questions.
- Information is only useful in critical thinking if it is relevant to the issue/problem being addressed.
- Information needs to be verifiable if it is to be accepted and seriously considered.
- Numerical information used to support an argument needs to be objectively analysed.
- Critical thinking applied to decisions maximises the chance of the decision being the best possible one.
- Solutions and decisions often need to be approved and are best presented as a proposal in accordance with an organisation's policies and procedures.
- Decisions made using critical thinking principles will be defensible because decision-makers have used evidence and sound reasoning to decide.

## Learning Checkpoint 2

### Lead the critical thinking process

#### Part A

1. List three components that should be included in all workplace procedures.

2. Your team has a problem completing and uploading reports to a government website. This is a compliance issue and funding may be withheld if there are further delays. Team members report they are following the procedure but the procedure is taking them too long to complete. You need to investigate the problem. Identify five questions you will ask when investigating this issue?

3. Name three areas in an organisation that are impacted by legislation. For each area, give two examples of specific legislation that may apply.

4. Give three examples of possible limitations of a workplace procedure or process.

5. Identify why it is necessary to verify information used in a critical thinking process.

6. Your team asks why you want them to apply a decision-making framework when investigating a procurement problem. Identify four benefits of applying a decision-making framework when investigating a workplace problem.

7. What is the benefit of following organisational policies and procedures when developing a proposal to solve a problem related to current workplace practices?

8. You have been asked to analyse numerical data that your colleagues believe indicates a significant increase in sales of a specific product. Using the skills of critical thinking, identify three questions you should ask when undertaking your analysis of this data.

9. A written proposal is one of the methods of communication that can be used to convince others to implement a solution to a workplace limitation. Identify five topics that should be covered in a written proposal designed for this purpose.

10. Why is it important for solutions or conclusions reached to be defensible or justifiable?

11. You are using a decision-making framework to solve a problem the finance team is having using new software. Give four examples of information you will gather to assist you in progressing this decision.

## Part B

The Fancy Gift Company has an inventory-handling procedure that involves putting stock into temporary storage and labelling it. Van is the team leader and organises a team meeting to determine if this procedure is working. Over the past month there have been delays in fulfilling customer orders and stock is banking up in the warehouse.

1. What are three activities Van should include on the meeting agenda?

2. Identify three critical thinking questions Van's team could ask to expose the limitations of this step in The Fancy Gift Company's inventory-handling procedure.

3. Van's team identify a number of possible solutions. They need to determine the criteria they could use to determine the optimal solution. Identify three criteria the team could use to evaluate their solutions.





## Topic 3 | Develop a critical thinking mindset

- 3A Review decision-making practices
- 3B Seek feedback on use of critical thinking from stakeholders
- 3C Identify areas for self-development
- 3D Plan for future process evaluations and incorporate improvements

## 3A Review decision-making practices

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Organisations must have confidence in their decision-making abilities because decisions determine an organisation's fate.

Decisions are made to achieve specific outcomes. Organisations are more likely to review their decision-making practices if and when they make poor decisions. Even if organisations are consistently making good decisions, they need to understand why this is. Is it simply luck or are there other factors at play?

Evaluating its decision-making practices, supports an organisation, to:

- strive to achieve best practice
- review its expectations – are these set too low or too high?
- review the metrics it uses – is it measuring the right thing?

Evaluating decision-making practices will not guarantee effective decisions being made in the future, but it can help ensure the organisation makes the best decision on the information available at the time.

Project managers are taught to schedule 'lessons learned' meetings as part of a project close-out. 'Lessons learned' is the learning that a project team gained from working on a project. Sharing lessons learned among project team members prevents an organisation from repeating the same mistakes and allows them to identify and share best practices. The same approach can be made to decision-making. Reflecting on and evaluating decision-making processes provides a key learning opportunity for everyone involved.

## Example

### Reviewing decision-making practices

In 2009 the Australian government announced a home insulation package as part of its \$42 billion stimulus package to protect the economy from the fallout of the global financial crisis. Four workers died while installing reflective foil sheeting in the roofs of homes. A change in government resulted in a Royal Commission into the deaths.

The Royal Commission reached the following conclusions:

- The scheme was not properly designed and implemented.
- The scheme enabled large numbers of inexperienced workers to take on potentially dangerous work.
- The decision to use reflective foil was flawed and contributed directly to the deaths.
- Electrical safety issues were raised, but nothing was done to prevent further tragedies.
- The two aims of the project – to insulate 2.2 million homes and to stimulate the economy – were in conflict with each other.
- Planning of the insulation process was sacrificed to speed up the implementation.
- Neither the minister administering the program nor the parliamentary secretary was advised of the risk of injury to installers.

The report found that the conflict between planning and speed 'caused a number of decisions to be made ... which unnecessarily exposed workers, particularly inexperienced ones, to an unacceptably high risk of injury or death'.

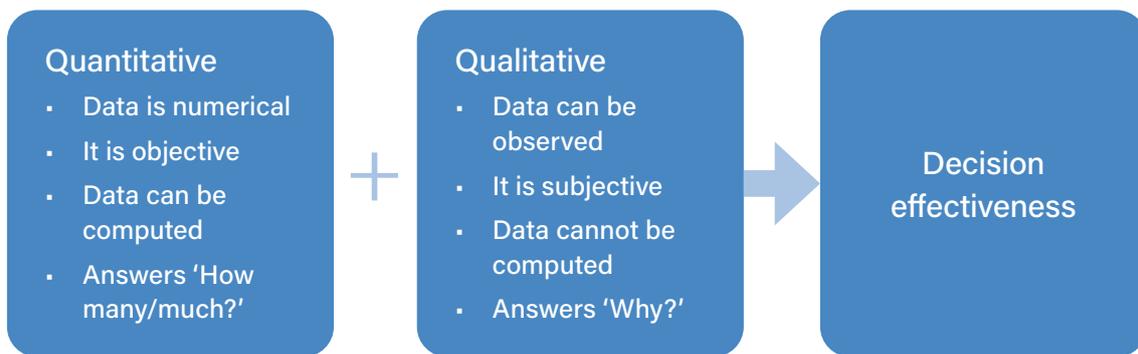
The home insulation package scheme involved a number of major decisions. The problem was not with the decision to stimulate the economy; rather, it was with the decisions made when designing and implementing the scheme.

A key issue in the decision-making process was the lack of attention to risk. Another key issue was a lack of transparent communication between stakeholders. This resulted in key decision-makers being ill informed about the information they needed to make the initial decision. They were not advised of safety issues with the implementation, which should have triggered a review of the implementation decision.

## Measure the effectiveness of decisions

Effectiveness is a measure of the degree to which a decision produces results.

Evaluation involves both qualitative and quantitative elements.

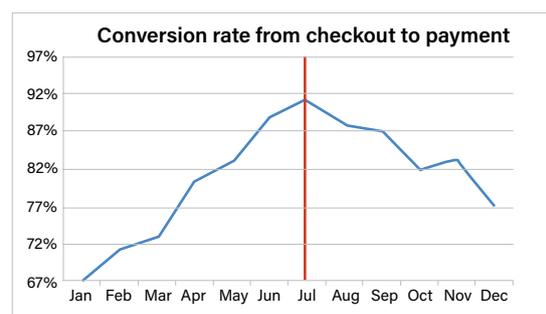
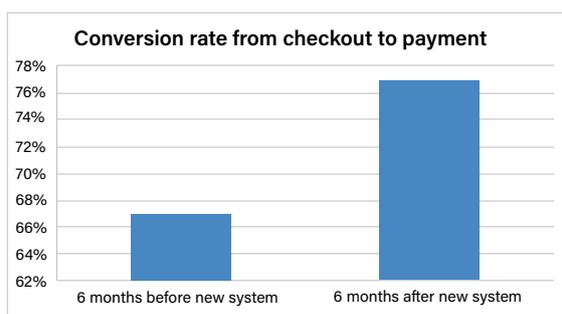


Quantitative information is measurable. It deals with numbers, quantities and values. This form of data is expressed as a number – amount, duration, percentage, price or size. Since quantitative data is generated through statistics, it has a lot of credibility and is considered to be objective and reliable.

When considering quantitative measures, make sure the following questions have been considered:

- What needs to be measured?
- How can we measure it?
- Is the data reliable?
- Is the data accurate and precise?

Data presentation and interpretation is important. In the previous topic we looked at two charts showing the conversion rate from checkout to payment of BizOps online sales, both telling very different stories based on how the data was presented.



When using data to evaluate the effectiveness of decision-making, you need to apply critical thinking by asking the following questions:

- What does the data relate to?
- What influences the range and fluctuations in the data?
- Does the data justify the inference you are drawing from it?
- Can you view the data from a different perspective?
- How else could the data be interpreted?
- Is this data dependent on other data or processes?
- Is the inference or conclusion you are making dependent on other factors?

## Qualitative measures

Qualitative measures are subjective and answer 'why' questions.

Qualitative information is descriptive in nature. It is not usually measurable, at least not directly, but rather it can be gleaned through observation.

Two qualitative approaches to measure decision-making effectiveness are benchmarking and the balanced scorecard.

## Benchmarking

Benchmarking is a means of comparing performance against an industry or other form of standard, or against market leaders. Examples include:

- Introducing a new customer service process and benchmarking the results against industry best practice
- A city benchmarking its quality of life measurements against other cities in the world
- A manufacturer of lightbulbs benchmarking bulb efficiency and lifespan against competitor products
- A construction company benchmarking its project variance on time, cost and quality with project benchmarks in another industry sector.

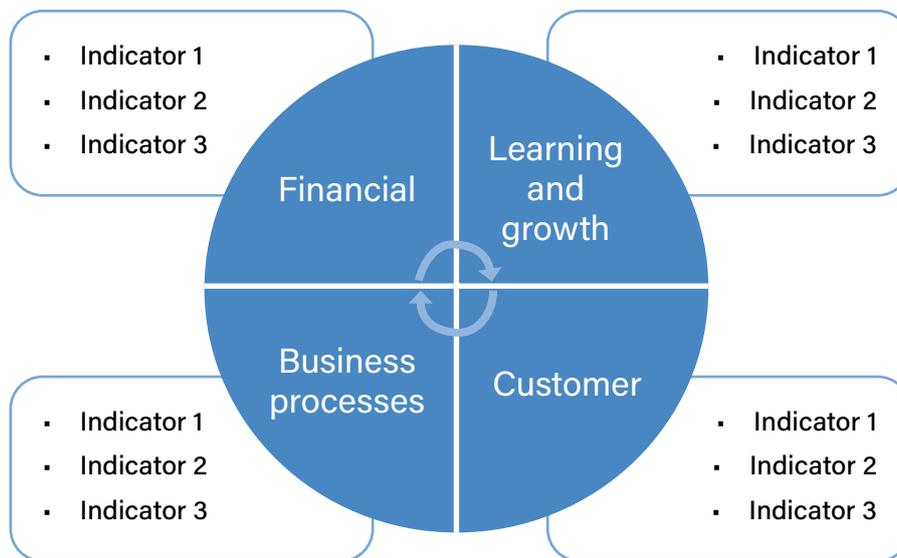
Benchmarking can also be used within a business. For example, comparing the decision-making process used in one department to that used by another department.

## The Balanced Scorecard

The Balanced Scorecard was developed by Kaplan and Norton in 1992. This tool is used to manage the performance of an organisation against its strategy, but it can also be used to evaluate the performance of decisions. The 'balance' refers to the fact that financial as well as non-financial measures are used.

Typically, there are four items that are monitored:

- Financial – Monitors cashflow, sales, revenue and return on equity.
- Customer – What is important to customers and stakeholders?
- Business processes – What must the organisation excel at and do the processes support it?
- Learning and growth – Monitors growth and innovation.



The Balanced Scorecard for evaluating the effectiveness of decisions can provide both qualitative and quantitative measures.

Recall the decision made by BizOps (in a previous example) to introduce new technology to improve their checkout to payment conversions rate. A Balanced Scorecard evaluation of this decision could include monitoring the following:

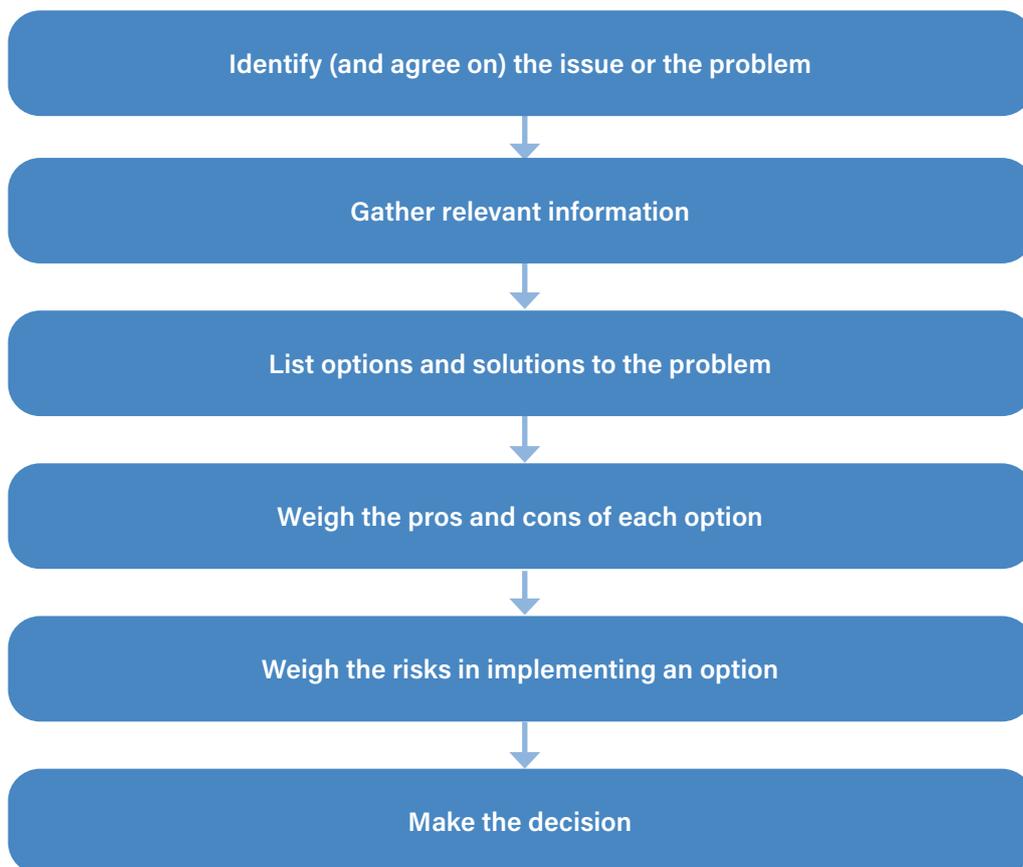
- the actual conversion rates
- customer satisfaction with the new technology
- feedback from customers and personnel on potential improvements
- review of the online purchasing process.

## Reviewing the decision-making process

Another factor in evaluating the performance of a decision is reviewing the decision-making process itself.

This involves reviewing the extent to which a decision-making process was used and the extent to which critical thinking principles were applied.

Recall the decision-making model from the previous topic:



There are two key questions to consider:

1. What are you going to review?
2. How are you going to review it?

<p><b>'What' focuses on critical thinking principles and the degree to which:</b></p>	<ul style="list-style-type: none"> <li>▪ People felt comfortable to contribute to the decision-making</li> <li>▪ The right communication channels and formats were used during the process</li> <li>▪ Ideas were challenged when moving towards a solution</li> <li>▪ Diverse perspectives were considered when developing a solution</li> <li>▪ Opportunities to develop and apply new ideas were provided</li> <li>▪ Assumptions were challenged</li> <li>▪ Understanding was built between people.</li> </ul>
<p><b>'How' depends on what and who you have available, and considers the following questions:</b></p>	<ul style="list-style-type: none"> <li>▪ Are there detailed meeting minutes that outline how the decision was made?</li> <li>▪ Is there a project or implementation plan to review?</li> <li>▪ Is there a video or audio recording of the meetings?</li> <li>▪ Are any of the decision-makers available to interview or survey?</li> <li>▪ Are the relevant reports available?</li> </ul>

## Practice Task 9

### Question 1

When reviewing the effectiveness of decision-making, why is it important to consider each of the following?

- The decision
- The decision-making process
- The critical thinking that was applied

## Question 2

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Identify three questions you need to ask when using data to evaluate the effectiveness of decision-making.

## Question 3

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Your team has decided to complete a benchmarking exercise to evaluate the effectiveness of last year's decision to go fully online and close the organisation's three retail outlets. Give two examples of what your team might benchmark and with whom they might compare their performance.

## 3B Seek relevant feedback on use of critical thinking from stakeholders

Stakeholders, including staff and management, can provide valuable feedback on the effectiveness of decisions.

Just as effective decision-making includes gathering information from a range of sources and consulting with others, evaluation of your decision-making must involve asking others for feedback. Feedback – both positive and negative – supports learning and continuous improvement. Successful organisations and individuals deliberately ask for feedback because they have learnt that feedback is most helpful when it highlights weaknesses, as well as strengths.

There are different ways you can gather feedback from stakeholders. These include asking for feedback via:

- face-to-face or online meeting
- email
- telephone
- online survey, using a tool such as Survey Monkey.

Select the method that you and the feedback provider are most comfortable using.

### Seek feedback from management

Managers are routinely required to make decisions and should be modelling a critical thinking mindset.

Managers can provide valuable feedback on the effectiveness of individual decisions and the process by which they were made. They can also provide feedback on the critical thinking culture of the organisation. Managers can also provide you with feedback on your decision-making ability and on how well you have applied critical thinking. As a next step, they can suggest opportunities for professional development.

Management feedback should be used as part of any review of a decision's effectiveness. Your manager may give you feedback on your skills in:

- questioning
- reasoning
- adhering to processes, policies and procedures
- including stakeholders with a diversity of views
- communicating effectively
- preparing and presenting your proposal
- implementing your decision
- understanding and empathy.

## Seek feedback from team members

Team members learn new skills when evaluating their own and others' decision-making effectiveness.

Involving team members in any evaluation of decision-making establishes a critical thinking culture across an organisation. Both the organisation and the individual benefit from their involvement. The team member learns how to use critical thinking and apply it to their own decision-making. The organisation benefits because it fosters a culture where critical thinking occurs routinely.

It is important not to underestimate the value of team contributions. Team members offer a different, but equally important, perspective to that of management. They feel valued and motivated when they are invited to contribute their ideas.

## Seek feedback from other stakeholders

Critical thinking involves listening to a range of perspectives: other stakeholders are well equipped to provide feedback.

Involving stakeholders from inside and outside your organisation in any evaluation of decision-making is valuable.

Those who come from other teams in your organisation deal with the same customers, promote the same products and services, and are aligning their efforts to the same strategic goals as your team. They understand the organisation, may have been affected by your decision, and can offer valuable and informed feedback on its impact. Most likely, they will apply a different lens; for example, a financial, IT or HR perspective can offer you worthwhile insights.

Similarly, those outside your organisation, including customers and suppliers, can offer a different perspective because they are part of your supply chain. They may not have been consulted during the decision-making process and can offer unbiased feedback on the impact of the decision from an external perspective.

## Example

### Seeking feedback on use of critical thinking from stakeholders

Buk Squad has always had a shut-down period between Christmas and New Year; staff are required to take the intervening days as annual leave. This year the company decides to close only on the public holidays and to have a skeleton staff in place on the other days to attend to customer sales and enquiries.

Alan's team has been chosen to be part of the skeleton staff, and four of his six staff members will be required to work over the holiday period. Alan arranges a team meeting to explain the situation. He invites staff members to volunteer for the work and explains that if there are not enough volunteers, he will make the final decision about who will be required to work.

By the end of the second day, nobody has come forward, so Alan selects four people to work over the Christmas period. He senses some resentment from them about being asked.

During the Christmas/New Year break two of the four people scheduled to work are off on sick leave. After everyone has returned to work, Alan calls a meeting to discuss the decisions he had made about who was required to work over the Christmas/New Year period. He allows everyone to speak freely with feedback about the selection process and the requirement to work over the holidays.

He receives this feedback:

- Staff resented Buk Squad's decision to remain open. They had assumed it would be closed as it is every other year. As a consequence, some had made holiday plans, including booking travel and accommodation that needed to be cancelled.
- Staff did not feel that a proper decision-making process had been used because:
  - they were not consulted
  - the decision seemed rushed
  - communication was poor
  - individual circumstances were not taken into account
  - they felt they had no say in the outcome.

Alan realises that he should have used a different approach and asked the staff to lead the decision-making process. Even though he was being rational in his approach, Alan had failed to recognise the assumptions made by staff and the significance of his decision. What appeared to be a simple issue was more complex than he had anticipated. Alan realises that he did not apply a fair and transparent process in making the final decision.

## Practice Task 10

### Question 1

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Outline two benefits of seeking meaningful feedback from management in relation to decision-making.

### Question 2

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Which of the following statements are correct? Tick all that apply.

- It is poor practice to involve customers in any review of decision-making because they will see our mistakes.
- If decision-making processes are not transparent, the risk of them not being accepted increases.
- Any evaluation process should model best practice critical thinking.
- Evaluations are useful because opportunities for staff training may be identified.
- People from outside the decision-making team don't have the background to provide useful feedback.

## 3C Identify areas for self-development

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No one is born a critical thinker; these skills are developed over time.

Critical thinking skills can be learned by anyone. As with most skills, two of the greatest teachers are experience and feedback.

### Self-development

Self-development means taking steps to improve skills, address knowledge gaps, or change habits and behaviours.

Self-development is acting on feedback obtained through self-evaluation, and from colleagues and people you report to. The goal is to improve your critical thinking skills and the quality of your decision-making in relation to your job role. Sometimes it takes courage to ask for feedback if others are not forthcoming. The danger of not getting feedback is that you rely only on your perspective, which goes against one of the hallmarks of critical thinking – considering different perspectives.

You may obtain feedback on any aspect of the critical thinking process:

- Questioning skills
- Reasoning
- Adherence to policies and procedures
- Adherence to processes
- Inclusion of stakeholders and a diversity of views
- Communications skills
- Demonstration of understanding and empathy

Seeking feedback from your manager and other colleagues is important. Responding positively to feedback benefits you and the organisation. It can foster trust between individuals and builds your self-awareness. Asking for feedback:

- is one of the best ways to feel ‘in control’ of how you work
- gives you an accurate idea of your critical thinking skills
- helps you understand what others expect from you
- identifies how you can improve.

During any feedback sessions, be positive and do not become defensive. It is an opportunity to hear another perspective on how you are performing. Apply your critical thinking skills:

- Ask open questions
- Actively listen
- Rationally process what is being said
- Request evidence and examples to clarify your understanding
- Identify and clarify the nature and extent of any identified problem or gap
- Identify any assumptions you or the feedback provider have made.

After the feedback session, take time to reflect on the information given. Ask yourself:

- What skills and knowledge do I already have?
- Where are the gaps in my knowledge and skills?
- What habits or behaviours do I need to continue using?
- What habits or behaviours do I need to change?
- Was the feedback based on evidence?
- Was the feedback fair and unbiased?

If you believe the feedback was unfair, you may decide to talk to another colleague to get another perspective.

## Self-development plans

Once you have analysed feedback, you need to take action to address it.

This may require you to prioritise your work tasks. A discussion with your manager or a coach/mentor may help to clarify this. Your priorities can then be expanded to include the actions you will take.

### Example

#### Working on your feedback

Anastasia has received feedback and decided that she needs to work on her questioning skills. Anastasia and her manager set aside two half-hour sessions per week for her to practise her questioning technique. Her manager develops a number of scenarios in which Anastasia could ask questions related to the intellectual standards. Her manager gives her feedback and suggestions at the end of each session and Anastasia continues to self-reflect. Anastasia's manager encourages her to lead Q&A sessions at staff meetings and at the monthly decision-making forums.

## Setting achievable goals

Self-development won't happen by itself; it needs to be planned and driven by the individual.

The SMART goals test is a good way to keep track of your development activities and make sure the goals you are working towards are likely to be attainable. The SMART goals are outlined in the following table.

<b>Specific</b>	<ul style="list-style-type: none"> <li>Clearly define what you want to achieve.</li> </ul>
<b>Measurable</b>	<ul style="list-style-type: none"> <li>How will you know when you have achieved your goal?</li> <li>What measures will you use?</li> </ul>
<b>Attainable</b>	<ul style="list-style-type: none"> <li>Do you have the time and energy to devote to it?</li> <li>Is the goal achievable or is it too challenging?</li> </ul>
<b>Relevant</b>	<ul style="list-style-type: none"> <li>Is the goal relevant to the feedback you received?</li> <li>Will the goal improve your critical thinking?</li> </ul>
<b>Time-based</b>	<ul style="list-style-type: none"> <li>Set yourself a deadline to complete the goal.</li> <li>Stick to your schedule.</li> </ul>

## Self-reflection

Self-reflection is the practice of thinking about your beliefs and actions for the purpose of learning.

Self-reflection is taking the time to think about your goals, your behaviour and, importantly for critical thinkers, what guided your thinking. Research indicates that people who self-reflect are more productive.

The three main benefits of self-reflection are:

1. Increasing your emotional intelligence:
  - Self-reflection helps build self-awareness and self-regulation.
  - Self-awareness is the ability to recognise and understand your emotions and their effect on your decision-making process.
  - Self-regulation is the ability to control or regulate your emotions.
2. Clarifying the integrity of your decisions:
  - Reflecting on your part in decision-making gives you greater clarity on what your values are and how they impact the decisions you are involved in.
3. Increasing confidence:
  - Confidence helps with communication, assertiveness, persuasiveness and influencing others.

## Areas for self-reflection

There are a number of areas to consider when self-reflecting on the decision-making process.

Self-reflection is a process by which you learn why you think and act the way you do. When self-reflecting, it is important to think broadly. Narrowing the scope of your analysis can cause you to overlook important areas that need to be addressed. A number of areas to consider are listed in the following table.

<b>Bias</b>	<ul style="list-style-type: none"> <li>How did your personal values enhance or detract from your thinking?</li> <li>Did you feel the need to declare any bias to others?</li> </ul>
<b>Logic and reasoning</b>	<ul style="list-style-type: none"> <li>What can you learn from others about using logic and reasoning?</li> <li>What logic and reasoning did you apply and was it useful?</li> <li>How can you improve your capacity to reason?</li> </ul>
<b>Empathy</b>	<ul style="list-style-type: none"> <li>To what extent did you empathise with the feelings of others?</li> <li>To what extent did others empathise with you?</li> <li>To what extent are others aware of your feelings?</li> <li>To what extent did emotions and feelings obstruct the critical thinking process?</li> <li>How can you improve your level of empathy?</li> </ul>
<b>Managing or leading the decision-making process</b>	<ul style="list-style-type: none"> <li>What role did you play in the decision-making process?</li> <li>How did you or someone else lead the process?</li> <li>Did everyone have the chance to contribute?</li> <li>Were all aspects of the issue/problem explored?</li> <li>How could inclusiveness be improved?</li> <li>How would you do things differently next time?</li> </ul>
<b>Assertiveness</b>	<ul style="list-style-type: none"> <li>Were your views heard?</li> <li>Did you contribute confidently?</li> <li>Did anything hold you back? If so, why?</li> <li>Were other people able to express themselves?</li> </ul>
<b>Information-gathering</b>	<ul style="list-style-type: none"> <li>Was the information you gathered relevant?</li> <li>Did you understand the information presented?</li> <li>Was the information sufficient?</li> <li>Did you have difficulty in gathering the information? If so, why?</li> <li>What would you do differently next time?</li> </ul>

<b>Defining goals and purpose</b>	<ul style="list-style-type: none"> <li>• Were you clear on the purpose or goal?</li> <li>• Were others clear on the purpose or goal?</li> <li>• What could have made the goal clearer?</li> <li>• Was the goal achieved?</li> <li>• Were there obstacles to achieving the goal? If so, how were they overcome?</li> </ul>
<b>Posing different types of questions</b>	<ul style="list-style-type: none"> <li>• What questions did you ask?</li> <li>• What questions did others ask that you can learn from?</li> <li>• What questions were not asked, but should have been?</li> <li>• Were the intellectual standards applied during questioning?</li> </ul>
<b>Understanding how to uncover assumptions</b>	<ul style="list-style-type: none"> <li>• What assumptions did you make and were they uncovered and challenged?</li> <li>• Were there assumptions that were not uncovered, but should have been?</li> <li>• What part did you play in uncovering assumptions?</li> <li>• What would you do differently next time?</li> </ul>
<b>Dealing with emotions</b>	<ul style="list-style-type: none"> <li>• Were you able to regulate your emotions?</li> <li>• Were you able to deal with others' emotions?</li> <li>• What would you do differently in handling emotions next time?</li> </ul>
<b>Changing frames of reference</b>	<ul style="list-style-type: none"> <li>• Were you able to consider other people's perspectives?</li> <li>• What difficulties did you have in doing so?</li> <li>• Was adequate thought given to different perspectives?</li> <li>• Was a diversity of views considered?</li> </ul>

## Self-reflection tools

There are a number of tools that can assist your self-reflection.

Self-reflection does not come easily to some people. As most of us are time-poor, it is important to structure how you approach self-reflection. Here are some examples of tools you might find useful.

### Self-reflection journal

Many people find it helpful to write down their thoughts. The benefits of keeping a journal are:

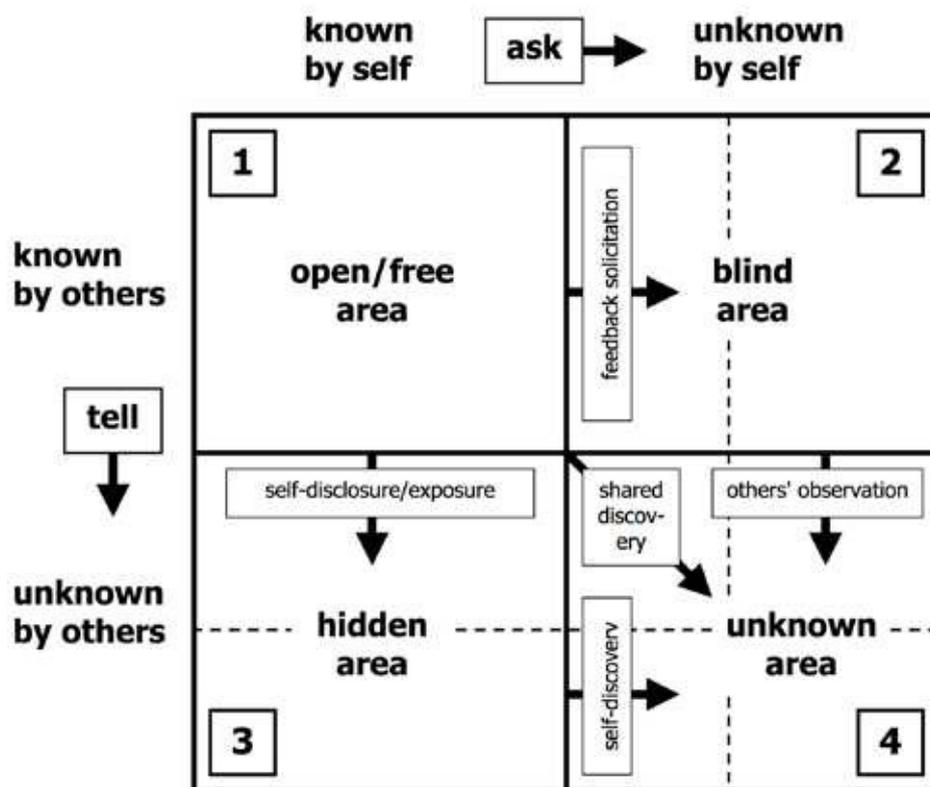
- It becomes a record of your self-development.
- It helps you to remember important information.
- It provides a focus for analysis and helps you to gain insights
- It can help to clear your head and focus your thoughts.
- It can help you to solve complex issues.

Johari Window

The Johari Window was created by Joseph Luft and Harry Ingham and describes the extent to which someone discloses aspects of themselves to others.

It consists of the following:

- Open/free area – contains things (behaviours, attitudes, feelings, emotions, skills, etc.) that are known to the individual and others.
- Hidden area – contains things that are known to the individual, but not to others.
- Blind area – contains things that others are aware of about an individual, but the individual is unaware of.
- Unknown area – contains things that are not currently known to the individual or others.



**Source:** Luft, J. and Ingham, H. (1955), 'The Johari window, a graphic model of interpersonal awareness', *Proceedings of the western training laboratory in group development*, University of California

The Johari Window is useful for self-reflection and understanding how open you are to others, and how willing you are to take on feedback during the decision-making process. It also allows you to reflect on the openness of your colleagues during decision-making and whether knowing more about them would help in the process.

In order to gather different perspectives of a solution/problem, you need the cooperation and openness of others.

## Empathy map

The empathy map helps you to identify your thoughts, feelings and attitudes towards an issue or problem.

The empathy map requires you to think about an issue or decision from four perspectives:

1. Thinking – What were you thinking when you made the decision?
2. Saying – What did you say during the process?
3. Feeling – What emotions were you feeling?
4. Doing – What actions did you take and what behaviours did you display?

You must then look at whether connections across the four quadrants are consistent with each other by considering the following:

- Did your words match your actions?
- Did your feelings match your words?
- Did your thoughts match your actions and words?

The ideas box allows you to record all the insights you gather from this self-reflection activity.

## Asking why

Another self-reflection technique is simply asking 'Why?' For example:

- Why did I feel this way?
- Why did I take that action?
- Why did I say what I did?
- Why do my ideas and beliefs differ from others?

**Example**

**Identifying areas for self-development**

Miguel asks for feedback from his manager on where he can improve his critical thinking. He recently led a decision-making session and asks his manager to rate his performance in specific areas and provide him with feedback on what he was doing well and where he could improve. He gives his manager the following template to complete.

Area	What is done well	What could be developed further
Checking accuracy		
Uncovering assumptions		
Interpreting information correctly		

Miguel’s manager gives the following feedback.

Area	What is done well	What could be further developed
Checking accuracy	You are very good at focusing on the detail and asking questions to clarify meaning.	You should check the accuracy of more of the information. You tend to focus on what you think is important.
Uncovering assumptions	You work well with the group when questioning others about their assumptions. You make sure you engage everyone and they seem to enjoy the challenge.	You need to spend more time looking at the assumptions that drive your own thinking and making those plain for the group. Perhaps some coaching in this area would be good to help you deconstruct your thinking and what is shaping it.

### Identifying areas for self-development continued...

Area	What is done well	What could be further developed
Interpreting information correctly	This is one of your strengths. Your attention to detail means you naturally want to ensure that everyone is interpreting the information in the same way. Your questioning is very good.	You need to include more detail in the solution that you propose. If the solution is too vague, then it is open to interpretation, and we could end up with a result we don't want.

Miguel arranges with his manager for several coaching sessions on uncovering his assumptions. He also receives specific feedback on checking accuracy after making changes to his questioning regime and running a further decision-making session.

## Practice Task 11

### Question 1

Angie gets nervous when she's in group situations where she is asked to contribute to her team's decisions. She doesn't feel confident expressing her views because she doesn't believe they are worthwhile.

If you were Angie's teammate and were aware of how Angie felt, what would you say and do? What self-development activities could you encourage Angie to be part of?

## Question 2

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Identify one benefit of asking for feedback from your peers or manager.

## Question 3

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Which of the following statements are correct? Tick all that apply.

- When you receive feedback, it is important to think critically about what you are told.
- Empathy blurs your ability to think critically.
- Giving a colleague negative feedback is destructive and should be avoided.
- Changing your frame of reference allows you to see a problem differently.
- Influencing and persuading others is an integral part of decision-making.

## 3D Plan for future process evaluations and incorporate improvements

Continuous improvement involves incorporating lessons learned into future process evaluations.

There are many benefits of organisations adopting a critical thinking mindset, both when making decisions and when developing or evaluating products, services and processes.

Business best practice involves adopting routines that are likely to provide a better outcome; this includes conducting frequent evaluations of workplace practices.

A common approach to quality control of operational processes is the Plan, Do, Check, Act (PDCA) cycle.

Businesses will have routine cycles of activity that include the following steps:

1. Plan: Planning future activities
2. Do: Implementing activities
3. Check: Measuring the performance of activities to see if they have achieved the desired results
4. Act: Making changes based on this evaluation

Critical thinking can play a part in all four areas, but it is mostly relevant in the 'Plan' and 'Act' phases because this is where the majority of decisions are made.

'Plan' decisions may consider:

- productivity targets
- processes to achieve these targets
- resources – both personnel and physical resources
- quality measures
- assigning responsibilities and authority.

'Act' decisions may include considering the following questions:

- What does the 'Check' phase tell us?
- What should we do differently?
- What is the result of the process evaluation?

## Plan a process evaluation

Planning a process evaluation will make the exercise more efficient.

Planning for process evaluation may include the following steps:

- Decide on the evaluation process.
- Decide what information should be sourced.
- Consider which stakeholders are to be involved.
- Decide who is responsible for what in the process.
- Identify the critical thinking practices to be adopted.
- Decide on a list of criteria for evaluating the effectiveness of the evaluation process.

## Scope of the evaluation

When determining the scope of the evaluation, an important consideration is how broad the evaluation should be and how deep it should go.

Consider the order fulfilment process from the previous topic.

Because of time constraints, it may be unmanageable to evaluate the entire process in detail. So how do you know what to focus on?

Customer feedback and feedback from key metrics may indicate that you should evaluate just part of the process. An alternative may be to split the evaluation between teams, then share the results at the end.

For example, if customer feedback was mainly negative about the company's return policy, you could focus on that. But what if feedback was on damage to goods being shipped? Where would it be best to focus your attention? The choices may be warehouse management or packing and shipping.

You need to consider which stakeholders should be part of the evaluation process. A good place to start is to ask: Who is impacted by the process, or the part of the process, being evaluated? This could be:

- those directly involved in implementing the process
- those monitoring the performance of the process
- those supplying resources for the process
- people directly upstream or downstream from the process
- people who evaluate the process as part of an overall strategy.

Next, you have to determine how you will decide if your process evaluation was a success.

This can be subjective but should include a way of measuring the degree to which critical thinking was applied.

Consider the following questions:

- Was the purpose of the evaluation clear and was it achieved?
- Was the information used in the evaluation relevant and sufficient, and were alternative views sought?
- Were assumptions uncovered and tested?
- Were all inferences supported by evidence?
- Did solutions or conclusions flow logically from inferences?
- Were intellectual standards applied?

Process evaluation may still be successful, even if the conclusion is to make no changes (or only minor ones) to the process. The success lies in how well critical thinking was applied and not in the magnitude of any proposed changes.

## Example

### Developing a plan for future process evaluations

Jerome manages a team in an organisation that provides security personnel for events. He is planning an evaluation of the company's process for dealing with intoxicated or drug-affected patrons, or those exhibiting unruly behaviour. It can be difficult for security roles to keep both patrons and clients happy, while also ensuring that any action taken is lawful.

Jerome has invited the following stakeholders to be part of the process evaluation:

- several event managers
- several patrons
- a member of the local police liaison unit
- a member of the local council that deals with liquor licensing laws
- a cross-section of security team members and team leaders
- Jerome's manager.

Jerome has sourced the following information:

- government reports and statistics on lawlessness related to events
- client reports from event owners
- internal reports and statistics from his own company
- reports from the event industry peak body
- copies of legislation and regulations in relation to event administration and liquor licensing.

Jerome has developed an agenda and background briefing paper for the evaluation meeting, which includes:

- its purpose
- expected outcomes
- roles.

At the start of the meeting Jerome intends to establish ground rules for discussion, including explaining the intellectual standards that will be applied.

## Practice Task 12

### Question 1

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How does the planning of process evaluations assist in making the activity more efficient?

### Question 2

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Number from 1 to 6 each step in the critical thinking process.

- List the criteria to be used to assess the effectiveness of the evaluation process.
- Identify what critical thinking practices to apply.
- Determine what information needs to be gathered.
- Decide on the process to be used.
- Identify which stakeholders to involve.
- Allocate responsibility for completing tasks.

## Summary

- Reviewing the process used to make decisions improves the quality of the decisions.
- Determining the effectiveness of decisions can rely on both qualitative and quantitative measures.
- An effective review of the decision-making process must include a review of how critical thinking was used.
- Management, colleagues and stakeholder feedback should be used as part of any review of decision effectiveness.
- Critical thinking skills can be learned by anyone. As with most skills, two of the greatest teachers are experience and feedback.
- Self-development involves acting on feedback obtained through self-reflection, as well as from colleagues and the people you report to.
- Self-reflection means taking the time to think about your goals, your behaviour and what guided your thinking.
- Self-reflection tools can help you to structure your thinking.
- To practise continuous improvement, you should always incorporate lessons learned into future process evaluations.
- Plan for future process evaluations as a matter of routine.

## Learning Checkpoint 3

### Develop a critical thinking mindset

#### Part A

1. Why do you need to review the data used when evaluating decisions?

2. Why is self-reflection an important part of reviewing a decision-making process?

3. List four criteria that you can include when planning to measure the success of a decision-making process.

4. List four questions to ask after receiving feedback.

## Part B

Rosetta manages the office in an aged care facility. Five months ago, it was decided to outsource catering. The benefits of the outsourcing have been mixed. The quality of the meals has not been consistent and food wastage has increased. Staff and residents have made complaints.

Rosetta was involved in the decision to outsource catering and is disappointed about the outcome.

1. In light of the dissatisfaction with the outsourcing decision, what action would you advise Rosetta to take?

2. What two questions should Rosetta answer before evaluating the decision-making process?

3. Identify three stakeholders Rosetta should involve in evaluating the decision-making process?



4. Identify five areas Rosetta could explore when reflecting on her own contribution to the outsourcing decision. For each area you identify, nominate a question Rosetta should ask.



