



Prifysgol Cymru
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University of Wales
Trinity Saint David

Certificate of Higher Education in Employability Skills

Problem Solving and Innovation (BMSW4014)

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*Trawsnewid Addysg; Trawsnewid Bywydau
Transforming Education; Transforming Lives*



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Root Cause Analysis (RCA)

- Tracing a problem to its' origin.
- Allows you to get to the true source of a problem and stop it in its tracks.
- More effective than simply remedying the symptoms.
- Can prevent an issue from occurring again.
- Causes will usually include physical, human or organisational.
- Tools can help identify any internal weaknesses/problems an organisation may have in meeting specific opportunities or nullifying these opportunities.

Root Cause Analysis (RCA)

1. Physical causes – Tangible, material items failed in some way (for example, a car's brakes stopped working).

2. Human causes – People did something wrong, or did not do something that was needed. Human causes typically lead to physical causes (for example, no one filled the brake fluid, which led to the brakes failing).

3. Organisational causes – A system, process or policy that people use to make decisions or do their work is faulty (for example, no one person was responsible for vehicle maintenance, and everyone assumed someone else had filled the brake fluid).

5 Why general principles

Gangidi (2019) confirmed the following:

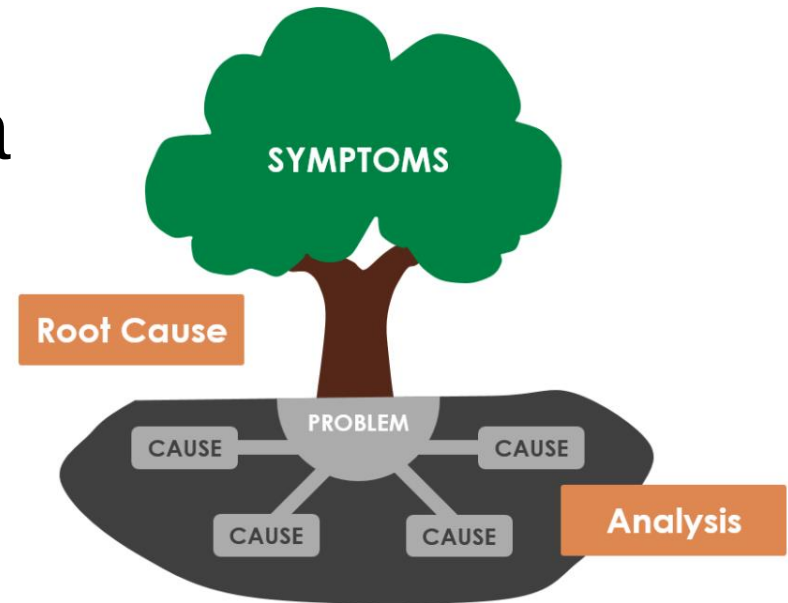
“Defining a good problem statement is the first step in structuring the 5 Whys. A good 5 Whys cannot be effective if the problem statement is unclear to begin with. The problem statement must contain an object and a deviation. Adding cause into the problem statement including overly complex problem statements must be avoided.”

Bad: Car broke down because it had an engine failure (engine failure is referring to a cause).

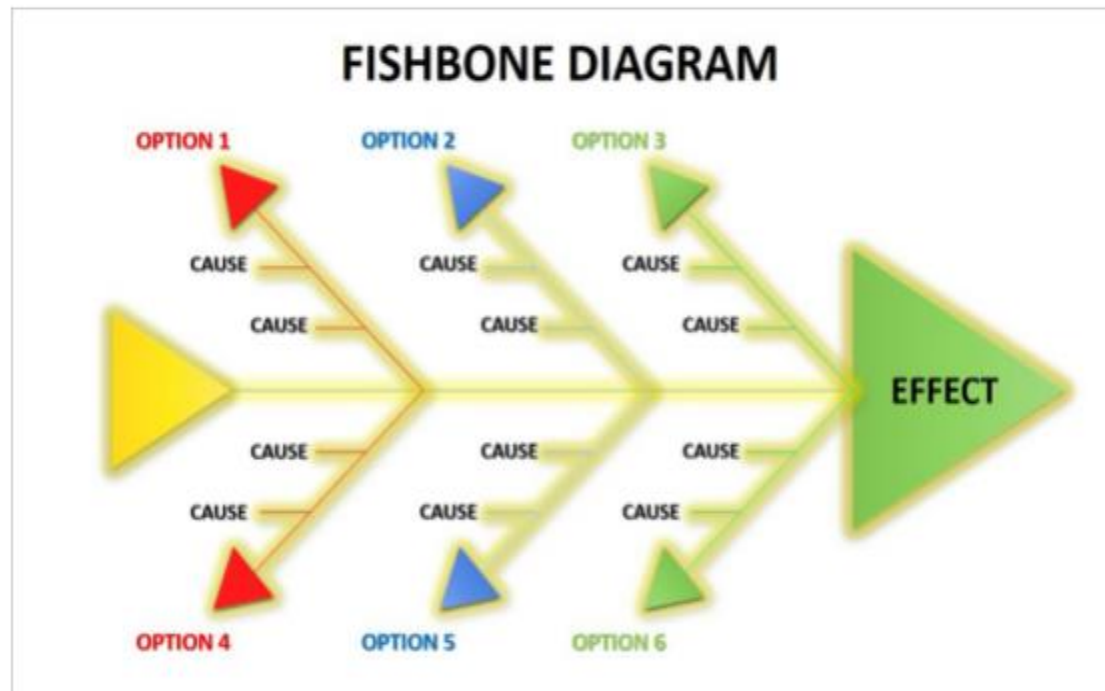
Good: Car broke down (object and deviation are concisely listed).

Possible barriers to using the 5 why model

- End up with a symptom rather than a root cause.
- Focus on one link rather than other viable causes.



Cause and effect diagram



Categories

These categories may differ according to the nature of an organisation, however, the most used categories of causes are:

- Methods
- Machines
- Materials
- Measurement
- People
- Environment

The process

- Agree on the problem.
- Agree on the major categories.
- Brainstorm all possible causes.
- Ask why again.
- Continue to ask why to generate deeper levels.

The benefits

- Helps determine the root cause of the problem.
- Easy to read format.
- Indicates possible causes of the problem or variations.
- Increases knowledge by breaking down the process.
- Identifies areas for collecting data.

SWOT and PESTLE analysis



SWOT analysis

- Strengths – Internal factors that give the organisation a competitive advantage.
- Weaknesses – Internal factors that place the organisation at a disadvantage.
- Opportunities – External factors that the organisation could utilise to its' advantage.
- Threats – External factors that could pose challenges or risks to the organisation.
- SWOT analysis is typically more focused on the immediate internal environment of the organisation.

PESTLE analysis

- Political – Factors related to government policies, stability and political influences.
- Economic – Economic conditions, trends and influences on the organisation.
- Social – Societal and cultural factors affecting the organisation.
- Technological – The impact of technology on the industry and organisation.
- Legal – Legal factors, regulations and compliance issues.
- Environmental – Environmental factors, such as climate change and sustainability.
- PESTLE analysis provides a broader perspective, considering factors beyond the organisation's immediate control.

Assessment 1 recap

Time to choose your groups and start planning!

Consider the following:

- How will you communicate with each other between lectures?
- Which parts of the presentation will each of you cover?
- Who will be responsible for emailing the PowerPoint to the lecturer on 12th November 2025?

Referencing refresher

Referencing handbook through Moodle.

Report example.

Referencing activity.

References

CIPD (2024a) *SWOT analysis*. Available at: [SWOT analysis | Factsheets | CIPD](#) (Accessed: 2 Oct 2024).

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De Bono, E. (2000) *Six thinking hats*. London: Penguin.

Denniss, S. (2017) A case study: the benefits and challenges of root cause analysis presented through a real world example from the rail industry, *Safety and Reliability*, 37:4, 197-216, DOI: 10.1080/09617353.2018.147118.

Gangidi, P. (2019) “A systematic approach to root cause analysis using 3 × 5 why’s technique,” *International journal of lean six sigma*, 10(1), pp. 295–310. Available at: <https://doi.org/10.1108/IJLSS-10-2017-0114>.