IO2 - UNIT 3 – Critical Thinking
Subunit 3.2 – Critical Thinking Methodologies
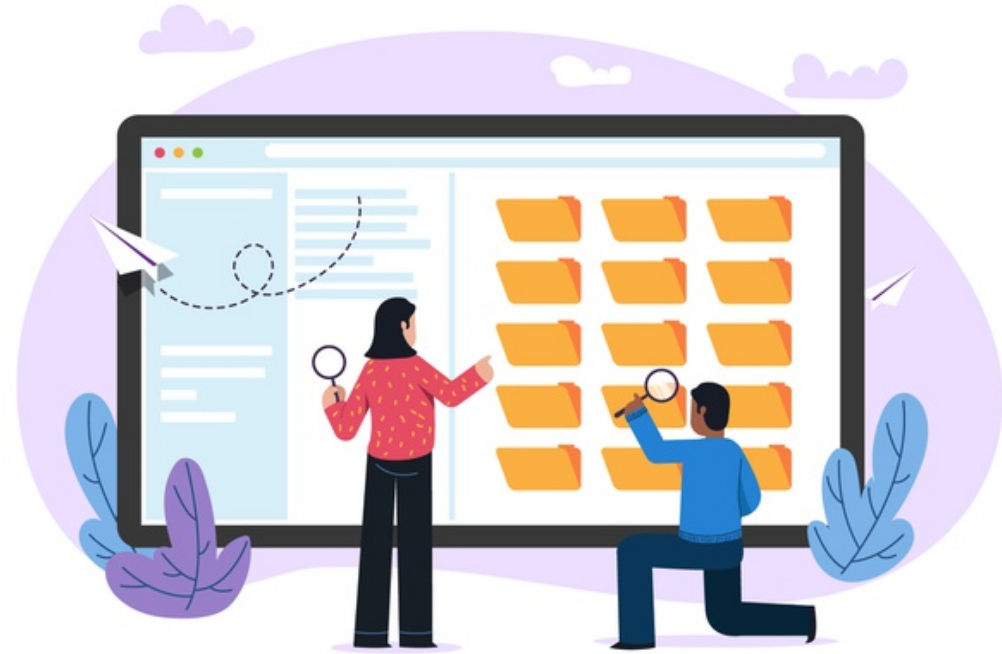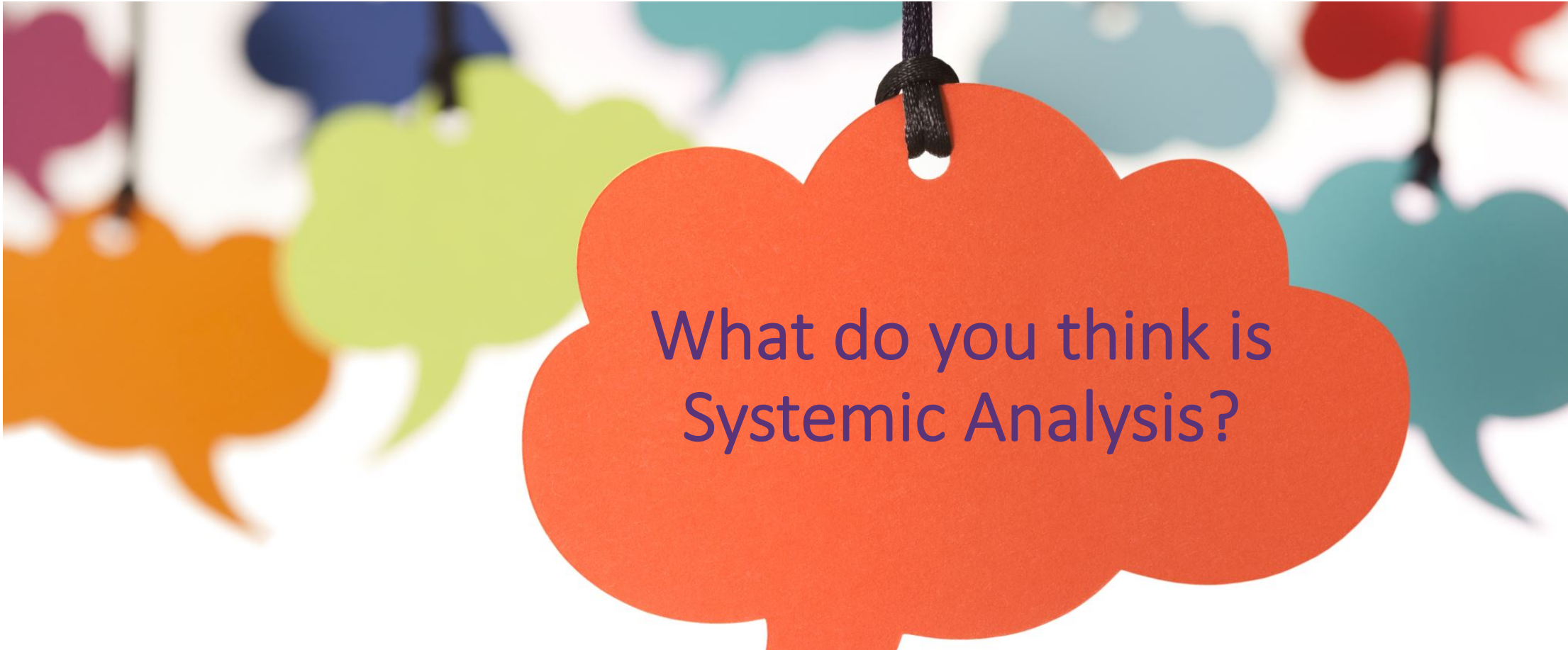
Introduction

In this presentation you will learn about **Systemic Analysis** as a thinking process to make better decisions and create better solutions at work.

This will involve knowledge on asking the right questions, challenging your assumptions, and see other' viewpoints with clarity.

What do you think is Systemic Analysis?
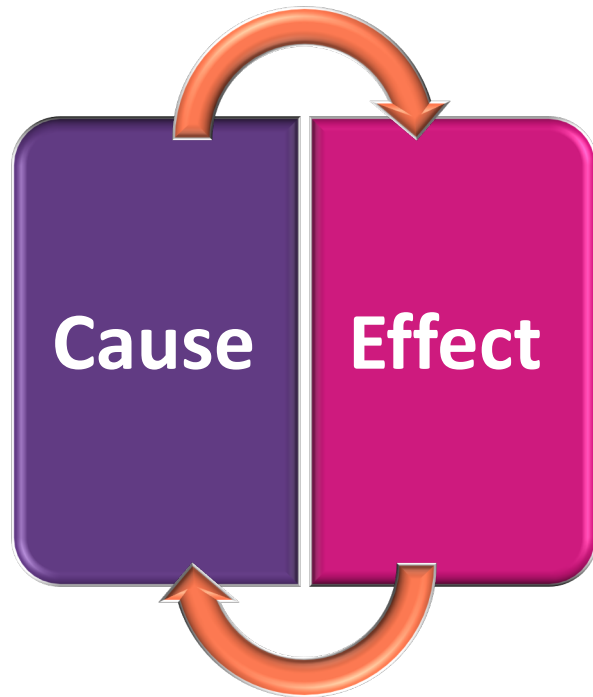
What is Systemic Analysis?

Systemic analysis is a way of thinking.

It is a way of putting together pieces of information we have to create an understanding of anything.

This information can come from many sources and in many types: from our others' experience, from media, from research, from thoughts and feelings…

Events' Causes and Effects

Cause | **Effect**

A systemic analysis approach requires that we are willing **to move ideas and information around our mind** and in our understanding.

What seem to be isolated events are rarely that. **Events have causes and effects**. As we examine the information about events, we rearrange the generated ideas.

Patterns become visible and they enable to see the systems involved in the events.

What are Systems?

Systems are organised sets of relationships among individuals and groups that are created to serve a purpose.

An example is the **educational system** in a society that is expected to have as purpose the preparation of citizens for roles in the society.

Another example is the **economic system** which purpose is to provide society's material needs.

Systemic Change

Systems can be positive or negative in their effects (consequences), or a mixture of both.

It is essential to **analise systems to identify causes (factors) of events**.

Doing this enables the development of **plans of action to address the negative consequences of a system** or to improve positive consequences of it. This leads to a "**systemic change**".

Why Systemic Analysis is important?

A Systemic Analysis is a detailed method of evaluation of complex situations and **serves for the decision support of personnel**.

It must use a holistic approach based on pragmatic requirements, considering the organisation, relevant stakeholders, factors and connections amongst them.

It must be documented, examined and made understandable via visualisation formats, such as diagrams and graphics, in order to highlight movements and actions in the system.

Benefits of a Systemic Analysis

- ✓ **Efficiency improvement** – through the definition of an adequate and flexible plan;

- ✓ **Costs saving** – due to the minimisation of errors;

- ✓ **Risks avoidance** – threats are identified and mitigation actions are taken

- ✓ **Quality assurance** – ensured through checking the system constantly

IDEA Methodology for a Systemic Analysis

1 – **Identifying the issue**

- Define the issue (What?) and its causes (Why?)

- Describe actors (Who) and elements involved in the issue

- Identify needs/objetives

2 – **Development of potential solutions**

- Design potential solutions (How) and compare their possible effects

3 – **Execution of plan**

- Implement/simulate for validation

4 – **Assessment**

- Document to which extent the solutions/models solved the problem

Watch and discuss!

IDENTIFY
DEVELOP
EXECUTE
ASSESS

https://www.youtube.com/watch?v=QOjTJAFyNrU

Watch the video "**How to Solve a Problem in Four Steps**".

Which questions would you put during the systemic analysis of a problem?

Questions to Make during the Sistemic Analysis

- What is the most fundamental issue here?

- What makes this question complex?

- From what point of view should I approach this problem?

- Does it make sense for me to assume this?

- Is this a credible source of information?

- How could I check the accuracy of these data?

- From these data may I infer this?

- Is this consistent with that?

- What else is implied in this?

Write!

Think about an issue or challenge that you currently face at your workplace.

Using the Systemic Analysis IDEA methodology, make a plan describing how would you overcome the situation.

Idea Mapping

To find potential solutions during the development phase of your systemic analysis you will need to organise the ideas that arise.

Idea mapping is a visual process that enhances thought organisation and will help you find solutions for your questions.

Did you ever hear about it?

Idea Mapping = Mind Mapping

Idea Mapping is a **single page diagram that uses words, figures, lines/arrows and colors to connect concepts and ideas** associatively. It is a natural expression of the way brain processes information.

It supports individuals and organisations to **clarify thinking**, communicate, plan, innovate, save time and improve productivity.

Idea Mapping – How to do it

To create a mind map you can use a white board/coloured markers or paper/coloured pens:

- start with your **general topic** in a circle in the center of the paper/board;

- write specific **ideas** around it;

- use **lines or arrows** to connect them together:

- **cluster** as many ideas as you can think of.

Idea Mapping – Do it online

Tools to create mind maps on the Internet or on a mobile device:

Mindmeister – Intuitive cloud-based site that allows collaboration for brainstorming and mind mapping. Projects can be accessed from mobile devices, online or offline. https://www.mindmeister.com/

Ayoa (previous iMindMap) – Developed by Tony Buzan, who created the expression "mind mapping," the site is visually stimulating, with bright colors, curved branches, and sharp images. https://www.ayoa.com/

SpiderScribe – An online tool that lets you connect notes, files, and calendar events in freeform maps as well as embed them on your website. https://www.spiderscribe.net/

Coggle – Brainstorm and produce notes or maps by dragging and dropping images onto diagrams and exporting your projects in PDF or PNG format. It can be used on mobile devices. https://coggle.it/

Freemind – An open-source tool built in Java that is available for Windows, Mac, and Linux. It features location-based mind mapping and collaboration tools to create complex diagrams. http://freemind.sourceforge.net/
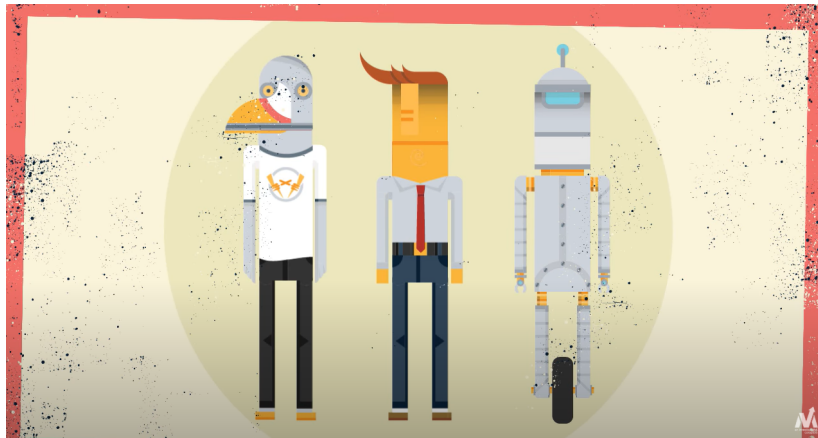
Watch and Brainstorm!

Watch the video **"Brainstorming With Mind Maps in a Group".**

Following its instructions, make a group, choose one of the topics that any element of your group analysed during the IDEA activity, and brainstorm to come out with ideas on how to solve it!

You can use as support a sheet of paper, a board or one of the apps mentioned in the slide before.

References

Websites

- https://crea.org/systemic-analysis/systemic-analysis/ Systemic Analysis

- https://www.iabg.de/en/business-fields/defence-security/expertise/systemic-analysis/ Systemic Analysis

- https://www.ftias.com/benefits-system-analysis/#.Xv70mShKhRY The Benefits of System Analysis

- http://ideamappingsuccess.com/ What is Idea Mapping?

Videos

- https://www.youtube.com/watch?v=QOjTJAFyNrU How to Solve a Problem in Four Steps (5.5 min)

- https://www.youtube.com/watch?v=O0lEj2d-ipE Brainstorming With Mind Maps in Group (2.5 min)

Further information

Books

- *Idea Mapping: How to Access Your Hidden Brain Power, Learn Faster, Remember More and Achieve Success in Business*, Jamie Nast, John Wiley & Sons, New Jersey, 2006 (available at https://pt.slideshare.net/Explorerguy/idea-mapping-50998421)

Videos

- https://www.youtube.com/watch?v=-eEBuqwY-nE What is Critical Thinking? (3 min)

- https://www.youtube.com/watch?v=4Gxvbdzl4qs 6 Ways to Become a Good Critical Thinker (2 min)

- https://www.youtube.com/watch?v=u5Y4pIsXTV0 How to Mind Map with Tony Buzan (5 mnts.)

Project partners