

CREATIVE PROBLEM SOLVING (CPS)

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Understanding CPS

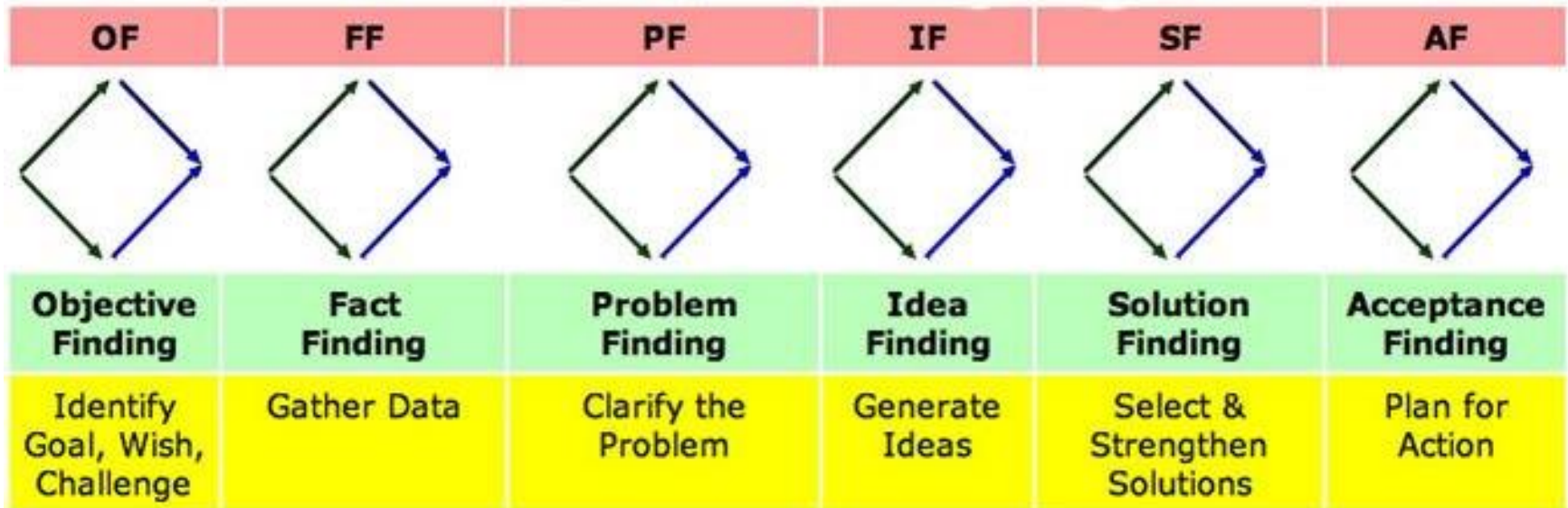
- A problem solving technique that addresses business and management challenges in an ingenious way (Parnes & Osborn 1950).
- Thus
 - *The solution is unique*
 - *The solution brings more business benefits*
 - *The solution is robust and efficient*
 - *The solution is sustainable*
 - *The solution is acceptable*

Key CPS Models

- Linear
- Bubble
- Systemic

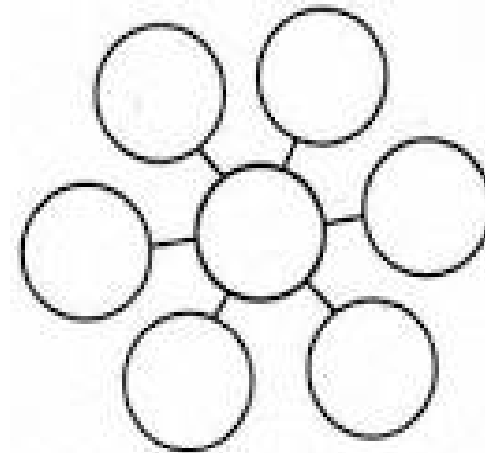
Linear CPS Model

- This is represented by a diamond shape.
- The shape signifies thinking in straight lines, moving just one step at a time to maintain order.
- Was largely practiced in the 1970s.



Bubble CPS Model

- The diamond shapes were later transformed into connected bubbles
- The bubbles indicate attitude towards directed and meaningful connectedness of ideas
- Became popular in the 1990s
- Eg: Describe a smart phone



Systemic CPS Model

- This model assumes that there are many entry points determined by the task at hand or challenge to be addressed.
- It assumes that the world is interrelated and offers many entry alternatives.
- It benefits from linear and bubble thinking

Systemic thinking Model-Illustration



Creative Leadership: Skills That Drive Change
Puccio, Murdock, & Mance (2007)

CPS Techniques

- Synectics
- TRIZ methodology
- Brainstorming
- Mind Mapping
- Problem Reversal
- Extra functionalities
- Lateral thinking
- SCAMPER

Synectics

- “Synectics” refers to the combination of different and irrelevant elements.
- It inspires thought processes that the subject might not be aware of.
- It takes place in groups.
- It assumes that;
 - *It is possible to describe and teach the creative process*
 - *Invention processes in science and arts are analogous and propelled by the same mind processes*
 - *Creativity at the level of individual and group is comparable.*

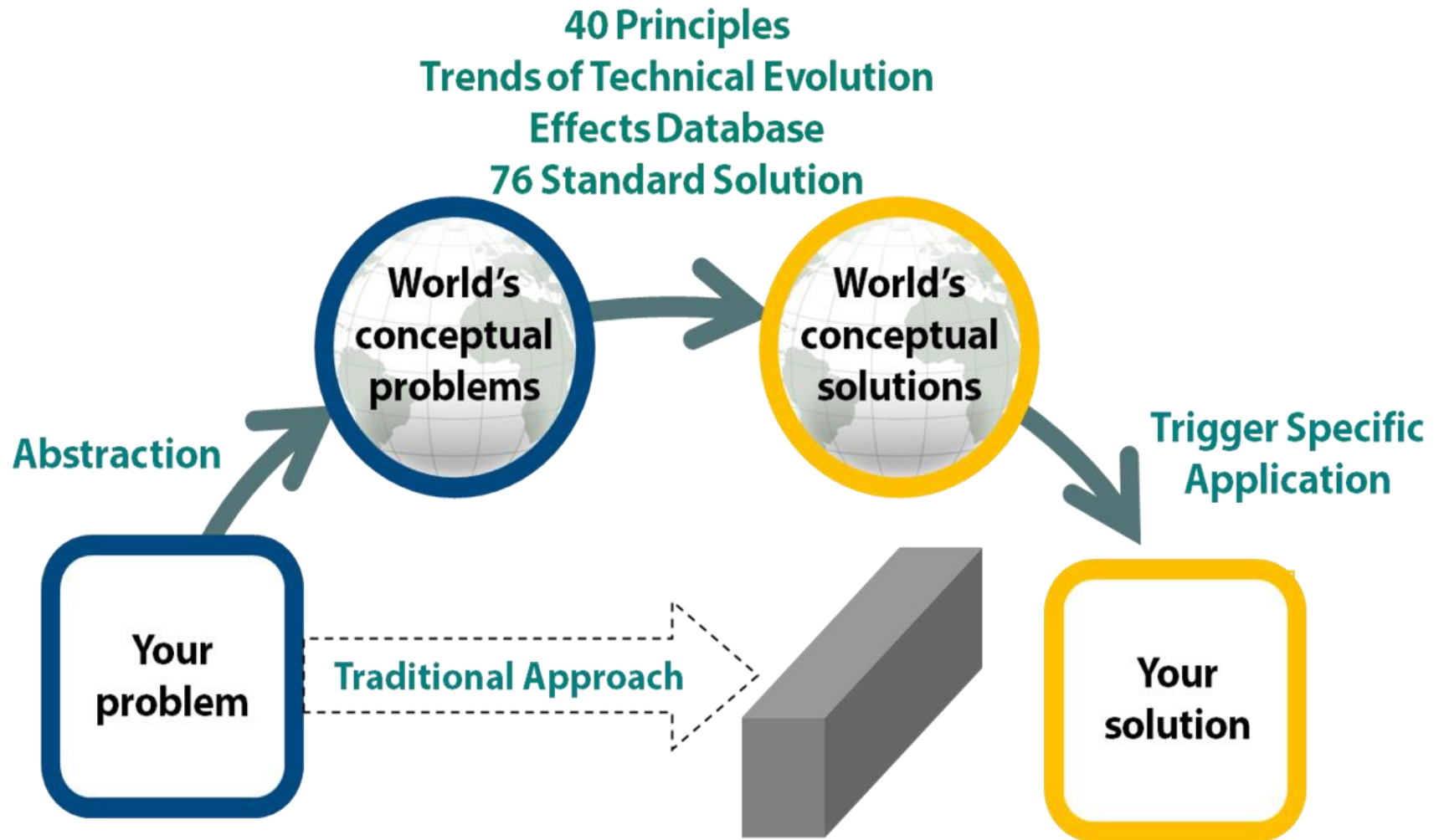
TRIZ methodology

- In the English translation- *Theory of Inventive Problem Solving*.
- It is a Russian method of problem solving.
- It has been used to cultivate the creation of patentable inventions (Eg *invention of bulletproof glass*) and
- Developing non-product solutions such as process improvement.
- It is useful for problem formulation, system analysis, failure analysis, and patterns of system evolution.

TRIZ (Cont'd...)

- Assumptions of TRIZ/TRIPS
 - problems and solutions are repeated across industries and sciences
 - patterns of technical evolution are also repeated across industries and sciences
 - the innovations used scientific effects outside the field in which they were developed
 - difficult problems require an inventive solution

TRIZ compared to traditional solutions



Key questions for discussion

- Is TRIZ relevant to a Ugandan Manager?
 - *Why and why not?*
- What are the key lessons for modern managers for the TRIZ in today's competitive environment?

Brainstorming- (Osborn, 1953)

- Sharing particular ideas within a group about a certain problem and or plan
- It has a number of rules namely;
 - Focus on quantity of ideas
 - NO criticism
 - Encourage wild ideas
 - Combine and improve ideas

Problem reversal

- Using opposite perspectives to solve problems
- It focuses on going against the norm
- Common ideologies;
 - turning it around
 - Look at the glass “half empty” vs. “Half full”
 - inside-out
 - back to front.
- Question for discussion:
 - Identify a management problem and analyse it using problem reversal

Extra functionalities

- This involves looking at products and imagining more functionalities beyond the current capacity
- It requires describing a product in a more generic manner by way of shape, size and the make-up of the material

Exercise:

Imagine a spoon and suggest at least 15 functionalities

Lateral thinking (deBono, 1967)

- It looks at solving problems through
 - a creative mindset
 - indirect approach
 - utilizing reasoning that may not be obvious
 - incorporating ideas that cannot be gathered by utilizing only conventional step-by-step logic.
- Triggers of lateral thinking
 - Challenge
 - Alternatives
 - provocation
 - exposure

SCAMPER

- This technique assumes that everything new is a variation of something already in existence.
- SCAMPER is an acronym, and each letter indicates a different method .
 - **S** = **S**ubstitute
 - **C** = **C**ombine
 - **A** = **A**dapt
 - **M** = **M**agnify
 - **P** = **P**ut to Other Uses
 - **E** = **E**liminate (alternative is Minify)
 - **R** = **R**earrange (alternative is Reverse)
- To use SCAMPER you start with identifying the problem

Key questions

- **S:** What to substitute in my process of selling?
- **C:** How do I blend selling with other activities?
- **A:** What to copy or adapt the selling process of another person or company?
- **M:** What do I put more weight on or magnify when selling?
- **P:** What other uses can I put my selling to?
- **E:** What do I eliminate or make easier in my process of selling?
- **R:** How do I change, reverse or reorder my manner of selling?

STAGES AND MODELS OF CPS

- **Objective Finding-** Define the essential aspects about the you want to solve.

Questions: How can I tart a business after my MBA?

- **2. Fact Finding-** Collecting information about theproblem and associated data is essential for comprehending the problem.
- Thus;
 - What and who is involved
 - Assumptions and perceptions
 - Views of interested parties feelings and facts, and so on so that you may begin the process of crafting ideas.

Questions: Who should be or is already involved? Why doesn't/does it happen?

- **Problem Finding-** Define possible challenges that may come about and the possible opportunities that are present inside of it

Questions: What type of business am Interested in?

- **Idea Finding-** Start to investigate, brainstorm and determine as many probable business ideas.
- **Solution Finding-** Ensure that the solutions are not only creative, but also useful.

Questions: Will it work? Are the technology and materials available? Do I have the capital?

- **Acceptance Finding-** Plan your steps for action
 - Define the key roles and assign responsibilities
 - Chose the best method to utilize the available resources.

Rationale of CPS

- It brings competitive advantage
- It brings organisational efficiency
- It facilitates new product development
- It fosters technology productivity
- It helps in responding to client calls for product improvement and quality assurance

Key skills in CPS

- Leadership
- Communication
- Team work
- Arithmetic and critical thinking
- Emotional intelligence
- Marketing and networking
- Conflict management
- Data analytics

World Creativity and Innovation Day, April 21- *a UN day of observance since 2017*

