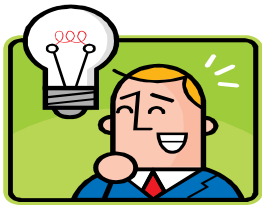
Systems Thinking and Beyond
Module 3 Session 3 of 3:
Holistic thinking:
Systems Thinking And Beyond

Rev 3.0.3



Knowledge component

- Lecture
  - Overview and summary of readings
- Readings/video
  - ~~0302 Holistic Thinking Chapter 6: Holistic Thinking~~
  - ~~0303 Holistic Thinking Chapter 11: Innovative insights and solutions~~
  - ~~0304 Why you should be using systems thinking to solve problems, https://www.youtube.com/watch?v=wXj-lCYSmGk~~
- Exercises

Topics

- **Idea storage templates**
- Examples when holistic thinking resulted in innovative solutions to problems
- Exercises

Idea storage templates (IST)

- SWOT
- OARP
  - ideas pertaining to the **problem**
- FRAT
  - ideas pertaining to the **solution**
- SPARK
  - ideas pertaining to **implementing the solution**

Used in different situations

SWOT – storing initial ideas

Strengths	Weaknesses
Opportunities	Threats

- What are…?
- Why are …?
- Where …?

Questions to trigger ideas

OARP - Template to focus on Real problem

- **O**bservations
  - All ideas before sorting
  - Left over ideas after sorting
- **A**ssumptions
  - Important
- **R**isks
  - Ideas about reasons activity to remedy the problem could fail
- **Real P**roblem
  - Ideas about
    - Root cause
    - What has to be changed to change the situation

How assumptions influence actions

http://www.youtube.com/watch?v=qU9sQBJppks, accessed 3/8/13

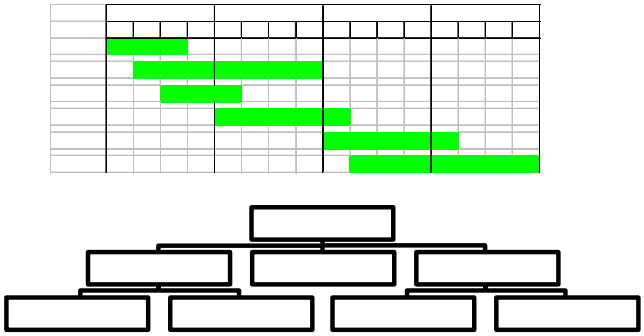
FRAT* (modified)

- **Functions**
  - Ideas about **what** functions the answer/solution must perform
- **Requirements**
  - Ideas about **how well** each function must be performed
- **Answers**
  1. Ideas about **feasible** answers/solutions
  2. Ideas describing **how** the answers/solutions will function and
  3. Ideas about managing risk associated with that answer/solution
- **Tests**
  1. Ideas about evaluation criteria for selecting answers/solutions
  2. Ideas describing how **what** will be done to determine **how well** the answers/solutions perform the needed functions

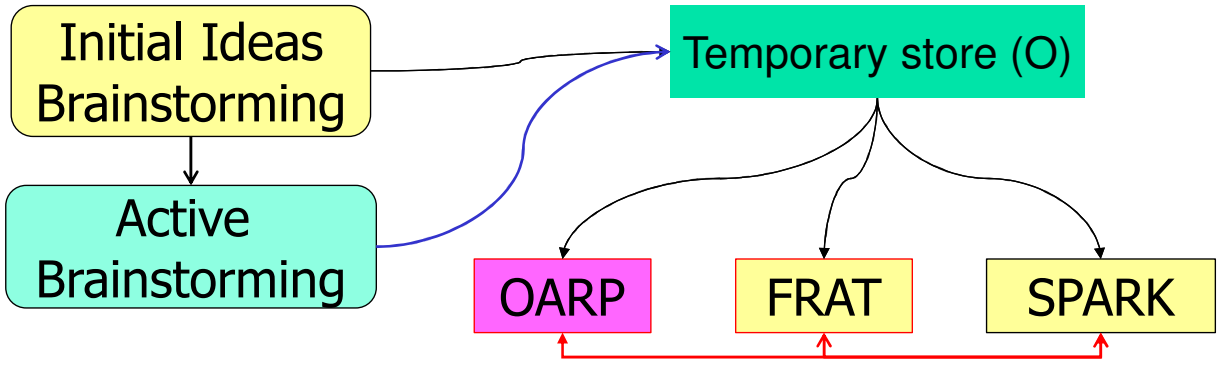
* Brian Mar (SE Journal Volume 1, number 1)

SPARK - activities to remedy problem

- Ideas about
  - Schedules
  - Products
  - Activities
  - Resources
  - Risks



Idea processing (functional view)



Topics

- Idea storage templates
- **Examples when holistic thinking resulted in innovative solutions to problems**
- **Exercises**

Examples of holistic thinking*

- Luz SEGS-1
  - Minimal risk design approach saves project
- NASA Goddard Space Flight Center (GSFC) Pacor Panic Attack*
  - Formulating a different problem statement
- FESMA*
  - Alternative to pair-wise comparison
- Doctoral research*
  - Innovative approach to obtaining useful data from small sample sizes

* HT Chapter 11

Exercise 3-31

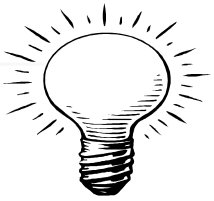
- Sort the ideas generated in exercise 3-21 into the Idea Storage Templates (IST)
  - Only OARP, FRAT and SPARK
- Prepare <5 minute presentation
  1. This slide
  2. The version number of the lesson
  3. New ideas generated during exercise 3-31 while sorting ideas
  4. Number of sorted ideas by HTP/IST before and after exercise 3-31
  5. Lessons learned from exercise
  6. Compliance matrix
- Save as a PowerPoint file in format Exercise3-31-abcd.pptx
- Post in the asynchronous group as instructed

(Knowledge) Exercise 3-32

- Read sections of HT
  1. Luz SEGS-1 (6.4.1)
  2. PACOR upgrade (11.1)
  3. FESMA Study (11.5)
  4. Doctoral research (11.2)
- Prepare a brief on one main point of each of the four sections(< 5min)

1. Presentation to contain
   1. A summary of the content of each of the four sections (<1 minute) (one slide per section maximum)
   2. The compliance matrix
   3. This slide and lesson version number
   4. The main points of each example
   5. What the examples had in common (<2 minute)
   6. Reflections and comments on reading (<2 minute)
   7. Why you think the reading was assigned to the module
   8. Lessons learned from module and source of learning e.g. readings, exercise, experience, etc. (<2 minutes)
2. Save as a PowerPoint file as Exercise3-32-abcd.pptx
3. Post/email presentation as, when and where instructed
4. Brief on one main point

Summary



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Meeting the module objectives

1. Explain the nature of systems
2. Showed how holistic thinking can result in innovative solutions to problems
3. Practiced holistic thinking

Any questions ?

1. Best
2. Worst
3. Missing

Separate email:
beyondsystemsthinking@yahoo.com
Subject: <class title> BWM Lesson #