

Systematic Problem Solving with A3 and System Modelling

Wolfgang Steffens
+358 50 3535393

wolfgang@kaikaku.fi
www.kaikaku.fi



Results are Not the Point

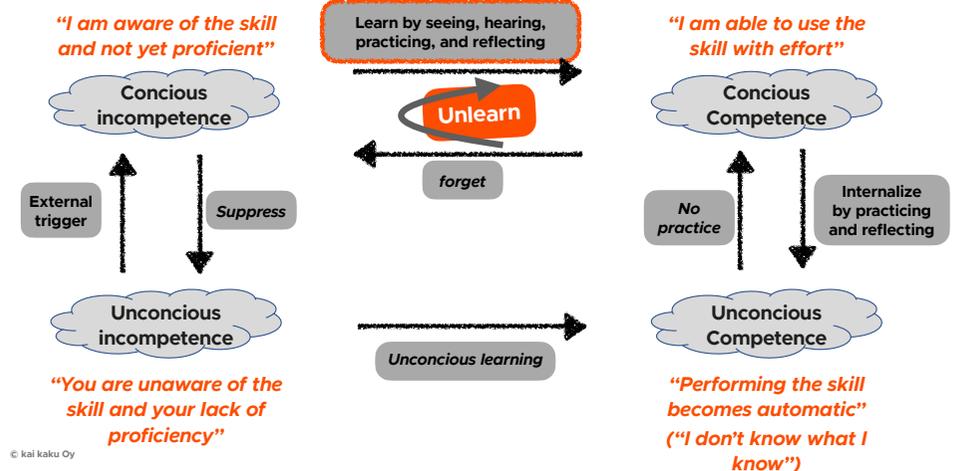
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Developing people so that they can achieve successful results is the point.

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How we learn...



The Deming Cycle (Plan – Do – Check – Act)

Data based problem solving



Typical PDCA Application

- Plan quickly
- Do immediately
- Check roughly
- Act pretty much the way you did before



High Velocity Organization PDCA

- Plan deeply
 - Really understand the problem and root causes
 - Devise experiments to check understanding
- Do many experiments
- Check carefully
- Act systematically
 - Update standards, processes, working agreements

Systems Thinking



Exercise 1/2



Imagine that you face the following pair of concurrent decisions.
First examine both decisions, then make your choices.

Decision (i): Choose between

- A. sure gain of \$240
 - B. 25% chance to gain \$1,000 and 75% chance to gain nothing
- &

Decision (ii): Choose between

- C. sure loss of \$750
- D. 75% chance to lose \$1,000 and 25% chance to lose nothing

Choose: AC AD BC BD

Exercise 2/2



Which of the following choices do you choose:

AD: 25% chance to win \$240 and 75% chance to lose \$760

BC: 25% chance to win \$250 and 75% chance to lose \$750

Choose: AD BC

Side by side



Decision (i): Choose between

A. sure gain of \$240

B. 25% chance to gain \$1,000 and 75% chance to gain nothing

Decision (ii): Choose between

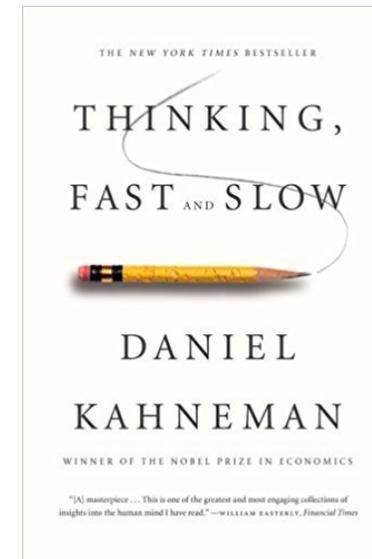
C. sure loss of \$750

D. 75% chance to lose \$1,000 and 25% chance to lose nothing

Versus

AD: 25% chance to win \$240 and 75% chance to lose \$760

BC: 25% chance to win \$250 and 75% chance to lose \$750



Theme: Is there a clear theme for the report that reflects the contents?	Owner
Background 1. Is the topic relevant to the organization's objectives? 2. Is there any other reason for working on this topic (e.g., learning)?	Mentor Date Countermeasures (Experiments) 1. Is the analysis comprehensive at a broad level? 2. Is the analysis detailed enough and did it probe deeply enough on the right issues? 3. Is there evidence of proper five-whys thinking about the true cause? 4. Has cause and effect been demonstrated or linked in some manner? 5. Are all the relevant factors considered (human, machine, material, method, environment, measurement, and so on)?
Current Condition 1. Is the current condition clear and logically depicted in a visual manner? 2. How could the current condition be made more clear for the audience? 3. Is the current condition depiction framing a problem or situation to be resolved? 4. What is the actual problem in the current condition? 5. Are the facts of the situation clear, or are there just observations and opinions? 6. Is the problem quantified in some manner or is it too qualitative?	Confirmation (Results) 1. How will you measure the effectiveness of the countermeasures? 2. Does the check item align with the previous goal statement? 3. Has actual performance moved line with the goal statement? 4. If performance has not improved, then why? What was missed?
Goal / Target Condition 1. Is there a clear goal or target? 2. What, specifically, is to be accomplished? 3. How will this goal be measured or evaluated? 4. What will improve, by how much, and when?	Follow-up (Actions) 1. What is necessary to prevent recurrence of the problem? 2. What remains to be accomplished? 3. What other parts of the organization need to be informed of this result? 4. How will this be standardized and communicated?
Root Cause Analysis 1. Is the analysis comprehensive at a broad level? 2. Is the analysis detailed enough and did it probe deeply enough on the right issues? 3. Is there evidence of proper five-whys thinking about the true cause? 4. Has cause and effect been demonstrated or linked in some manner? 5. Are all the relevant factors considered (human, machine, material, method, environment, measurement, and so on)?	

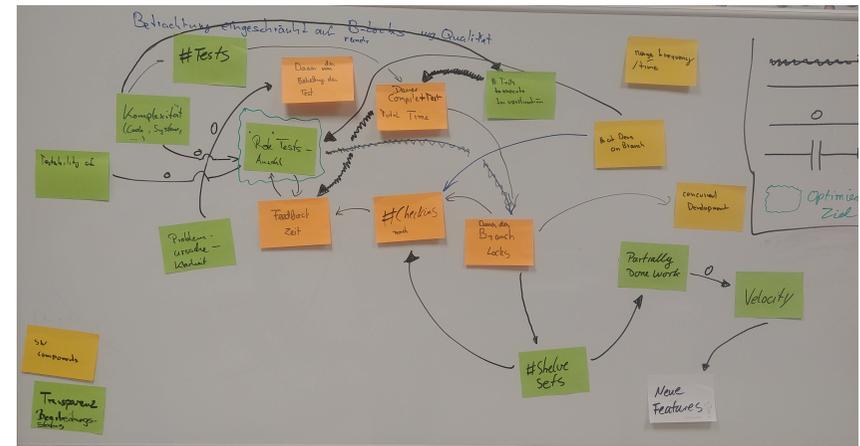
Problem: Improve Physical Health	Name(s): Joel Gross	Date: 29 Dec 2013
Current Condition / Problem Before Photo Facts as of 29 Dec 2013... Weight → 204.3 % Body Fat → 31% Blood Pressure → 141/86 Bench Press → 135 lbs. Life Expectancy = 78.75 years Overweight, High Blood Pressure, Low Energy, Knee Surgery	Cause Analysis 1. Why am I in poor health? 2. Exercise → 41w per week 3. I choose not to exercise 4. When I eat, I eat too much → I make poor food choices 5. Relieves stress temporarily → new baby, long commute Peak Cause: - when tired, stressed, I make poor food choices and choose not to exercise to seek temporary relief. (willpower?)	
Target Condition / Goal After Photo Strategy Improve health by: 1.) Lose weight 2.) Build Strength 3.) Protect Heart Target for 31 Dec 2014 Weight → 171 lbs. Body Fat % → 15% Blood Pressure → 120/80 Bench Press → 185 lbs.	Countermeasures / Actions How do I better manage my stress? How do I improve decision making when eating or exercising? 1. Pre-commit to exercise (no choice req.) 2. create eating plan (no choice req.) don't make a decision! make better decisions	
	Verify / Standardize Status as of 31 Mar 2014 Weight: 187 lbs } -22 lbs fat loss Body Fat: 22% } +5 lbs muscle gained Blood Pressure: 116/78 Bench Press: 203 lbs. Current Life Expectancy: 86.24 years	

6 Steps to Systematic Problem Solving

1. Create common understanding of the goal
2. Create common understanding of the problem
3. Create common understanding of the root causes
4. Identify potential solution (formulate experiments)
5. Do those experiments and measure 2 things: do you do the experiments and do they bring you closer to the goal?
6. Manifest successful experiments into your processes

Systems Model

Systems modelling



Systems Thinking Climate Change



Practise Systems Thinking



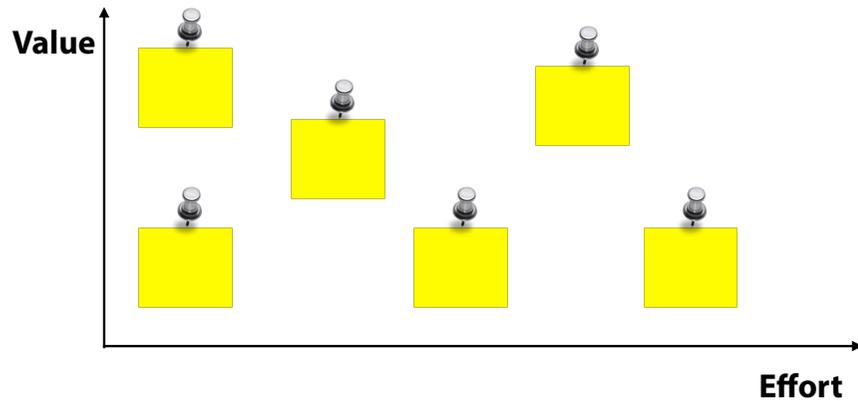
Puzzle: I want to understand the “climate change”?

We start with:

1. Amount of greenhouse gases (CO₂, Methan)
2. Capability of atmosphere to trap heat (Infrared reflection)
3. Global surface temperature
4. Greenhouse gas emission meat & dairy
5. Percentage of areas with permafrost (areas with a lot of methan stored)

Find at least 5 more variables of your own choice and enhance your model!

Map the experiments



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please share your liking
with your colleagues, in
Social Media
LinkedIn, Xing, etc.



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Thank
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