Complex thinking and reasoning: explaining, a theoretical basis for scenario planning.

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Future Threat Understanding and Disruption Programme

Key Premises

1. Organisational inhibition and constraint

2. Determinism and non-linearity

3. Is Scenario Planning (Foresight method) just a ‘placebo’

4. Reasoning under conditions of uncertainty
Thought experiments
1. Institutional inhibition of abductive reasoning and Macrocognition

Performance improvement =
1. Institutional inhibition of abductive reasoning and Macrocognition

Performance improvement = errors & uncertainty +

Standards
Controls
Documentation
Reviews
Rigor
Checklists
Procedures
1. Institutional inhibition of abductive reasoning and Macro cognition

Performance improvement = errors & uncertainty + Insights

Contradictions
Connections
Coincidences
Curiosity
Creative desperation

Source: after “Seeing what others don’t” Garry Klein (2015)
2. Too deterministic

- Human centred
- Reasoning
- Challenge
2. Too deterministic

- Human centred
- Reasoning
- Challenge
2. Too deterministic

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- Reasoning
- Challenge
2. Too deterministic

- Human centred
- Reasoning
- Challenge
2. Too deterministic

- Human centred
- Reasoning
- Challenge
How do we know Scenario Planning works?

"Most of the planning I've seen in about 250 American and foreign companies is like a ritual rain dance performed at the end of the dry season to which any rain that follows is attributed.

Rain dancing has no effect on the weather even though it may have therapeutic effects on the dancers.

Despite this, I find that as a so-called professional planner, I am repeatedly asked to help improve corporate dancing, not to help control the weather."

Ackoff, R. (p. 3, 1977)
Foresight Types

Purpose

Type 1 [T1]

Type 2 [T2]

“leading decision makers to question their inner model of reality”

“to avoid regret” & “to see new strategic options that you were not previously aware of”
Foresight process vs participation

Type 1 [T1]

Type 2 [T2]

Method/process

Facilitator [F]

Participant(s) [P]

Consumer/Decision maker [D]

“leading decision makers to question their inner model of reality”

“to avoid regret” &

“to see new strategic options that you were not previously aware of”
Foresight elements

- **Purpose (Type)**: \([T_1]\) \([T_2]\)
- **Method/process**: \([M_1]\) \([M_2]\)
- **Facilitator**: \([F_1]\)
- **Participant(s)**: \([P_1]\) \([P_2]\)
- **Consumer/Decision maker**: \([D_1]\) \([D_2]\)
3. Is Foresight method a ‘placebo’?

<table>
<thead>
<tr>
<th>Purpose (Type)</th>
<th>Method/process</th>
<th>Facilitator</th>
<th>Participant(s)</th>
<th>Consumer/Decision maker</th>
</tr>
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<tbody>
<tr>
<td>([T_1])</td>
<td>([M_1])</td>
<td>([F_1])</td>
<td>([P_1])</td>
<td>([D_1])</td>
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<tr>
<td>([T_2])</td>
<td>([M_2])</td>
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<td>([D_2])</td>
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3. Clinical decision aids: mostly placebo?

- In only 11% (15/131) judgment is actually assessed
- In only 9.5% (2/21) decision aid outperformed judgment

**Figure 2.** For each year, the graph depicts the total number of studies about decision aids and indicates how often the aid was compared with physician judgment either in the article (black bars) or in “another article” (light gray bars). There is no obvious trend over time.
3. Foresight method – mostly placebo?

- Reframing
- Structuring
- Group participation and interaction
- Diversity of the group
- Simplification and time
3. Is Foresight method a ‘placebo’?
4. Reasoning
The “Supers”

- We all have ‘Super’ potential
- Reasoning skill
4. Expert/ human performance

bad/biased vs mistaken/unpractised

- Naturalistic Decision Making (NDM)
- Intuition, Heuristics, ecological rationality
- Feedback
- Practice
- Dilemma: future & uncertainty

Key Premises - recap

1. Organisational inhibition and constraint

2. Determinism and non-linearity

3. Foresight method ‘placebo’

4. *Thinking skill (Reasoning) of people under conditions of uncertainty (e.g. the Future(s)) is important.*
New basis for Foresight (SP) theory

Purpose (Type)

- $[T_1]$  
- $[T_2]$  

Method/process

- $[M_1]$  
- ‘Placebo’  

Facilitator

- $[F_1]$  

Participant(s)

- $[P_1]$  

Consumer/Decision maker

- $[D_1]$  
- $[D_2]$
Elaborate a Frame

Preservation cycle

Elaboration cycle

Data

Frame

Question a Frame

Reframing cycle

Re-Frame

Data

Frame

Elaboration cycle

Preservation cycle

Reframing cycle
Key features of Macrocognition

Abduction
Reframing
Iteration
Satisficing
Feedback
iii) Iteration

Not “How can cognitive work be automated?” but “In what ways and to what extent might technology and software amplify and extend the human ability to engage in cognitive work?” [26. p. 76-77]

(Macro)Cognition

Modelling & Computation

iv) Satisficing: trade-off

- “Satisficing”, Simon
- “Resilience”, Holing
- “Potential Surprise Theory”, Savage
- “Robustness”/ “Robust Decision Making”, Lempert and Popper
- “Anti-fragility”, Taleb
v). Feedback

“A professional cricketer runs up, bowls, and immediately turns back to his mark without looking to see whether his effort is on target. That is of no interest to him. Only rarely has he thought it might be good to see if he actually hits the wicket, and he has never considered statistically calculating the accuracy of his bowling and comparing it to the bowling of others. Lacking good feedback, he never adjusts how he bowls. He just keeps doing the same thing over and over again, expecting things to work out fine.

Of course this is silly. A cricketer who behaved this way would not be selected. And yet this is a workable analogy for what many forecasters, whose predictions shape all of our lives, actually do.”

Tetlock and Gardner, 2015
Summary

Purpose
(Type)

\([T_1]\)

\([T_2]\)

Method/process

\([M_1]\)

‘Placebo’

\(* ? ? *

Facilitator

\([F_1]\)

\([F_2]\)

Participant(s)

\([P_1]\)

\([P_2]\)

Consumer/Decision maker

\([D_1]\)

\([D_2]\)
Questions?

- Do these premises hold true?
- Is there current or planned work addressing these ideas?
- Other thoughts?

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References

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4. https://www.pitt.edu/~jdnorton/Goodies/Chasing_the_light/

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