

Learning to be Adaptive

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The Challenge: Increased Complexity

Things are getting harder for defense – Increased

- Diversity of threats & security challenges → more to deal with
- Uncertainty and pace of change → less time to adapt
- Number of inter-related actors and effects → less predictable
- Number of constraints and public scrutiny → less options

Therefore defense can't be sure, in advance, of:

- What it will have to do, and with who so can't optimize
- When it will have to do it so can't prepare
- How to ensure success and avoid failure so can't control

How to deal with this Complexity?

The premium will be more on the ability to...

- rapidly decide, *as situations develop*, what is to be done, how, who with, & how to measure success and failure
- rapidly assemble tailored diverse (incl. non-defense elements) teams and get them operational and effective,
- maintain effectiveness under unpredictable and rapidly evolving conditions, retaining ability to mount additional operations as needed

...rather than on the ability to do particular kinds of operations very well – which is the ‘usual’ kind of mission effectiveness

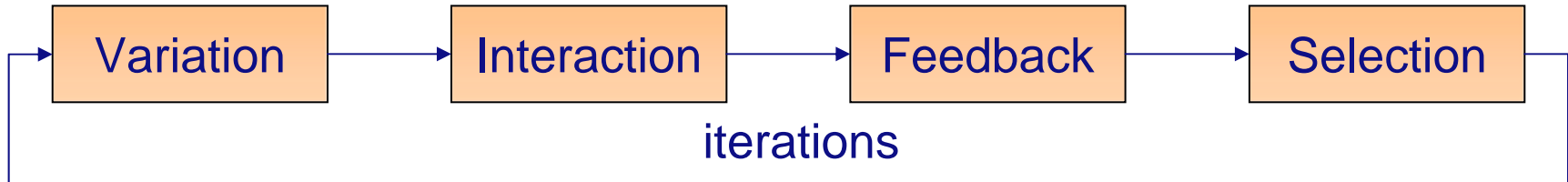
dynamic properties
of the force that
‘emerge’ as a result
of many decisions
about structure,
process, doctrine,
personnel,
equipment, training,
....

**Requires
Adaptivity**

The Question

- How to create, improve and use adaptive and learning processes
 - To develop new adaptive abilities,
 - To deal with complex problems and situations
 - To achieve the desired overall success and avoid major failures

What does it mean to be adaptive



- Retain successful, discard unsuccessful variation → need
 - a. ways to judge success-value of variations
 - b. ways to encode information (successful outcomes) into the system
- In addition adaptation requires the ability to
 - c. produce variation
 - d. produce success-relevant feedback
 - e. select and implement a successful variation
 - f. perform multiple iterations
 - *Because it is not obvious how to be successful, and*
 - *the situation and environment will keep changing*

Six key
properties of
adaptation

Principal dimensions of the conceptual framework

• Scales

→ individuals – dynamic teams – teams-of-teams – whole organization – enterprise

• Outcomes

→ continuously **improve effectiveness** at every scale for every success-relevant function

+

dynamics - deal with changes in conditions:

Classes → Responsiveness, Resilience, Agility, Flexibility

Improve effectiveness of implementation of current posture & design

Change current posture & use of design as needed

• Levels

→

Level 1 changes what the system is doing

[Level 1]

[Level 2]

[Level 3]

[Level 4]

[Level 5]

Levels 2 - 5 address design of the system & SoS

Adaptive action

Learning (new capabilities)

Learning-to-Learn

Defining success

Co-adaptation

LEARNING TO BE ADAPTIVE

Our focus here

The Adaptive Stance

- Attempt to operationalise adaptiveness
- Grounded in understanding of
 - *adaptation and*
 - *Human complex decision-making*
- Creates preconditions for being adaptive for individuals, teams and larger groups.
- Depends on, and is essential for, Mission Command
- Required at an individual level, at higher scales and across scales

The Adaptive Stance at an individual level

- Ambiguity Tolerance
 - – *resist need for certainty and closure*
- Openness to Learning
 - *Be willing to recognise/admit when wrong*
 - *Resistance to loss aversion and commitment bias*
 - *(underlying) assumptions and hypotheses*
 - *Accurate persistent awareness*
 - *Entertain alternate versions*
 - *Continuously seek ways to test, explore and possibly revise*
 - *Willingness to try new ideas*
 - *Observe outcomes of own explicit predictions*
 - *revise mental model and confidence in own ability to predict*
 - *Make implicit predictions explicit*
- Ingrained habit of self-reflection about effectiveness and appropriateness of beliefs, actions and decision
- Support others' learning: *“decriminalize” others being wrong*

The Adaptive Stance across different scales – *interaction between individual and organizational learning*

Individual action or decision Outcome	“Unacceptably” wrong	“Acceptably” wrong	Right
Catastrophe	<p>On the diagonal organization gets what it expects so has nothing to learn</p> <p>Sanctions or punitive Measures</p>	<p>Learn about context. Learn about the boundaries of what is/isn't acceptable</p>	<p>DON'T SCAPEGOAT!! Review boundaries between “wrong” and “right”. LEARN RESILIENCE Learn about complex dynamics that led to outcome</p>
Wrong	<p>Sanctions or punitive Measures</p>	<p>Corrective measures (individual learning)</p>	<p>DON'T SCAPEGOAT!! Review boundaries between “wrong” and “right”. Improve decision process and support. Learn about complex dynamics that led to outcome</p>
Right	<p>Review how ‘unacceptable’ is defined. Sanctions or punitive measures</p>	<p>STOP BLAME GAME “near misses” Learn about tolerances, and robustness of processes. Learn about complex dynamics that led to outcome</p>	<p>Confirm what is already known, or guessed</p>

off the diagonal - many learning opportunities for the organization

More learning opportunities for the organization

Perspectives from the literature – Senge

The Fifth Discipline

- **systems thinking**
 - *seeing interrelated connections instead of linear causes and effect chains*
 - *seeing the dynamics of the system rather than static snapshots;*
- **personal mastery**
 - *continually clarifying and deepening personal vision, focusing energy, developing patience, and seeking objectivity.*
- **mental models**
 - *learning to surface mental models and hold them rigorously to scrutiny.*
 - *balance inquiry and advocacy, where people expose their own thinking effectively and make that thinking open to the influence of others;*
- **building shared vision**
 - *the development of shared "pictures of the future" that foster genuine commitment and enrolment; and*
- **team learning**
 - *Dialogue, Suspending their assumptions and genuine "thinking together", avoiding the usual competitiveness and defensiveness of discussions.*

Foster Aspiration, Develop Reflective Conversation, Understand complexity

Perspectives from the literature – Scharmer

Theory U: one process, five movements

- **Co-initiating: build common intent among the team members.**
 - *dialogue without immediate judgement*
 - *avoid filtering information through old knowledge and habits.*
- **Co-sensing: sense the complex environment**
 - *recognize emerging opportunities and the key systemic forces at issue are.*
 - *realize you are part of the complex environment.*
- **Presencing: recognize an emerging future and learn from it**
 - *Retreat, reflect and create the conditions*
- **Co-creating: Explore the emerging future**
 - *Experiment*
- **Co-evolving: Design the organization and make it work,**
 - *make sure that it is in line with the total environment the group or organization exists in.*

Together with 24 principles and practices forms a social technology to realise the best possible future

Perspectives from the literature – Dörner

The Logic of Failure

- Empirical evidence that only a small minority of players have sustainable long-term success in dealing with complexity.
- Characteristics of majority (unsuccessful) actors:
 - *Unwarranted linear extrapolation of non-linear processes*
 - *Oversteer in presence of time delays between cause and effect*
 - *Over-generalize (too little detail) or over-plan (too much detail)*
 - *Low tolerance for ambiguity and uncertainty*
 - *Focus on symptoms, blind to network of causal factors → band-aid approach*
 - *Confirmatory information collection and perceptual defence*
 - *Failure to reflect, accept responsibility – find ways to shift blame*
- Characteristics of minority (successful) actors:
 - *Adaptive Approach*
 - *Holistic view*
 - *Look for patterns in space and time*
 - *Develop a set of interrelated goals*
 - *Make conjectures explicit and test them*
 - *Monitor progress of actions*
 - *Learn from unexpected outcomes*
 - *Prepared to revise mental models and strategies*
 - *Reflect on actions and thinking*

Perspectives from the literature – Beinhocker

The Origin of Wealth

- Conventional view of strategy rests on 2 wrong assumptions
 - *Confident predictions can be made about successful strategies*
 - *Strategic commitments resulting in sustainable competitive advantage are possible*
- Strategies are hypotheses about what combinations of modules of social and physical technologies will be successful (profitable) in a given environment
- To be successful strategy should
 - *be a portfolio of experiments instead of a single hypothesis about the future*
 - *Have thoughtful measures of success and a plan for collecting data*
 - *Performance metrics to provide feedback for selection*
- → **Adaptive Strategy!**

NO, they cant!

NO, they are not!

Perspectives from the literature - Weick and Sutcliffe

Managing the Unexpected

- High Reliability Organizations (HROs) operate in dangerous high tech and high uncertainty environments
- **But** have much less than expected share of disasters
- organize, think and act differently from others that become blind after long periods of uneventful routine.
- They **Maintain Resilience** by:
 - *Anticipation: focus on averting unexpected events*
 - *Preoccupation with failure*
 - *Reluctance to simplify*
 - *Sensitivity to operations*
 - *Containment: mitigating consequences after an event*
 - *Commitment to resilience*
 - *Absorb strain and preserve function despite adversity*
 - *Maintain ability to return to service from untoward events*
 - *Learn and grow from previous episodes*
 - *Deference to expertise (including downward!)*

Literature – Summary

- All emphasise and confirm central importance of
 - *Systems thinking*
 - *Clarity of vision and set of interrelated goals*
 - *Understanding the system*
 - *Surfacing mental models*
 - *Self-reflection*
 - *Awareness of bias*
 - *Suspending judgment*

- Adaptive organizations are more than a collection of (naturally) adaptive individuals. Organizations can modify the adaptivity of individual members.

Four aspects of the design of an organization

- **Conceptual design** (*stratagem*)
- **Operational Design** (*functions*)
- **System design** (*capabilities*)
- **Analytical framework of measures**

must be co-evolved } At multiple interrelated Scales

Being an **adaptive or learning organization** means that the *conjectural nature* of all four aspects, at every scale, is explicitly recognised, and the organization deliberately takes an Adaptive Stance with respect to all these.

Taking an **Adaptive Stance** means that for every important conjecture, contradictory evidence is actively sought, and acted upon when found, so as to evolve the organizational design to improve the fittedness of the organization to its roles in its environment.

Why the 4 aspects of organizational design have to be co-evolved - an illustration of the interdependencies between them

Impacts on Change here → ↓	Understanding of own organization and environment	Conceptual design (stratagem) + operational design (functional)	System design	Analytical framework of measures
Understanding of own organization & environment	Dependent aspects at same and other scales	What levers of influence exist on pathways to Success or Failure	Local conditions impacting on design	What feedbacks may be available
Conceptual design (stratagem) + operational design (functional)	Other possible consequences of levers of influence	Dependent aspects at same and other scales	What actions need to be taken	What we seek to achieve
System design	What levers of influence we can exercise	What actions can be taken	Dependent aspects at same and other scales	What can be monitored
Analytical framework of measures	What the critical uncertainties are	What adaptive processes can be supported	What needs to be monitored	Dependent aspects at same and other scales

Helping organizations *Learn to be Adaptive*

The six basic properties (see Slide 5) are the primary targets for variation when implementing Level 3 adaptation (improve adaptive processes)

- Look at aspects that are subject to adaptation (use conceptual framework as systematic guide)
- For each aspect, find existing processes and examine their six basic properties of adaptation to find ways to improve them:
 - a. What criteria are used to judge a change process*
 - b. How is the result of the adaptive change recorded in the system*
 - c. What changes are possible to make and how frequently are they produced*
 - d. What can be observed about a change (feedback)*
 - e. How is feedback evaluated against the criteria*
 - f. How long cycles take, how costly they are and how frequently they occur*
- Apply Level 3 adaptation to select changes to these properties that improve the success of these existing adaptive process
- Create new adaptive processes where needed and none exist, then use six basic properties as above for improving it through Level 3

Concluding remarks about creating adaptive processes

- Modelling, simulation, wargaming and field experiments play a part in getting feedback, but can not replace the real world
- The armed forces must benefit from the learning occasions of Operational tours
- Armed forces need to apply Senge's generative learning: seek to discover and develop what they truly desire as collections of individuals → focus on outcomes that indicate success
- Formulation and assessment of effectiveness is critical.
- Encoding of learned information can take many forms. What matters is how well the organization is able to use it.
- The core of adaptation is always the cycle
- Aspects are necessary points of attention. The work of Senge and Scharmer provide social methods to make them happen.

- Have not **explicitly** embraced adaptive concepts yet, but **implicitly** recognize the benefits of concepts through their initiatives and respond intuitively to the increasing complexity
- Implicit use of principles and practices of theory U during development of new CP concept for brigades
- Focus on improvement of processes to learn from current operations
 - Lessons learned during operations
 - Improve force generation process
 - Improve HOTO processes
 - Openness in lessons learned

- Australian Army has been quick to adopt adaptation and works closely with DSTO.
 - 2004: **Complex Warfighting**
 - Future land operational concept
 - 2006: **Adaptive Campaigning (AC06)**
 - embrace and foster adaptivity to deal with uncertainty
 - 2008: **Adaptive Army Initiative**
 - Create force generation process able to generate flexible and sustainable forces
 - Entire organization of Army is now on adaptive footing
 - 2008: **The Adaptive Warfare Cell**
 - Example of implementation of Adaptive Army Initiative at the level of rapid organizational learning from operations.
 - 2009: **Revision of Adaptive Campaigning (AC09)**
 - Replaces AC06 and Complex Warfighting

THANK YOU

ANY QUESTIONS???



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