

# The Adaptive use of Networks to Generate an Adaptive Task Force

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# The Challenge: Increased Complexity

## Things are getting harder for defense – Increased

- Diversity of defense roles & 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 Implications of adaptivity

## Defense needs to understand

- How to get better at being adaptive
- What the limits are of traditional approaches
- How to deal with Complexity and Adaptation at many levels
- How to develop adaptive complex systems (rather than engineer complicated ones)
- Consequences for all the DOTMLPF factors and for networking
- How to Select, train and educate people to be adaptive
- Implications for C2, ISR, NCW, EBO, national security, complex operations ...
- (and manage) the many System-of-System tradeoffs

# Our focus

**Adaptive  
Campaigning**

*4 classes  
5 levels  
Several Scales*

**Adaptation  
framework**

**Maturity  
Levels  
SAS-065**

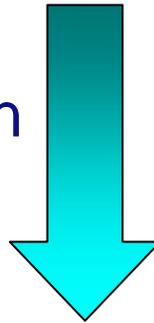
**Adaptive  
Networking**

*ICT network  
Information network  
Social*

**CCRP  
literature**

Previous (and  
ongoing) Work

Impact on



**Force  
Development**

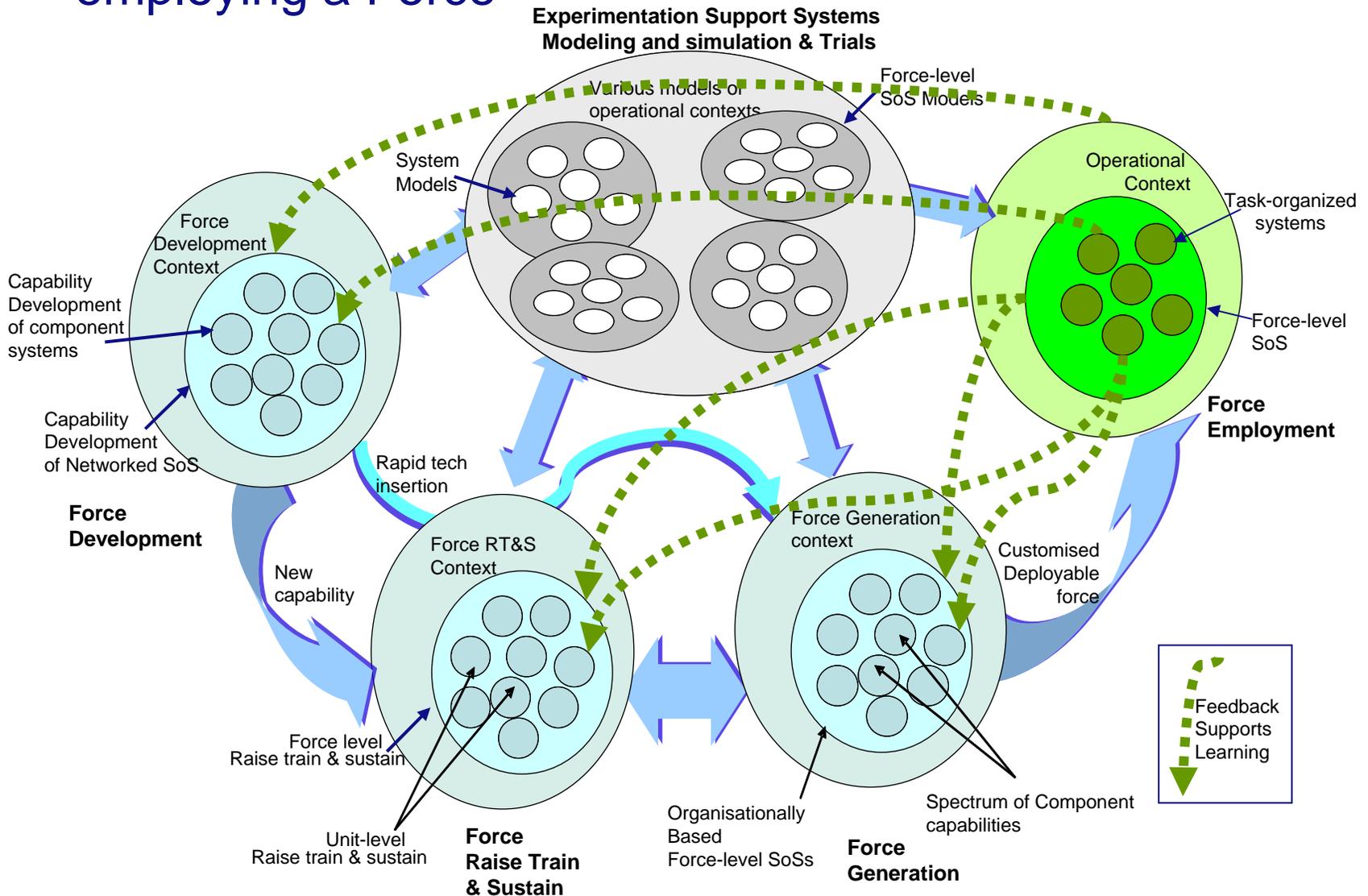
**Force  
Generation**

Current Work

# Force Generation

*the process of selecting force elements from the parent force(s) and the structuring, integration and training of them up to the required level for Force Employment.*

# Various stages of developing, maintaining and employing a Force



# The Questions

- What are the desired adaptivity properties of the Force Generation process, that will result in the intended output (an effective deployable force with the desired adaptivity properties)
- What are the desired outcomes of Force Generation
- What are the key processes that influence these outcomes

# A few observations

- Capabilities of the parent force contribute to and constrain what an actual deployed force can do.
- The Force Generation process is the bridge between the parent force and the employed forces
- Networks play an important role in Force Generation
  - Facilitate the selection of the right elements
  - Facilitate feedback mechanisms
- Experimentation is crucial

## Intended output of the Force Generation Process

An Effective, Integrated, Adaptive, Deployable,  
Sustainable task force, able to support  
organizational learning

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Effective

➔ **Enable and foster future effectiveness**

- **Define Measures of Success and Failure well enough**
- **Difficult: Multiple scales, dimensions, perspectives**
- **Need to evolve during the operation**
- **Feedback from Force Employment to Force Generation**
- **Balance Long term and short term success**

## Intended output of the Force Generation Process

An Effective, *Integrated*, Adaptive, Deployable,  
Sustainable task force, able to support  
organizational learning

Integrated

➔ **Integrate disparate force elements**

- **Build trust**
- **Build sense of collective identify**
- **Create willingness to cooperate**
- **Make best use of various elements → sum greater than its parts**
- **Ability to plan and act in a coherent way**
- **Coherence within and one and across several rotations**

## Intended output of the Force Generation Process

An Effective, Integrated, *Adaptive*, Deployable,  
Sustainable task force, able to support  
organizational learning

Adaptive

➔ Recognize need for change and  
make effective changes in a timely way

- Ability to maintain effective context-appropriate behavior
- Requires many adaptive processes to function
- Requires rich information sources to feed these processes
- Requires ability to analyze complex dynamics
- Requires Learning and Learning to Learn mechanisms

## Intended output of the Force Generation Process

An Effective, Integrated, Adaptive, *Deployable*,  
Sustainable task force, able to support  
organizational learning

Deployable

➔ Meets Operational levels of Capability

- Structures and processes in place
- Effective Hand Over / Take Over
- All systems in place

## Intended output of the Force Generation Process

An Effective, Integrated, Adaptive, Deployable,  
*Sustainable* task force, able to support  
organizational learning

Sustainable

➔ Rate of consumptions consistent with  
capacity to support force

- Ability to identify changes and adapt rate of replenishment as needed
- In general: rates of utilization are not static

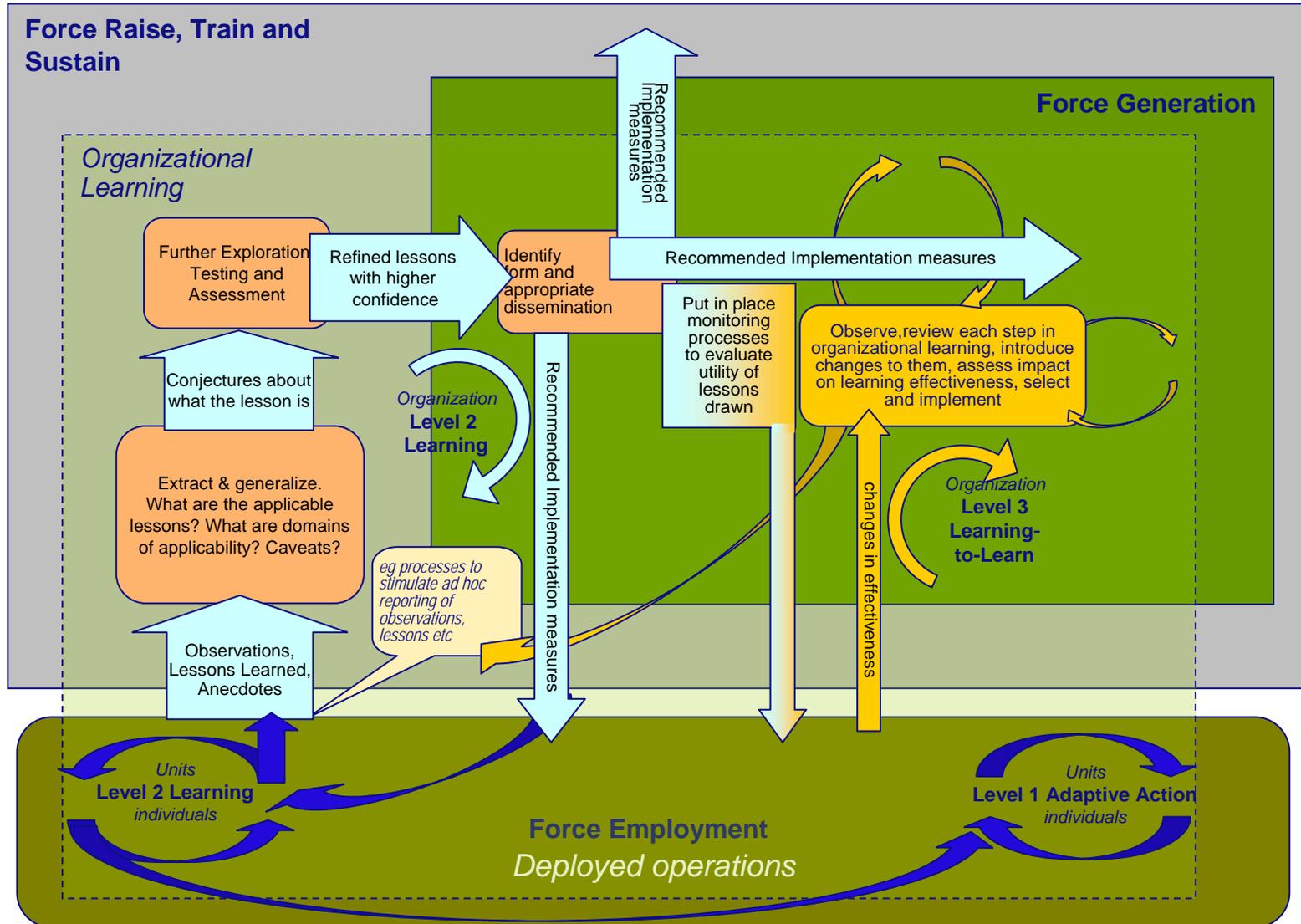
## Intended output of the Force Generation Process

**An Effective, Integrated, Adaptive, Deployable,  
Sustainable task force, *able to support  
organizational learning***

Organizational Learning → **What works and what doesn't**  
**Robustness of systems and processes**  
**What can be improved**  
**Results from earlier attempts**

- **Requires feedback into the appropriate learning processes**
- **Many ways to record lessons learned**
- **How well is the system able to use them**
- **Biggest pitfall is widely dispersion of sub processes**  
→ **basis level 2 processes must be ensured.**

# Learning links between various stages

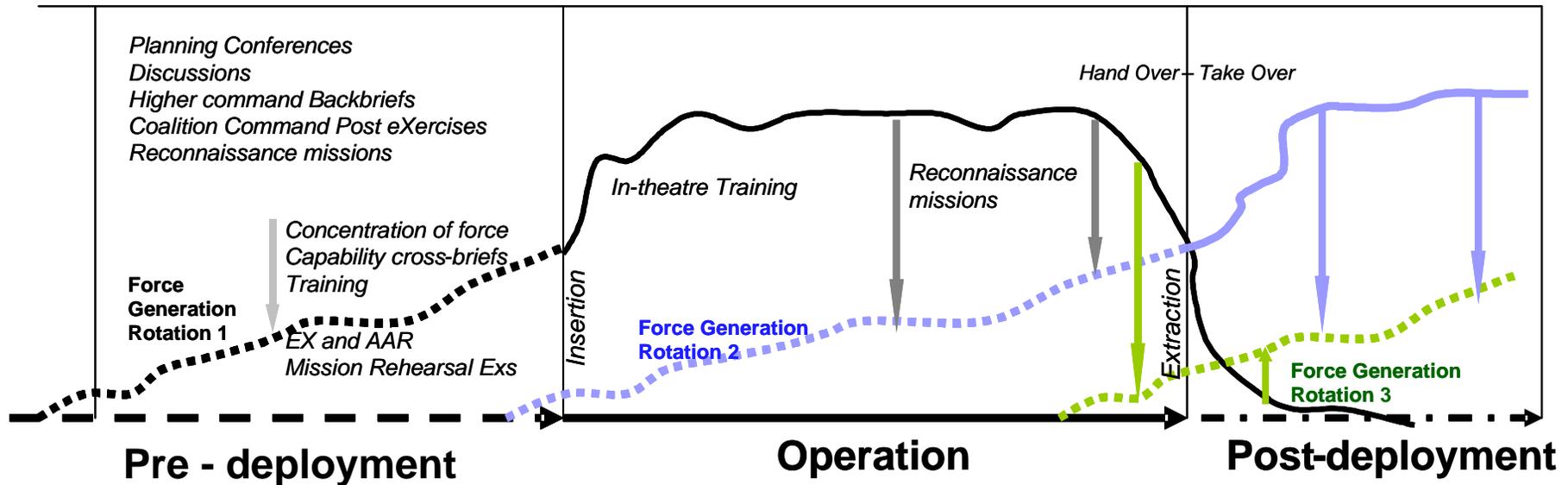


# Detailed requirement for Force Generation

*A number of nested simultaneous adaptive processes*

- 1. Learn about the history and dynamics of the C&IN of the situation**
- 2. Co-evolve the intervention Stratagem to influence the situation with the force mix**
- 3. Build the Force to be Employed**
  - Assemble the force elements
  - Decide on and implement command and team structures
  - Integrate and train
  - Develop understanding of the situation
  - Evolve operational concepts
  - Undertake mission rehearsals
- 4. Develop the networks and relationships**

# A typical timeline for successive rotations



- Always several rotations to deal with simultaneously
- Therefore: Force Generation systems are well placed to facilitate Learning and adaptation between them
- Coherence is a major challenge in three dimensions: *Horizontally*, *Vertically* and *Temporally*. Coherence needs continuous monitoring

# Conclusions

- We have identified the adaptive properties needed to support organizational learning and the force employment
- Discussed a methodological approach to shape and assess Force Generation grounded in adaptivity
- Addressed the challenges to create appropriate forces for complex endeavors
- Noted the vital importance of social, information and ICT networks of the parent force to facilitate selection of force elements, provide feedback and grow networks of the deployable forces
- Pointed out many ways in which networks can support and extend the capabilities of the force being generated
- Still many open questions → further research necessary

