Taking FATE* on the road

*FATE – Futures Assessed alongside socio-Technical Evolutions

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Overview

NATO SAS-RTC-176

FATE is a method

Why invoke *FATE*[1] ?

It is Strategic

FATE – a means to conduct:

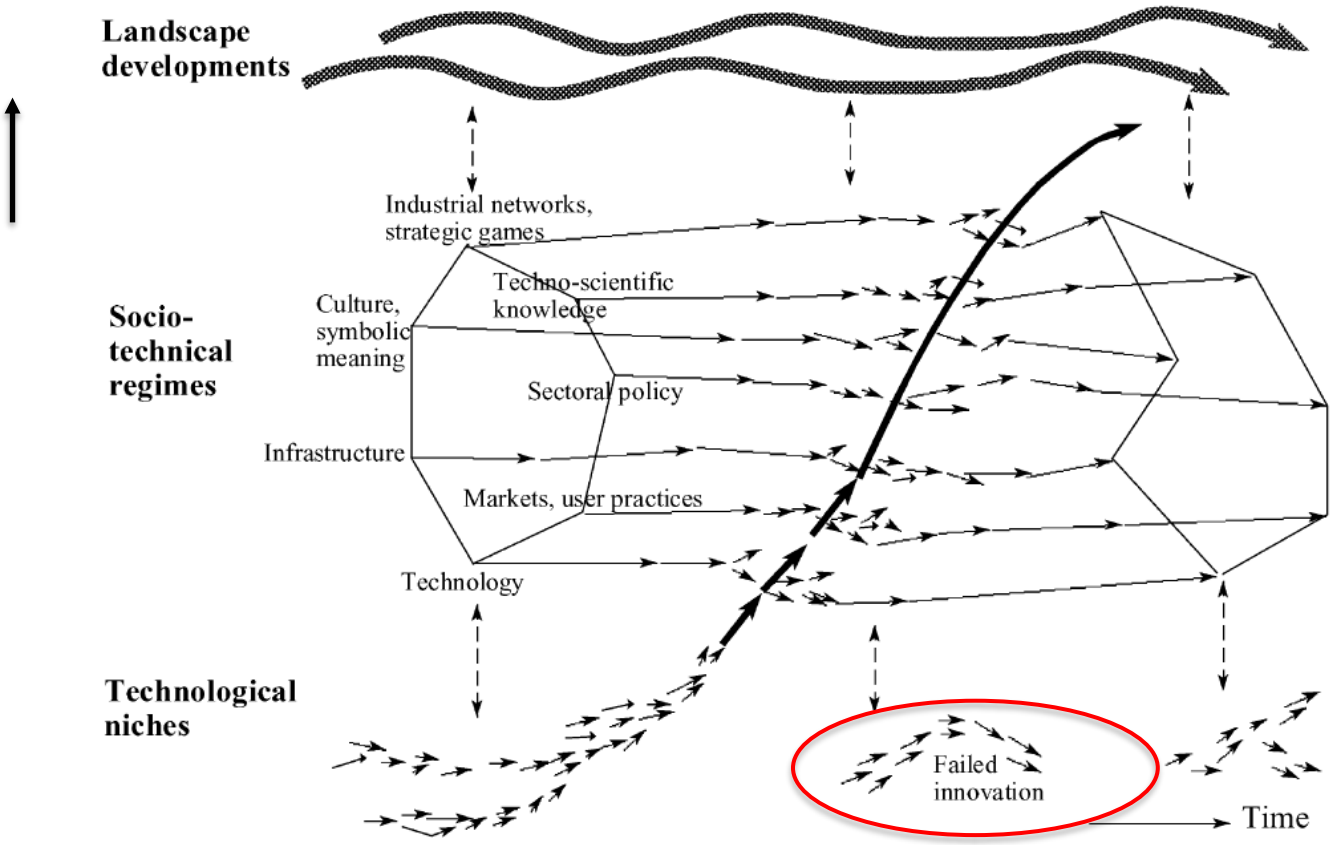
A concurrent assessment of **socio-technical** systems within imagined future scenarios

[1]Adlakha-Hutcheon, G. et al (2021) Futures Assessed alongside socio-Technical Evolutions (FATE), DOI: 10.14339/STO-TR-SAS-123, ISBN 978-92-837-2322-6.

- When was the last time you formally addressed a client's question on a technology or a scientific concept from the perspective of a holistic system? One that looks at drivers and resistors of a socio-technical system (STS) that may impact the evolution of a technology?
- FATE does this!
- How?

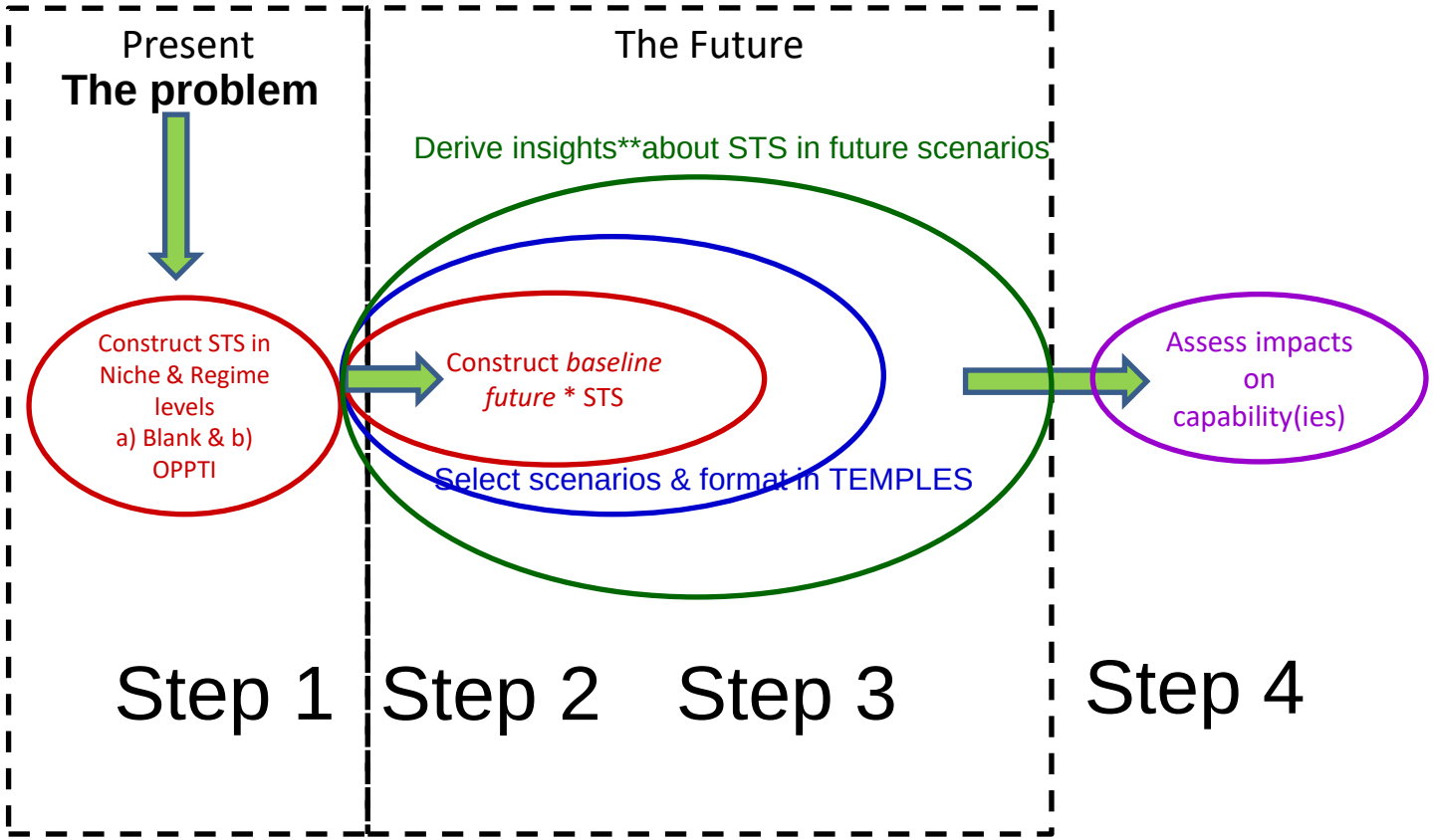
[2]Adlakha-Hutcheon, G. Bown, K., Lindberg, A. Nielsen, T. G. Romer, S. Maltby, J.F.J. (2020) The Use of FATE for Illuminating Disruptions, Proceedings of The 14th Annual NATO Operations Research and Analysis Conference, 2020, Unclassified.

Socio-technical transitions



Geels FW (2002, 2010)

The *FATE* Method



* *Baseline future* is an idealised *extrapolation* of what is emerging today, **Insights from analysis, changes in STS, drivers and resistors of change in future scenarios and/or STS

The FATE Method

A problem – scope it as a Socio-Technical System (STS)

- Step 1 – Socio-Technical System (STS)
- Step 2 – Future scenario

  Adapt a scenario into *TEMPLES*[#] if required

- Step 3 – Interactions between future scenario + STS

  3.1 How do you see the STS evolving in future scenarios?

  3.2 What are interactions of the STS (OPPPTI) in the described future scenarios (TEMPLES)?

  Output: insights of components in the STS (OPPPTI) that change through drivers and resistors (D and R) in different scenarios (TEMPLES)

- Step 4 – Assess the impact on defence and security e.g., wrt capabilities

  Output: Impact mitigation options for client/customer from at least two scenarios

[#] *TEMPLES – Technological, Economical, Military, Political, Legal, Environmental and Social*

* *OPPPTI – Organization, People, Processes, Policies, Technology, Infrastructure*

- As a course participant you will learn about
- *FATE* – The method
  - Why use it?
  - When to use it?
  - How to use it?
    - Modularity and other applications
  - What it provides?
    - Drivers (D) and resistors (R)
    - Changes & potential evolutions in STS across Scenarios
    - Options to mitigate impacts, and
    - Improve preparedness

For Each Step

1. Theory
2. Examples from the past
3. Practice using an example on Biotechnology through active participation and interactive walk through
4. Near real time practice results from electronic white board
5. Sample of the example on Biotechnology looked like for us (pre-worked out step)

FATE – in action with 2 past examples

Comparison between 2 questions*

What is the impact of delivery to front lines by autonomous means?

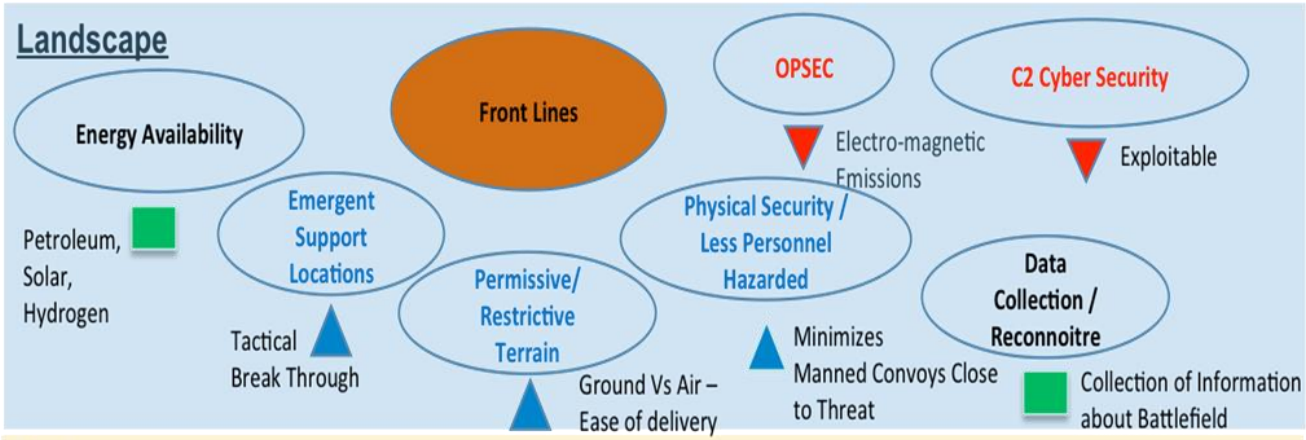
1. Traditional operations,
2. Automated delivery adds a contemporary flavor,
3. Reducing number of soldiers in harm's way.

How could 'wearables' effect urban operations?

1. Urban operations,
2. Contemporary equipment used to collect data facilitating near real time decision making,
3. Minimizing risks for both soldiers and civilians.

*Adlakha-Hutcheon, G. Bown, K., Lindberg, A. Nielsen, T. G. Roemer, S. Maltby, J.F.J. (2020) The Use of FATE for Illuminating Disruptions, Proceedings of The 14th Annual NATO Operations Research and Analysis Conference, 2020, Unclassified.

Delivery to front lines by **autonomous** means



Regimes

Organizations
- Armies
  - Cultural Norms
  - Existing Doctrine
  - Needs
  - Wants
- Commercial Industry
- Manufacturers

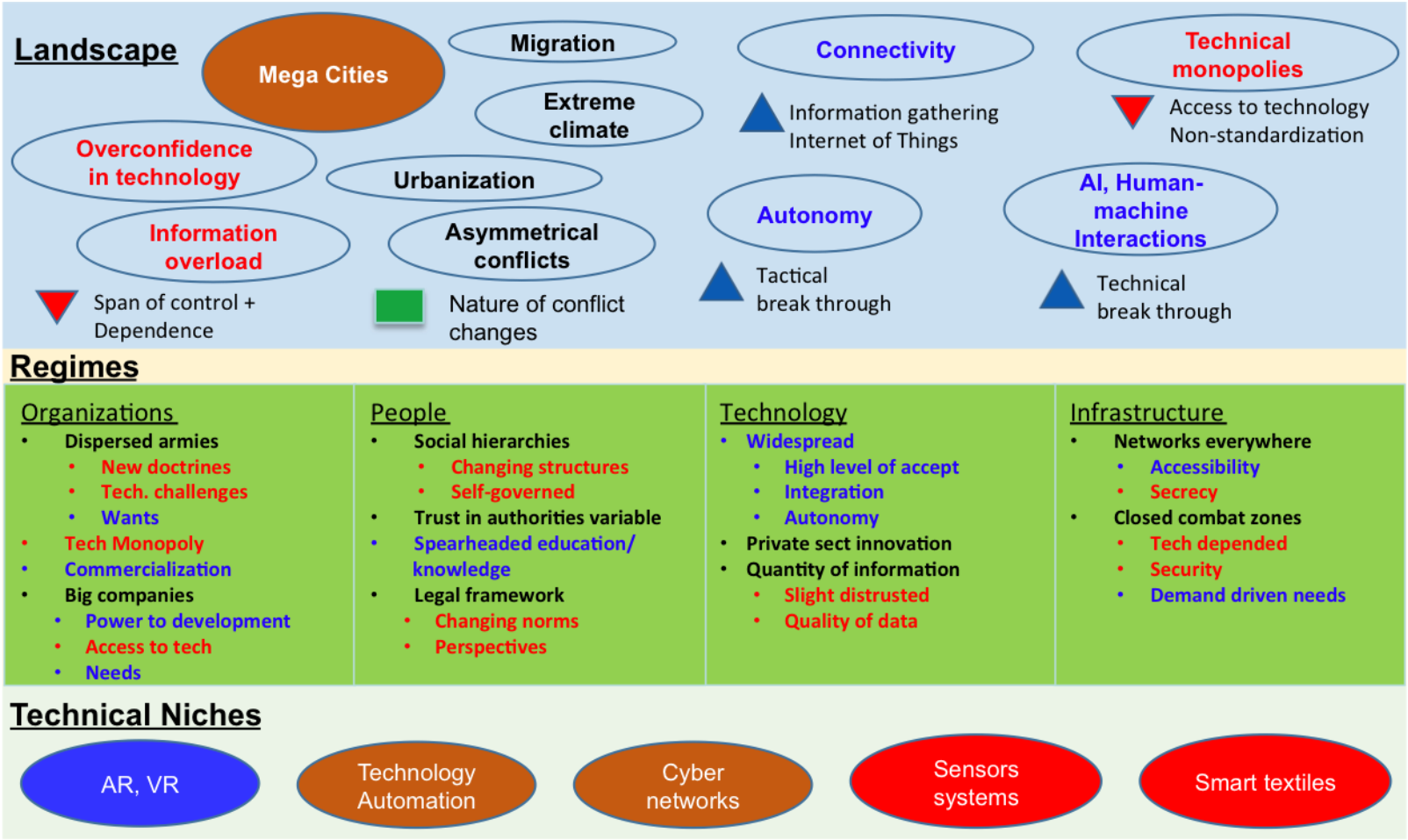
People
- Commanders
  - Innovators
  - Biases
  - Understanding
- Forward Units (Infantry, Tanks, etc)
- Logisticians
- Mechanics (Training Challenges)

Technology
- Sensor Prolif (Wright's Law)
  - LIDAR
  - Cameras
- Marsupial Capabilities
  - Technology
  - Sea to Land
  - Land to Air
- Battery Technology
- Electric = Quiet; Petroleum = Loud

Infrastructure
- Roads
- Landing Points
- Automated Resupply Nodes
- Expeditionary
  - Rapid Charging/ Refuel Capability
  - Data Networks

Technical Niches

How could **wearables** effect urban operations?



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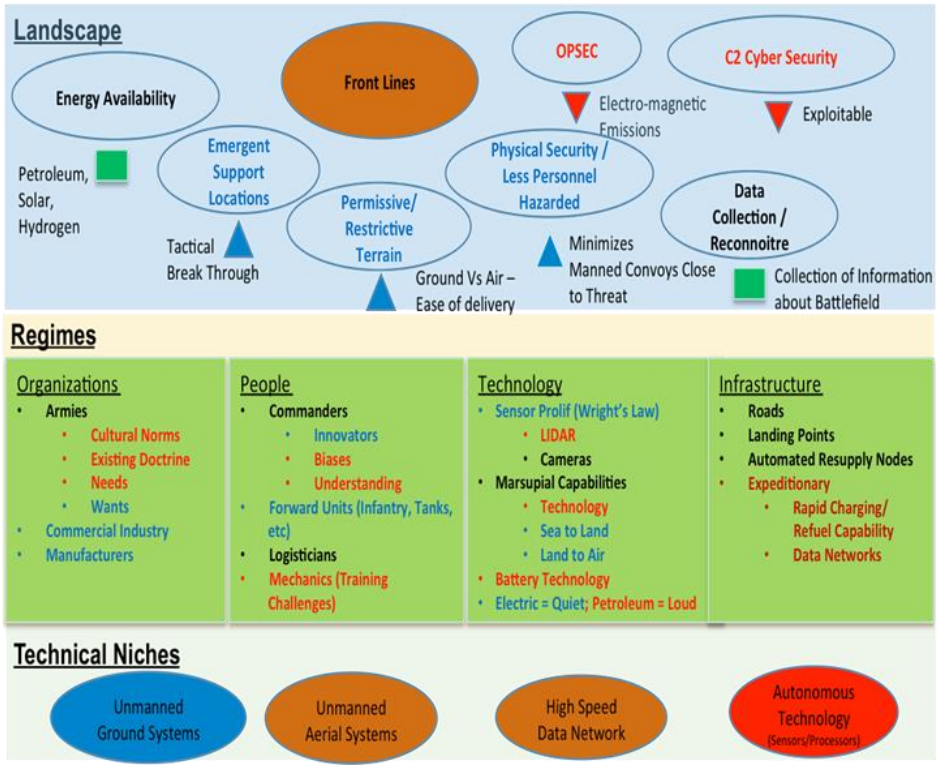

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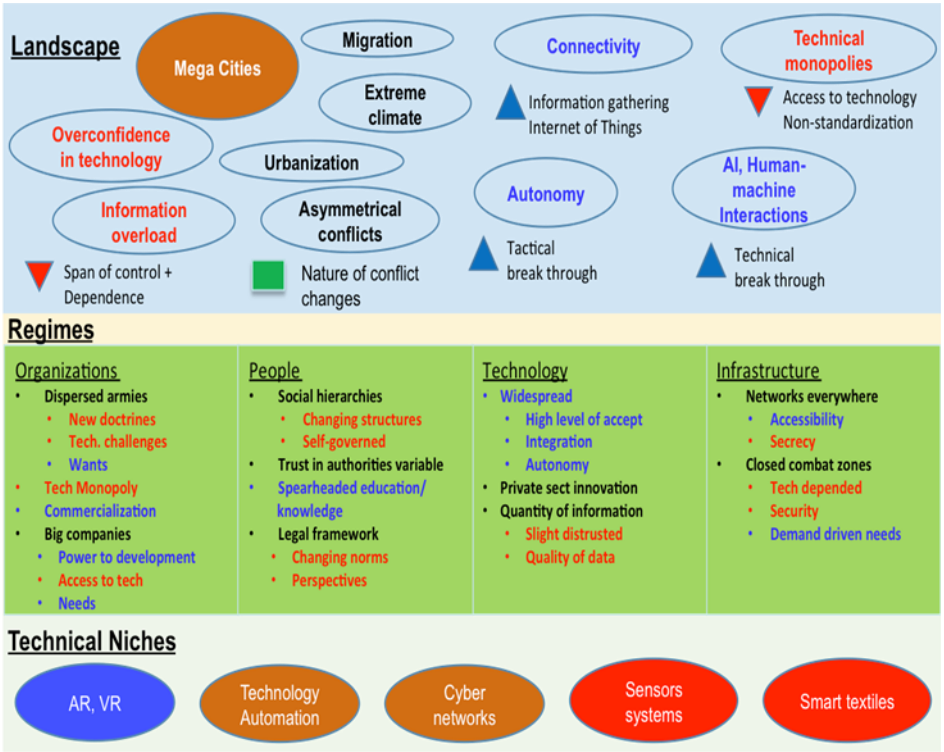

- *FATE* is unique because it invites dialogue and provides:
  - Drivers, resistors, Impacts
  - + + +
  - As a course participant you become a member of the FATE Community of Practice or FATE COP

Agenda Day 1

Time	Duration	Research Technical Course
09:00	30	**Welcome** Tour de table – GAH and all
09:30	30	**Theory of FATE , why FATE, and Method overview**
10:00	15	Agenda
10:15	15	Break
10:30	15	**Step 1 – Socio Technical Systems (STS) - PRESENT** Overview, explanation, and practice - GAH
10:45	45	**Step 1 – Practice - STS on the question**
11:30	15	Prepared example results
11:45	60	Lunch break
12:45	15	**Step 2 – Scenarios - FUTURE** Overview, explanation, and practice - GAH and Ric
13:00	45	**Step 2 – Practice - Scenarios**
13:45	15	Prepared example results
14:00	15	Break
14:15	30	**Step 3 – STS + Scenarios – PRESENT into the FUTURE** Overview, explanation, and practice - GAH and Robb
14:45	60	**Step 3 – Practice - STS + Scenarios**
15:45	30	**Report back futuristic STS**
16:15	15	Prepared example results
16:30		Adjourn

Agenda Day 2

08:30	15	Recap
08:45	15	**Step 4** – **Impact or the so what** Overview, explanation, and practice – GAH and JM
09:00	60	**Step 4 – practice** **Impact or the so what**
10:00	15	Break
10:15	15	Prepared example results
10:30	15	**FATE applications** - Silke
10:45	30	Convergence to Impact Assessment - Antony
11:15	15	**Finale** – GAH
11:30	15	Building a FATE Community of Practice (FATE COP) - All
11:45	10	Handing out certificates
11.55	5	**Wrap-up**

Practice using the following question

How will Biotechnology impact soldier health and performance in 2040?

References

1. Adlakha-Hutcheon, G. et al (2021) Futures Assessed alongside socio-Technical Evolutions (FATE), DOI: 10.14339/STO-TR-SAS-123, ISBN 978-92-837-2322-6.

   Annex E – Facilitator's Guide

2. Adlakha-Hutcheon, G., Bown, K., Lindberg, A. Nielsen, T. G. Roemer, S. Maltby, J.F.J. (2020) The Use of FATE for Illuminating Disruptions, Proceedings of The 14th Annual NATO Operations Research and Analysis Conference, 2020.

   Compares examples