# STEP 1 – STS

Taking FATE* on the road

*FATE – Futures Assessed alongside socio-Technical Evolutions

NATO SAS-RTC-176

# *The FATE* Method

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

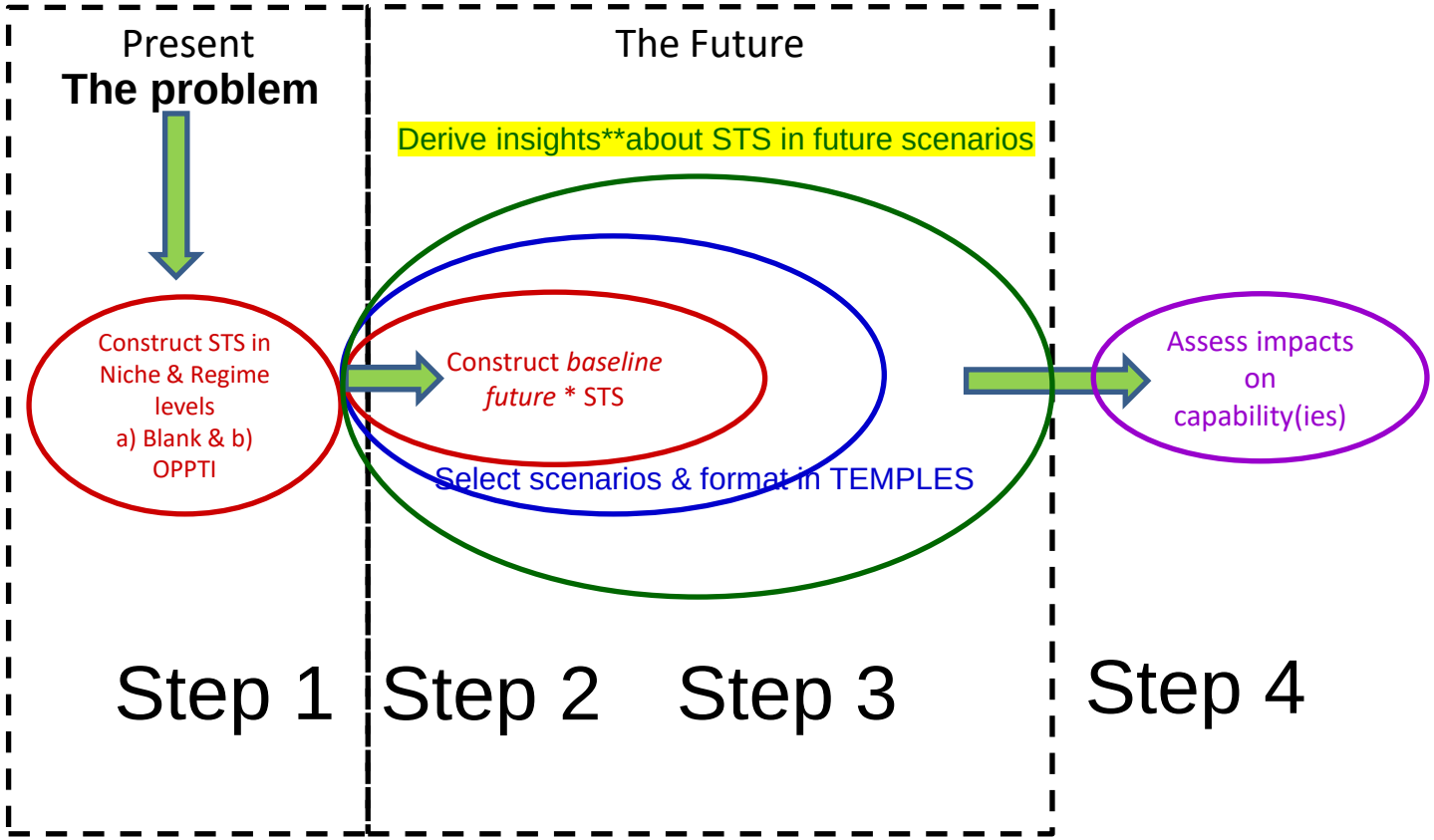
- Step 1 – Socio-Technical System (STS)

Elaborate an STS into

Niche and Regime levels and *OPPPTI** ontology

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

# *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

Socio-Technical Systems (STSs) are made of two systems that differ yet overlap—the social and the technical. They are entangled and influence each other…In STS, while the technical system refers to the processes, tasks and technologies needed to transform inputs to outputs, the social system deals with the attributes of people (attitudes, skills, or values), the

relationships among people, reward systems, and authority structures.

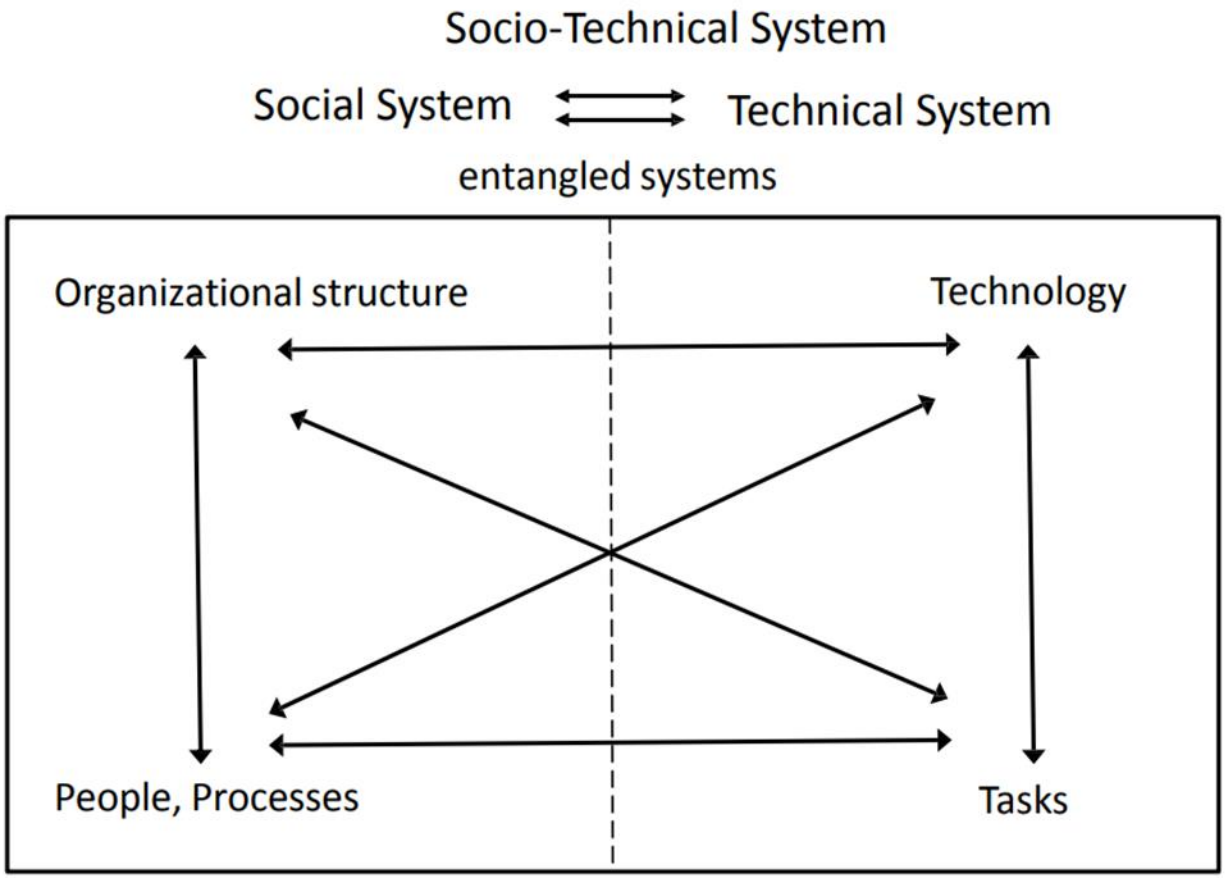



*Figure 2: An STS adapted from [39].*

# Socio-Technical Systems (STS)

- Socio-Technical Systems (STS) are made of two systems that differ yet overlap—the social and the technical.
- They are entangled and influence each other…
- The technical system refers to the processes, tasks and technologies needed to transform inputs to outputs.
- The social system deals with the attributes of people (attitudes, skills, or values), the relationships among people, reward systems, and authority structures.

# Socio-Technical Systems (STS) cont'd

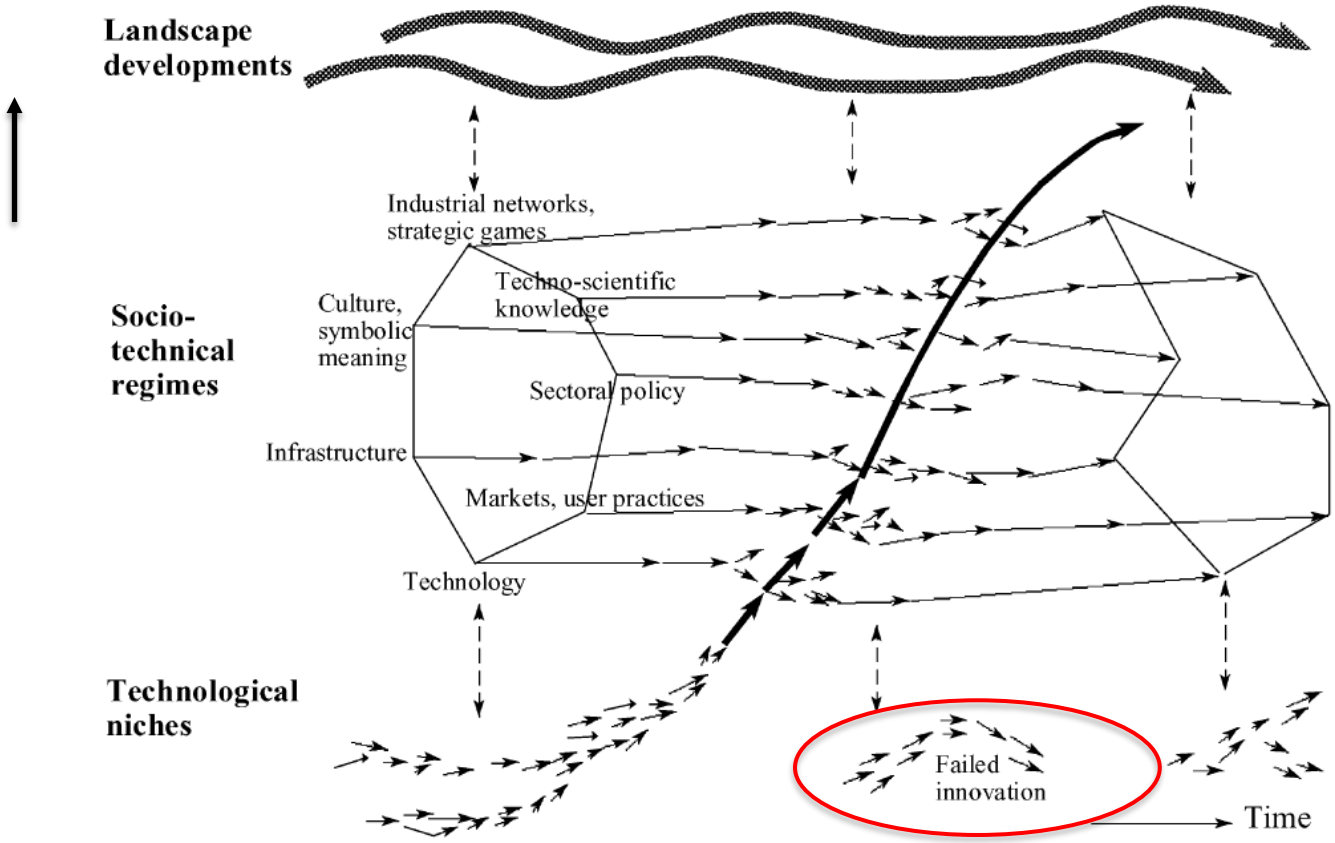
1. Systems should have interdependent parts.
2. Systems should adapt to and pursue goals in external environments.
3. Systems have an internal environment comprising separate but interdependent technical and social subsystems (such as people, work, context and organizations).
4. Systems have equifinality (that is system endpoints may be achieved by more than one means).
5. System performance relies on the joint optimization of the technical and social subsystems.

# *FATE* – Step 1 – STS in action

# Step 1 – Socio-Technical System (STS)

- Elaborate STS into the Multilayer Perspective (MLP) and the OPPPTI ontology
- What is MLP?
  - Niche, Regime and Landscape levels

# MLP - Socio-technical transitions




Geels FW (2002, 2010)

# What is the OPPPTI ontology?

- Organization,
- People,
- Processes,
- Policies,
- Technology,
- Infrastructure

Form associations for each letter of OPPPTI

# Step 1 – STS – 2 examples

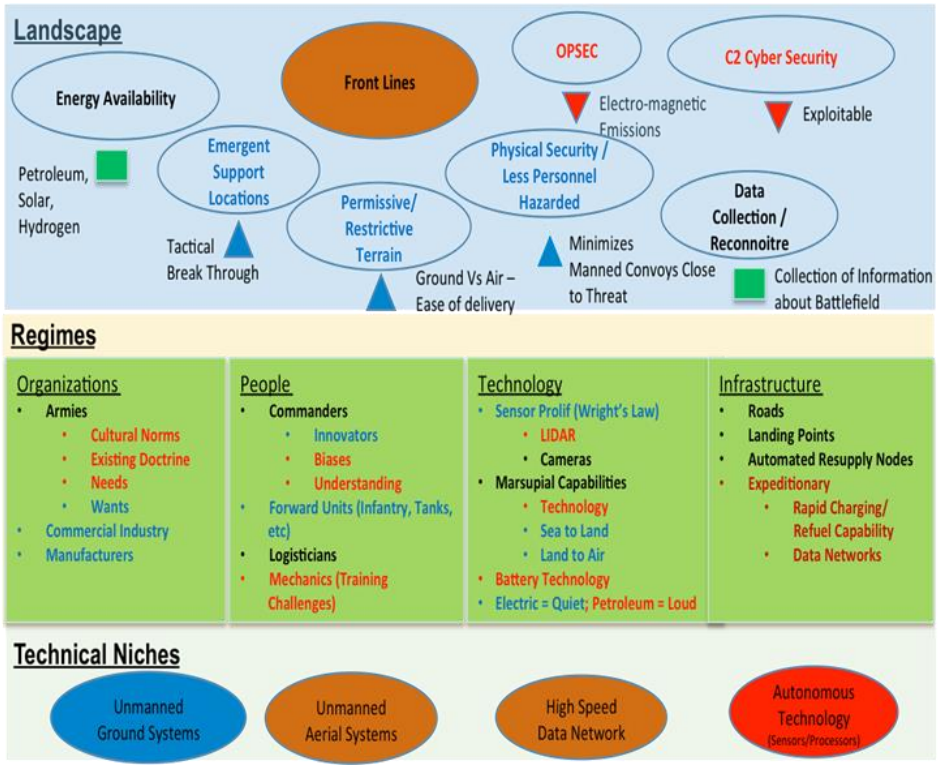
What is the impact of delivery to front lines by autonomous means?

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

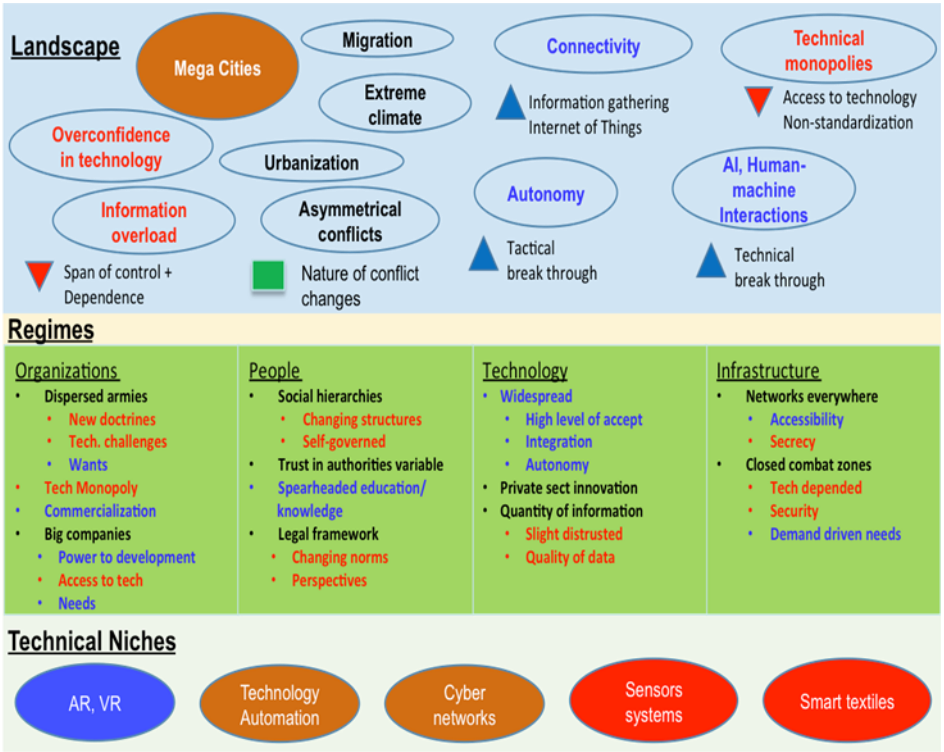
How could 'wearables' effect urban operations?

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

## Delivery to front lines by **autonomous** means




## How could **wearables** effect urban operations?

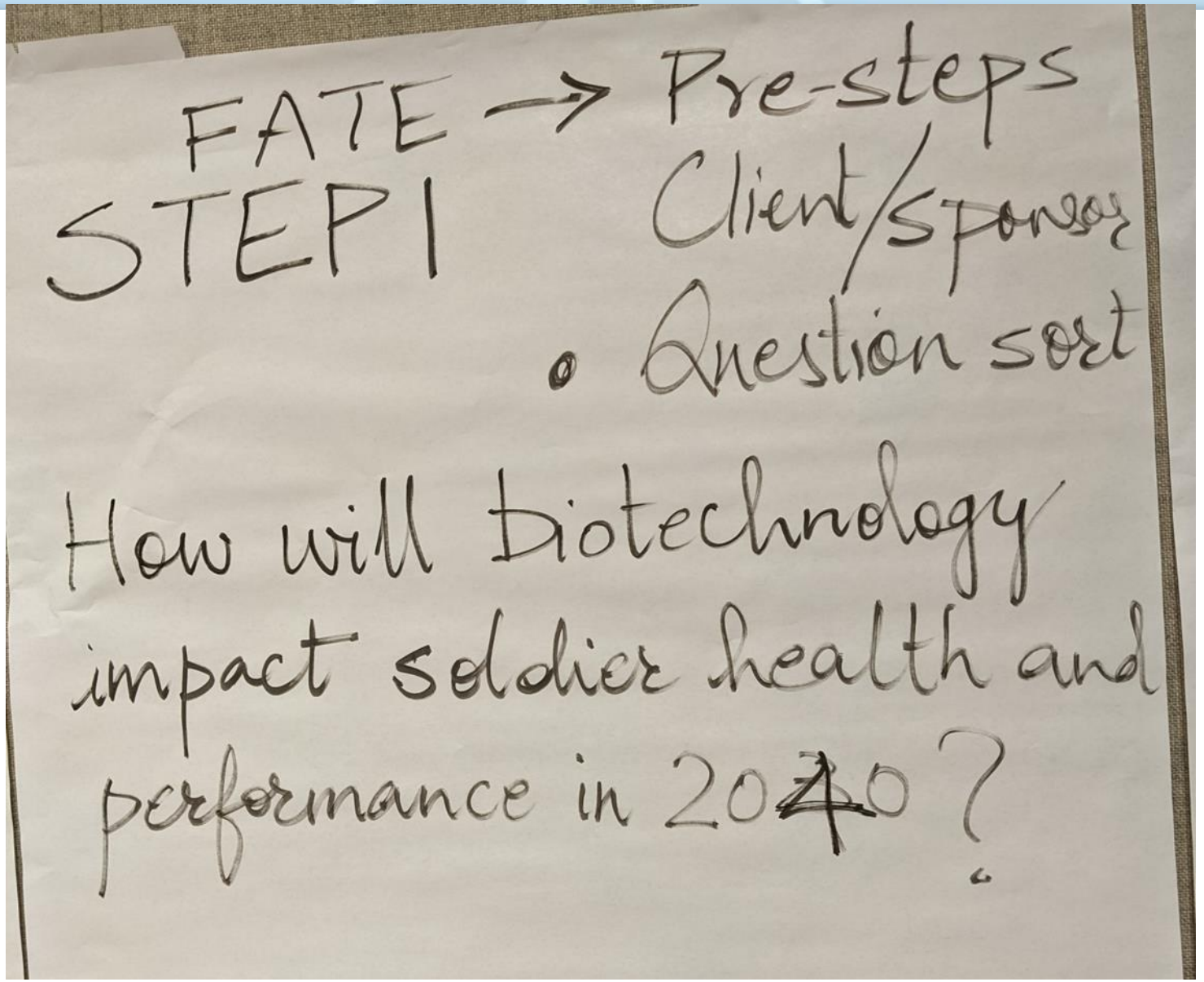


# Develop an STS

## How will Biotechnology impact soldier health and performance in 2040?

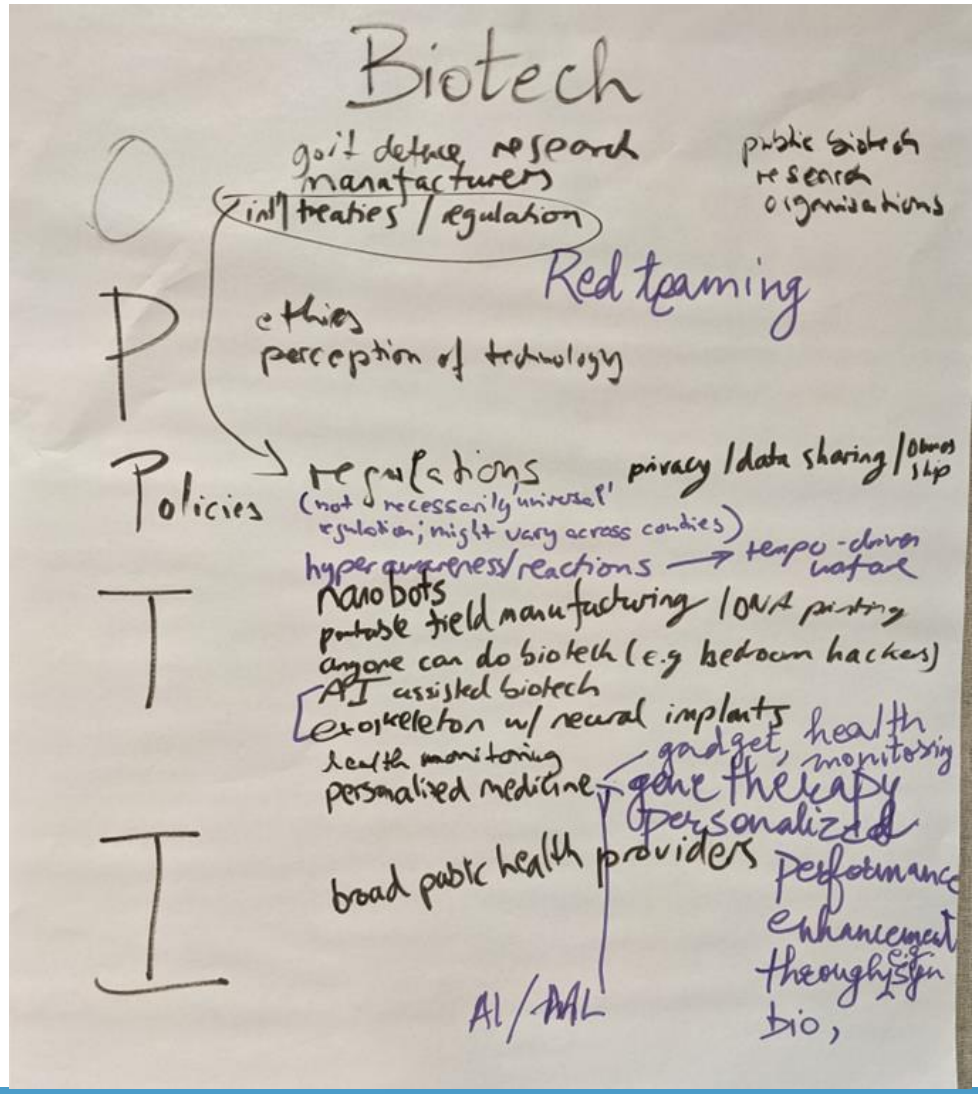
1. In the present 2023 specific to this question consider each letter of OPPPTI and note down all that you know
2. Form associations and decide whether there are dependencies, linkages between them

# Practice


FATE → Pre-steps
STEP 1
Client/sponsor
Question sort
How will biotechnology impact soldier health and performance in 2040?

# Pre-worked Step with Biotech as example

# How will Biotech impact soldier health 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.
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.
3. Geels, F.W. (2002). Technological transitions as evolutionary reconfiguration processes: a multi-level perspective and a case study. Research Policy, 31(8–9), pp. 1257–1274. https://doi.org/10.1016/S0048-7333(02)00062-8