C2 DEMONSTRATOR PROJECT BRIEF

Catalysing the Art of C2

The NATO C2COE

MISSION STATEMENT 2015:

'The NATO C2COE support NATO, nations and international institutions/ organisations with subject matter expertise on Command and Control (C2)'

VISION 2019:

'NATO C2COE catalyses C2 by capturing, creating, assessing and distributing C2 knowledge. The joint and multinational capacity of NATO C2COE and its partners will lead to robust and applicable knowledge.'

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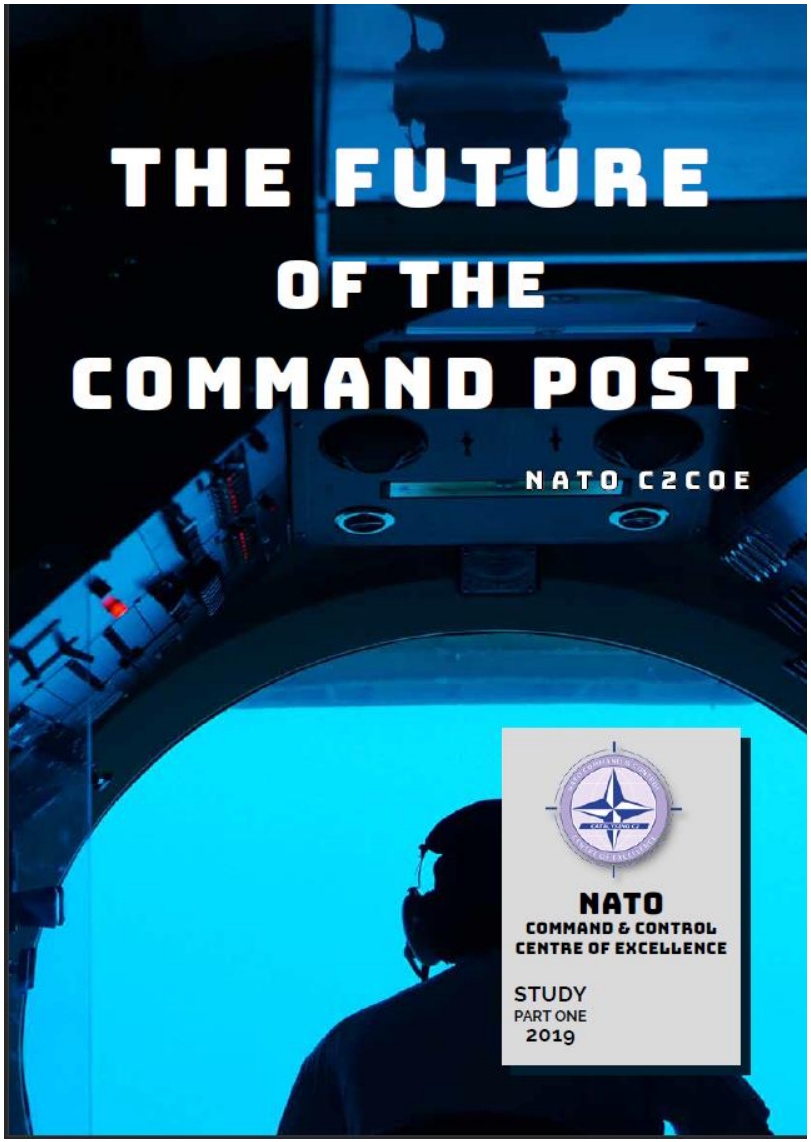
It does not necessarily represent the opinions or policies of NATO and is designed to provide an independent opinion.

This briefing is related to a specific event and therefore not releasable using open sources!

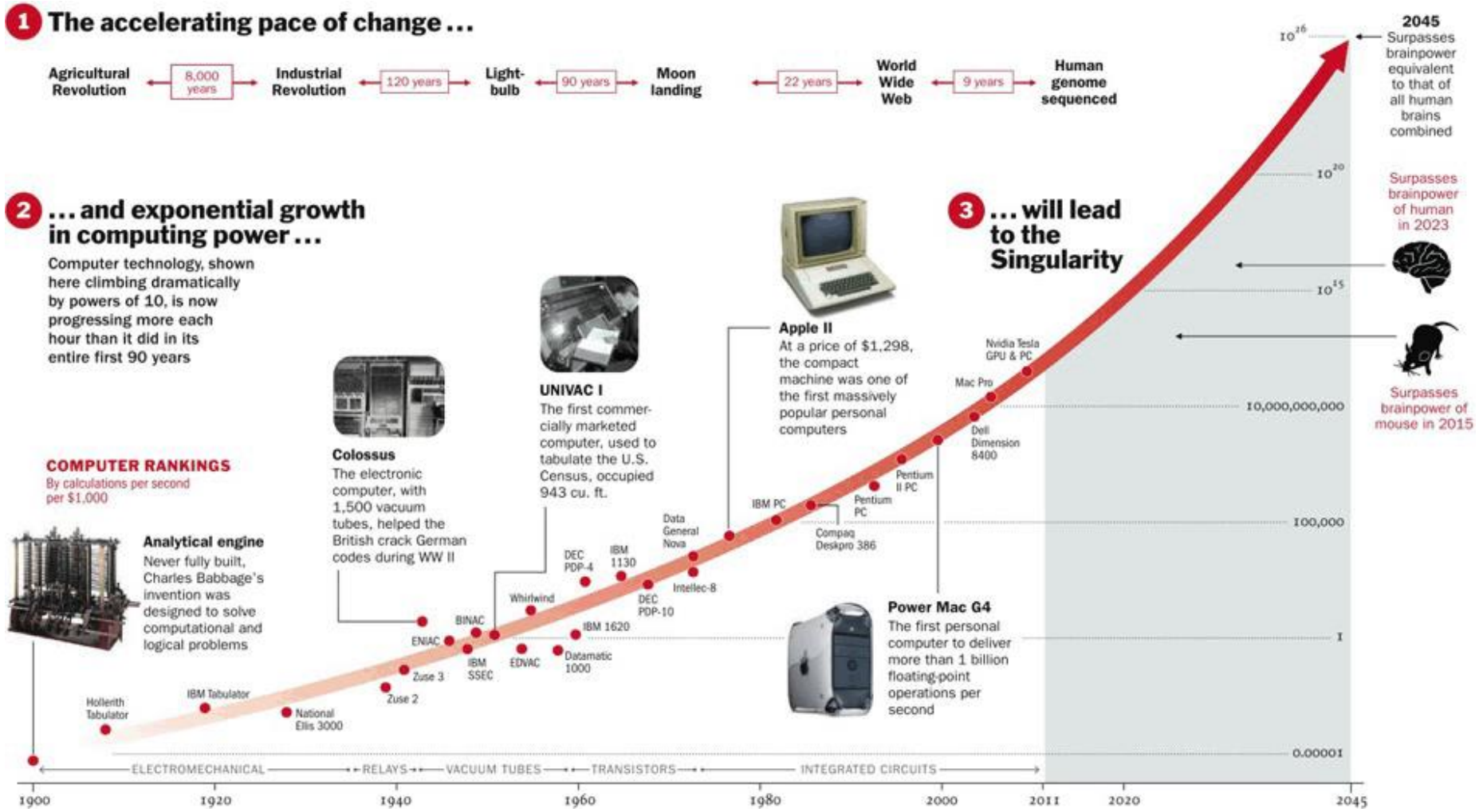
Agenda

- Future of the Command Post – study by NATO C2COE
- Technological Enablers
- SACT - Desired C2 End-state 2030
- C2 Superiority
- Multi-Domain-Operations C2 Demonstrator

Future of Command Post

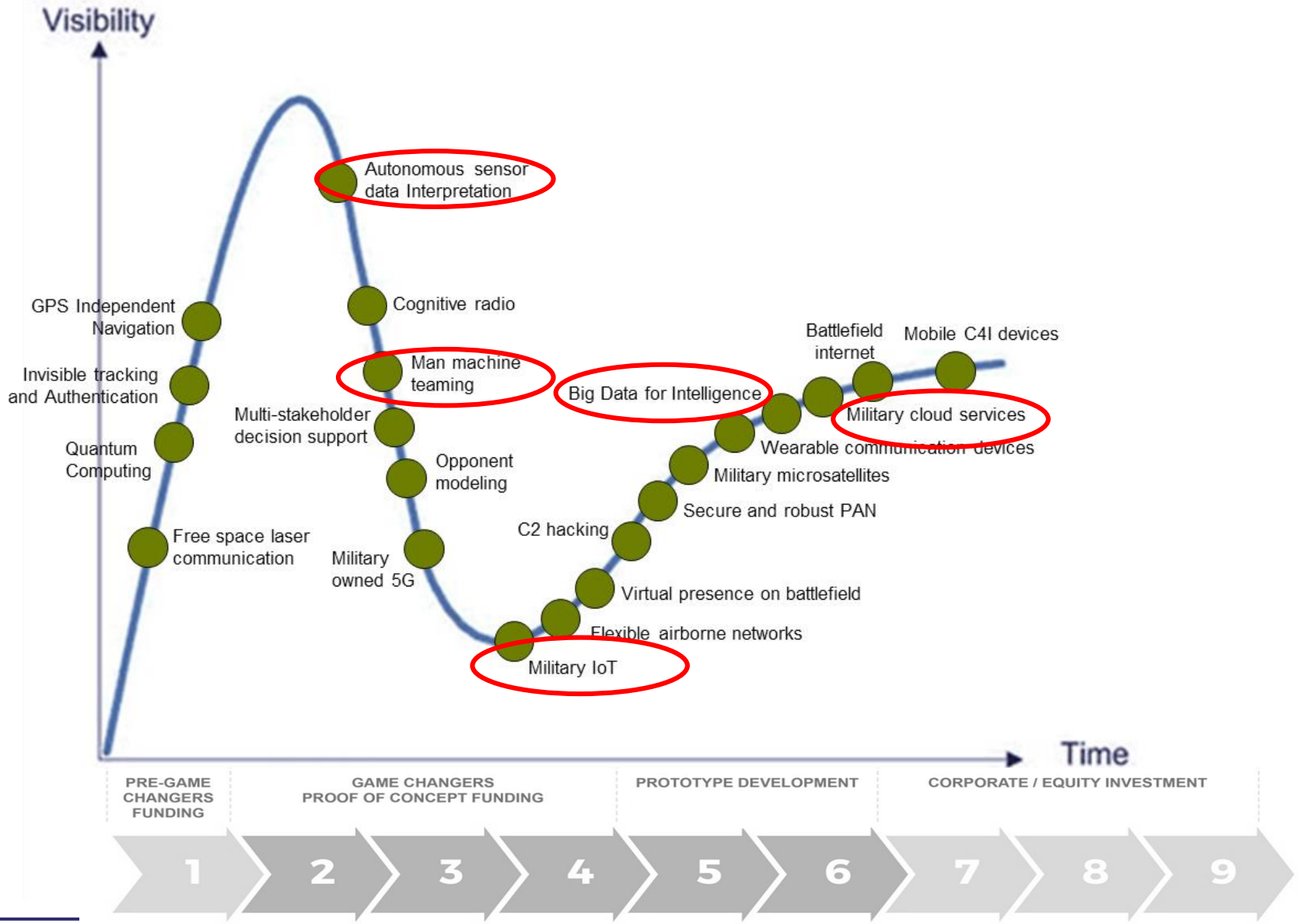


Exponential Technology



Source: Time magazine, Kurzweil's graph (derived from ' The singularity is near' , Ray Kurzweil, 2005)

Innovations related to C2
Plot on the Gartner hype cycle



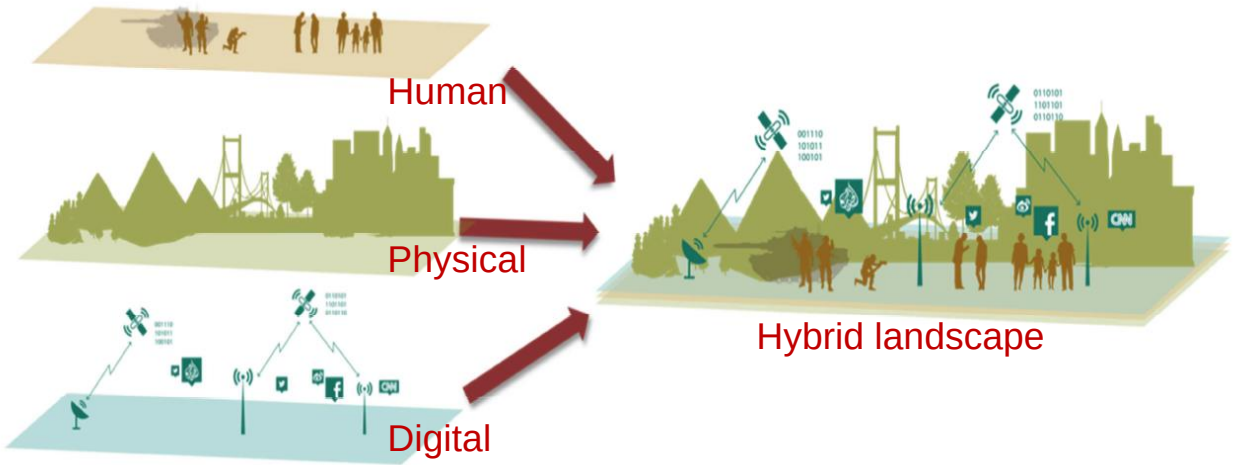
Source: TNO, 2018

Desired End-State C2 (2030)
(SACT 2016)

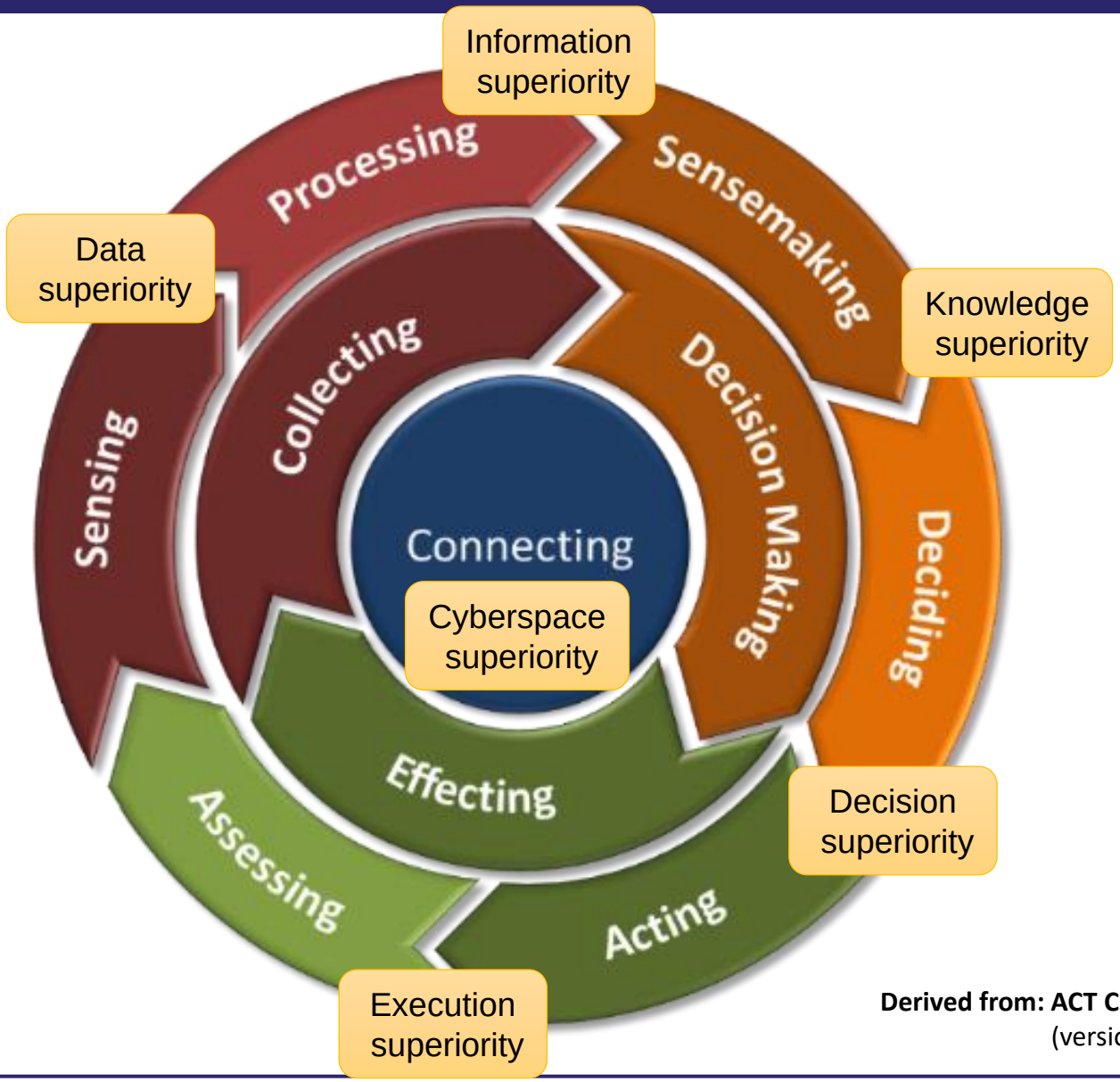
- C2 as a federated force-multiplier
- Day zero ready and responsive
- Interoperability by design
- Cyberspace
- Information
- Decision
- Execution

Superiority

2016-SACT
GEN Mercier (FR)



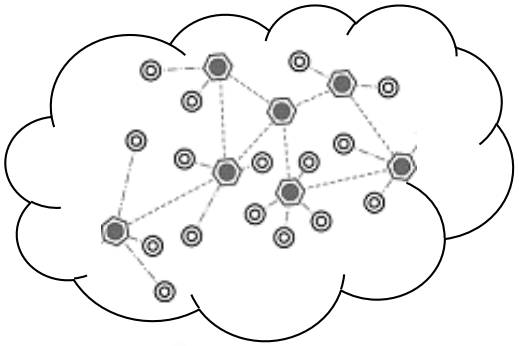
C2-superiority



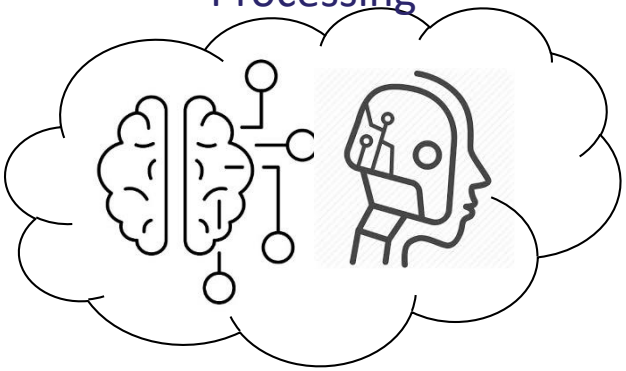
Derived from: ACT C2 capstone concept
(version 0.4, March 2018)

CP as a central HUB

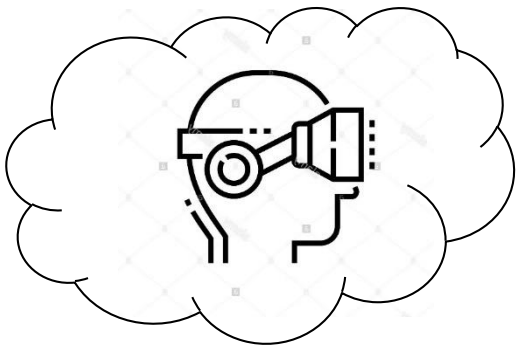
Input

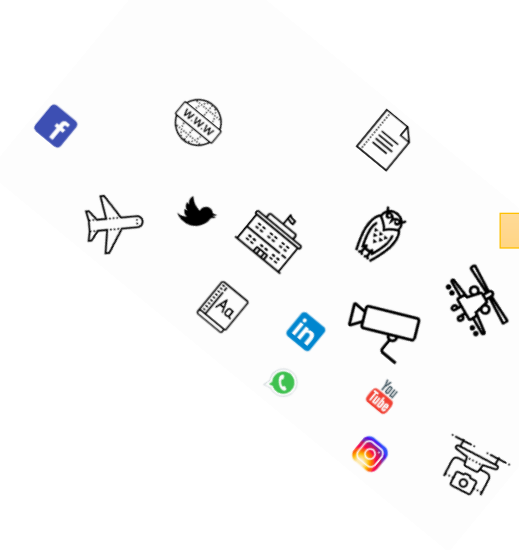


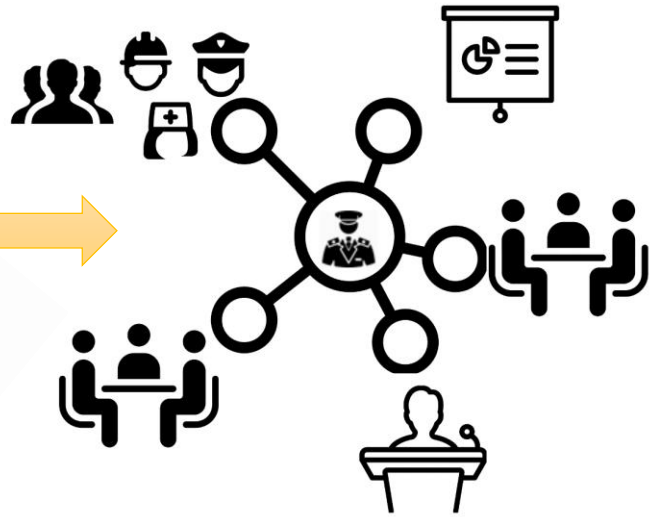
Processing

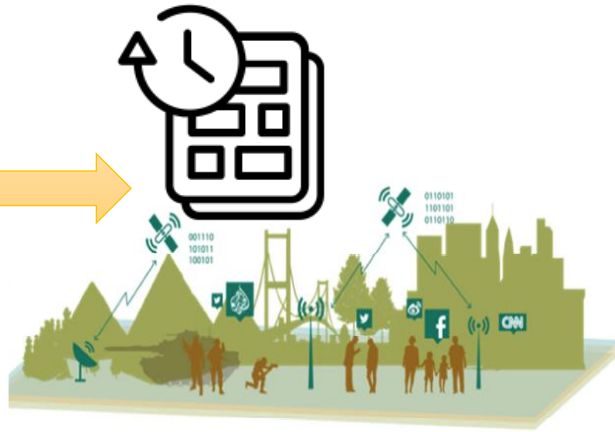


Output









Multi-Domain-Operations
C2 Demonstrator

Aim and End State

Aim of the project

Enable:

- Applied Knowledge & state-of-the-art Technology
- Innovations in commander's C2-capacity/efficiency & process

Facilitate in:

- Concept Development & Evaluation
- Experiment in distributed and disperse HQs
- Use of augmented systems into the DMP

End state

Leadership and staff can experience:

- The technological possibilities to improve the DMP
- Work a with modular built systems and technologies
- Working in a future distributed and dispersed HQ

MDO C2 Demonstrator - Triggers

- NATO conference 2018 Dec
- Not using State-of-art-Technology in military HQ
- No dedicated overall C2-tool @ Operational Level
- Time used and quality products need to improve
- Vulnerability of HQ

MDO C2 Demonstrator - Context

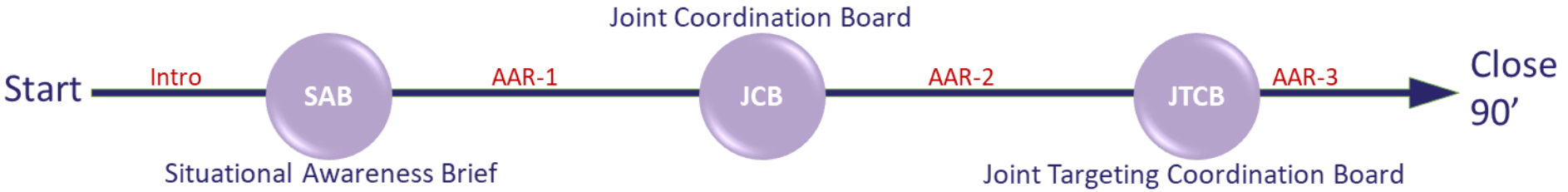
NATO Crisis Response Planning

Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6
• Initial SA of Potential Actual Crisis	• Operational Appreciations of the Strategic Environment	• Operational Estimate	• Operational Plan Development	• Execution	• Transition

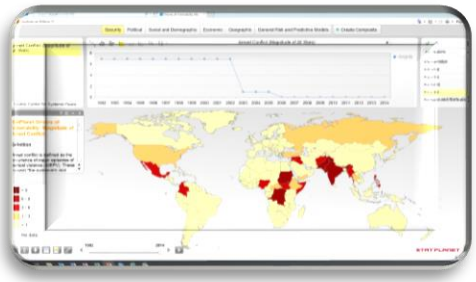
MDO C2 Demonstrator - Benefits

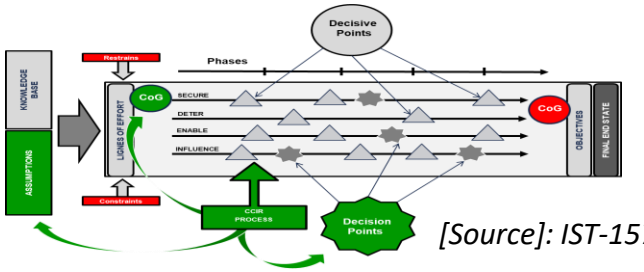
- NATO and ACT:
  - Awareness of urgency
  - Insight in Potential solution using new technology
  - Reference on the way-ahead
- EU & National MoD's:
  - Connect High Tactical to Operational Level
  - Connect CIV & MIL missions, FRONTEX-structures
- NATO C2COE:
  - Action Research - Future studies
  - Applied knowledge,

WHAT – Minimum Viable Product

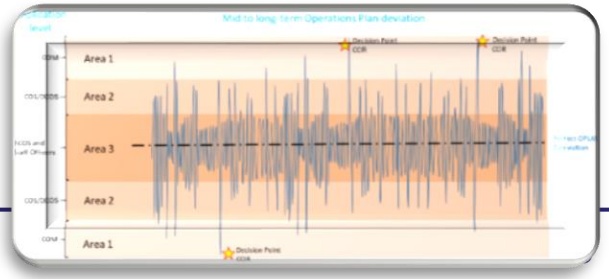


- C2 Demonstrator : CCIR Focus
- Comprehensive Commander Environment
- COA and/or Decision support





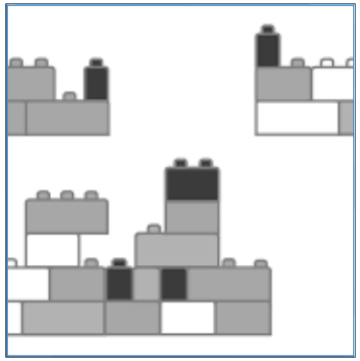
[Source]: IST-157



Scenario for MDO C2 demonstrator

- Exercise Products
  - Compare outcomes and process
  - Recognizable for Leadership
- High-fidelity data sets
- Focus on Commander Concern
  - CCIR driven
  - Human Aspect
- Multi Domain Operations
  - Joint Functions

MDO C2 Demonstrator – System



Modular and interoperable by design

Node-based network

Demonstrator – show potential

WHEN- Timeline

C2-Demonstrator

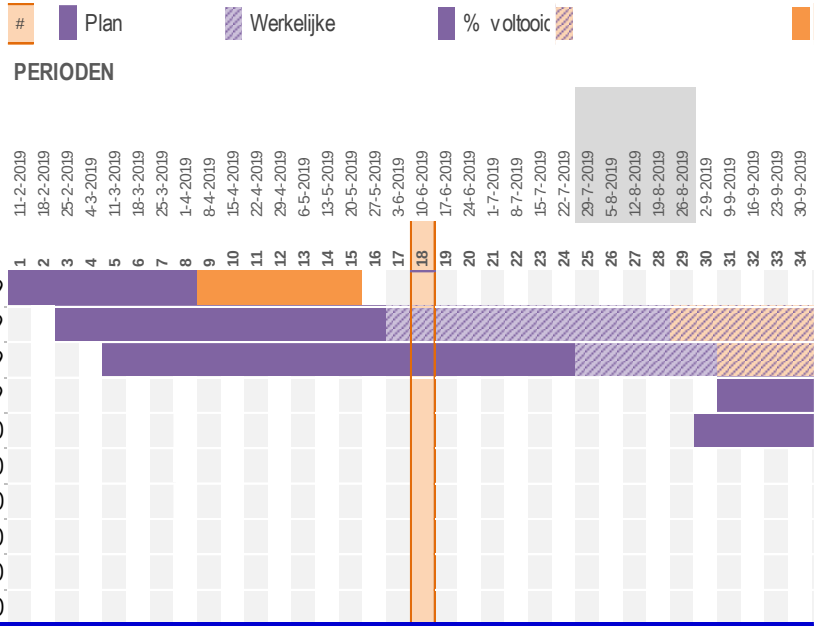
Prrojectplan June 2019 v0R1

Markering van periode:

Plan Werkelijke % voltooic

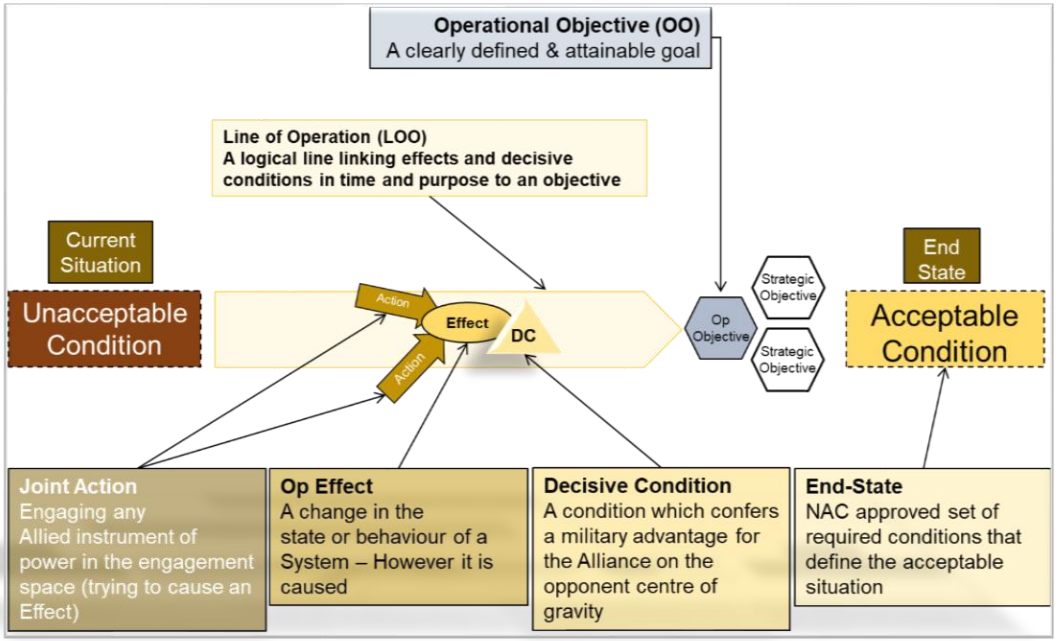
PERIODEN

#	ACTIVITY	% READY	start moment	end date
1	WP1: feasibility study	100%	11-2-2019	8-4-2019
2	WP2: Technology Mappping	35%	25-2-2019	26-8-2019
3	WP3: Scenario Outline	50%	11-3-2019	9-9-2019
4	WP4: Initial UI		9-9-2019	2-12-2019
5	WP5: initial verification solutio		2-9-2019	20-1-2020
6	WP6: detailed design IOC		20-1-2020	13-4-2020
7	WP7: Final Concept		13-4-2020	8-6-2020
8	WP8: Validation		8-6-2020	20-7-2020
9	WP9: Final Product		20-7-2020	31-8-2020
10	Road Show		31-8-2020	7-9-2020



Project-management

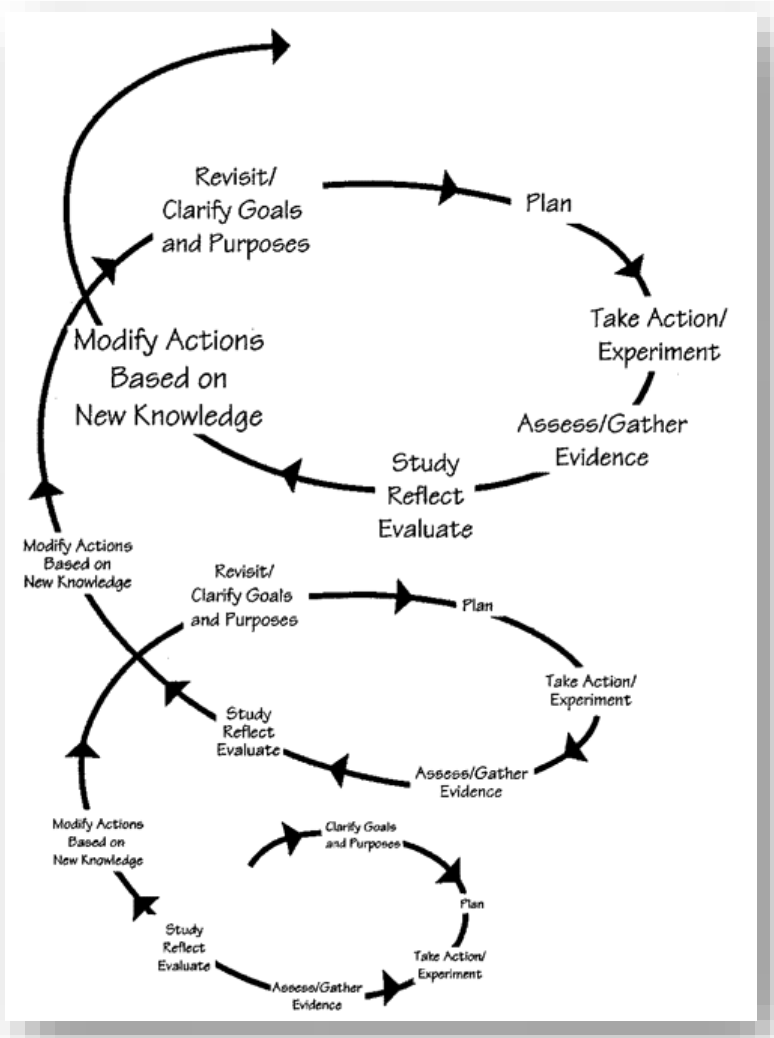
- Agile – not cascading
- Define End states– not specifications
- Minimal Viable Product (MVP)
- Open Platform Innovation
- System-of-systems
- Fit-For-Purpose



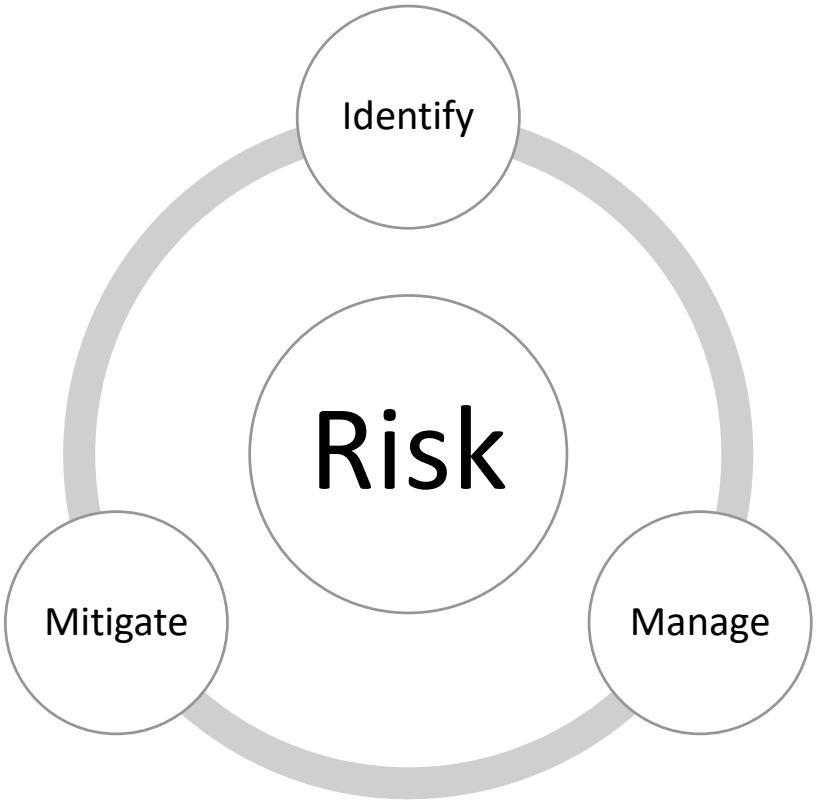
HOW

Conditions for Success

- Teaming of NATO C2COE & Partners
- Recognizable for Commander & Staff
- Establish Trust
- Ease-of-use
- Responsive/Timely/Accurate



HOW



RISKS TO MITIGATE

- Paralysis by analysis
- Trust -Transparency of AI-DMP
- Data matters: garbage in is garbage out.
- Available capacity (skills, time)

Potential Partners

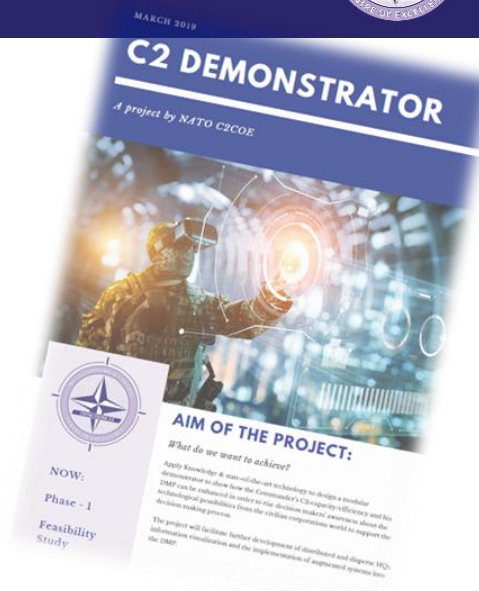
MDO C2 demonstrator Take away

NATO C2COE has the ambition to:

1. Demonstrate a Multi-Domain-Operations C2 MVP in 2020
2. Apply C2- knowledge in a distributed and dispersed HQ
3. Use modular designed technology as an enabler for C2-enhancement
4. Increase the Commander's C2- efficiency in Decision-Making-Process
5. Speed up Technology adaptation and acceptance of AI-based authority

What do we offer in this project

1. Bridging the gap in C2 between:
   - Technology and operators
   - Tactical and operational level
   - Academics and Applied knowledge
2. A concept test & evaluation platform
3. Link to CoI including policy makers and operators.
4. Workshop 16th of September with potential partners



Contact the team if your interested

Discussion

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