Australian Government
Department of Defence
Science and Technology

Adaptive Systems in 2040

Paul Heuer
Research Leader, Tactical Systems Integration
Defence Science and Technology

ability tendency

change

conditions situations

Cambridge & Collins

performance survival

monitor adjust
configuration operations

feedback environment

Business Dictionary

security safety success

hierarchy rules

command control

Technology push challenges military model

performance survival

monitor configuration

adjust operations

feedback environment

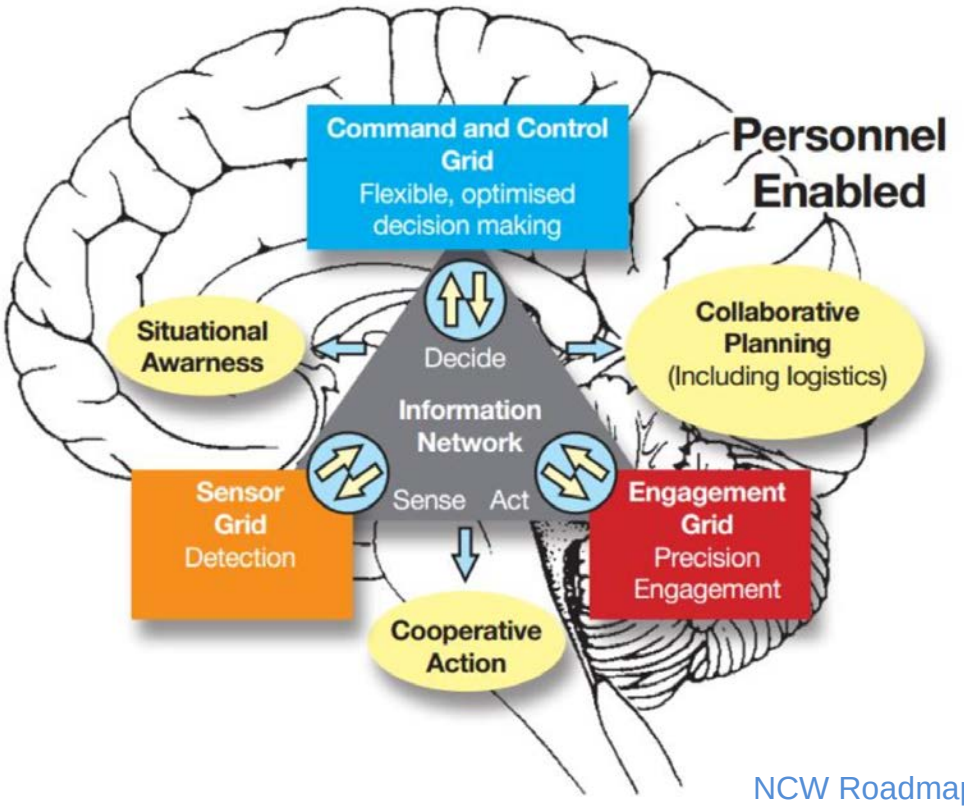
monitor

- Sensing
- Sensor data sharing
- Data fusion
- Information extraction
- Knowledge creation
- Knowledge sharing

portableas.com

adjust

- Awareness
- Understanding
- Cognition
- Learning
- Decision
- Action



NCW Roadmap

(re)configuration

- open architecture
- open-source
- modular
- software-defined
- Parameterisation
- Mission-specific

beckhoff.com

operations

- Humans
- Automation
- Human *on* the loop
- autonomy
- trust

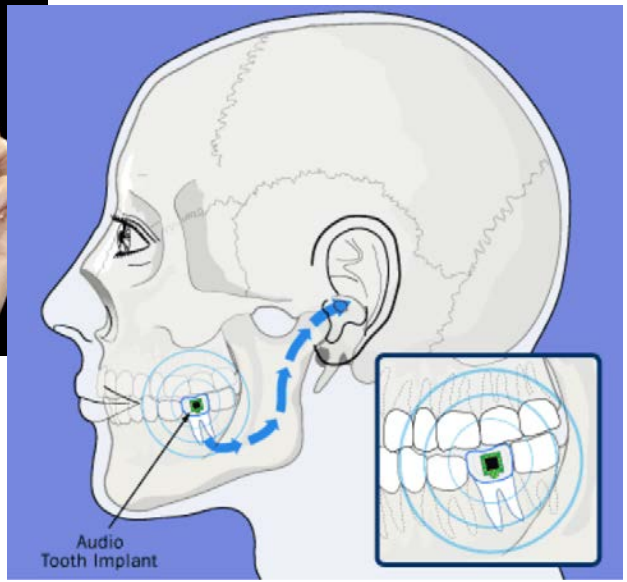
Mercedes-Benz S500 Intelligent Drive TecDay Autonomous Mobility

software-defined
open-architecture
Decision
fusion
data
performance
Human-on-the-loop
Information
Sensor
Mission-specific
Action
adjusting
sharing
survival
operations
autonomy
configuration
Flexible
trust
feedback
monitoring
Automation
modular
Humans
system
creation
Sensing
extraction
Knowledge
environment
Learning
Parameterisation
open-source
Data
Cognition
Awareness
Understanding

Martin Cooper
1973

Steve Jobs
2007

Who?
When?



SHAW

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Adaptive Systems in 2040

Science and Technology for Safeguarding Australia