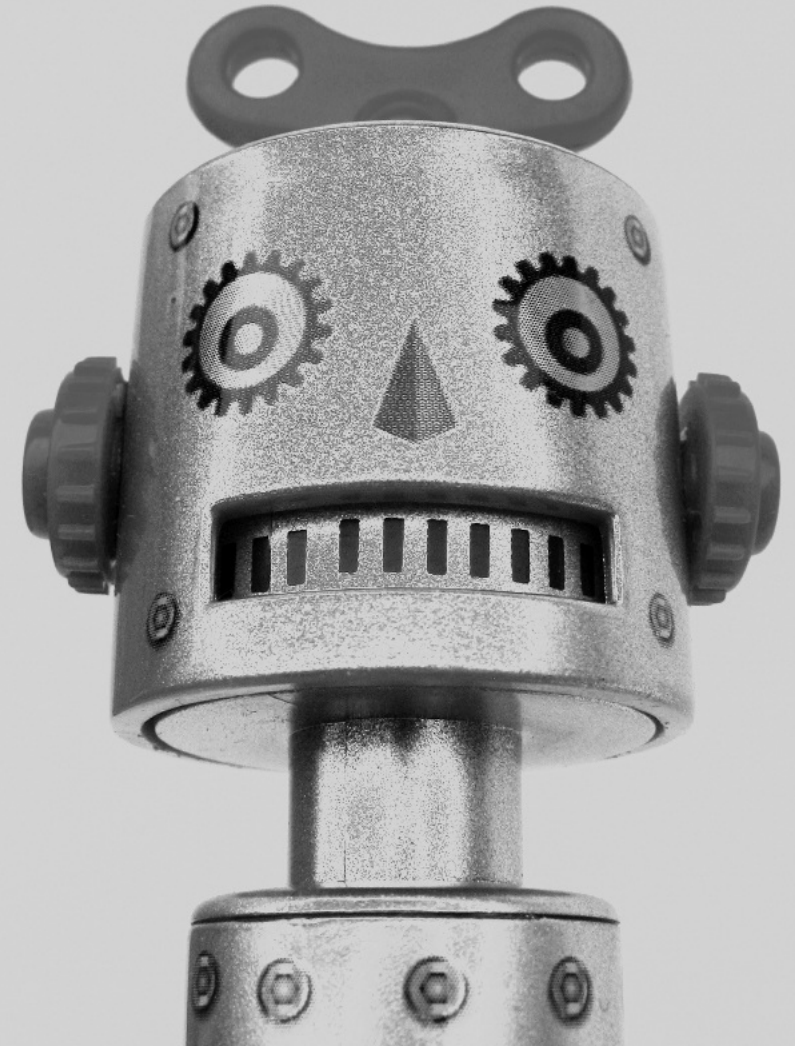# TRUST IN AUTOMATION
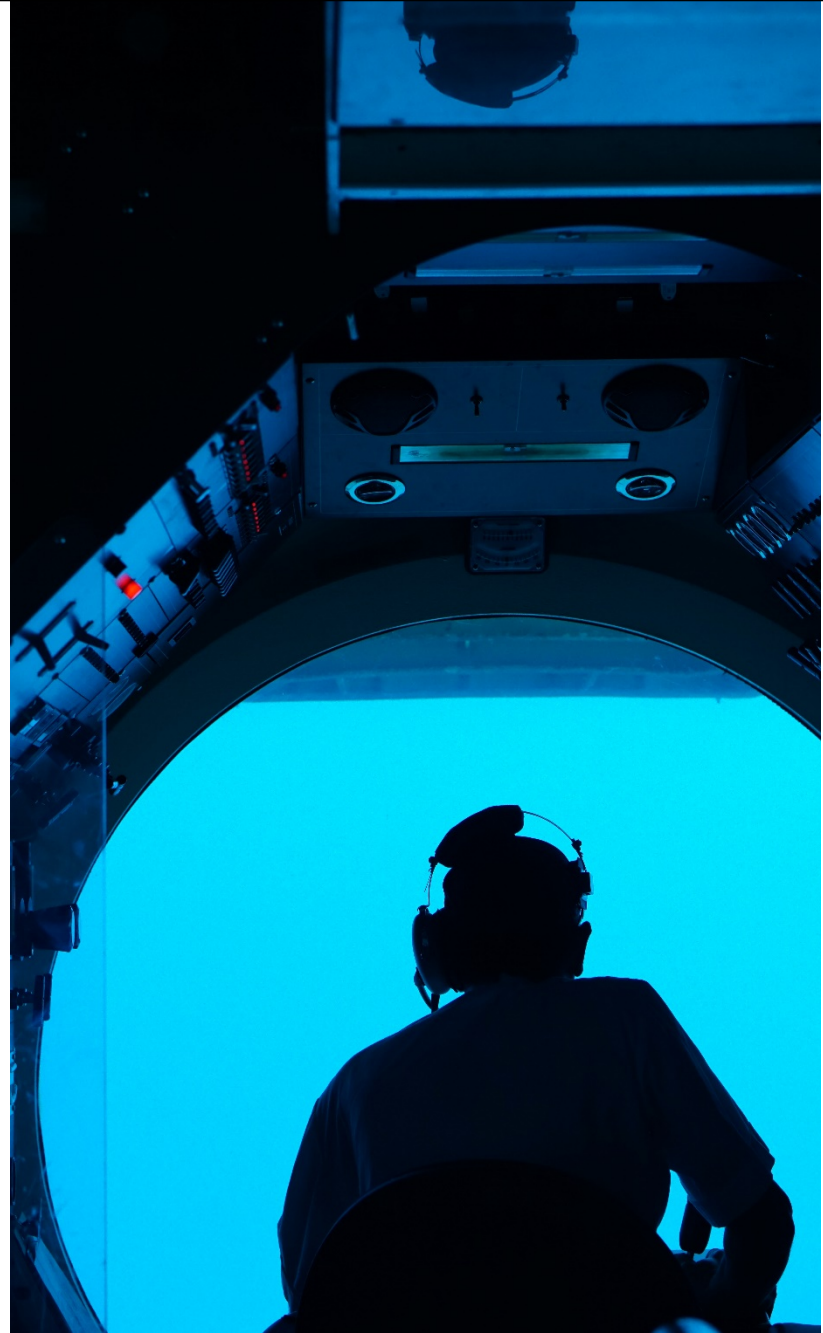
A qualitative study of behaviour and attitudes towards emerging technology in Military culture

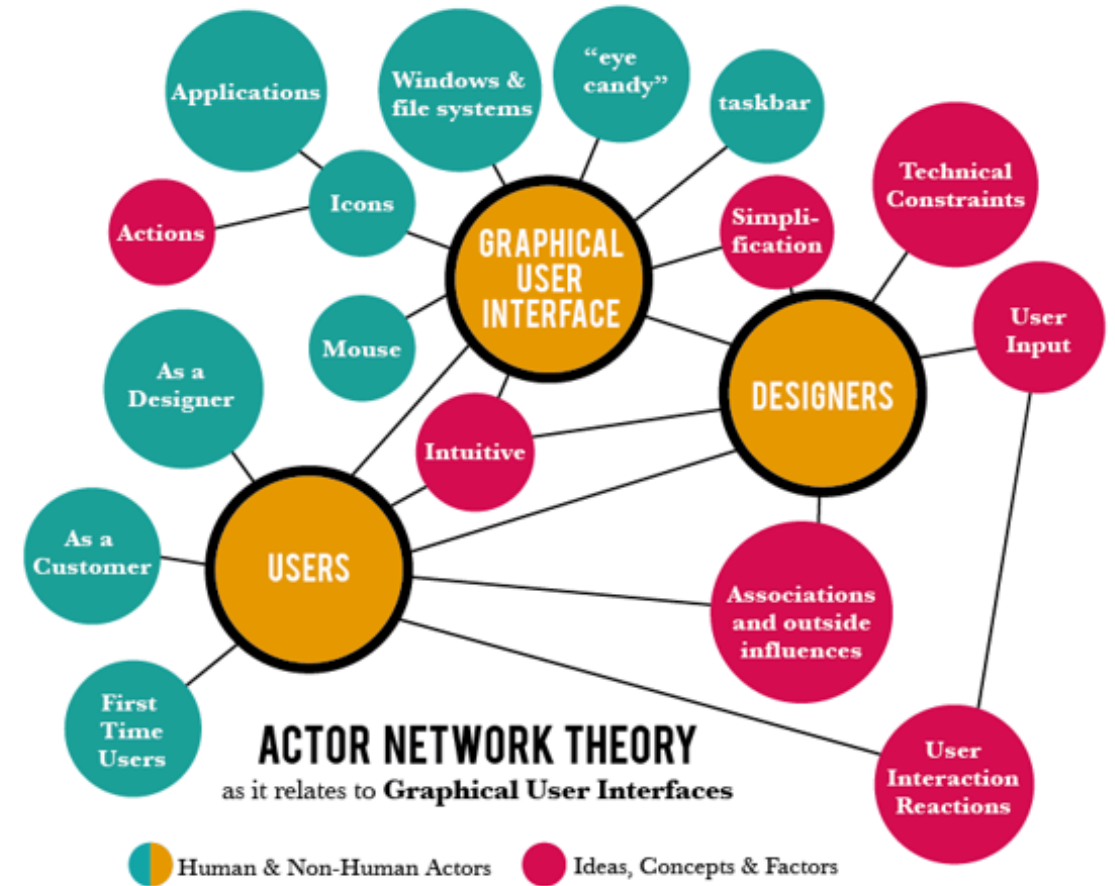MEGAN FIELD, University of Birmingham

UNIVERSITY OF BIRMINGHAM

QUICK OVERVIEW

❖ Background and Context

❖ Utilising Narratives In The Military

❖ Systematic Scoping Review Outcomes

❖ The Research So Far

❖ Future Direction

OUR EXPLANATIONS OF TECHNOLOGY

❖ Socio-technical Systems and Macro-ergonomics

❖ Actor-Network Theory

ACTOR NETWORK THEORY
as it relates to **Graphical User Interfaces**

Human & Non-Human Actors   Ideas, Concepts & Factors

WHEN YOU TAKE A SCIENTIFIC TOPIC YOU END UP STUDYING HUMANS AND WHEN YOU STUDY HUMANS YOU END UP STUDYING A PIECE OF SCIENCE

Bruno Latour (2013)

HUMAN-SYSTEM INTERACTION

❖ The Media Equation

❖ Human-Human/Human-System Teaming

❖ Category Boundaries and Uncanny Valley

   ❖ Mental Schema of Robots as More Human (Broadbent et al, 2011)

   ❖ Uncanny Valley (Mori, 1970/Mori & MacDorman, 2012)
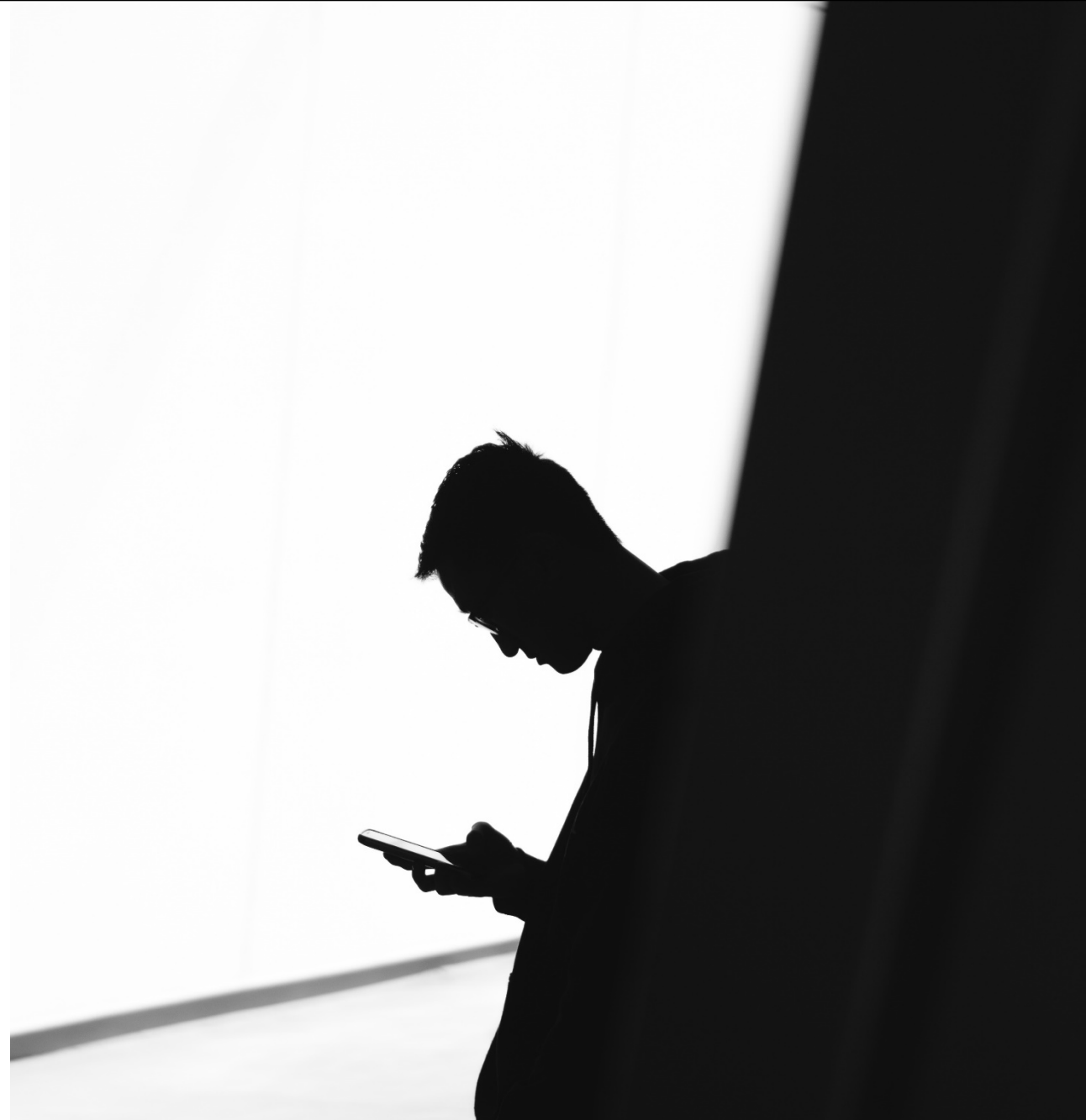
FRAMING

❖ Narrative approach seeks capturing experience

    ❖ Constructed and mediated between actors to acquire complex, multi-faceted and nuanced views of reality

❖ Structuring of experience

    ❖ Narrative constructs and reconstructs remembered stories of a person's experience.

    ❖ Values, beliefs and experiences guide interpretations.

❖ Narratives are characterised by multiple voices, perspectives, truths and meanings.

TRUST

❖ Trust, Trustworthiness and Trust Propensity

❖ Trust and Reliance

❖ Trust and Antitrust

NARRATIVE IN THE MILITARY

❖ Storytelling to convey complex technical communication

❖ Comprehension, retention and analysis of information

❖ Nuances in inter- and intra-personal psycho-socio-cultural differences

Transparency and Fidelity

Level of Automation issues will continue to have fidelity and accuracy issues inherent to technological limitations.

A crucial factor in both trust and situational awareness is transparency of system/automation actons.

Qualitative VS Quantitative

Performance measures are the primary metrics for assessing impact of priming for Mental Models. A variety of critically assessed questionnaires were utilised.

Verbal protocol is the main study design for qualitative sources.

SMM and Team Narrative

Developing appropriate team mental models is influential in mission success and optimal group performance.

The human-human team narrative has been criticised as inappropriate for human-automation teams.

RESPONSIVE INTERVIEWING

❖ Civilian Cohort: 7 Participants (SME and Non-SME)

❖ Military Cohort: 20 Participants (Army, RAF, Surface Navy, Subsurface Navy)

❖ Semi-structured responsive interviewing

❖ 32 Hours of Transcription // 250,000 words

❖ Interpretative Phenomenological Analysis and Hierarchical Content Analysis
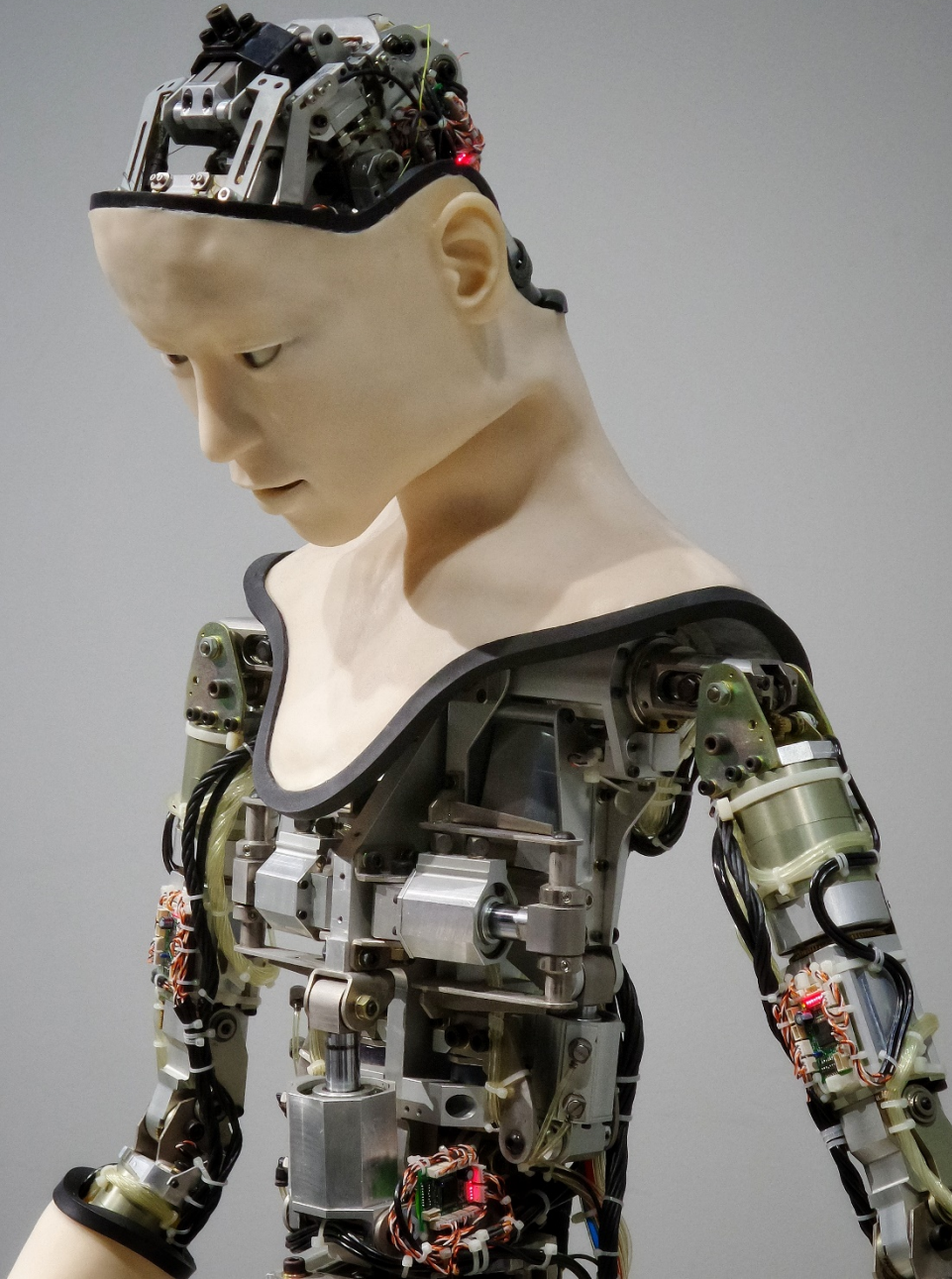
THOUGHTS ON TRUST AND TECH

❖ Trust is defined as *positive expectations* but negative experiences are oft used as example interactions

❖ Dissonance between verbalised sentiments and underlying expressions

❖ Expressions of mistrust and distrust towards technology emerge closer to category boundaries

❖ Conflicting narratives within and between military subgroups whether the Military culture primes operators for technology adaptability.

❖ Expressed differences in attitudes and behaviours between their individual subcultures across the branches of the military. Attitudes towards trust seem to persist post-service regardless of time elapsed in civilian roles

FUTURE DIRECTION

Post-Experiment Analysis and Frameworks

❖ Data Frame Theory

❖ Sensemaking and Flexecution

Training Vignettes and Narratives

❖ Story based learning and training based upon the dominant narratives concluded from the research.

❖ Graphical Narrative and Storytelling as alternative data visualisation technique.

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