FACILITATION OF TRUST IN
AUTOMATION

A Qualitative Study of Behaviour and Attitudes Towards
Emerging Technology in Military Culture

THE ISSUES

Current research focuses on technological and design related features. Literature has identified several human performance issues associated with increased autonomy, such as:

- o Tunnel vision (visual and attenuation)
- o Degraded situational awareness
- o Misuse and disuse of automated systems
- o Complacency (such as bias effects) (Chen, et al., 2011)

Human-focused approaches to identify issues in automation facilitation are not adequately explored *(see symposium proceedings)*. To address human-system (H-S) integration, performance, trust, reliance and operator behaviours need to be the dominant foci.

Bauer (1997) suggests integration of new and emerging technologies is often hindered by the effect of resistance to new technology, such as:

- o Foreseen and Unforeseen effects
- o Direct and Indirect effects
- o Impact and Recursive effects
- o Functional and Dysfunctional effects

These effects are based on the social-cultural and psychology of operators, which are inadequately explored in TIA (Trust in Automation) research. Thus attitudes and beliefs of operators and the culture in which these develop are of importance.

RESEARCH QUESTIONS

1. What are the dominant narratives towards automation and future technology integration in C2, with an emphasis on exploring underlying expressions of trust, misuse and disuse?

   - o Do existing models accurately reflect the attitudes and cognisance of current operators
   - o Does the sociotechnical context influence trust facilitation and risk behaviours?

2. What is the best approach to synthesize the research data into a simple human mental model? For assessing human mental models, which performance metrics provide the most significant and reliable results?

AIMS & OBJECTIVES

- o Explore the cultural and individual characteristics between each cohort and see if the norms within these domains have an impact on trust and/or operator reliance.

- o Use outcomes to indicate how in-depth understanding of the attitudes and behaviour of current and future operators may shape training programmes and operating protocol in future C2 settings.

PRELIMINARY TRENDS

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

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

Academic Contribution

The research in this field is limited due to the inherent technological limitations of existing systems, of which has saturated the literature at this point (Barnes, et al., 2014). The core of existing research centres along assessment of emerging and novel interfaces for the pursuit of intuitive, transparent interface design (MarCE Task 2.040 , 2015) (Wickens, Mavor, Parasuraman, & McGee, 1998). However, until artificial intelligence in automation is consistently reliable with high accuracy and fidelity, these systems will continue to be subject to human and technological error (Barnes, et al., 2014)

Professional Contribution

Whilst the capabilities and design of future technology are unknown, trends in human attitudes and behaviour towards these emerging and novel systems can deliver crucial support to human factors usability recommendation and requirements

KEY THEMES

Is there a difference between civilian and military attitudes towards emerging technology and automation? Are there nuances between the branches of the military?

- o How does the type of social setting influence behaviour and social interactions? What are the significant differences between formally organised and informal settings?
- o How do established social practices within settings affect behaviour? What roles or social positions are there? How are power and authority organised within the setting?
- o How do people become attached and committed to particular settings? How are social relationships organised within the setting?

Does military culture (authoritive hierarchy/kinship) foster underlying expressions diverse from civilians?

- o How is a particular organisation socially organised? Is there a hierarchy of power, authority and control? How does this organisation affect social behaviour and activity?
- o In what ways are social networks socially organised? What sorts of bonds are there in such a setting? How do people become committed and attached to them? What are the general rules and expectations of the relationship?

Layder (2012, p. 42)

METHODOLOGY

A narrative inquiry is been used to compile rich and descriptive data through Interpretative Phenomenological Analysis (IPA) and Grounded Theory (GT) through semi-structured responsive interviews with civilians and military personnel (Armed Forces, Navy (Surface and Sub-Surface) and RAF).

Initial read through of data { Many pages of text

Divide text into segments of information { Many segments of text

Label segments of information with code { 30-40 codes

Reduce overlap and redundancy of codes { ~20 codes

Collapse codes into themes { Reduce codes to 5-7 themes
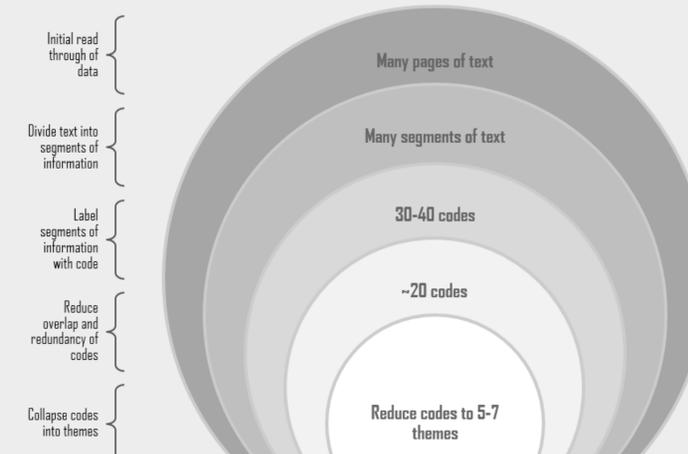
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