



Support Command
Ministry of Defence

16th ICCRTS

Gender Influences on Information Sharing in Civil-Military Operations

Netherlands Defence Academy

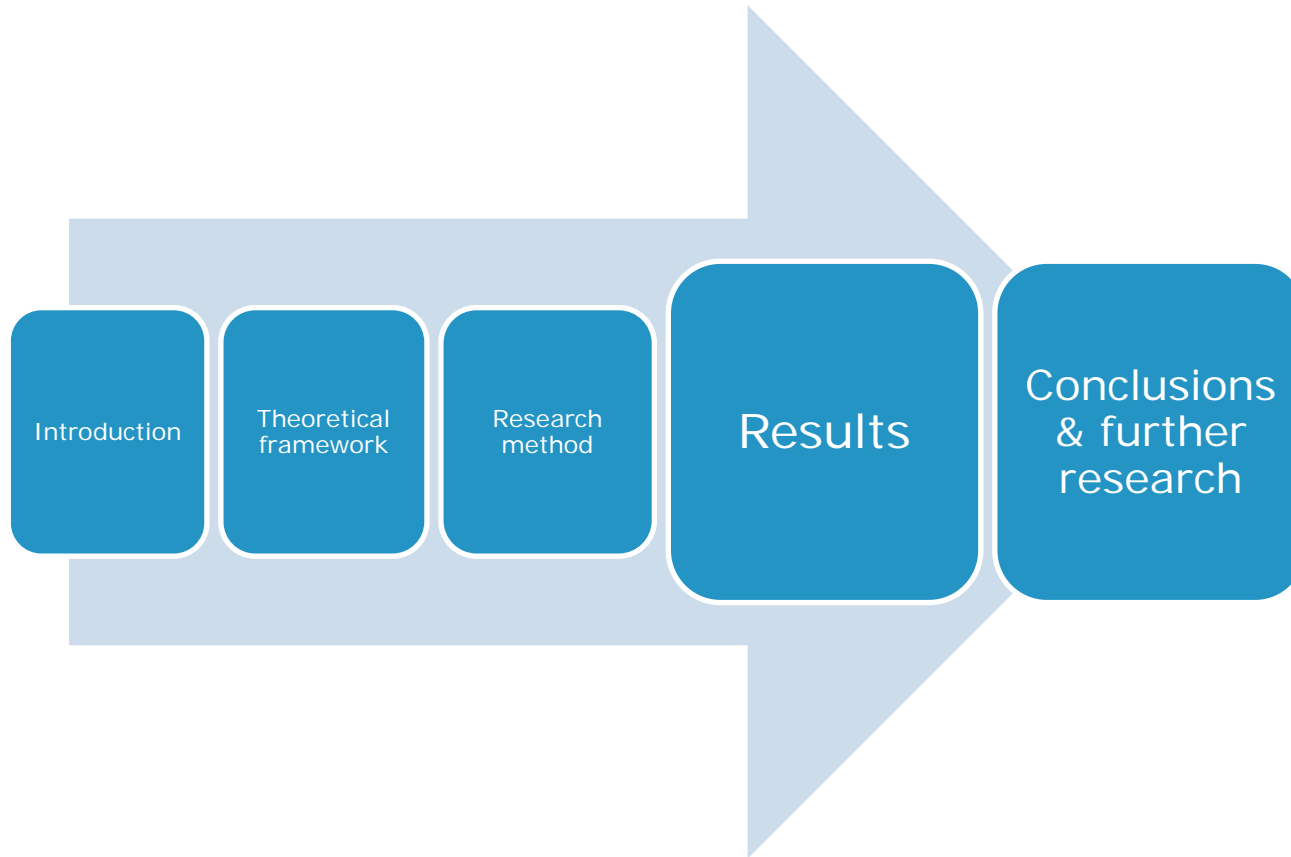
Faculty of Military Sciences

dr. E. Broos; Prof. dr. T.J. Grant

08 July 2011



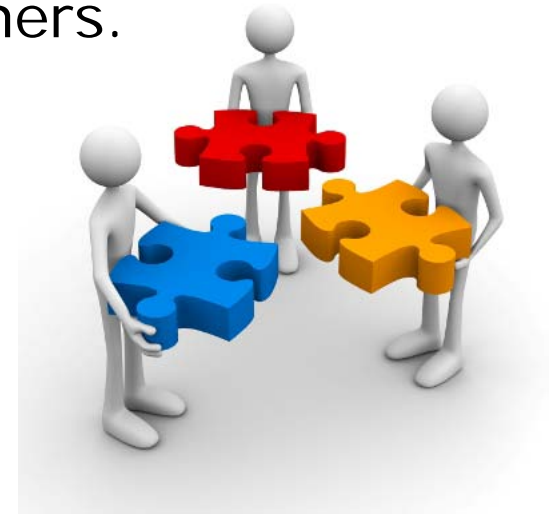
Presentation





Introduction

We define information sharing as the process of making information available to other individuals, teams, or organizations in the coalition, where information* is a set of explicit data objects that is acquired or generated, identified, stored, retrieved, and/or exchanged by coalition partners.



*In this paper no distinction is made between data, information, and knowledge.



Purpose

Contribute towards the understanding of C2 systems by exploring gender influences on information sharing.

Create awareness

- Gender differences in information processing.
- Attitudes that hinder information sharing.

Improve information sharing through understanding, education & development.



Identification of cultural dimensions impacting information sharing

Information can be shared on different levels.

Individual

National
cultural

Organizational
cultural

Professional



Identification of dimensions impacting information sharing

Users of ICT are not a homogeneous group.

Individual level

*Influenced by experiences,
assumptions, prejudices, goals.*

Trust Attention
Confidence Relevance
Motivation Satisfaction
Power



Identification of dimensions impacting information sharing

*National cultural level**

- Perception of status
- Egalitarianism versus hierarchy
- Focus on tasks, procedures & mastery versus relationships & harmony
- Affective versus neutral communication
- Individualism versus collectivism

* Hofstede (1998), Schwartz (2006) and Trompenaars & Hampden-Turner (1998)



Identification of dimensions impacting information sharing

Organizational cultural level

- Perception of status
- Quality (value of masculine versus feminine traits)
- Ownership of information



Identification of dimensions impacting information sharing

Information sharing in multi-cultural military coalitions using C2 systems under network enabled capabilities (Van den Heuvel, Grant et al, 2009).

I3I model

Identification
Inter-relation
Interchange



Cultural dimensions for information sharing (adapted from a number of sources)

Cultural dimensions	Sub-dimensions
Confidence	Confidence in using ICTs; perceived ease of use.
Attention	Differences in observing and processing of information; different preferences of media.
Communication	Specific versus diffuse communication; affective versus neutral communication.
Inter-relation	e.g. Leadership; perception of status; power aspects; focus on tasks & procedures versus relations; trust; reciprocity; individualism vs. collectivism.
Identification of information	Identifying quality of information; perceived usefulness and relevance.
Interchange	Share ability; system trust; information security awareness.



Main research question

How do gender differences influence information sharing at the individual and team levels?

Individual	Team
Confidence	Communication
Attention	Inter-relation
Identification of information	Identification of information
	Interchange



Research Method

Desk research

Literature review using keywords *gender differences*, *information sharing* in combination with the identified dimensions/sub-dimensions.

Different disciplines.

Context: socio-technical and civil-military operations.



Results RQ 1

Gender differences related to confidence	Implications & possible solutions
Access to ICTs (physical as well as related to design)	Include female designers/end-users.
Use of specific systems	Provide suitable performance support.
Access leads to confidence, confidence leads to more effective participation in information sharing using ICTs.	



Results RQ2

Gender differences in observing and processing information	Implications & possible solutions
Physiological differences in spatial working memory.	Provide variation in the presentation of information.
Value that is assigned to different presentations of information, symbols.	Provide suitable performance support.
Gain from spatial visualization training.	Provide variation in training methods.
	Variation in training methods and presentation improve the quality of the information & situational awareness.



Results RQ 3

Gender differences related to communication	Implications & possible solutions
Different focus and presentation of the message.	This could influence perception of the value of information as well as perceived status of sender.
Specific-diffuse Affective - neutral	Finding an effective balance between focus on task versus on relationships. Awareness and education could mitigate these differences and improve communication using ICTs.



Results RQ 4

Gender differences related to Inter-relation	Implications & possible solutions
Normative role expectations; trust based on perception of effectiveness;	Assumptions influence perceptions and thus influence Inter-relation.
Reciprocity; Reasons for cooperation; power issues.	Diversity enhances quality, innovation & productivity as well as decisionmaking.
	Awareness and education could mitigate these differences and improve inter-relation using ICTs.



Results RQ 5

Gender differences related to Identification of information	Implications & possible solutions
Gender bias in perception of value of information.	Attitudes could affect and hinder information sharing. Leave gender unspecified in reports.
Perceived usefulness of some ICT systems.	
Preference for socialization software and e-mail.	Provide a variety of ICTs to optimize identification and sharing of information. Awareness and education could mitigate gender bias.



Results RQ 6

Gender differences related to Interchange	Implications & possible solutions
Privacy issues. Susceptibility for social engineering attacks?	
	Awareness and education could improve information security behaviour.



Conclusions and Further Research

Gender influences ICT-based C2 systems both directly and indirectly.

Direct influences

Confidence, preference for presentation of information, communication.

Indirect influences

Attitudes, gender bias in perception of value of information.

Further research: Quantitative research to test these hypotheses.



Thank you for your attention



A complete list of references can be found in the paper: *Gender Influences on Information Sharing in Civil-Military Operations (Broos & Grant, 2011)*.

Contact: e.broos@nlda.nl