

Ministry of Defence



Research Model of Cultural Influences on Information Sharing via C2 Systems

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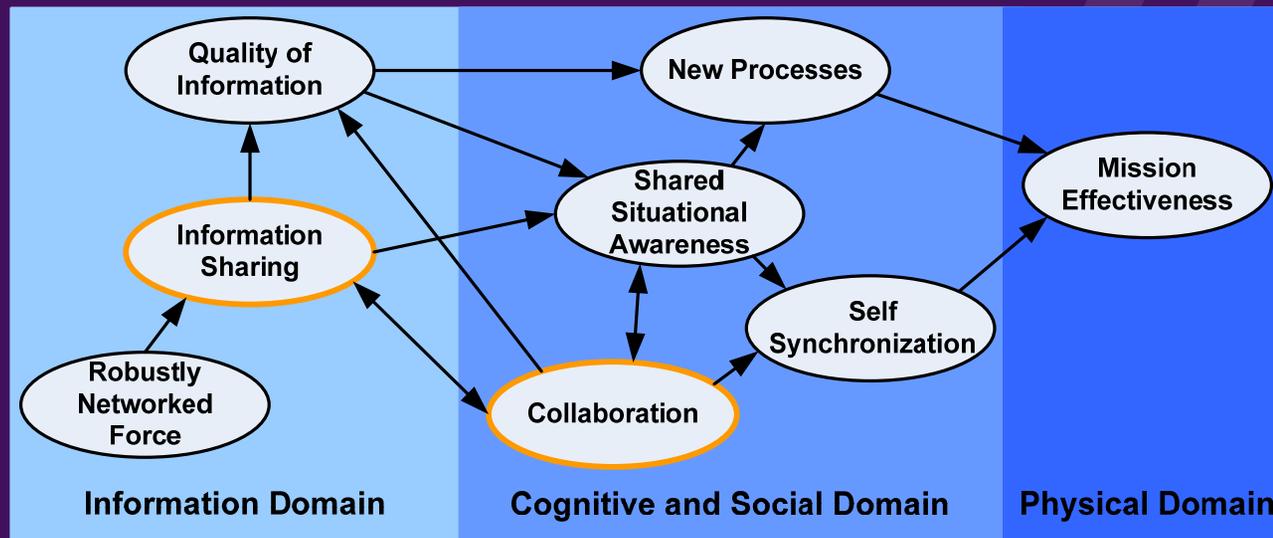
- Introduction
- Relevance
- Definitions
- Existing research models in related areas
- Scope of the research project
- Culture and information behavior
- Proposed research model
- Future directions

Introduction (1)

Network Centric Operations and Information sharing

“A robustly networked force improves information sharing and collaboration...enhances the quality of information and shared situational awareness...ultimately results in dramatically increased mission effectiveness.”

Adapted from DOD Office of Force Transformation, 2005



Introduction (2)

C2 systems are designed to maximize situation awareness by *sharing information!*

Endsley, 2000

C2 and information sharing during complex endeavors?

- Joint
- Combined
- Multiple cultures

Preliminary research question:

“How do differences in national, organizational, and professional culture influence information sharing via C2 systems during joint and combined operations?”

Relevance

Existing research on:

- Cultural influences in C2
 - » but only decision making
- Information sharing
 - » does not cover information technology used
 - » does not cover dynamic work context
- Information behavior
 - » focuses only on individual

Need for research on:

- *Collaborative* information sharing,
- In a *cross-cultural* setting at *different levels*,
- In a highly *dynamic* and *information rich* environment,
- Making use of *information technology*.

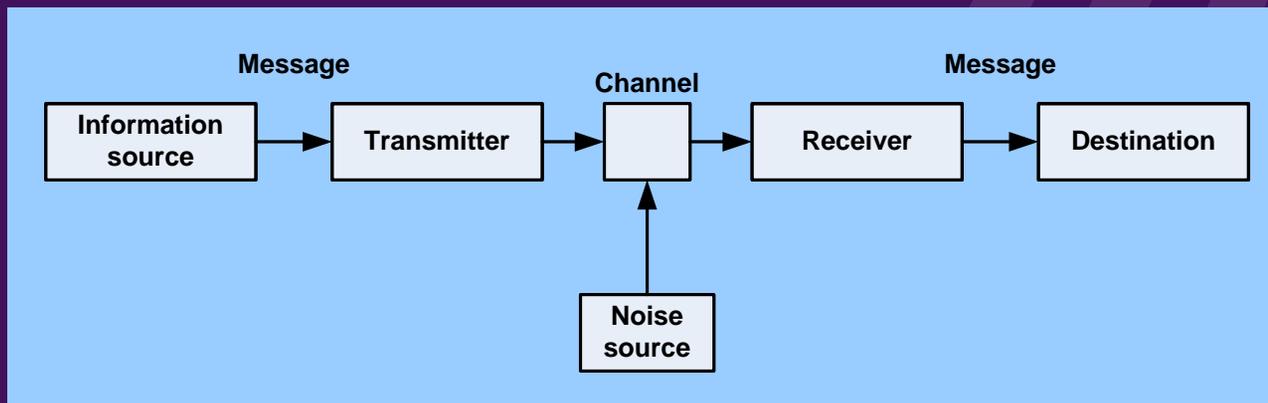
Definitions

- Data
- Information
- Knowledge

- Information sharing
- Collaborative information sharing

- Information technology (C2 system)

Shannon & Weaver, 1947

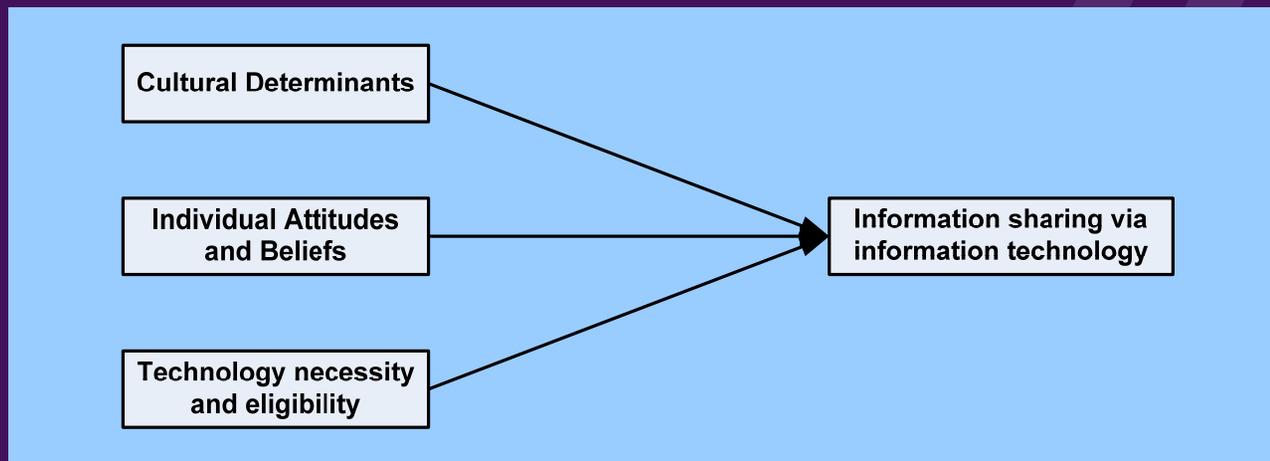


Existing research models in related areas (1)

Factors influencing information sharing via information technology;

1. Cultural determinants
2. Individual attitudes and beliefs
3. Technology necessity and eligibility

Kolekofski & Heminger, 2003; Staples & Jarvenpaa, 2000 & Wortel et al., 2007

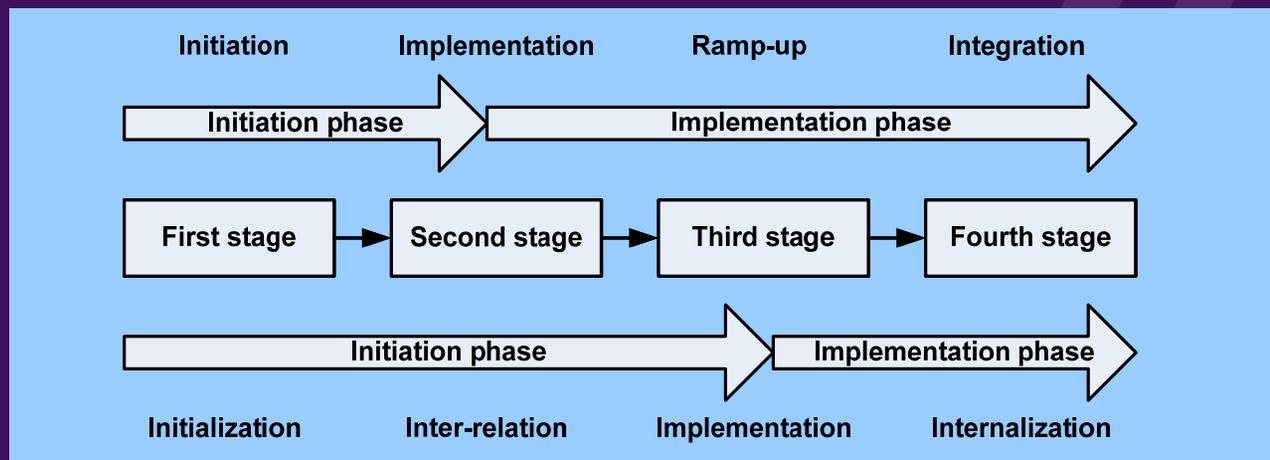


Existing research models in related areas (2)

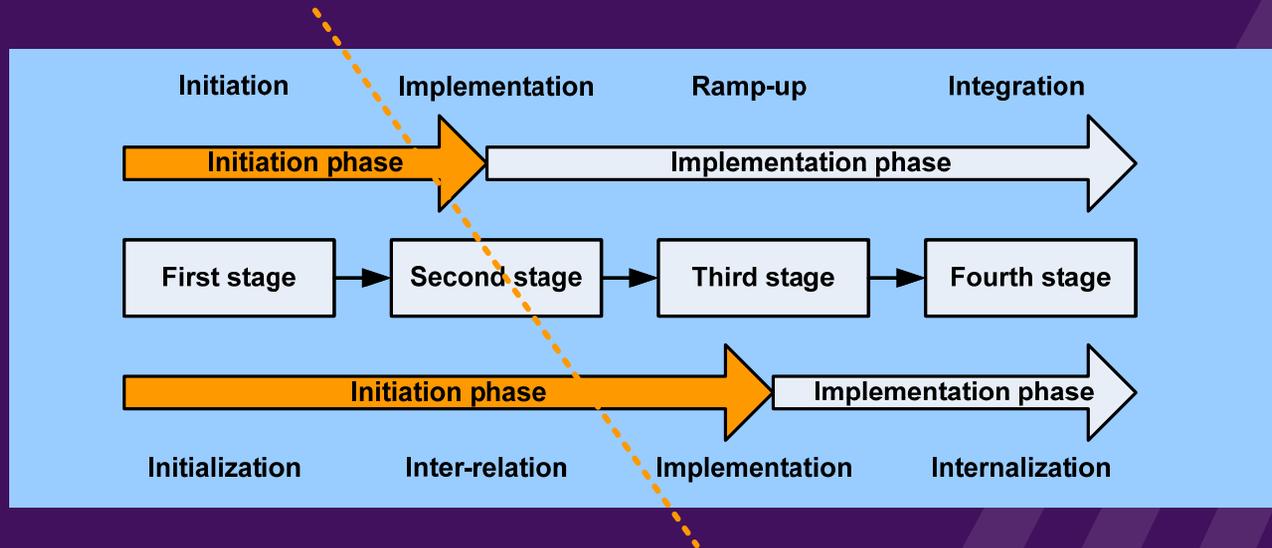
Multiple stages in information transfer process

1. Initiation/Initialization
2. Implementation/Inter-relation
3. Ramp-up/Implementation
4. Integration/Internalization

Szulanski, 1996; 2000 & Abou-Zeid, 2005



Scope of the research project



Focus on *mobilization* of information by the *source* of the sharing process of *already acquired* information.

≈ initiation phase

= information sharing = *pushing/mobilization* of information

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Culture and information behavior (1)

Culture:

Hofstede, 2001 & Schwartz, 1999

“fundamental system of meanings shared by members of a society, distinguishing one group or category of people from another.”

Three levels of culture:

Helmreich & Merritt, 1998 & Siemieniuch & Sinclair, 2005

1. National (country: combined operations)
2. Organizational (service: joint operations)
3. Professional (discipline/specialisation: joint/combined)

Cultural determinants of information behavior:

De Long & Fahey, 2000

1. Information *worth generating*
2. Information *worth sharing*
3. Social *interactions* for sharing
4. (Decision-making processes for *implementation*)

Culture and information behavior (2)

Problems in information sharing, examples:

- Stovepiping
- Hoarding of information (=not sharing!)
- Security issues
- Lack of interoperability

Speculation:

- These have a strong cultural cause
- Differ by cultural value orientation
- Are influenced by interplay of all three levels of culture

Proposed Research Model (1)

Model acknowledges:

1. Information sharing is a *multi-stage* act instead of one single entity

Szulanski, 1996; 2000 & Abou-Zeid, 2005

2. Information sharing in dynamic environments is continuously *recurring* instead of one-off

3. Culture implies *multiple levels* (national, organizational and professional)

Helmreich & Merritt, 1998; Kostova, 1999 & Sieminiuch & Sinclair, 2005

4. Modern information behavior is *collaborative* instead of individual

Prekop, 2006; Sonnenwald & Pierce, 2000

5. Information is shared via *information technology* or electronic media

Kolekofski & Heminger, 2003; Staples & Jarvenpaa, 2000 & Wortel et al., 2007

Proposed Research Model (2)

Collaborative information sharing in a cross-cultural context

Three nested fields:

1. Culture

2. Collaboration

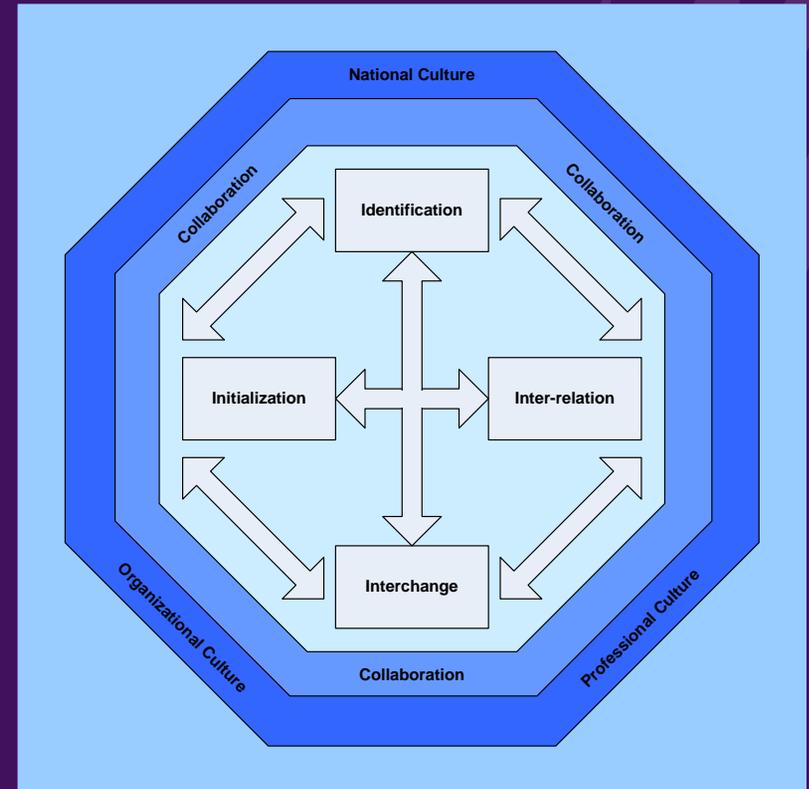
3. Multi-stage process

Initialization: *which information is perceived worth generating*

Identification: *what information will be shared*

Inter-relation: *information selected will be shared with whom*

Interchange: *how and what technology will be used*



Future directions

Empirically examine and validate proposed model

- Data gathering in multi-national, multi-service & multi-disciplinary environments (operations and simulated battle exercises)
- Experimentation with multi-national, multi-service & multi-disciplinary subjects (microworld simulations)
- Partnerships:
 - » NATO Command and Control Centre of Excellence
 - » Tilburg University, The Netherlands
 - » Linköping University, Sweden

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Thank you for your attention!

Questions or comments?

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