Trust as a Design Contingency: Laboratory Experimentation in a Counterterrorism Context

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Research Questions

- How do social configurations (operationalized here as coalition organizational designs and trust conditions) interact dynamically to affect information propagation and organizational performances in pre-crisis decision-making?
  - What effect does trust and lack of trust have on task performance?
  - What organizational designs produce higher task performance?

Assumptions

- Crisis prevention and counterterrorism efforts require trust among coalition groups
- Trust matters for organization performance
- Performance depends on design parameters

Organizational Design Choices

- Contingency perspective: which design makes the most sense for pre-crisis decision making?
  - **Rigid Hierarchy**: hierarchical, top-down, command and control vertical
  - **Flexible Edge**: flat, horizontal, networked, self-organizing teams or networks

Mintzberg, 1979; Alberts & Hayes, 2003

Organizational Trust

- Trust is defined as:
  - "the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that party"

Mayer, Davis, & Schoorman, 1995

Dimensions of Trust

- Three basic dimensions of trust
  - **Benevolence**: organization members are generally pre-disposed to doing good to each, and concerned for others' well-being
  - **Competence**: organization members demonstrate knowledge, skills, and ability to get their work done
  - **Integrity**: organizations members actions are consistent, congruent, and credible with established values and norms

Mayer, Davis, & Schoorman, 1995

Research Hypotheses

- H1: Trust outperforms low trust
  - H3: (Flexible + trust) outperforms (flexible + low trust)
  - H4: (Rigid + trust) outperforms (rigid + low trust)
- H2: Flexible organizational design outperforms rigid design
  - H5: (Flexible + trust) outperforms (rigid + trust)
  - H6: (Flexible + low trust) outperforms (rigid + low trust)

Research Design

- Laboratory Experimentation
  - Pilot + 8 lab sessions
  - ELICIT Environment (i.e., client-server version with co-located players in networked labs)
- Task Environment
  - Coalition network information sharing and processing tasks
  - Identify the who, what, where, and when of imminent terrorist threat using factoids (informational clues to uncover the plot)
- Participants' time-stamped and recorded interactions provide performance data

Subjects and Treatment Groups

- Subjects:
  - 136 1st quarter military junior officers (acting as intelligence officers)
  - Participants consisted of mid-career US and Coalition military officers and government employees
- Treatment Groups:
  - Subjects assigned to one of four groups (17 players in each condition)
  - Experiment was run twice on consecutive days for a total of eight experimental groups
- Like coalitions:
  - Each group contained equally distributed representation of military service branch, officer subspecialties, gender, rank, and country of service

Experimental Design

- 2x2 factorial: manipulate organization type and trust

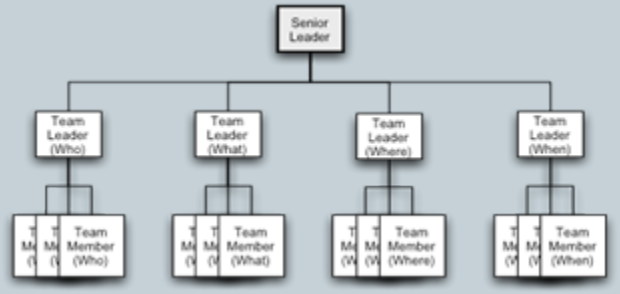
	Trust	Low Trust
Rigid Hierarchy	Rigid Hierarchy/Trust	Rigid Hierarchy/ Low Trust
Flexible Edge	Flexible Edge/ Trust	Flexible Edge/ Low Trust

Trust Manipulations

- Trust
  - Subjects briefed on expectations high level of trust in their organization based on the three elements of trust
  - Others subjects are encouraged to share information, and the others work competently and cooperatively
- Low Trust
  - Subjects briefed on expectations for low level of trust in their organization based on the three elements of trust
  - Other subjects may withhold information, or may be moles or free riders

Organizational Manipulation

- Rigid: Hierarchy
  - 3-level hierarchy, fixed roles
  - Communication limited to functional groups
  - subjects received instructions about how to share within their hierarchical organization



- Flexible: Edge
  - No hierarchy or roles
  - Unrestricted communication
  - Subjects given option to design their communication/information sharing norms

Performance Measures

- **Accuracy**: How well did individuals identify the who, what, where, and when of the possible attack?

- **Speed**: How quickly did individuals identify?

Statistical Support

Hypotheses	Statistical Support			
	MANOVA	ANOVA Speed	ANOVA Accuracy	Effect
1. Trust outperforms Low Trust regardless of organization type	Supported	Not supported	Supported	Main effect
2. Flexible Edge outperforms Rigid Hierarchy	Supported	Not supported	Supported	Main effect
3. Trust Flexile Edge outperforms Low Trust Flexible Edge		Supported	Supported	Interaction effect
4. Trust Rigid Hierarchy condition outperforms Low Trust Hierarchy condition		Not supported	Not supported	Interaction effect
5. Flexible Edge Trust condition outperforms Hierarchy Trust condition		Supported	Supported	Interaction effect
6. Flexible Edge Low Trust condition outperforms Hierarchy Low Trust condition		Not supported	Not supported	Interaction effect

Results

- Problem-solving speed & accuracy correlated
  - Analysts working *faster* are *more* accurate!
- Strong interaction effects
  - *Organization design* + *trust* are powerful predictors

Speed: Interaction Effects

- Flexible Edge **best overall**, requires trust
- Rigid Hierarchy **good** with mistrust

Accuracy: Interaction Effects

- Flexible Edge **best overall**, requires trust
- Rigid Hierarchy **insensitive** to trust-mistrust

Results

- Leadership implications
  - If trust is present or can be developed:
    flexible Edge delivers **best performance**
  - If mistrust is present, possible, or cannot be overcome:
    rigid Hierarchy is **safest choice**
  - Leaders must judge whether:
    best performance of flexible Edge
    outweighs **safest choice** of rigid Hierarchy
  - Efforts to promote trust in rigid Hierarchy may be **futile**
  - Organizational redesign + trust is **powerful**
- Accelerating cultural integration & change
  - What if mistrust is **pervasive** but Hierarchy is **infeasible**?
  - Can inclusion of fringe in Edge develop trust?