The Strength of Weak Ties:
A Relational Perspective on Task Interdependence, Coordination and Performance

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Overview of paper

- Brings together traditional contingency theory with relational *(or social capital)* perspectives
- Develops hypotheses and tests them in two distinct settings:
  - ✓ flight departure process in airline industry
  - ✓ patient care process in hospital industry

Task interdependence

- Results from division of labor into distinct tasks to be completed by distinct people
- Fundamental to all work organizations
- Creates a need for coordination
- But most effective form of coordination depends on *degree* of task interdependence

Task interdependence

- When *weak*, coordination best carried out through
  - ✓ routines
  - ✓ scheduling
  - ✓ pre-planning
  - ✓ standardization
  - ✓ supervisory directives
- When *strong*, information requirements expand, and coordination best carried out through
  - ✓ richer, higher bandwidth forms of coordination
  - ✓ *"mutual adjustment"*

Broad consensus among organizational theorists on the previous argument

- March and Simon, 1958
- Thompson, 1967
- Van de Ven, Delbecq and Koenig, 1976
- Galbraith, 1977
- Tushman and Nadler, 1978
- Argote, 1982
- Daft and Lengel, 1986

However two fundamental limitations in previous studies

First fundamental limitation

- Task interdependence has been operationalized in terms of existing interactions, rather than how work is divided
  - ✓ Biases results toward finding that existing interactions "fit" with degree of task interdependence
- Thompson's typology suggests alternative measure:
  - ✓ Weak task interdependencies are those that are pooled, ie., among people who are performing the same function
  - ✓ Strong task interdependencies are those that are sequential or reciprocal, ie., among people who are performing distinct but interrelated functions

Second fundamental limitation

- High bandwidth form of coordination has not been measured with respect to the underlying relationships
- Yet relationships are arguably critical for achieving "high bandwidth" coordination
  - ✓ **shared goals** (Saavedra, Earley and Van Dyne, 1993; Wageman, 1995)
  - ✓ **shared knowledge** (Weick and Robert, 1994; Crowston and Kammerer, 1998; Faraj and Sproull, 2000)
  - ✓ **mutual respect** (Eisenberg, 1990)

Relational coordination

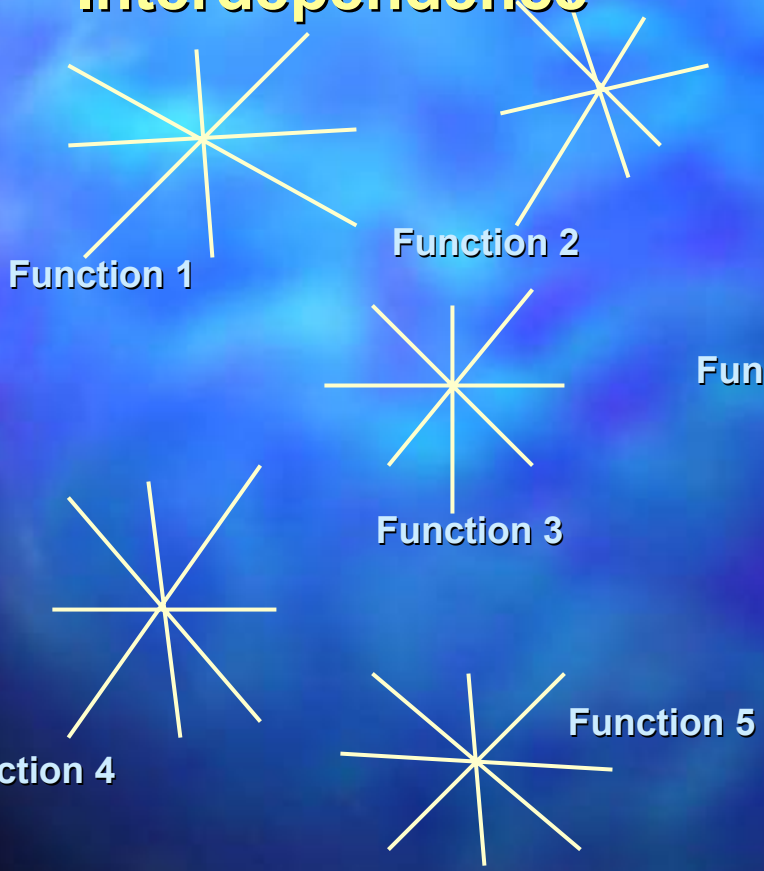
- Reflects the view that relationships play an integral role in high bandwidth coordination
- Multi-item network measure that includes
  - ✓ Communication
    - frequent communication
    - timely communication
    - problem-solving communication
  - ✓ Relationships
    - shared goals
    - shared knowledge
    - mutual respect

  among people who are engaged in a given work process

Relational coordination

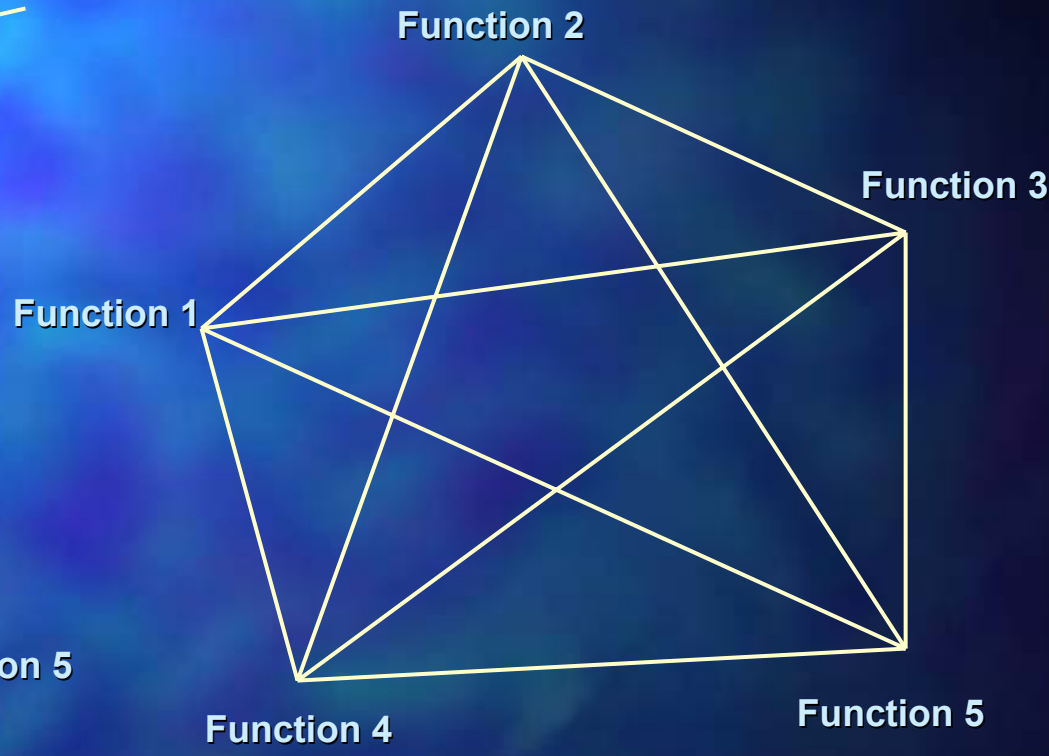
- Should have the strongest effect <u>across</u> functions, where task interdependence is greatest
- But this is also where relationships tend to be weakest, due to
  - ✓ differences in thought worlds (Dougherty, 1992)
  - ✓ membership in competing occupational communities (Van Maanen and Barley, 1984)

Within Functions: Low Task Interdependence



Expect *strong* ties, with *weak* performance effects

Across Functions: High Task Interdependence



Expect *weak* ties, with *strong* performance effects

Hypotheses

- Relational forms of coordination among participants in a work process have a *more positive impact on performance*, the higher the level of task interdependence among those participants.

- Relational forms of coordination among participants in a work process tend to be *weaker*, the higher the level of task interdependence among those participants.

Study 1: Flight departures

- Nine site study of flight departures over 12 months of operation at Southwest, American, Continental and United
- Measured relational coordination among gate agents, ticket agents, baggage agents, ramp agents and operations agents
- Measured quality and efficiency performance, adjusting for product differences

Study 1: Flight departures

- Operationalized low task interdependence as the interdependencies *within* functional groups (ie., among gate agents)
- Operationalized high task interdependence as the interdependencies *across* functional groups (ie., between gate and ramp agents)

Relational coordination stronger when task interdependence is *low*

	AMR1	AMR2	SWA1	SWA2	CON1	CON2	UNI1	UNI2	UNI3
RC *within* function (low task interdep)	.81 (.21)	.73 (.23)	.91 (.16)	.85 (.20)	.91 (.11)	.88 (.15)	.92 (.09)	.85 (.15)	.86 (.14)
RC *across* functions (high task interdep)	.42 (.22)	.37 (.21)	.73 (.21)	.61 (.22)	.61 (.18)	.44 (.15)	.65 (.16)	.53 (.22)	.64 (.12)

But performance effects are stronger when task interdependence is *high*

	Efficiency		Quality		
	Gate time/ flight	Staff time/ passenger	Customer complaints	Lost bags	Late arrivals
RC within functions (low task interdep.)	-.06 (.128)	-.16* (.017)	-.27** (.003)	-.06 (.648)	.23+ (.077)
RC across functions (high task interdep.)	-.23*** (.000)	-.38*** (.000)	-.73*** (.000)	-.35* (.026)	-.07

Random effects regressions with n=99 site/months, and sites as the random effect. Each equation includes the following control variables: flights/month, length of flight, passengers/flight, cargo/flight, and percent of passengers connecting.

Study 2: Patient care

- Nine hospital study of patient care
- Measured relational coordination among physicians, nurses, physical therapists, case managers and social workers
- Measured quality and efficiency performance, adjusting for patient differences

Study 2: Patient care

- Operationalized low task interdependence as the interdependencies *within* a given functional group (ie., among nurses)
- Operationalized high task interdependence as the interdependencies *across* functional groups (ie., between nurses & physicians)

Relational coordination higher when task interdependence is *low*

	Hosp1	Hosp2	Hosp3	Hosp4	Hosp5	Hosp6	Hosp7	Hosp8	Hosp9
RC *within* function (low task interdep)	.93 (.12)	.94 (.17)	.93 (.12)	.90 (.21)	.84 (.21)	.86 (.19)	.90 (.14)	.96 (.09)	.77 (.28)
RC *across* functions (high task interdep)	.72 (.19)	.81 (.18)	.75 (.21)	.78 (.15)	.67 (.24)	.73 (.17)	.78 (.15)	.83 (.16)	.80 (.19)

But performance effects are stronger when task interdependence is *high*

	Efficiency	Quality		
	Length of stay	Patient satisfaction	Post-op freedom from pain	Post-op mobility
RC within functions (low task interdep.)	-.03 (.476)	.05 (.297)	.02 (.586)	.03 (.339)
RC across functions (high task interdep.)	-.31*** (.000)	.22*** (.000)	.07* (.041)	.05 (.123)

Random effects regressions with n=531 to 599 patients, and hospital as the random effect. Each equation includes the following control variables: surgical volume, type of surgery, patient age, race, gender, marital status, comorbidities, pre-operative functioning, overall health, psychological well-being.

Theoretical contributions

- This paper explores the conditions (contingencies) that increase the performance effects of social capital
- Contributes further support for the argument regarding "strength of weak ties" (Granovetter, 1973). Weak ties are important because
  - ✓ they connect people who are most differentiated in role and function
  - ✓ they therefore enable coordination of highly interdependent work processes

Theoretical contributions

- Durkheim (1933) argued that the division of labor creates increased task interdependence, and therefore increased social cohesion
- Blau (1972) argued that the same is true within organizations
- We see here that task interdependence does not *automatically* lead to social cohesion
- Organizations have to strive actively to make it happen -- but there is a payoff for their efforts