

## NSF Highlights

### Rotate Leadership for Successful Innovation

Highlight ID: 14878

Interfirm collaborations can hold great promise for innovation; it is hard to resist the hope that complementary expertise and capabilities from two or more excellent organizations could be combined to create new technology and product breakthroughs. We do not, as yet, understand as much as we would like about what makes some of these collaborations succeed and others fail.

The research team of Jason Davis of the Massachusetts Institute of Technology and Kathleen Eisenhardt of Stanford University examined this question in a recent study funded by the National Science Foundation's Innovation and Organizational Sciences program. In a two-year, multi-case study of eight technology collaborations involving ten firms in computing and communications industries, they sought to identify types of relationships and decision processes that engender innovation and adaptation in collaborations in unpredictable and interdependent environments.

Davis and Eisenhardt found three types of leadership patterns occurred in these collaborations: domineering leadership (one firm is the clear leader during the entire collaborative process), consensus leadership (all of the partner firms have equal say throughout the collaboration, there is no clear lead firm) or rotating leadership (decision control shifts among partners at different phases of the collaboration). Rotating leadership characterized the collaborations that produced successful innovations; domineering and consensus leadership characterized the unsuccessful collaborations.

Rotating leadership was found to have three traits. Control over major decision making fell to different partners at different phases of work. Active participation in the collaboration also shifted across phases, with executives and others from each firm being more active in some phases, less active in others. Finally, the goals of the collaboration's efforts "zig-zagged" over time, with the collaboration sometimes emphasizing activities that were more important to one firm and at other times emphasizing activities more important to another. For example, in one phase the collaboration might emphasize progress on product features, consonant with the goals and key capabilities of one partner, and at another time it might emphasize advances in operating systems, consistent with the goals and capabilities of another. Practitioners might take note and consider how to design collaborations so that governance and incentive mechanisms enable fruitful rotation of leadership for more effective innovation.

*Primary Strategic Outcome Goal:*

- Disciplinary/Interdisciplinary Research (Anything not covered by one of the 12 categories below.)

*Secondary Strategic Outcome Goals:*

*How does this highlight address the strategic outcome goal(s) as described in the [NSF Strategic Plan 2006-2011](#)?:*

This work provides sound, theory-based insight into processes that are important to competitiveness.

***Does this highlight represent transformative research? If so, please explain why.***

*The National Science Board has defined transformative research as "Research that has the capacity to revolutionize existing fields, create new subfields, cause paradigm shifts, support discovery, and lead to radically new technologies." National Science Board: [Enhancing Support of Transformative Research at the National Science Foundation](#)*

Yes

Past research on success of collaborations among firms has emphasized relatively objective, archival, easy to scrutinize phenomena. These researchers are examining interactive processes -- which are harder to scrutinize. This new level of observation promises to yield increased understanding and new perspectives on issues of collaboration in general.

***Does this highlight represent Broadening Participation? If so, please explain why.***

*The concept of broadening participation includes: individuals from underrepresented groups, certain types of institutions of higher education, geographic areas (e.g. EPSCoR states), and organizations whose memberships are composed of institutions or individuals underrepresented in STEM or whose primary focus is on broadening participation in science and engineering. It is important to note that underrepresented groups vary within scientific fields.*

No

***Are there any existing or potential societal benefits, including benefits to the U.S. economy, of this research of which you are aware? If so, please describe in the space below.***

*It is important for NSF to be able to provide examples of NSF-supported research that have or may have societal benefits.*

Yes

These findings have immediate implications for innovation and competitiveness.

SBE/SES 2008

*Program Officer:* Jacqueline Meszaros

*NSF Award Numbers:*



Handing off leadership at appropriate moments is a key to successful high-technology collaborations.

Permission Not Granted

Credit:

<http://www.dol.gov/esa/regs/compliance/owcp/images/HANDSHAKE.jpg>

[0621777](#)

Award Title: How Do Firms Manage Technology Collaborations?

PI Name: Kathleen Eisenhardt

Institution Name: Stanford University

PE Code: 5376

*NSF Contract Numbers:*

*NSF Investments:* American Competitiveness Initiative (ACI)

Entered on 12/21/2007 by Jacqueline Meszaros