The Architecture of Collaboration

Making a Rich Set of Resources Available to a Large Set of Actors on an Unlimited Set of Projects

Professor Charles Snow
Penn State University and Fulbright Professor
Current Activities

Fulbright-Hall Chair in Entrepreneurship, Vienna University of Economics and Business

Founding Member, Organizational Design Community (www.orgdesigncomm.com)

Co-Editor, Journal of Organization Design (www.jorgdesign.net)
Functional Structure

- GENERAL MANAGER
  - Engineering
    - Electrical
    - Mechanical
  - Manufacturing
    - Fabrication
    - Assembly
  - Marketing
    - Sales
    - Distribution
Divisional Structure

GENERAL MANAGER

Division Manager (Product Group A)
- Engineering
- Manufacturing
- Marketing

Division Manager (Product Group B)
- Engineering
- Manufacturing
- Marketing
Matrix Structure

GENERAL MANAGER

Product Management

Engineering

Manufacturing

Marketing

Product Group A

Product Group B

Product Group C

MECH

ELEC

FAB

ASS’Y

SALES

DISTR

X = Resources required by a particular product group
Hierarchical Organizations (1870 – 1970)

- Do Everything With Your Own Resources (Self-Reliance)
- Bigger is Better
- Coordination and Control Achieved Primarily Through Hierarchies (number of units, levels, superiors)
- Main Drawback of Hierarchical Organizations: Slow to Respond to Environmental Changes (Non-Adaptive)
Lewis Galoob Toys

Research and Development
Performed by independent inventors and entertainment companies

Suppliers
Accounts receivable are sold to a factoring company

Lewis Galoob Toys
Headquartered in San Francisco
Approximately 100 employees

Manufacturing
Takes place in factories in Hong Kong and China

Marketing and Distribution
Toys are sold by manufacturers’ representatives to Toys R Us, Wal-Mart, etc.
Multi-Firm Network Structure

- Leverage Core Capabilities
- Outsource Non-Core Capabilities
- Link the External Providers to the Lead Firm in an Integrated Organization
- Collaborate with External Providers to Learn and Improve
Knowledge-Intensive Sectors

In industries in which knowledge is complex and widely distributed, the locus of innovation is beyond the firm. (Powell et al., 1996)

Biotechnology
Computers
Microelectronics
Professional Services
Blade.org: A Collaborative Community of Firms

- Launched by IBM and seven other Founding Firms in 2006
- Capitalized on IBM’s reputation forged in the open source software ‘movement’
- Grew to more than 200 member firms (mostly U.S. firms but some international)
- Blade.org has a significant share of the blade server market
- Blade.org ceased operations in June 2011
Blade.org: Purpose and Strategy

- Purpose is to find applications for IBM’s bladeCenter technology (a computer server technology)
- Strategy is to invent new solutions via collaborative innovation projects and networks
- Member firms are free to self-organize
- Website, IdeaBank, and nine technical committees constitute the “commons”
- Principal Office serves as the Shared Services Provider
Collaborative Innovation at Blade.org

Within 18 months, Blade.org firms developed more than 60 solutions through:

- **Bilateral Collaboration** (with customers)
- **Direct Collaboration** (among two or more Blade.org member firms)
- **Pooled Collaboration** (IdeaBank)
- **External Collaboration** (with outside firms)
Actor-Oriented Architectural Scheme

*Actors* who have the values and capabilities to self-organize

*Commons* where resources are accumulated and shared

*Protocols, Processes, and Infrastructures* that enable the actors to connect and collaborate
Contributions

Introduction of a valuable new concept

Improved understanding of the organization of multi-party collaboration