
Technological Advance and the Changing Structure of Transnational Standards Organizations

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The Research Question

How Do Structural Variables Contribute to the Rise of Standards Consortia in Today's Highly Competitive Networked Economy?

Three Sets of Explanations

- **Institutional Analysis**
 - **Transaction Cost Analysis**
 - **A Rational Actor Approach**
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The Argument Based on Structural Analysis

In today's fast paced, network-based, intensively competitive global economy, firms must place a premium on gaining competitive advantage not solely by reducing costs, but also—and perhaps more importantly—through information access and continuous innovation.

Structure matters in this regard. In particular, significant innovative advantages can be derived from the resources and social capital that are associated with bridging structural holes—that is, the unconnected spaces in the social structure

Hypotheses

1. Given their bureaucratic structures, traditional standards development organizations will have relatively few bridges linking them across structural holes to innovative knowledge resources.
 2. Given their relatively exclusive and loosely coupled organizational arrangements, standards consortia will approximate the condition that Burt refers to as structural autonomy. Accordingly, actors within standards consortia will exhibit both high levels of internal cohesion as well as extensive bridging relationships across structural holes to diverse clusters.
 3. The actors within standards consortia will exhibit relatively high levels of prestige even as they extend their relationships across structural holes to other standards fora.
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Data Adjacency Matrix

		1	2	3	4	5	6	7	8	9	10
		3	A	A	A	A	A	A	A	A	A
		-	-	-	-	-	-	-	-	-	-
1	3M Health Information Systems	1	1	1	0	1	1	1	0	0	0
2	Abbott Laboratories	1	1	1	0	1	1	1	0	0	0
3	Abies Ltd.	1	1	1	0	1	1	1	0	0	0
4	ABN-AMRO Bank	0	0	0	1	0	0	0	0	0	1
5	Accenture	1	1	1	0	1	1	1	0	0	0
6	ACEP	1	1	1	0	1	1	1	0	0	0
7	ADA	1	1	1	0	1	1	1	0	0	0
8	Adam B. Healey	0	0	0	0	0	0	0	1	1	0
9	Aditya Agrawal	0	0	0	0	0	0	0	1	1	0
10	AFNOR/DTIC	0	0	0	1	0	0	0	0	0	1

Variables

- ***Independent Variables***

- Hierarchy

- Cohesion

- ***Dependent Variables***

- Brokerage

- Centrality > Freeman's Degree Measure

Findings

- ***Brokerage***
 - Consortia had a value of 200.1486, which was significantly higher than the traditional SDO value, which was 72.3761.
 - Those SDO actors that exhibited high degrees of brokerage were also those that actively take part in consortia. For example, IBM and Intel Corp have 12496 and 10856 counts for gatekeeper opportunities
 - This finding helped support Hypotheses 1 and 2.
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Findings

- ***Centrality***
 - The highest degree value in the network was 382. Three companies with this value were IBM, HP and Sun Microsystems implying that these actors had the most number of ties in the network.
 - The lowest value in the network was 11.00 which was shared by ten actors.
 - Mean degree of the consortia network was 112.887. 181 out of the 445 consortia actors have a degree that is higher than the mean degree representing 40.67% of the entire network. This supported Hypothesis 3.
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Thank you

- Our analysis is a first look at the structure of the standards universe. It attempts to gain some insights about the role that structure plays in the standards setting universe and we hope that it will spark interest and additional research in the future.
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