

Strategic Positioning of Telco Operators in ICT Value Networks

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Agenda

- Motivation and Research Objectives
- Theory
 - Value Creation in Telecommunications
 - Governance of Transactions
- Analyses
- Conclusions

Motivation and Research Objectives

Motivation:

- Convergence in ICT (Industries: Telco, Software, Hardware, Media)
- Increasingly complex value production and ICT ecosystems
- Strategic positioning in ICT Firm networks and continuous adjustment
- Scarce quantitative research on convergence and firm strategies

Research Objectives and Questions:

- Quantitative evaluation of the ICT value network
- Analysis of the relation of telecommunication specific activities to activities from other segments
- Implications for strategies of telecommunication firms

ICT Value System – Segment Descriptions

Segment	Description	Examples	SIC Codes
Hardware Components	production of material and components required to produce hardware equipment	-semiconductors -wire products	3671, 3672, 3674, 3675, 3676, 3677, 3678, 3679, 3691, 3692, 3694, 3695, 3699
Hardware Equipment	production of communication terminals and network infrastructure components	-computers -mobile phones -traffic signaling equipment	3571, 3572, 3575, 3577, 3578, 3579, 3651, 3652, 3661, 3663, 3669, 5045, 5063, 5064, 5065, 7376, 7377, 7378, 3812, 3821, 3822, 3823, 3824, 3825, 3826, 3827, 3829, 3841, 3842, 3843, 3844, 3845, 3851, 3861, 3873
Software	development of software and Internet applications and value adding tasks such as training and systems design	-computer programming services -information retrieval services	7370, 7371, 7372, 7373, 7374, 7375, 7379, 7382
Telecommunications	provisioning of telecommunication services, network operation and management	-PSTN and GSM telephony -DSL Internet access	4810, 4812, 4813, 4822, 4832, 4833, 4841, 4899
Media	production and management of text, graphical and multimedia content	-publishing of newspapers -advertising services -motion picture production	2711, 2721, 2731, 2732, 2741, 2752, 2754, 2759, 2761, 2771, 2782, 2789, 2791, 2796, 7311, 7312, 7313, 7319, 7331, 7334, 7335, 7336, 7812, 7819, 7822, 7829, 7922, 7929, 7941, 7948, 7999

Governance of Transactions (Williamson 1985)

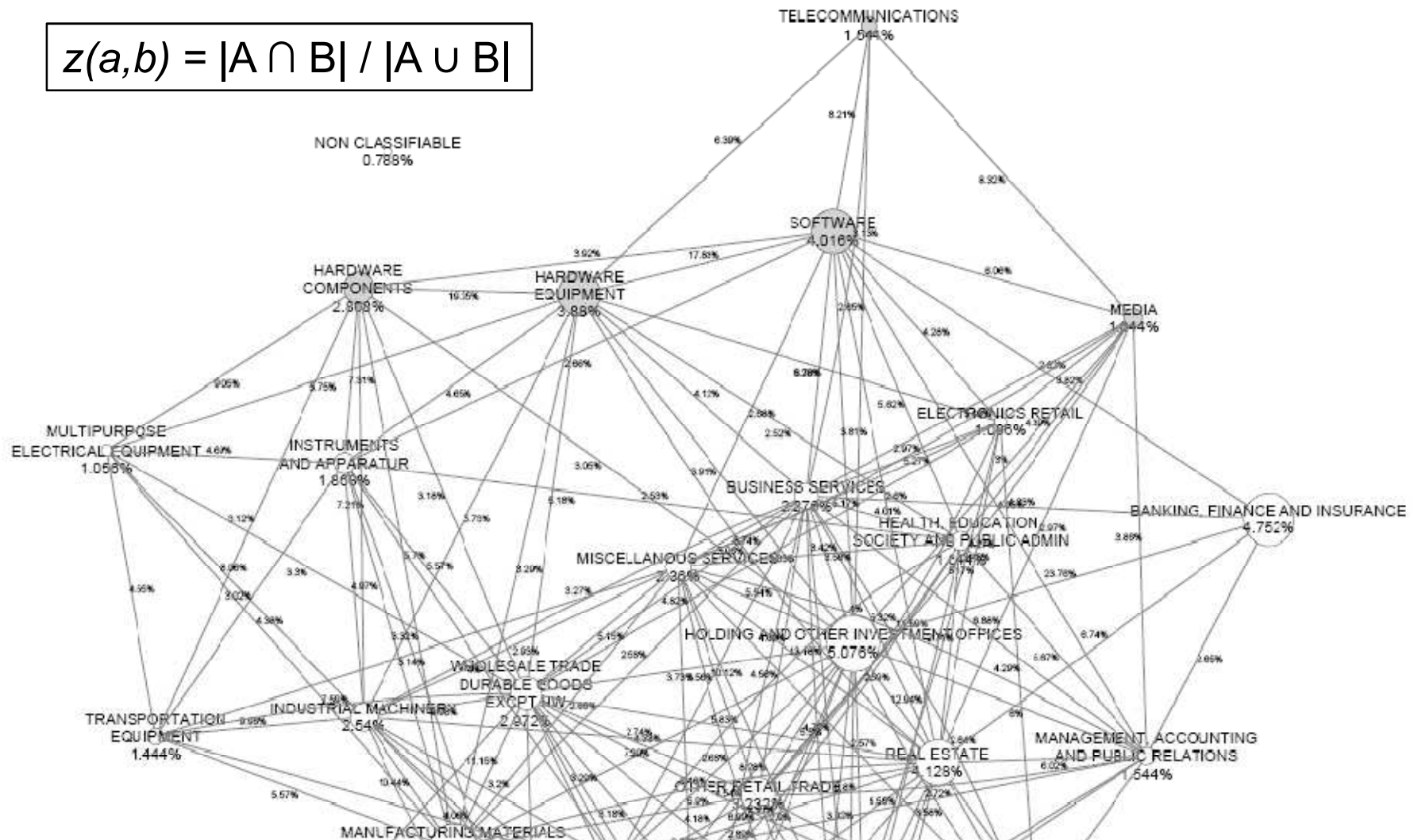
		Investment Characteristics		
		Nonspecific	Mixed	Idiosyncratic
Frequency	Occasional	Market Governance (Classical Contracting)	Trilateral Governance (Neoclassical Contracting)	
	Recurrent		Bilateral Governance (Relational Contracting)	Unified Governance

External Associations in Telco Value Production

Sector	Interface Activities	Examples
Hardware Equipment	Establishment of Telecommunications Network	-Cisco - Core Networks -Nokia Siemens Networks - Converged Core
	Integration of Terminals into Telecommunications Network	-Amazon – Kindle -Tollcollect – Toll System
	Management of the Telecommunications Network	-Nokia Siemens Networks - Managed Services -Cisco - Network Performance Analysis
Software	Internet Telephony und Messaging	-Skype - Internet Telephony -MSN.com - Voice Messenger
	Development of Charging Systems	-Alcatel Lucent - 1330 Billing and Performance Management -Engel & Co GmbH - encoBill+
	Development of Network Management Systems	-Alcatel-Lucent - 1300 Convergent Network Management Center -Juniper Networks - CTPView Network Management System
	Content Delivery	-Microsoft - Smooth Streaming -Akamai - Media Delivery
Media	Content Distribution	-SES Astra – Satellite Transmission -Kabel Deutschland - Kabel Digital Home
	Content Marketing and Brokerage	-Deutsche Telekom - Videoload -Vodafone - Formel1 live

ICT Value System

$$z(a,b) = |A \cap B| / |A \cup B|$$



Clustering Results

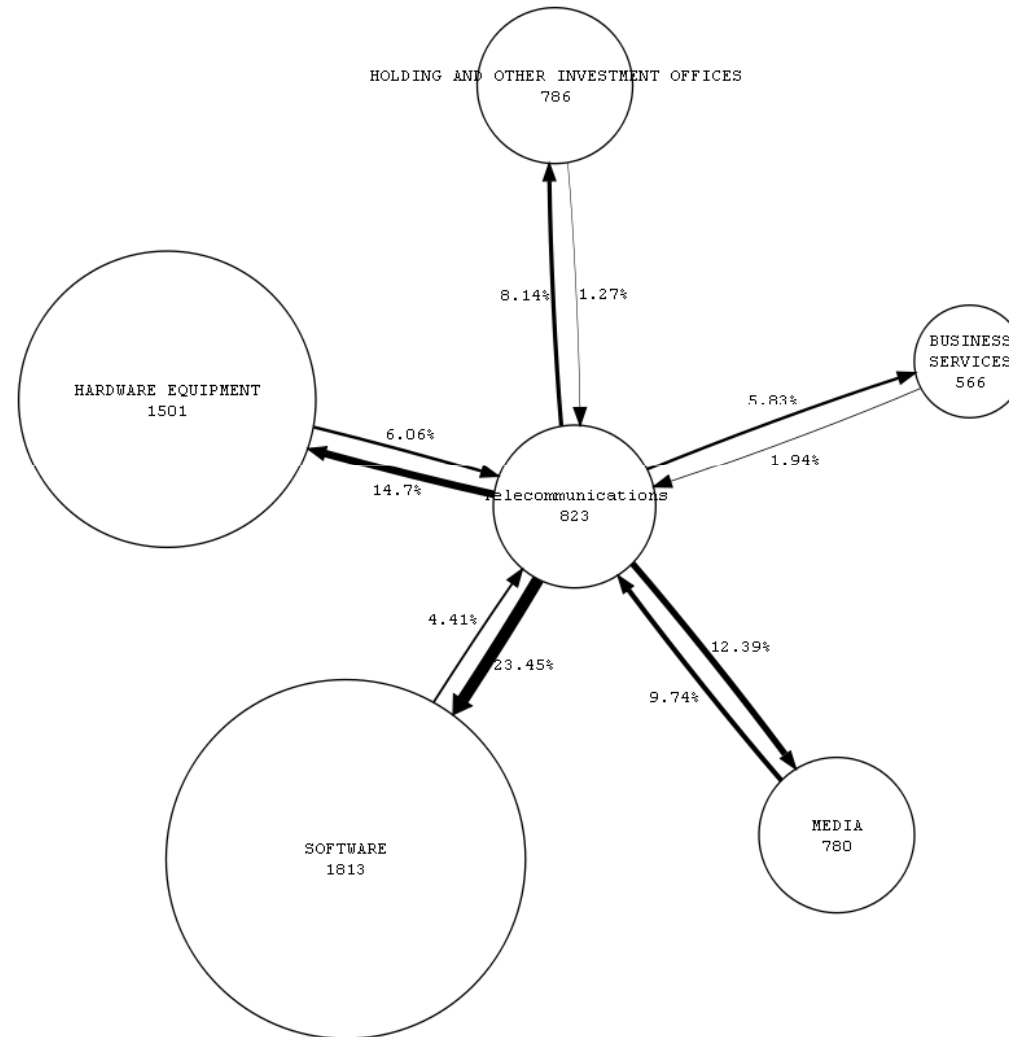
Cluster	Wertschöpfungssegmente
1	HARDWARE COMPONENTS, HARDWARE EQUIPMENT, SOFTWARE, TELECOMMUNICATIONS, MEDIA
2	ELECTRONICS RETAIL, CONSTRUCTION, TRANSPORTATION, OTHER RETAIL TRADE, REAL ESTATE, MISCELLANEOUS SERVICES
3	AGRICULTURAL PRODUCTION-CROPS, MANUFACTURING GENERAL PRODUCTS , MANUFACTURING CHEMICALS AND PETROLEUM, WHOLESALE TRADE NONDURABLE GOODS
4	MINING, ELECTRIC, GAS AND SANITARY SERVICES
5	MANUFACTURING MATERIALS AND METAL PRODUCTS, INDUSTRIAL MACHINERY, MULTIPURPOSE ELECTRICAL EQUIPMENT, TRANSPORTATION EQUIPMENT, INSTRUMENTS AND APPARATUR, WHOLESALE TRADE DURABLE GOODS EXCPT HW
6	MISCELLANEOUS MANUFACTURING INDUSTRIES,
7	BANKING, FINANCE AND INSURANCE, HOLDING AND OTHER INVESTMENT OFFICES
8	BUSINESS SERVICES, ENGINEERING AND RESEARCH, MANAGEMENT, ACCOUNTING AND PUBLIC RELATIONS, HEALTH, EDUCATION, SOCIETY AND PUBLIC ADMIN
9	NON CLASSIFIABLE

Telecommunications Activity Associations – Contingency Analyses

	HARDWARE COMPONENTS	HARDWARE EQUIPMENT	SOFTWARE	MEDIA
Telco	83 (6,3%)	278 (21,1%)	360 (27,3%)	209 (15,9%)
NonTelco	981 (16,1%)	1748 (28,5%)	1198 (21,6%)	282 (4,3%)
X² (Pearson)	85	30	20	248
C	0.107	0.063	0.054	0.178

- Telecommunication activities are significantly more strongly associated with media activities.
- The degree of association to hardware component activities is significantly lower.
- Telecommunication activities exhibit the strongest associations to the software sector.

Telecommunication Activities – Interdependency Analysis



Governance of Telco Activity Associations

	Weak Association	Strong Association
One sided Association	<p>Market Governance</p> <ul style="list-style-type: none"> -No transaction specific investments - Highest efficiency through market based service exchange 	<p>Strategic Cooperation</p> <ul style="list-style-type: none"> - Unilateral transaction specific investments - Bilateral commitment creates win-win situation
Two sided Association		<p>Competition</p> <ul style="list-style-type: none"> -Incompatibility of transaction specific investments - Conflicting interests outweigh synergies through cooperation

Governance of Telco Activity Associations

	Weak Association	Strong Association
One sided Association	Market Governance -No transaction specific investments	Software Related Activities <ul style="list-style-type: none"> - High specificity and strategic importance of software systems to network operators - Universal applicability of operator oriented software products - Bilateral commitment creates win-win situation
Two sided Association		Non ICT Activities <ul style="list-style-type: none"> - Non specific transaction investments - Low transaction frequency - Examples: construction, real estate, banking and finance

Summary and Limitations

- Qualitative statements about the existence of the ICT value network could be validated empirically.
- Telecommunications activities exhibit characteristic associations to the sectors software, media, and hardware equipment.
- Transaction theory suggests distinct strategies for the governance of the associated activities.
- Limitations:
 - No integration of data about existing cooperations and market based firm relationships.
 - SIC codes only describe external products and services, internal value activities are not taken into account.
 - Only listed companies are regarded.
 - Generalizing statements allow exceptions.

I appreciate your comments!

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