DIGITAL BUSINESS STRATEGY AND VALUE CREATION

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MOTIVATION

- The multi-channel digital revolution coupled with the development of interactive digital technology, virtualization, peer-to-peer networks etc. generate much more complex and dynamic ecosystems for growth and innovation.

- The profits and competitive advantages of participation in a given value network reside dynamically within the chains, accumulating at the positions of greatest value and/or power (control points). The enterprises that hold these positions have a great deal of control over how the network operates and how the benefits are redistributed (Rülke et al. 2003).
ARGUMENT

- Support the Double Helix Model (Fine 1998) in framing the dynamic cycle of value creation and value capture points in digitally-enabled networks following the emergence of:
  
  (1) an incremental innovation and  
  (2) cross-boundary industry disruptions

Paper published in MISQuarterly in 2014 and selected finalist for the “Best European Paper”
OUTLINE

- Conceptual framework
- The opinion
- Methodology and supportive arguments
- Implication to research/practice
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  - The opinion
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THE VALUE NETWORK PERSPECTIVE

- Digital business strategies call for coordination across firms along product, process and service domains, thereby creating complex and dynamic ecosystems (Moore 1996; Iansiti and Levien 2004; Adner 2006) for growth and innovation.

- Products and services increasingly have embedded digital technologies, and it is becoming more difficult to disentangle business processes from their underlying IT infrastructures (e.g., El Sawy 2003; Orlikowski 2009).
THE VALUE NETWORK PERSPECTIVE

- View of the value network as a **configuration of control points**, which comprise the various service transactions involved in implementing the functional components required to deliver a product or service offering (Basole and Rouse 2008)
- Control points are analyzed in terms of how, and to what extent, they create and capture value, and in what forms.
OUTLINE

- Conceptual framework
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THE OPINION

The double helix model (Fine 1998) to frame the dynamic cycle of value creation and value capture points in digitally-enabled network
H1: when the industry structure is vertical and the product architecture is integral, the emergence of an incremental innovation push toward a horizontal and modular configuration and a fragmentation of value creation and value capture points.

H2: if an industry has a horizontal structure, the emergence of a disruptive digital business strategy pushes toward more vertical integration and integral product architectures generating an incentive for the innovator to integrate and create a lock-in advantage.
OUTLINE

- Conceptual framework
- The opinion
- Methodology and supportive arguments
- Implication to research/practice
EMPIRICAL SETTING: THE BROADCASTING INDUSTRY

Digital TV
Incremental innovation

MSPs - Cross-boundary industry disruptions

Black & white screen Color TV
Few national channels
Terrestrial analogue reception

Private TV channels
Remote control, Teletext Interactive channels

Plasma and LCD TV screens
Niche channels
IPTV

HD TV
3D TV
Internet Access
Widgets
Online TV, VoD

Mobile streaming

Analog TV
Digital TV
MSPs
DATA COLLECTION

- 45 Semi structured interviews with industry experts from 15 leading companies in Europe and US in order to understand the ecosystem challenges
- Analysis of 8 years leading industry journals
- Longitudinal data collected on a sample of 792 firms in Europe and US (April 2000-May 2008): 15% content providers, 15% semiconductor and electronic suppliers, 13% broadcasters, 17% software, 14% terminal providers, 12% platform aggregators, 14% Telcos
- Internal, external validity and reliability
DATA ANALYSIS PROCESS

• Core and edge capabilities are the key explanatory variables along with types of relationships among firms. We control for unobserved differences across firms by including firm dummies in a firm-generation panel (Wooldridge, 2002):

\[ y_{igt} = \beta_0 + X_{igt}b + D_i + T_t d + a_{ig} + u_{igt} \]

- \( y_{igt} \): firm \( i \)'s market share in a generation \( g \) in year \( t \);
- \( X_{igt} \): vector of independent and control variables;
- \( D_i \): vector of dummies for each firm;
- \( T_t \): vector of dummies for each year;
- \( a_{ig} \): unobserved heterogeneity for a firm in a generation that is assumed to be uncorrelated with the explanatory variables;
- \( u_{igt} \): is the error term.
DATA ANALYSIS PROCESS

Black box modeling (Norgaard et al. 2000)

Phase 1 – Empirical results
Phase 2  - Selection of the model structure (graph-generating model)
Phase 3  - Model estimation and validation: two meetings with practitioners and academics
TYPOLOGY OF CONTROL POINT CONSTELLATIONS

- Closed vertically integrated model
- Loosely coupled coalition model
- Multi-sided platforms
TYPOLOGY OF CPCS

- Closed vertically integrated model
- Loosely coupled coalition model
- Multi-sided platforms
Need of the single company to develop along the vertical dimension of the value chain
<table>
<thead>
<tr>
<th><strong>Value creation logic</strong></th>
<th>Presence of giant strongly connected components</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Value capture logic</strong></td>
<td>Value is captured by the giant</td>
</tr>
</tbody>
</table>
| **Primary activity categories** | - Content provision  
- Packaging  
- Network provision  
- Conditional access |
| **Main interactivity relationship logic** | Sequential |
| **Primary activity interdependence** | - Pooled  
- Sequential |
| **Key cost drivers** | - Scale  
- Capacity utilization |
| **Key value drivers** | - Market positioning and access to new capabilities  
- Possibility of user channel control  
- Shifting to value chain areas with higher added value  
- Facing competition of companies in connected sectors  
- High Costs of New Digital technologies |
| **Business value system structure** | Interlinked chains |
TYPOLOGY OF CPCS

- Closed vertically integrated model
- Loosely coupled coalition model
- Multi-sided platforms
Digital TV in US (case study)

- **Content distribution**
  - Advertising
  - Content production
  - Connectivity (private content capture network)
  - Content Acquisition & aggregation

- **Connectivity (Cable network)**
  - STB distribution
  - STB manufacture
  - Conditional Access
  - Tuner
  - EPG
  - DVR

- **STB distribution**
  - TiVo Distribution (EPG + DVR)
  - TiVo Manufacture (EPG + DVR)
  - MS Windows Distribution
  - PC distribution
  - PC Manufacture (screen/DVD)

- **PC Viewing and manipulation**
  - Sonic MyDVD Software creation
  - Online TiVo programming
  - Yahoo! TV TiVo EPG
  - Online TiVo EPG

- **Online TV listings**
  - YouTube
  - MySpace
  - Online watching

- **PC Viewing and manipulation**
  - PC Viewpoint
  - TV Viewpoint
  - TV Viewing (TV/DVD)

- **DVD burning**
  - DVD player distribution
  - DVD player manufacture
  - DVD burning

- **Content delivery**
  - DVD retail – Content Acquisition & aggregation
  - Playing DVDs

- **USB Connectivity**
  - USB Connectivity
  - PDA distribution
  - PDA video software
  - PDA OS creation
  - PDA creation

- **Portable product**

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**N. Klym, 2008**
Value network of the digital TV

Control point in value creation

Tier 1 Subsystem

Electronic publisher
Content creator
Broadcaster
ISP
Software developer
Terminal providers
TLC

Auxiliary Enablers

Content creation
Multimedia Packaging and services
Network and Infrastruct. Equipment Provision
Software
Hardware

Value

Tier 2 Component

 tiers

Tier 1 Subsystem

 tiers

Service Provider

 tiers

Consumers

Government

Core Competencies
Edge Competencies

Existing relationships or contractual links
Potential relationships or contractual links

Control point in value creation
Control point in value capture

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<th><strong>Value creation logic</strong></th>
<th>Focus on a specific phase of the value chain managing relations with partners along the value chain</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Value capture logic</strong></td>
<td>- Network operators have an advantage &lt;br&gt;- SP collect revenues directly from final users and distribute them among the other upstream stages of the value chain &lt;br&gt;- Broadcasters gather relevant additional revenues from indirect sources</td>
</tr>
<tr>
<td><strong>Primary activity categories</strong></td>
<td>- Content provision &lt;br&gt;- Content and interactive service packaging &lt;br&gt;- Network provision &lt;br&gt;- Managing relationships with customers and partners</td>
</tr>
<tr>
<td><strong>Main interactivity relationship logic</strong></td>
<td>Symmetric/Asymmetric Interactivity</td>
</tr>
<tr>
<td><strong>Primary activity interdependence</strong></td>
<td>- Pooled &lt;br&gt;- Sequential &lt;br&gt;- Reciprocal</td>
</tr>
<tr>
<td><strong>Key cost/value drivers</strong></td>
<td>- Scale</td>
</tr>
<tr>
<td><strong>Business value system structure</strong></td>
<td>- Referred hubs</td>
</tr>
</tbody>
</table>
TYPOLOGY OF CPCS

- Closed vertically integrated model
- Loosely coupled coalition model
- Multi-sided platforms
Core Competencies

Edge Competencies

Control point in value creation

Control point in value capture

Network

Platform aggregators

End user peers

Value network of the Multi-sided platforms

Control point in value creation

Control point in value capture

Customer / Account Experience

Provider Experience

Employee Experience

Customize unique combination of ‘Services’

Connect ‘Services’ to your existing applications

ERP
Billing
Enroll
Claims
Legacy
Legacy
Legacy
CRM
etc
<table>
<thead>
<tr>
<th><strong>Value creation logic</strong></th>
<th>Bringing together two or more distinct groups of customers, building an “infrastructure” that creates value by reducing distribution, transaction, and “search” costs</th>
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</thead>
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<tr>
<td><strong>Value capture logic</strong></td>
<td>In multi-sided networks cost and revenue are on each side. The platform incurs costs in serving all the groups and can collect revenue from each, although one side is often subsidized</td>
</tr>
</tbody>
</table>

| **Primary activity categories** | - Network promotion  
- Service provisioning  
- Infrastructure operation |
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</thead>
<tbody>
<tr>
<td><strong>Main interactivity relationship logic</strong></td>
<td>Simultaneous, parallel</td>
</tr>
</tbody>
</table>
| **Primary activity interdependence** | - Pooled  
- Reciprocal |
| **Key cost drivers** | - Scale  
- Capacity utilization |
| **Key value drivers** | - Capacity utilization |
| **Business value system structure** | - Layered and interconnected networks |
THE MODEL

- **Closed vertically integrated**
- **Multi-sided platforms**

**Centralized control**
- Vertical integration
- Incentive to integrate & lock in advantage

**Open architectures**
- Vibrant edge

**Incremental innovation**

**Cross-boundary industry disruptions**

**Pressure for openness/disintegration**

Loosely coupled coalitions

Towards the emergence of a giant component?
OUTLINE

- Conceptual framework
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IMPLICATIONS

• To understand who controls the network we need to explore in depth where the value is created and who captures this value:
  – Value in the customer access
  – Value in Common Infrastructure
  – Value in Modularity
  – Value in content access
  – Value in Orchestration

• In some cases, acquiring control positions for the access of the final users (as a customer gatekeeper) was coupled by a parallel upstream integration of content control leading to the integration of different stages of the value chain of the same entity.
IMPLICATIONS

- We support the double helix model (Fine 1998) and discover three models that characterize the control point constellations of the multimedia industry.
- In order to survive in an increasingly uncertain and complex environment, the firm has to transform its "organizational intelligence" into a new “relational intelligence”, enacting an open communication process with its stakeholders.
- Which outcomes occur, how frequently they occur, and with what consequences, are all questions that can only be resolved by thinking jointly about structure and dynamics and the relationship between the two.
Thank you!

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