Digital Innovation & Transformation to Business Ecosystems

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Contents

• Digital Innovation

• Digital Business Ecosystems

• Digital Transformation

• Conclusions and Moving Forward
PART ONE: DIGITAL INNOVATION
Overview of Digital Innovation

- An effort to re-imagine familiar products and services using unique capabilities of digital technology.
- Involves carrying out new combinations of digital and physical components to produce novel products, e.g. through servitisation.
- Focuses on creating radically different user experiences and new business models.
- Aims at creating new types/forms of business previously not existed.

(Yoo et al. 2010)
Traditional Innovation Process

Innovation Model (Linear)

01 Product/Price Competition
02 Passive Customers
03 Single Source Data
Enhanced Innovation Process

Innovation Model (Exponential)

(Based on Rogers, 2016)
Sustaining Innovations

• Refers to an innovation that happens on an incremental basis, often in response to customer and market demands or improvements in technology

• E.g. Adding more cameras to smart phones

(Christensen et al., 2015)
Disruptive Innovation

- Creates a new market and value network
- Disrupts an existing market and value network
- Displacing established market-leading firms, products, and alliances

Tend to be produced by outsiders and entrepreneurs in start-ups, rather than existing market-leaders

Examples:

- Wikipedia on Encyclopaedias;
- Internet on traditional commerce and business;
- Netflix
Evidence of Digital Innovation

<table>
<thead>
<tr>
<th>2007</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. ExxonMobil</td>
<td>1. Apple</td>
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<tr>
<td>2. GE</td>
<td>2. Alphabet</td>
</tr>
<tr>
<td>3. ICBC</td>
<td>3. Microsoft</td>
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<tr>
<td>5. Microsoft</td>
<td>5. Amazon</td>
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<tr>
<td>7. Toyota</td>
<td>7. Facebook</td>
</tr>
<tr>
<td>10.</td>
<td>10. GE</td>
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</tbody>
</table>

- 4 oil companies, 1 auto maker, 1 software, 1 conglomerate
- 5 digital companies, 2 conglomerates, 1 oil company, 1 bank, 1 pharma

(Source: KPMG, 2017)
PART TWO: DIGITAL BUSINESS ECOSYSTEMS
Evolution of Business Ecosystems

Business ecosystem allows members to co-create value in the network
Business Ecosystem Features

- Emphasising on interactions between organisations across traditionally demarcated industry boundaries
- An economic community of win-win for all members
  - Supported by interacting organisations & individuals
  - Deliver valuable goods+services for customers
  - customers & partners themselves as members of the ecosystem

(based in Moore, 1993)
Digital Business Ecosystem

- Interconnections among business participants by digital means
- Real-time information sharing
- Growing Interdependency
- Outcomes
  - Connection & collaboration
  - Co-value creation
  - Industrial disruption
Characteristics of Digital Business Ecosystem

**Platform**
refs to a collection of tools that partners in DBEs use for their individual innovations and business operations (Selander et al., 2013)

**Symbiosis**
refs to interdependencies between DBE entities such as partners, processes and technologies that support value co-creation (Senyo et al., 2019)

**Co-evolution**
refs to a situation where two or more entities reciprocally affect each other’s development (Stanley and Briscoe, 2010)

**Self-organising**
is a process where a DBE learns from its context and accordingly evolves to maintain its balance (Senyo et al., 2019)
Need for DBE (eg iPhone vs. BlackBerry)

- BlackBerry (RIM) was competing alone and had little strategic partnership with other partners
- BlackBerry concentrated on its messenger app (BBM) without innovating quickly towards an ecosystem
- iPhone was successful because of strategic partnership in its ecosystem
- Apple had many partners who contributed value to its iPhone ecosystems
Example of DBE: Tencent

Communication
- QQ mail
- QQ messenger – available in both desktop and mobile (829 million MAU, 521 million MAU from smart devices)
- WeChat – instant messenger for smartphones (438 million MAU)

Search
- Sogou – China’s 3rd largest search engine (invested and formed partnership)

Games
- Tencent Games
- CJ Games – Korean online game publishing company (partnership)

Software & Apps
- QQ doctor – antivirus
- QQ Pinyin – input-method
- QQ Software Manager
- Tencent Traveler – internet browser
- QQPlayer – multi-media player

Social Media Platforms
- Pengyou – for university students
- City Elite – for adults
- Qzone – for teenagers
- 58.com – China’s Craigslist (partnership)

Entertainment Platforms
- QQShow – digital fashion platform
- QQLive – leading online interactive video platform in China
- QQMusic – the largest online music platform in China

Payment Platforms
- WeChat payment
- Tenpay

E-commerce Platforms
- Paipai
- Yixun (aka 51buy.com)
- JD.com (partnership)

Portal Site
- QQ.com – China’s largest portal for news, online communities, entertainment products and other services.

Omni-channel / Location-based Services
- Didi Taxi – taxi hailing app
- Dianping – local business search, rating and discounts (partnership)

(Source: https://www.deraktionaer.de/artikel/aktien)
Bus Topology of Tencent Ecosystem

......

Maps

Tencent OS

Cloud service

Games

......

Wechat

QQ

Customer base

......

Tencent Pictures

Financial service

e-commerce

Tencent video
Example of DBE: Amazon

(Source: https://www.fostec.com/en/competences/digitalisation-strategy/)
Mesh Topology of Amazon Ecosystem

- Home assistant
- Financial services
- Kindle
- Books
- Amazon online shop
- Delivery service
- Groceries
- Whole food store
- AWS
- Health care
Star Topology of Daimler Ecosystem

- Manufacture
- Car-as-a-service
- Application platform
- Cloud service
- Insurance & security
- Software
Ring Topology of Huawei Ecosystem

- Suppliers
- Customers
- Partners
- End-users

- Cloud
- Device (smart phone)
- Pipe (telecom equipment)
- AI
# Varieties in DBE formations

<table>
<thead>
<tr>
<th>Principal driver</th>
<th>Typical enterprise</th>
<th>Typical DBE typology</th>
<th>Operating philosophy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Financial flow</strong></td>
<td>Amazon</td>
<td>Mesh topology</td>
<td>Discover profitable businesses</td>
</tr>
<tr>
<td><strong>Information flow</strong></td>
<td>Tencent</td>
<td>Bus topology</td>
<td>Traffic monetization</td>
</tr>
<tr>
<td><strong>Physical goods flow</strong></td>
<td>Mecedes</td>
<td>Star topology</td>
<td>Increase sales &amp; expand scope</td>
</tr>
<tr>
<td><strong>Financial flow</strong></td>
<td>Huawei</td>
<td>Ring topology</td>
<td>Raise barriers, secure leadership</td>
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</table>
PART THREE: DIGITAL TRANSFORMATION
The Nature of Digital Transformation

• Using signals, symbols, data and information
  • to perform business functions and processes
  • to extend functions and utility of physical goods

• Extended business affordances with virtual capabilities

• Digitisation-servitisation-transformation:
  • driven by effective use of signs
  • sign-based organised activities
  • implementing informatics in business
Transformation Stages

- Digitise product, process and service
- User Experience
  - Service Wrapper
    - E.g. contract on service, maintenance

01 Digitisation
02 Servitisation
03 Business Informatics Implementation

Digital Business Ecosystem (DBE)

Increased adoption leads to transformation in industry
Informal System
Sub-culture where meanings are established, intentions understood, beliefs, commitments and responsibilities made, altered and discharged

Formal System
Bureaucracy where rules, processes and procedures replace meaning and intentions

Technical System
Automated part of the formal system, IT systems

(Stamper 1991; Liu 2000)
Transform the Organisation
- key aspects of implementing the transformation

Key Aspects of Transformation to DBE

Values
- (Informal system)
  - Vision/mission
  - Leadership and mindset change
  - Talent development
  - Value & culture redefined – innovation, critical thinking, value-cocreation

Structure
- (formal system)
  - Organisational structure
  - Business process
  - Data generation
  - Operation/application

Technology
- (IT system)
  - Use of IT
  - Platform adoption & development
  - Digital connectivity
Digital Leadership in Transformation
- the key role of Chief Digital Officer

Create Awareness about digital trends (S,C)

Leverage digital technology for processes (IT,O)

Leverage digital technology for customer centricity (IT,M)

Drive innovation via incubators, start-up, etc. (IN,S)

Drive cross-boundary collaboration (OD)

Help create an overall Digital vision (S)

Serve as Digital Advisor to the board (S)

Foster digital skills, culture, & mindset (HR)

Chief Digital Officer must work with other directors

Functional Domains:
S  Strategy
C  Communication
IT  Information Technology
O  Operations
M  Marketing
IN  Innovation/R&D
HR  Human Resources
OD  Organizational Development

(Deiser, 2018)
Conclusion and Moving Forward

- transformation for value co-creation

Servitisation

Customer experience

service wrapper

Product 1

Customer experience

service wrapper

Product 2

Customer experience

service wrapper

Product n

DBE platform to support business

DBE growth
Moving Forward: Digital Transformation

- Transform from physical to socio-technically connected systems: digitisation – servitisation – digital business ecosystem
- Compete as an ecosystem instead of an individual firm
- Adopt co-petition business strategies
- Treat customers as contributing partners instead of end-users

- Embracing challenges in transformation involving whole organization:
  - Informal - visions, leadership, mindset, values and culture
  - Formal – structure and process
  - Technical – adoption and development of technological platform
Thank you!

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