

Architecting and Characterizing the Platform Ecosystems

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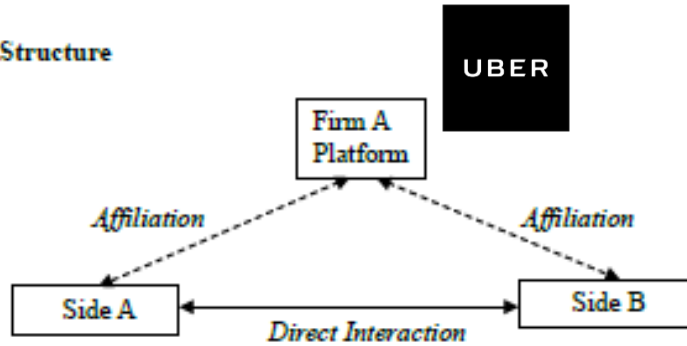


Outline

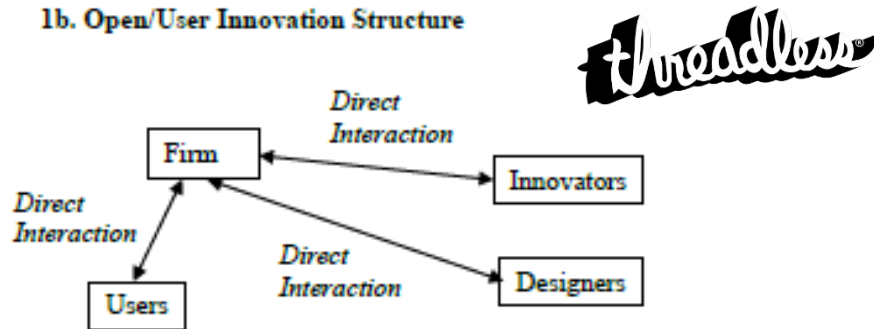
- Stylized Framework for Understanding of the Platform Ecosystems
 - ✓ Platform, open innovation, business ecosystem
- Open vs Closed --- Two Sides of the Same Coin?
 - ✓ A business perspective on openness (or closedness)
- Competition, Coordination, Innovation and Competitive Advantage
 - ✓ Where competition rises? Where innovation comes from?
- Value Creation in a Platform Ecosystem
 - ✓ in terms of governance and architecture

Emerging Institutional Logic (Altman & Tushman, 2017)

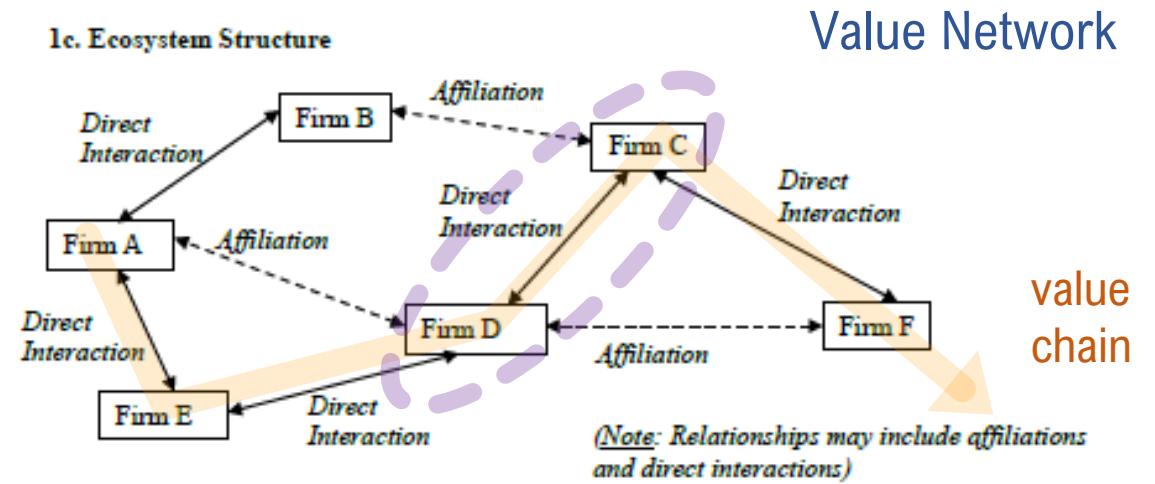
1a. Platform Structure



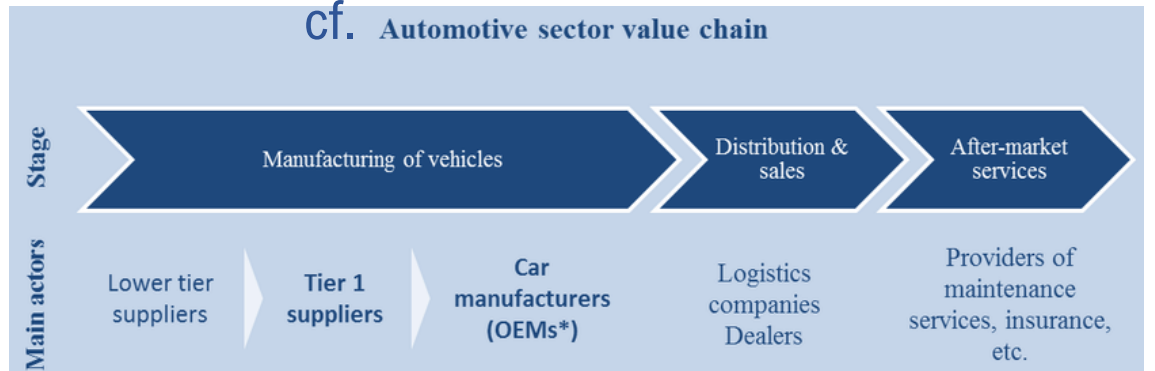
1b. Open/User Innovation Structure



1c. Ecosystem Structure




Cf. Automotive sector value chain



similarities and differences between platform, open/user innovation, and ecosystem strategies

Characterization (Altman & Tushman, 2017)

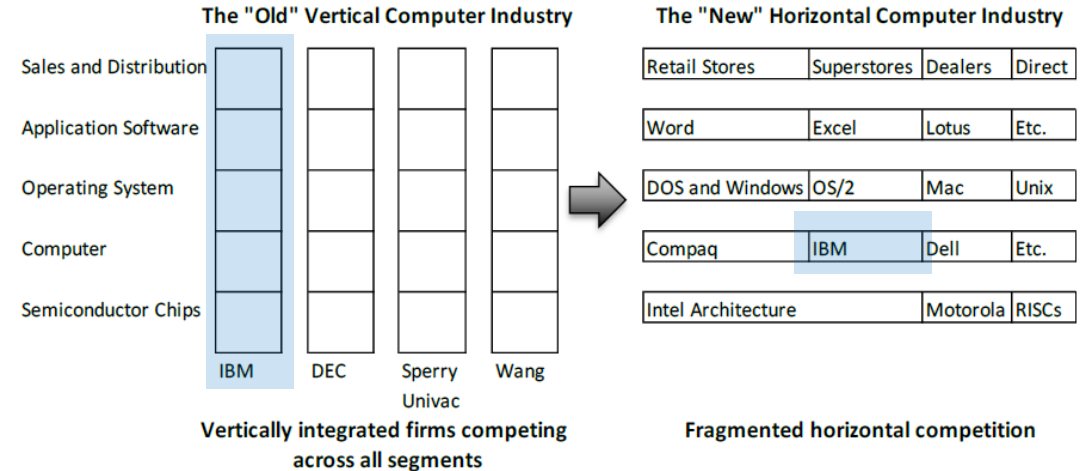
- Similarities
 - ✓ Openness, interdependence, and co-opetition as they revolve around interactions between organizations and parties outside their boundaries
 - ✓ (cross-side) network effects and value co-creation (cf. prosumer)
- Differences: They differ in their structures and interactions 
 - ✓ Uber (matching platform) : Threadless (online t-shirt vendor) : the wireless gaming industry (no central orchestrator)
- They are not mutually exclusive
 - ✓ Ecosystems can be considered an umbrella structure that encompasses platform and open/user innovation strategies

What Openness Means ...

- Open platform (or system) ≠ Open innovation
 - ✓ Open system based on not-so-open innovation --- IBM PC
 - ✓ Closed (or not-so-open) system based on open innovation --- pharma giants
- (open) Platform and Business ecosystem
 - ✓ Modular production and inter-industry architecture change

Silo structure → Modular architecture

Figure 14-2 The Vertical-to-Horizontal Transition in the Computer Industry



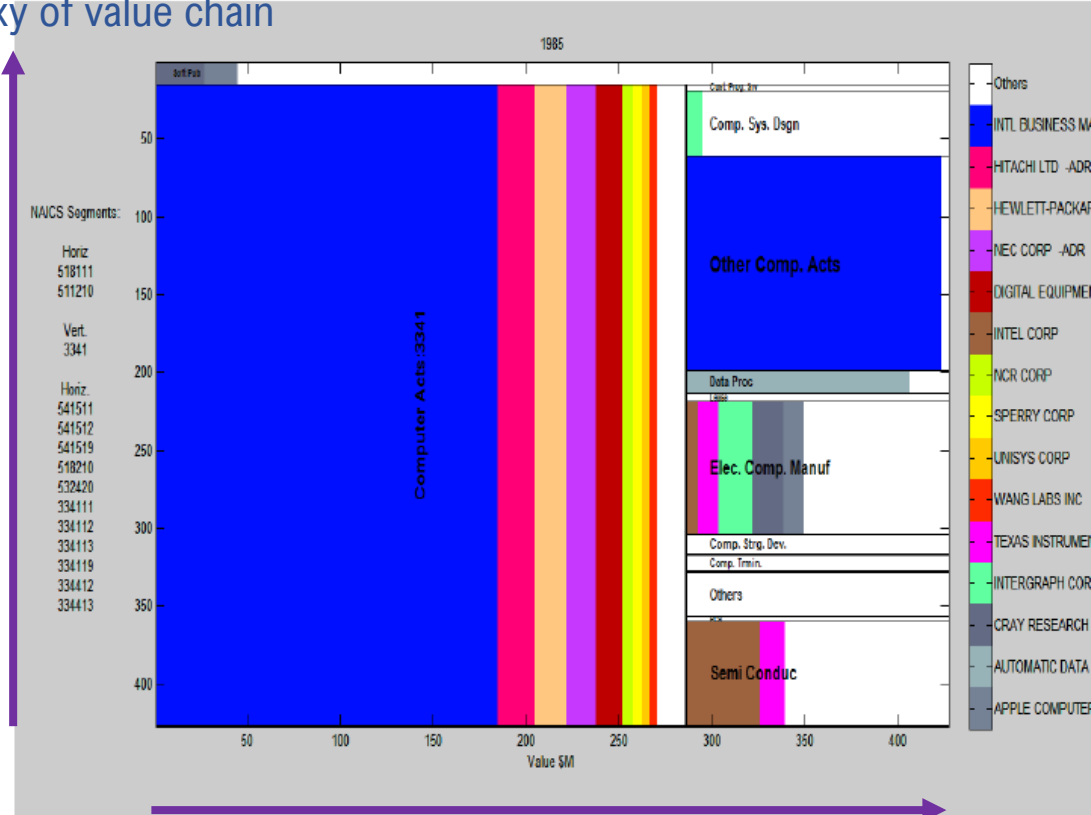
Source: Constructed by the author based on Grove (1996) pp. 40-42; and Yoffie (1997) pp. 18-19.

Baldwin, 2018

Evolution of Business Ecosystem (Baldwin, 2018)

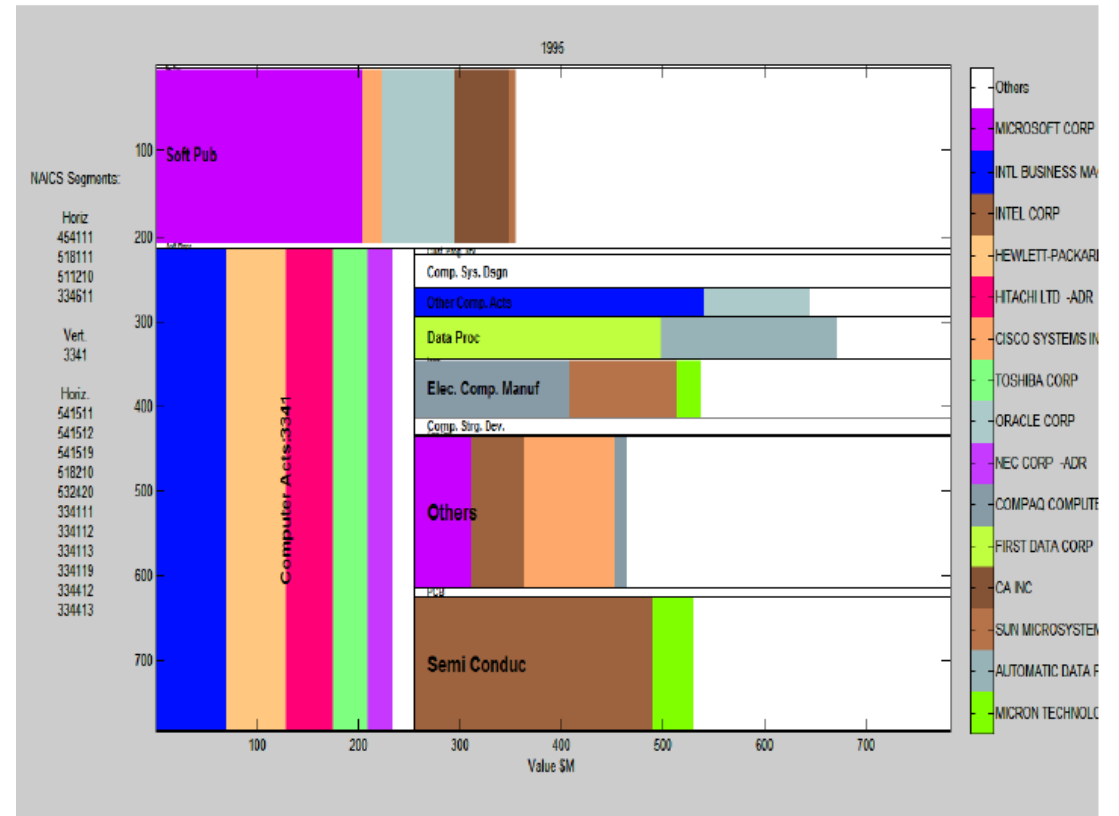
14 major companies

Plate 1 Distribution of Computer Industry Market Capitalization by Layer 1985
Vertical functions (industries):
proxy of value chain



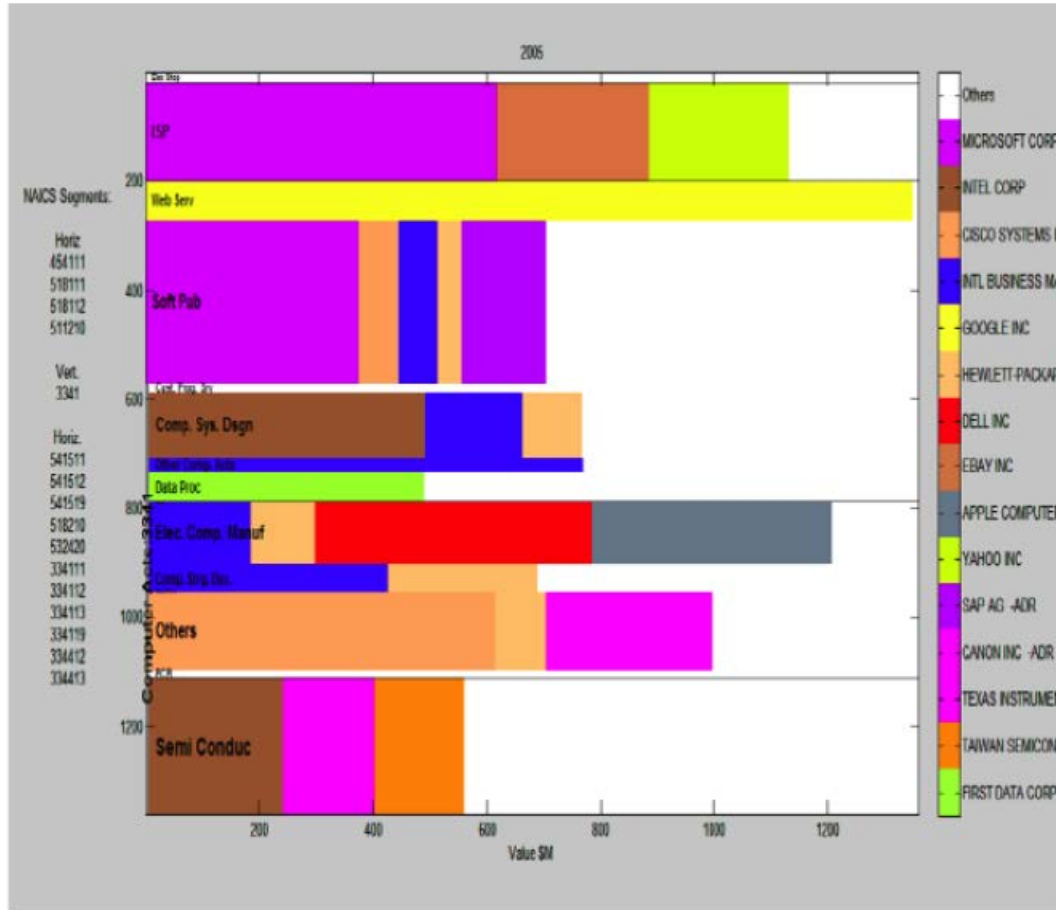
Market valuation (cumulative)

Plate 3 Distribution of Computer Industry Market Capitalization by Layer 1995

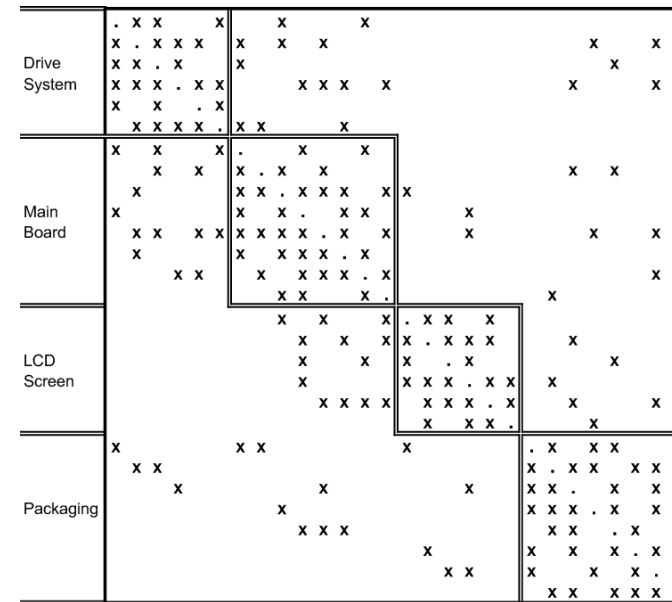


Evolution of Business Ecosystem (Baldwin, 2018)

Plate 5 Distribution of Computer Industry Market Capitalization by Layer 2005



Can we measure 'openness'?



Design Structure Matrix Map of a Laptop Computer (Clark & Baldwin)

A Snapshot of a Business Ecosystem (Basole et al., 2016)

| Firm ID | Segment | Collaborating With (No. of Collaborations) | Total No. of Collaboration P |
|---------|-----------|---|------------------------------|
| Firm 11 | LineGreen | Firm 11 (10), Firm 17 (10) | 2 |
| Firm 29 | Orange | Firm 3 (1), Firm 18 (5), Firm 36 (5) | 3 |
| Firm 30 | Orange | Firm 3 (5), Firm 18 (5) | 2 |
| Firm 25 | LineGreen | Firm 11 (10), Firm 17 (10) | 2 |
| Firm 26 | Red | Firm 2 (10), Firm 19 (5) | 2 |
| Firm 27 | Red | Firm 2 (5), Firm 17 (1) | 2 |
| Firm 28 | Blue | Firm 7 (1), Firm 19 (10), Firm 35 (5), Firm 41 (5), Firm 43 (5) | 5 |
| Firm 21 | Yellow | Firm 1 (5), Firm 3 (7), Firm 24 (5), Firm 20 (4), Firm 48 (5) | 5 |
| Firm 22 | Orange | Firm 18 (2), Firm 18 (4) | 2 |
| Firm 46 | Yellow | Firm 12 (1), Firm 21 (2) | 2 |
| Firm 50 | Orange | Firm 3 (5), Firm 36 (10) | 2 |
| Firm 47 | Purple | Firm 1 (5), Firm 1 (1) | 2 |
| Firm 48 | Purple | Firm 4 (10), Firm 45 (2) | 2 |

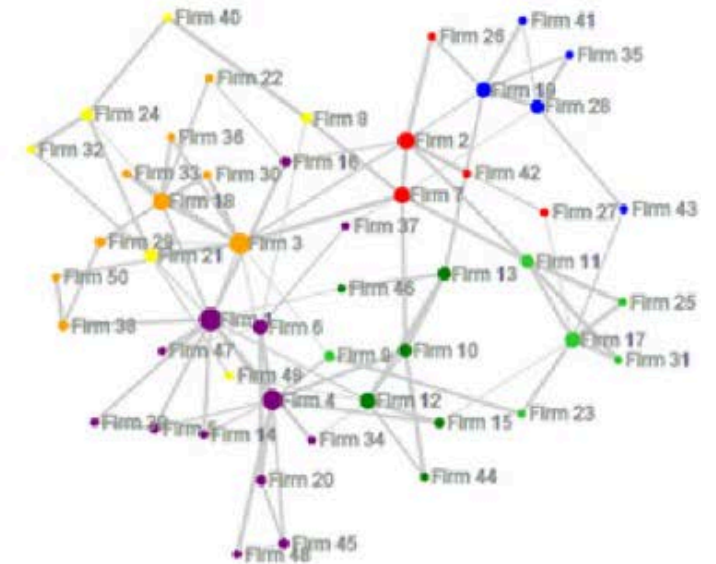
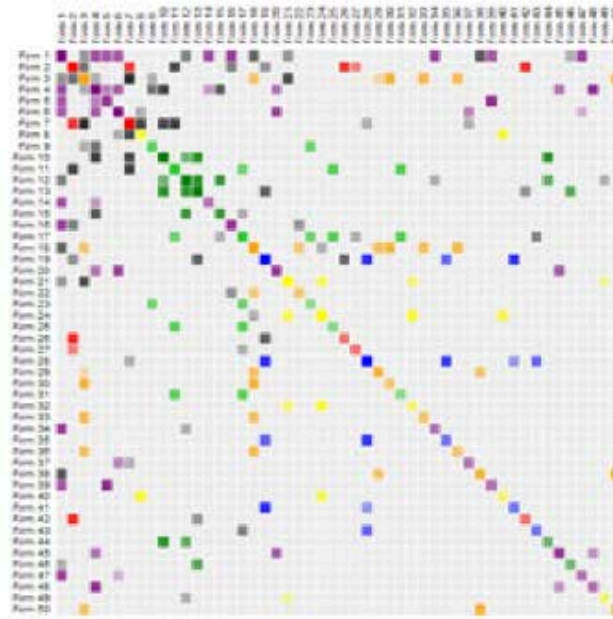
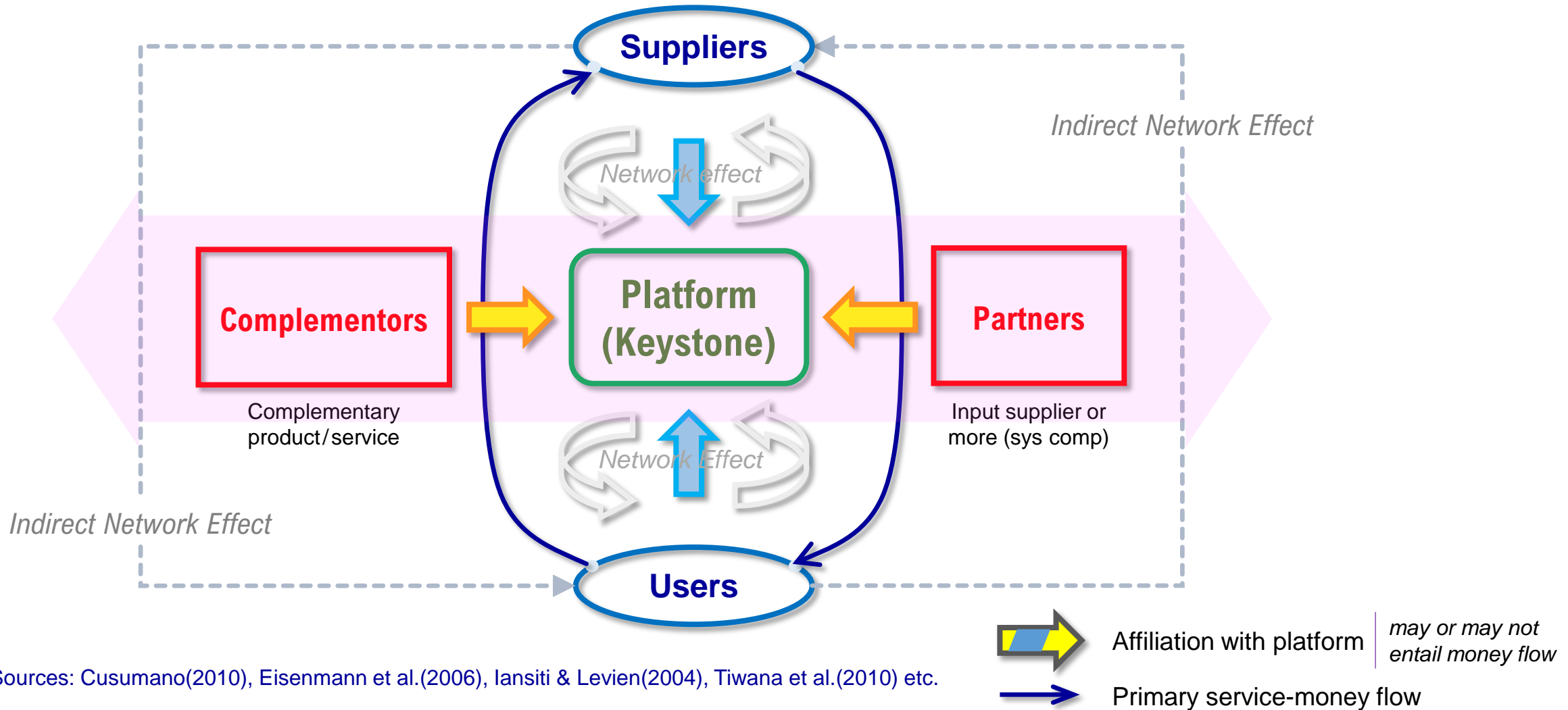


Fig. 3. Sample business ecosystem analysis views: (a) list, (b) matrix, and (c) network.

To Open or Not? --- Would It Be a Big Question?

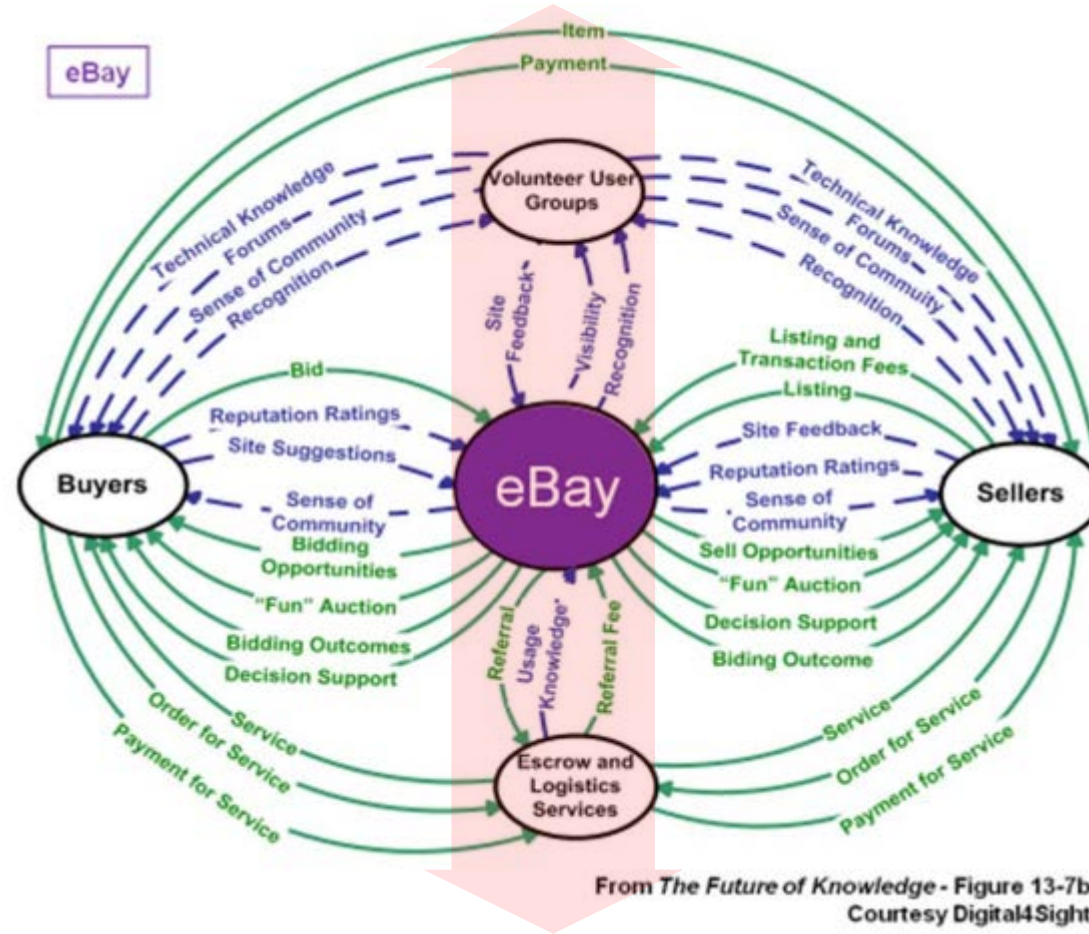
- A (extended) modular architecture is a necessary pre-condition for an open (product) platform to come into existence
 - ✓ Cf. How about a service platform?
- “If open platforms and their ecosystems become more important relative to vertically integrated firms, the vertical columns will shrink and the horizontal layers will expand.” --- Baldwin, 2018
 - ✓ “The history of the IBM PC aptly illustrates both advantages and pitfalls of an open product platform strategy.”
- Hypothesis: ***Distributed modular complementarity*** will be potentially sustainable as an equilibrium in the platform ecosystems

Stylized Framework of Platform Ecosystem (again)




Sources: Cusumano(2010), Eisenmann et al.(2006), Iansiti & Levien(2004), Tiwana et al.(2010) etc.

A More Realistic Snapshot of the Platform Ecosystem (Allee, 2003)



Here, the vertical & horizontal dimensions introduced earlier are reversed

Competition and Coordination

- Competition and Innovation on the Vertical Dimension
 - ✓ Platform competition --- leveraging & managing the network effects
 - ✓ Example: open vs. walled garden
 - Disintermediation risk (Edelman & Hu, 2017)  TaskRabbit
- Competition and Innovation on the Horizontal Dimension
 - ✓ This belongs to neither the domain of traditional competitive advantage nor that of the conventional supply chain capability
 - beyond collaboration --- Configuration & Coordination capabilities (cf. value net)
 - ✓ Co-opetition (Brandenburger & Nalebuff, 1997)
 - Value creation (and value capture)
 - ✓ New risks: captured or hold-up by complementor or partner

How to Create Value in a Platform Ecosystem

All rephrased in the terms and notions of this presentation

- Hypothesis (Ondrus et al., 2015): Opening the platform at the complementor level to additional firms from the *same* industry results in a greater (or at least equal) market potential
 - ✓ Example: Octopus payment solution in Hong Kong (against Visa & Master)
- Hypothesis (Ondrus et al., 2015): Opening the platform at the complementor level to additional firms from *different* industries results in a lower (or at best equal) market potential
 - ✓ Example: payment platform based on a simple collaboration between Rogers and CIBC Bank in Canada → failed!

How to Create Value in a Platform Ecosystem

All rephrased in the terms and notions of this presentation

- Hypothesis (Ondrus et al., 2015): Opening the platform to the competing platforms by making it interoperable with other platforms results in a greater (or at least equal) market potential

✓ Example: inter-operability of SMS in the US telecom market (in 2000)

- Hypothesis (Altman & Tushman, 2017)



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