Architectural Strategy and Design Evolution in Business Ecosystems
Research Opportunities and Empirical Challenges

Professional Development Workshop
Academy of Management 2013 Annual Meeting
Lake Buena Vista, August 9–13

Richard Tee, Postdoc (EPFL)
(1) What are you working on that is related to the structure or dynamics of business ecosystems?

(2) Where have you personally gotten stuck? To what extent has the bottleneck been related to theory, methods, or empirical data?

(3) How can we as a community focus our efforts to achieve deeper and more rapid progress?
What are you working on that is related to the structure or dynamics of business ecosystems?

- **General area of research**: architectural strategy in nascent industries, esp. strategic impact of technology design choices
- **Structure**: how does the structure of a business ecosystem (or industry architecture, value network) influence firm behavior?
  - E.g. cross-regional study of industry architectures and implications for platform deployment (Tee & Gawer 2009)
- **Dynamics**: how do firms try to *strategically shape* a business ecosystem?
  - Focus on how firms strategize in early stages of industry evolution
  - E.g. by shaping standards and gain architectural control - or prevent others from doing so (Tee & Woodard 2013)
Illustrative paper (with Jason Woodard):

Architectural Control and Value Migration in Layered Ecosystems: The Case of Open-Source Cloud Management Platforms
Infrastructure as a Service (IaaS): Layered Architecture

- Application Programming Interface (API)
- Cloud Management (Orchestration)
- Virtualization (Hypervisor)
- Hardware (CPU, Storage, Network)
- Hosting Services
Where have you gotten stuck?

– *How to capture strategic dynamics in nascent industry?* (fluid stage, “period of ferment”)

– **Challenges encountered**
  - Demarcating the ecosystem (which actors/layers to focus on?)
  - Demarcating window of analysis (RQ as guide)
  - Operationalizing “architectural strategy”
  - Outcomes unclear (difficult even when not managerially prescriptive)

– **Current approach**
  - Inductively build representation of ecosystem (iterate between RQ/data)
  - Data based on interviews (to understand motivations driving strategic/technological choices) and archival sources (industry reports, weblogs)
  - Focus on “design moves” to capture strategy (technological choices, organizational changes)
Infrastructure as a Service (IaaS): Layered Architecture

1. Application Programming Interface (API)
2. Cloud Management (Orchestration)
3. Virtualization (Hypervisor)
4. Hardware (CPU, Storage, Network)
5. Hosting Services
Infrastructure as a Service (IaaS): Competitors and Complementors

- Amazon Web Services
  - AWS APIs (EC2, S3, etc.)
  - CloudStack
  - OpenStack API
  - vCloud API
  - Compatible Hypervisors (Xen, KVM, ESX)
  - Compatible CPU / Storage / Network Hardware (IBM, Dell, HP, Cisco, EMC, etc.)
  - Rackspace Hosting
  - Corporate Data Center (Private Cloud)
Empirical Focus: Open Source Cloud Management Platforms

- AWS APIs (EC2, S3, etc.)
- OpenStack API
- vCloud API
- CloudStack
- OpenStack
- vCloud
- Xen
- ESX
- Hardware
- EMC Storage
- Rackspace Hosting
- Corporate Data Center (Private Cloud)

Amazon Web Services

- Amazon
- Citrix / CloudStack
- Rackspace / OpenStack
- VMware / EMC
How can we as a community make progress?

- **Collaborations**
  Forge right co-authorships (e.g. through complementarities in data, methods, theory)

- **Engagement with related communities**
  Interest in “business ecosystem” concept from researchers working on e.g. industry evolution and interfirm organizations

- **Practioner engagement**
  Leverage industry interest in these concepts; engagement might provide access to data; conceptual inspiration?
• Thank you!

• Questions, Comments: Richard.Tee@epfl.ch