Introduction to Innovation Ecosystems

Student Material

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Outline

- Introduction
- Motivation
- Dynamics of Innovation Ecosystems
- Strategy in Innovation Ecosystems
- Q&A
Introduction

- Can you give examples of Innovation Ecosystems?
**Introduction**

*Innovation Ecosystem* is a term used for different concepts, namely:

1. **A geographical area of high innovation density**
   - Silicon Valley
   - Kista circa 2000
   - MIT Innovation Ecosystem, Cambridge and other few Science & Technology Parks
   - ...

2. **The external network of actors cooperating in innovation with a given firm** (or a given firm’s business unit, solution or technology)
   - IBM’s Innovation Ecosystem
   - Microsoft Developer Network
   - Java Community
   - ...

3. **The web of all relevant innovating actors making up the value chain (or value network) of a firm’s (or and industry’s) innovation initiative**
   - Microsoft Business Ecosystem
   - Bi-lateral and multi-lateral innovation consortia and business alliances
   - Some standardization fora
   - ...

4. **A network of loosely coupled business actors** with differing interests, but bound together in a collective whole, therefore sharing a common fate with one another
   - Business ecosystems such as those of IT as a whole, e-commerce, Bio-Engineering, Mobiles, …
   - Industry/Vertical Innovation Clusters and Associations
   - ...

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Introduction

Examples: Silicon Valley

- In 1950 Stanford University (Palo-Alto, California) had some financial problems. Fred Terman tried to solve the problems by leasing part of the university's land to high-tech companies for 99 years. This was Silicon Valley's starting point.

- Silicon Valley is an area that is located on the San Francisco, California, peninsula, radiates from Stanford University between the cities of San Francisco and San Jose (the 'capital' of Silicon Valley).

- Silicon Valley is home to world famous companies such as HP, Intel, Sun, Google, Yahoo!, eBay, Cisco, Apple Computers, Adobe and many, many more.

- Now about 4,000 IT-related companies located along Highway 101 from San Francisco to San Jose generate approximately $200 billions in IT-related revenue annually.
Introduction

Examples: Ericsson Spain Innovation Ecosystem

Ericsson’s Customers → Ericsson → Ericsson Spain → Innovation & Business Partners → VC

International Universities & Research Institutions

Spanish University

Local Government

Local Partner Customers

Scan, Knowledge Transfers, Innovation Cells

Scan, Support, Partner, ...

Investment, Governance

Share Innovation Strategy, Joint Innovation Initiatives

Ericsson’s Customers

Ericsson

Ericsson Spain

Innovation & Business Partners

VC
Introduction
Examples: Microsoft Business Ecosystem

A few data about MS Ecosystem:
- 40,000 Employees
- 2,000 Employees fully dedicated to supporting developers
- 5,000,000 Developers
- 20,000 Companies using MS
- 70,000 Applications based on MS
- 20% of SW providers market capitalization
- 2% of Computer Science market capitalization

Introduction

Overall Innovation Ecosystem

External Innovation Network

Innovation Value Chain
Introduction

- What characterizes Innovation Ecosystems?
Introduction

Innovation Ecosystems are characterized by:

- Diversity and Specialization
- Interdependencies
- Integration
- Cooperation
- Shared Fate
Motivation

- What are the reasons and expected benefits of entering / belonging to an Innovation Ecosystem?
Motivation
Innovating around the transfer / collaboration

For an R&D-intensive corporation it is not only about Outside-in
Transfer/Collaboration Models & Ecosystems make the difference
In an Innovation Ecosystem all contributing parties can:
- Validate their Strategy in advance
- Create higher value for their customers and customers’ customers
- Secure the right timing for launching new solutions
- Focus their efforts on higher probability innovations

Innovation ecosystems allow companies to create value that no one firm could have created alone

Inspired in Adner (2006) – Matching your innovation strategy to your innovation ecosystem
Motivation

- What to do in the new Economy: Compete or cooperate?
Motivation
The new Economy: Competition & Shared Fate

- There is a central difference between the old and the new economies:
  - The old industrial economy was driven by economies of scale;
  - The new information economy is driven by economics of networks

- The real competition is not between individual players but between business networks

- Shared Fate in Ecosystems:
  - The health and performance of each firm in the ecosystem is dependent on the health and performance of the whole ecosystem
  - Business ecosystems (organized according to patterns of biological systems and natural ecosystems) enjoy:
    - More robustness in the face of external shocks
    - Capability for creation of novelty, linked with the specialization of networks members
    - Heterogeneous infrastructure with different firms adopting different roles

Dynamics

- Setup
- Opportunities
- Risks
- Sustainability
Dynamics

Setup

**REQUIRED TIME**

- Geographical Areas of High Innovation: 6+ years
- External Innovation Network: 3+ years
- Value Chain for a given innovation: 1+ years

**COLLABORATIVE ARRANGEMENTS**

- Networked Innovation Projects
- Standardization Fora
- Strategic Alliances
- Business Agreements
- …

**TYPES OF MEMBERS**

- Business Actors in the innovation value chain
- Standardization Fora & Regulatory Agents
- Universities and Research Institutes
- Financial Institutions
- Communities and Associations
- …
Dynamics: Opportunities (Example)

- **Ericsson’s Customers**
- **International Universities & Research Institutions**
  - Scan, Knowledge Transfers, Innovation Cells
- **VC**
  - Investment, Governance
- **Ericsson**
  - Business
- **Ericsson Spain**
  - Share Innovation Strategy, Joint Innovation Initiatives
- **Innovation & Business Partners**
  - Scan, Support, Partner, …
- **Spanish University**
- **Local Government**
- **Local Partner Customers**
Dynamics: Opportunities

- What games can be played in the example ecosystem introduced above?
  -
  -
  -
  -
  -
Introduction to Innovation Ecosystems

Dynamics: Opportunities (I)

1. New Knowledge/Technology generated by local University
2. Identification and Spin in of University Knowledge/Technology
3. Validation of business model in the local Innovation Ecosystem
4. Productization of New Products and Services
Dynamics: Opportunities (II)

1. New Technology/Business Concepts being developed by Ericsson available for innovation trials
2. Identification of start ups and established business partners involved in a feasible business model
3. Launch of an Innovation trial with a partner customer
4. Productization of New Products and Services
Dynamics: Opportunities (III)

1. New Innovation Opportunity identified by a partner Customer
2. Scan of technologies and partners supporting the scenarios
3. Launch of an Innovation trial with a partner customer and a business partner
4. Supply of New Products by a partner company (with or without Ericsson mediation)
Dynamics

Risks

- What risks do Innovation Ecosystems pose on their members’ productivity and innovation?
Dynamics

Risks: Interdependencies, Adoption & Integration

- **Interdependence Risk**
  - **Example:**
    - Probabilities of Project Success at each co-innovating firm in the ecosystem = { 90%, 90%, 90%, 60%, 90%}
    - Project Success probability?
    - Project Success probability = 39%
  - **Conclusion:**
    - *Interdependence Risk = Product of each party’s risk*

- **Time-To-market**
  - **Example:**
    - Integration Delays at each co-innovating firm in the ecosystem = { 9 month, 12 month, 9 month}
    - Time-to-Market?
    - Time-to-Market = 30 month
  - **Conclusion:**
    - *Time-to-Market = Sum of each party’s delay*
Dynamics
Sustainability

- How do members of an Innovation Ecosystem contribute to its health and performance?
Dynamics
Sustainability: Ecosystem Health

PRODUCTIVITY
- Return on Invested Capital
- Growth over time
- Innovation Delivery

ROBUSTNESS
- Survival Rate
- Persistence of Ecosystem structure
- Predictability
- Limited Obsolescence
- Continuity

DIVERSITY
- Growth in firm variety
- Growth in product and technology variety

Dynamics

Summary

Establishment of Innovation Ecosystems is a costly, complex and long process

Innovation opportunities inside a reliable Innovation Ecosystem are one or even two orders of magnitude superior to those traditional approaches

In networked innovation initiatives, interdependence risks (rather than threats) do exist and need to be managed

Robustness, productivity and diversity of the ecosystem is key for the health and performance of all its members
Strategy

- Strategy matching
- Competition in the Ecosystem
- Cooperation in the Ecosystem
Successful innovation requires tracking your partners and potential adopters as closely as you track your own development process

Source: Adner (2006) – Matching your innovation strategy to your innovation ecosystem
Strategy

Competition

- **Where** to compete?
  - 
  - 

- **When** to compete?
  - 
  - 

- **How** to compete?
  - Which is the most important place in a value chain?
    - 
    - 
  - Which is the most important role in an innovation ecosystem?
    - 
    - 
  - How much usage is needed of internal and external capabilities?
    - 
    - 

Int
Strategy
Competition & Cooperation

- **Dominators**: Occupy several nodes in the ecosystem, create most of the value by themselves and for themselves.
- **Keystones**: Limited physical presence in the ecosystem, acting as a hub connecting many players, create and share value with the ecosystem.
- **Niche Players**: Small specialized players, however constituting the bulk of the ecosystem, capture most of the value from the ecosystem and create specialized value.

Strategy

Competition & Cooperation

- How can /should you use Intellectual property in Open Innovation Ecosystems scenarios?
Strategy

Cooperation with University

- What role can the University play in Innovation Ecosystems?
Strategy: Cooperation with University

Cooperation between **University and Industry** is key to compete in the knowledge-based economy
Strategy: Cooperation with University

- Promote mutual knowledge and mobility
- Identify and agree long-term cooperation agreements
- Activate research and innovation areas of high potential (and risk)
- Increase the generation and transfer of new knowledge and IPR
- Strengthen the role of local University as a cross-industry hub
- Support the creation and growth of university spin-offs
Firms operating in innovation ecosystem need to understand their dynamics and craft innovation strategies that fit in it.

Cooperation and competition are two sides of the same coin in innovation ecosystems since fate is shared among all its members.

Licensing of physical, intellectual and financial goods is key for the innovation ecosystem. IP enables adequate and fair co-opetition in the ecosystem.

The role of Universities and other sources of new knowledge, is essential for long term innovation and sustainability of business ecosystems.
References

- **Christensen, C.** (1997). *The Innovator’s dilemma*. Collins Business Essentials