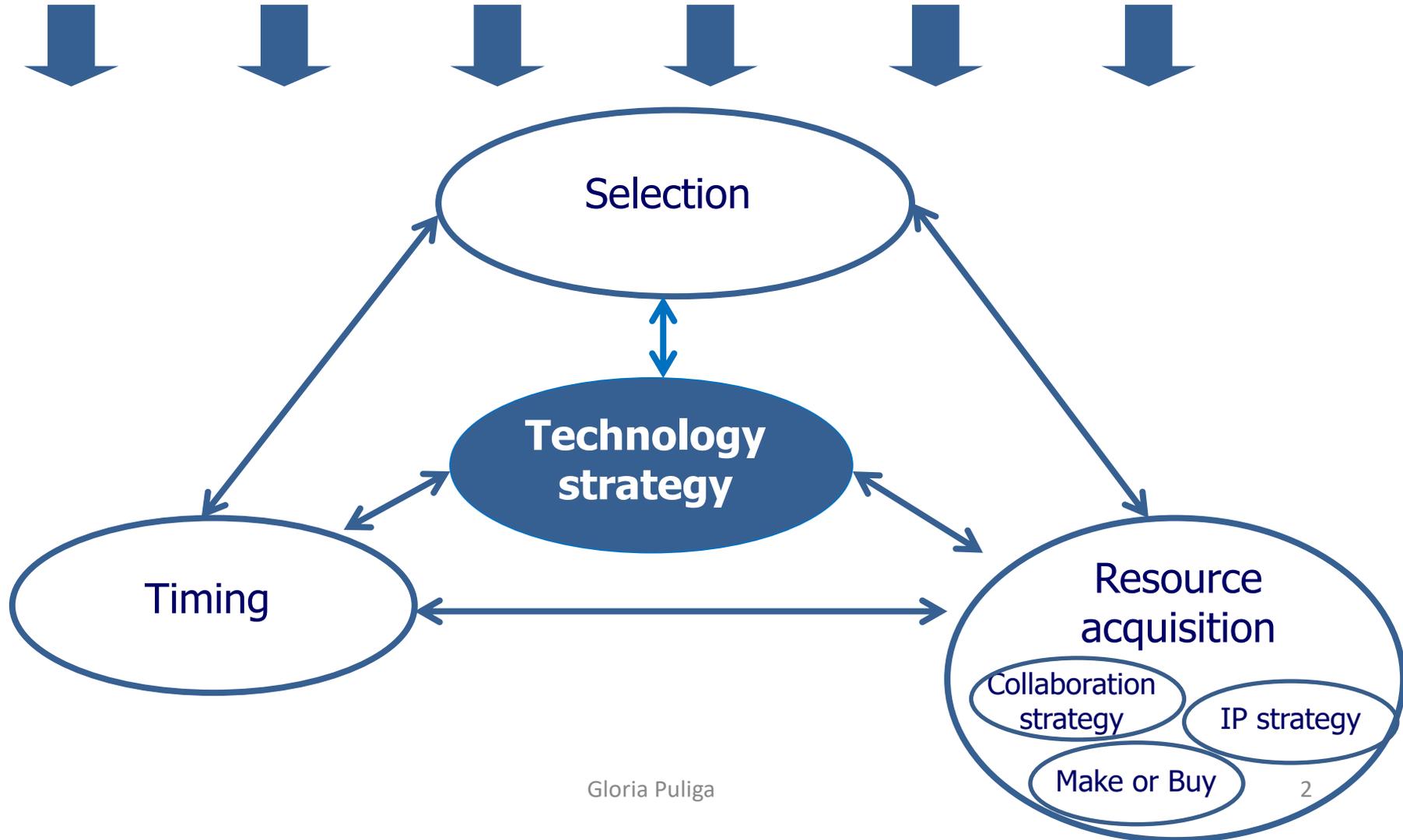


Innovation Management and New Product Development

Technology strategy

Technology strategy

Technology and business intelligence



Acquisition

- Make
- Buy/Sell
- Cooperate

- Development
- Introduction

Factors - development

- Availability and level of external sources
- Time
- Appropriability
- Learning acceleration
- Costs
- Technical Risk and familiarity with technology

Factors - introduction

- Availability of complementary assets
- Commercial Risk and familiarity with the market
- Standard Setting

Resource acquisition in the Open Innovation era

"Open innovation is the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively. [This paradigm] assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as they look to advance their technology."

Henry Chesbrough, 2003

[Open Innovation: Researching a New Paradigm](#)





Advantages and Disadvantages

- accessing new competences;
- know-how;
- sharing costs and risks of innovation;
- reducing time to market,
- increasing creativity;
- broadening product range;
- catching market opportunities;
- monitoring technological change;
- uncontrolled spillover;
- loss of control regarding critical internal know-how;
- the “not invented here” syndrome;
- increased managerial and organizational complexity;
- increased time and managerial costs;

Open innovation: advantages

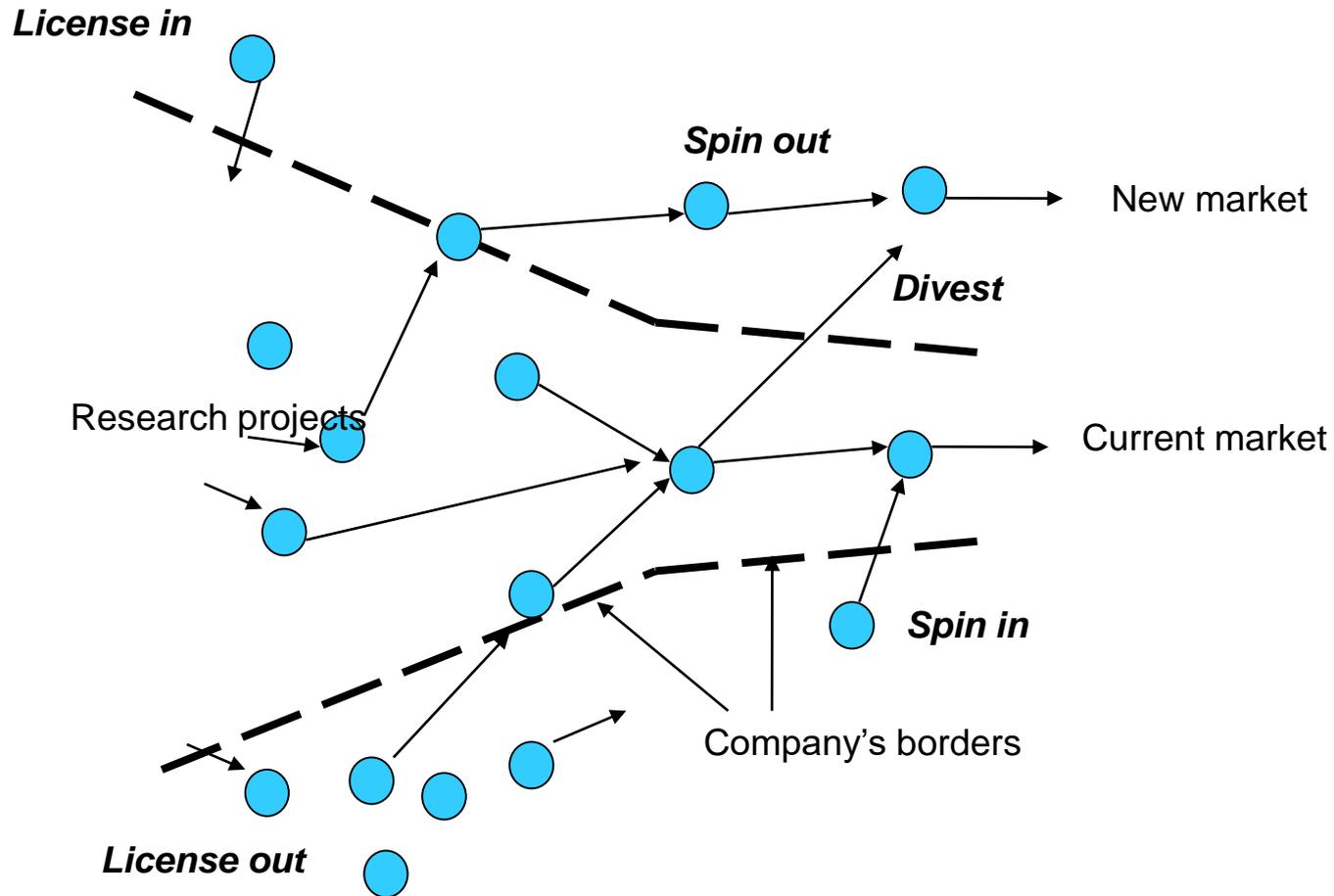
- integrate different scientific and technological disciplines
- reduce, share and minimise uncertainty
- reduce, share and minimise costs
- increase the innovative potential and the creativity
- improve time to market
- foster knowledge and technology transfer
- increase flexibility and technological change speed monitoring (and responding to) customers needs
- monitoring (and responding to) suppliers needs
- catch market opportunities
- monitoring (and responding to) environmental and technological changes
- broaden the product range
- monitoring (and responding to) competitors' behaviour
- achieve continuity with current products/technologies
- respond to the needs of internationalisation / globalisation and new markets entry
- define and establish market standards
- access distribution channels
-

Contextual variables

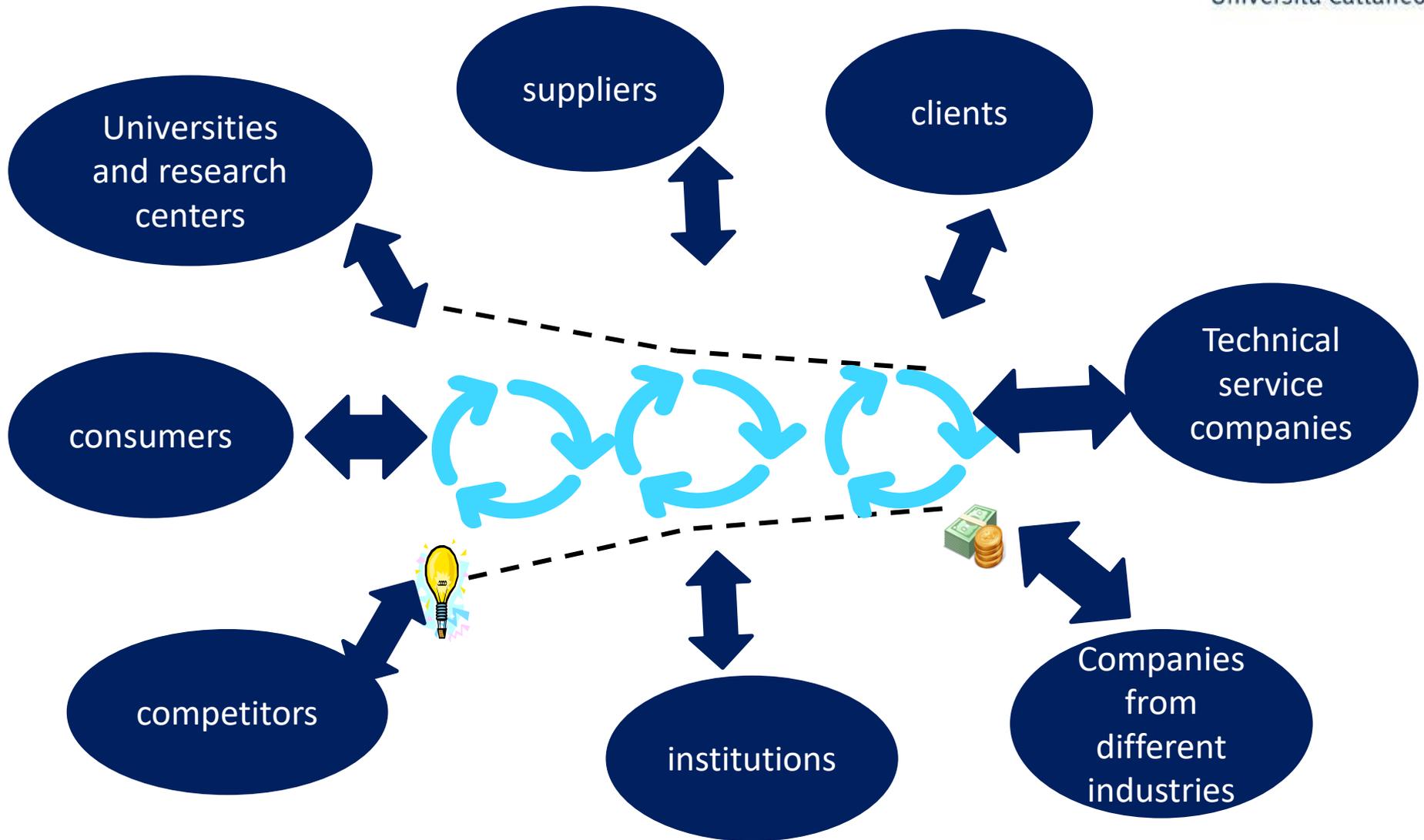
- Technology intensity
- Technological turbulence
- Technological convergence
- Globalization
- Appropriability regime

- Intellectual Property (IP) Strategy

The "open innovation" funnel



Open innovation



Open innovation models

- Different degrees of openness correspond to different open innovation models
- Examples of Open Innovation models corresponding to different degrees of openness described in literature

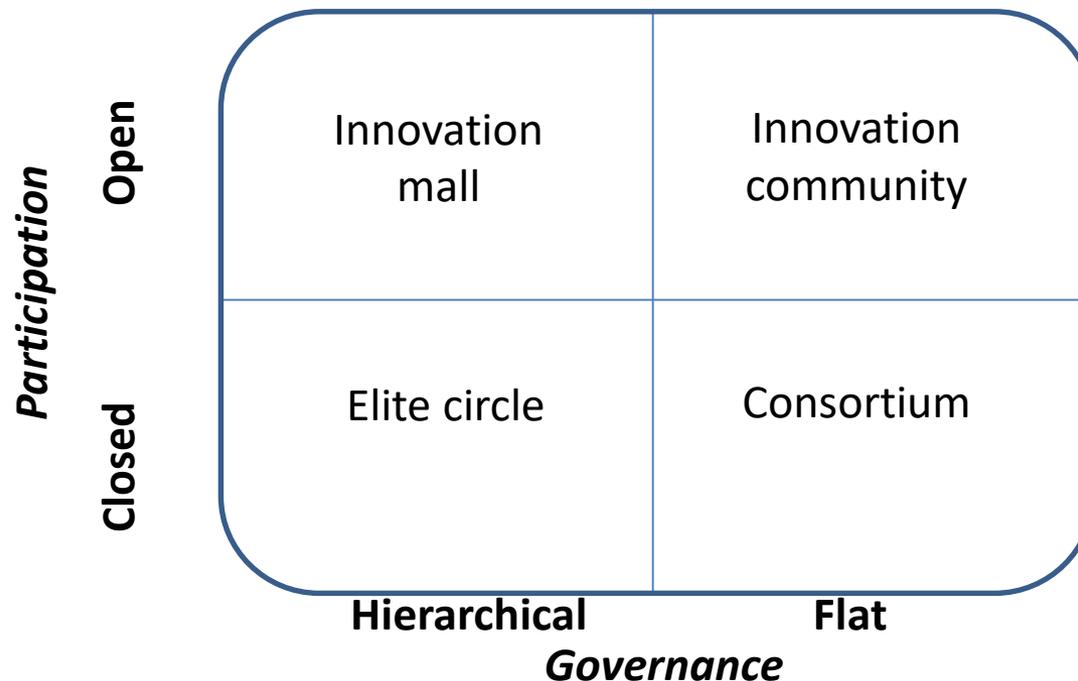
Open innovation models

- The literature identifies the most relevant variables that distinguish different ways to open the innovation process:
 - Governance
 - Openness direction (inbound/outbound)
 - Partners variety
 - Innovation funnel openness
 - Organisational forms

1. Governance

Innovation networks may have a governance from ***flat*** to ***hierarchical***

- Flat: each partner participates in decision making, discussion of problems and solutions, design and planning of activities
- Hierarchical: there is a clear leader in the network who decides



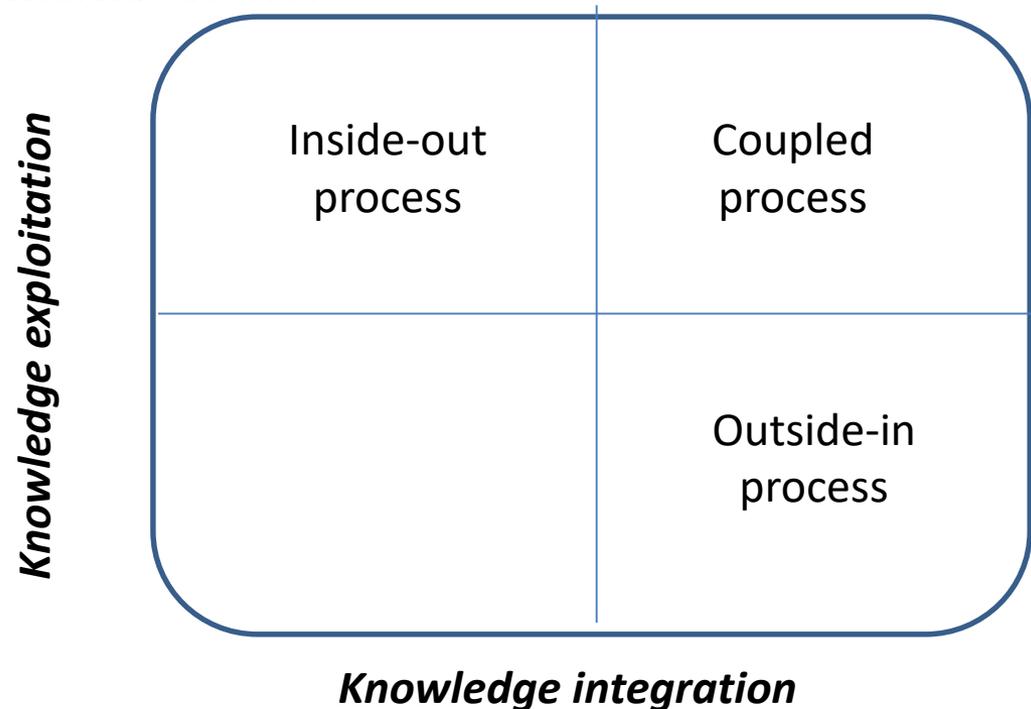
2. Openness direction

Companies may choose to open their innovation process:

- to access technology and know how from external sources;
- to sell technology and know how to (or to share with) external actors;
- to access technology and know how from external sources AND to sell technology and know how to external actors.

Openness direction can thus be distinguished in three typologies:

- Inbound
- Outbound
- Inbound and outbound

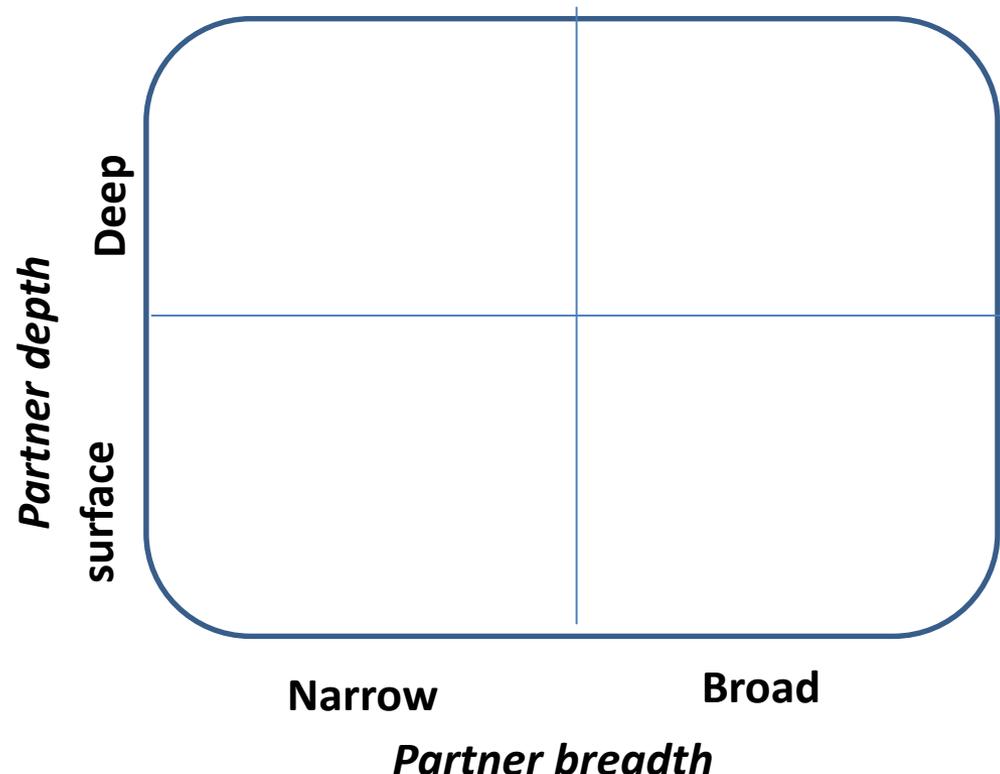


3. Partners variety

Companies may open their innovation process to contributions from/towards many different categories of actors:

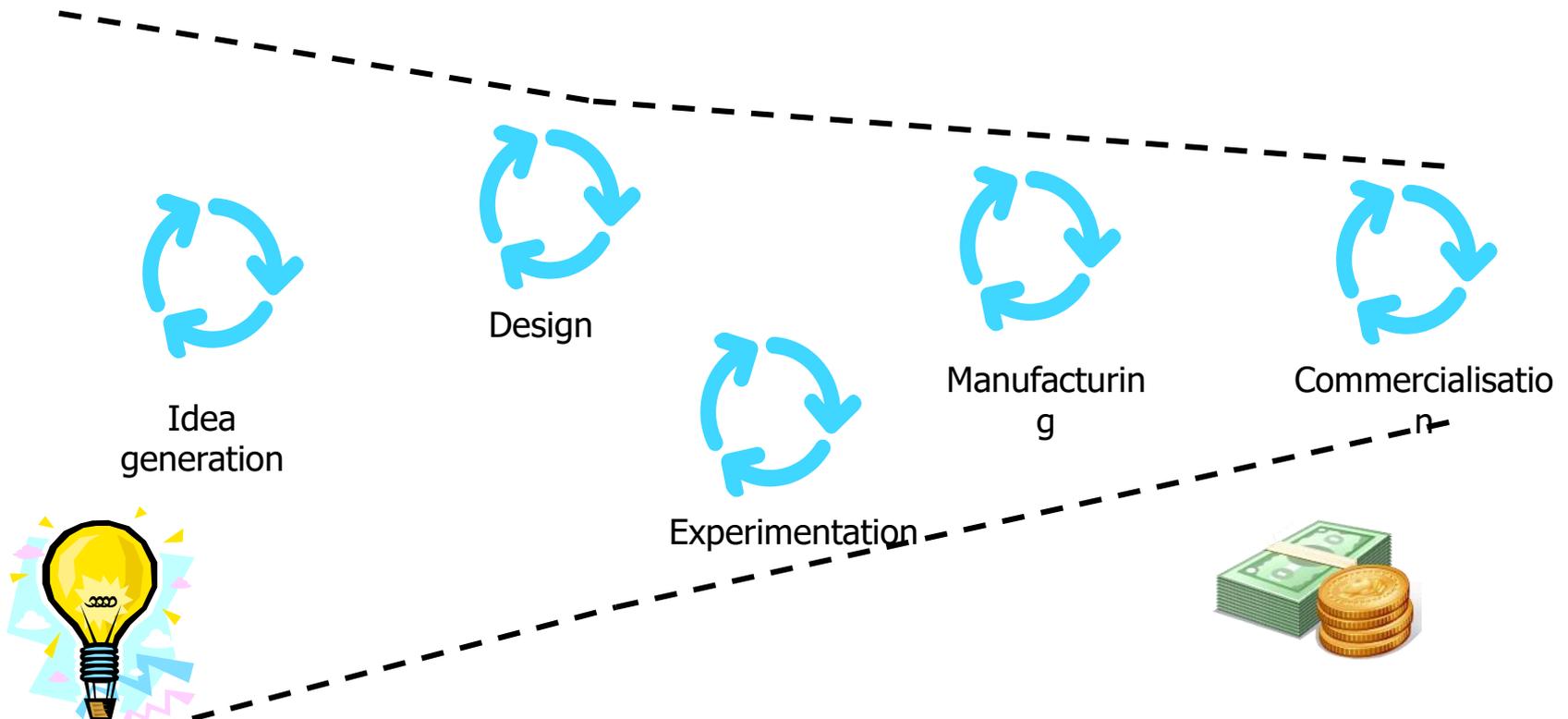
- University and research centres
- Technical and scientific service companies
- Governmental institutions
- Customers
- Suppliers
- Competitors
- Other Firms

Partners variety can thus be measured by the number of different categories of actors that access to the company's innovation process (for acquiring and/or selling technology)



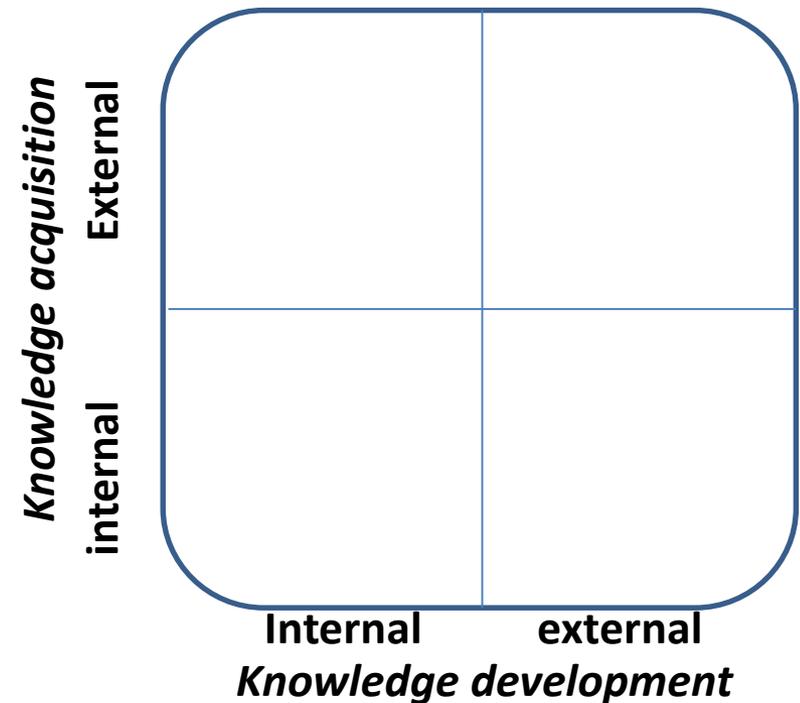
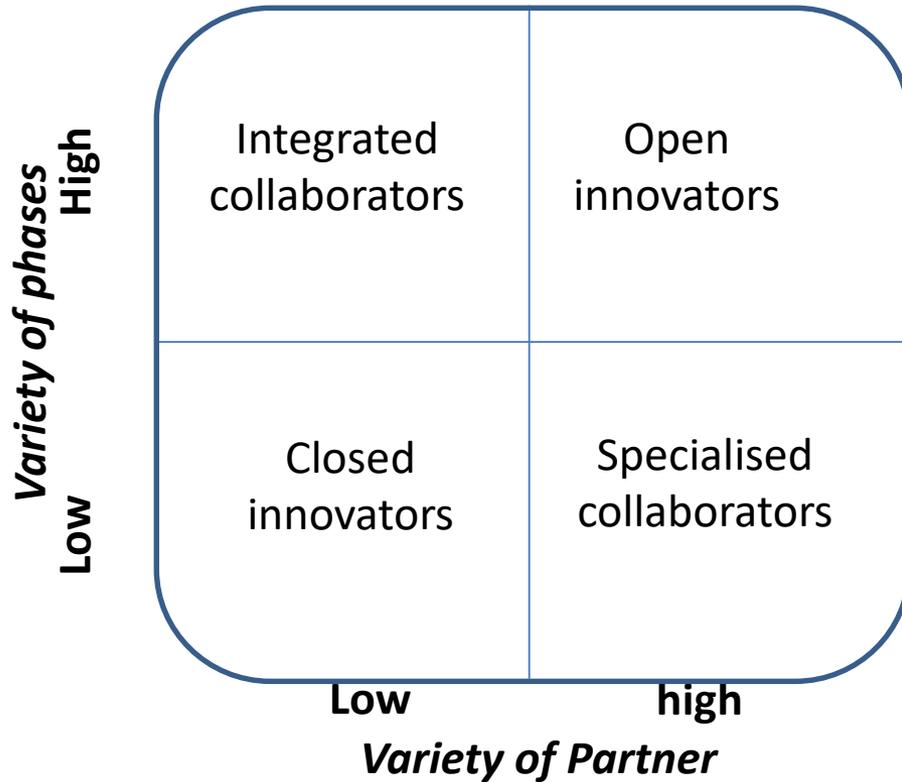
4. Innovation funnel openness

- The innovation funnel can be generally represented by 5 cycles of activities:



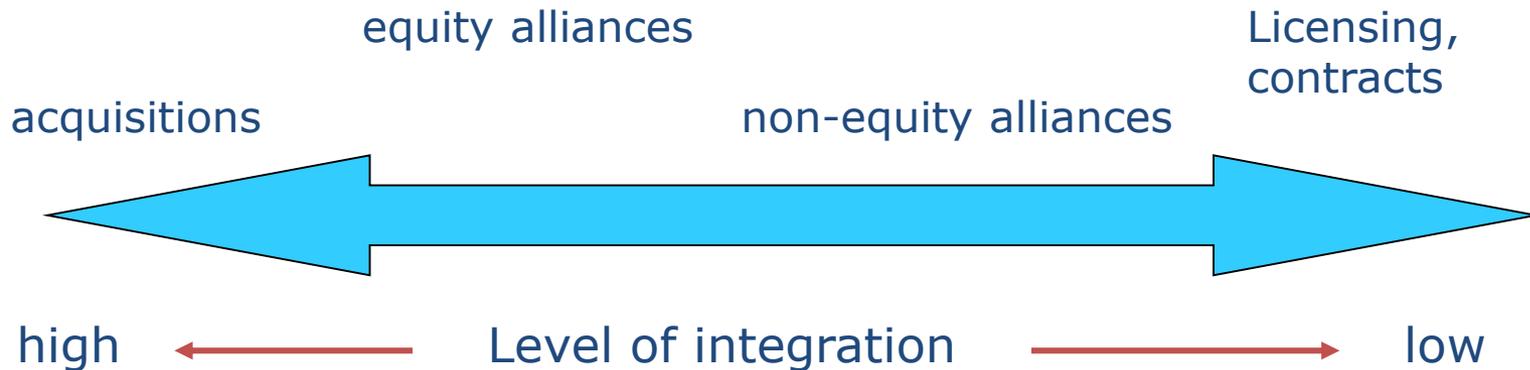
- The innovation funnel openness can thus be measured by the number of different phases in which the company access to external sources to acquire and/or sell technology

4. Innovation funnel openness



5. Organisational forms for open innovations

Different organisational forms can be chosen for opening (in and/or out) the innovation process, that can be classified according to the level of integration:

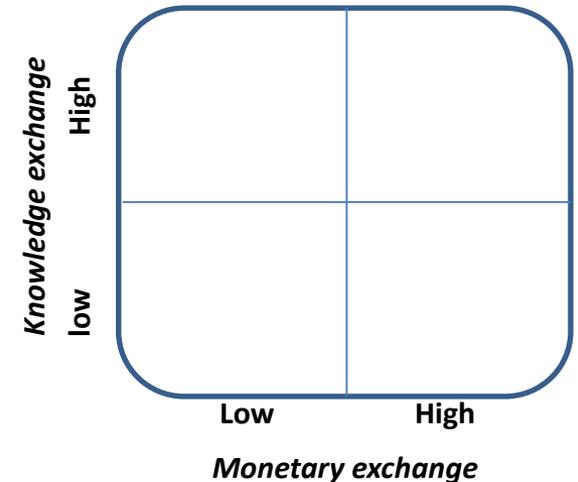
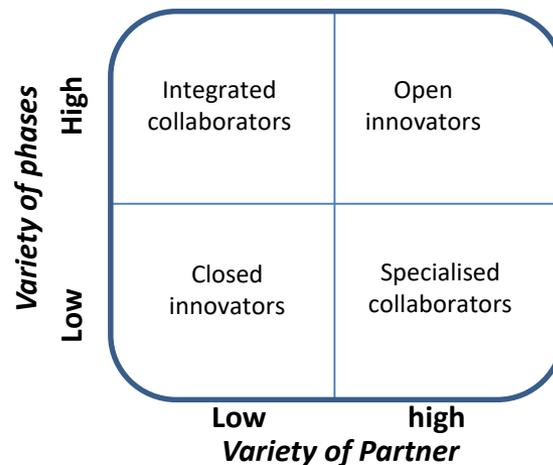
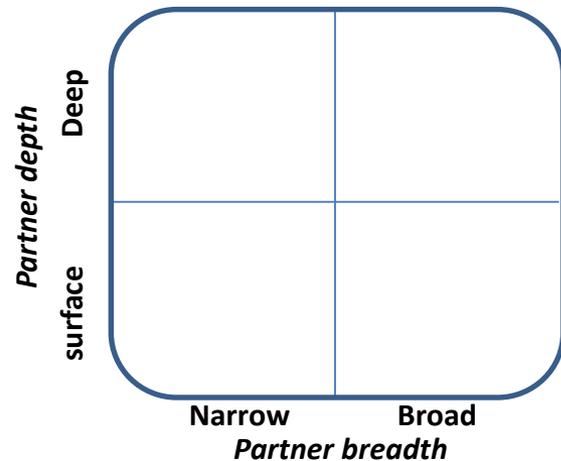
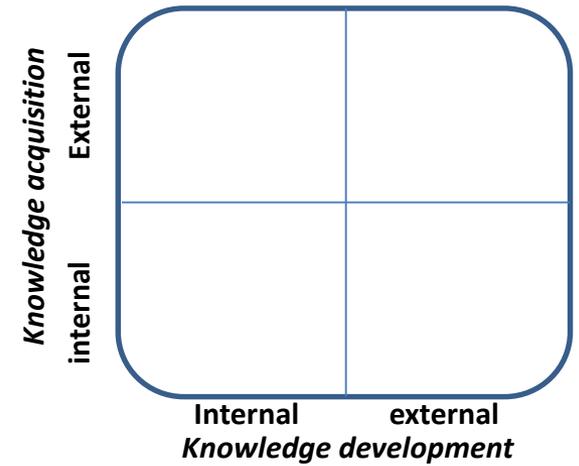
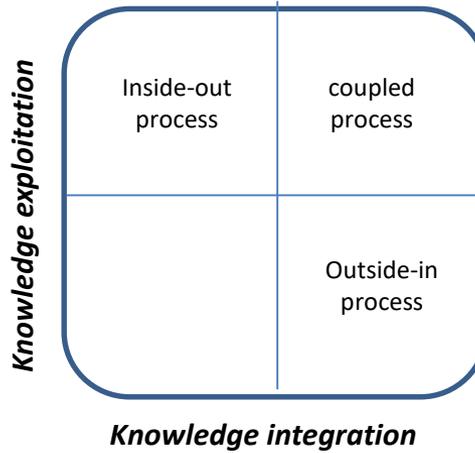
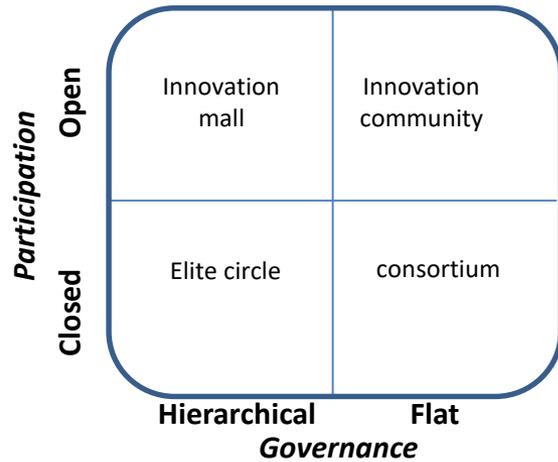


A measure can thus be given to the governance companies choose to open their innovation processes (in and/or out) in terms of level of integration

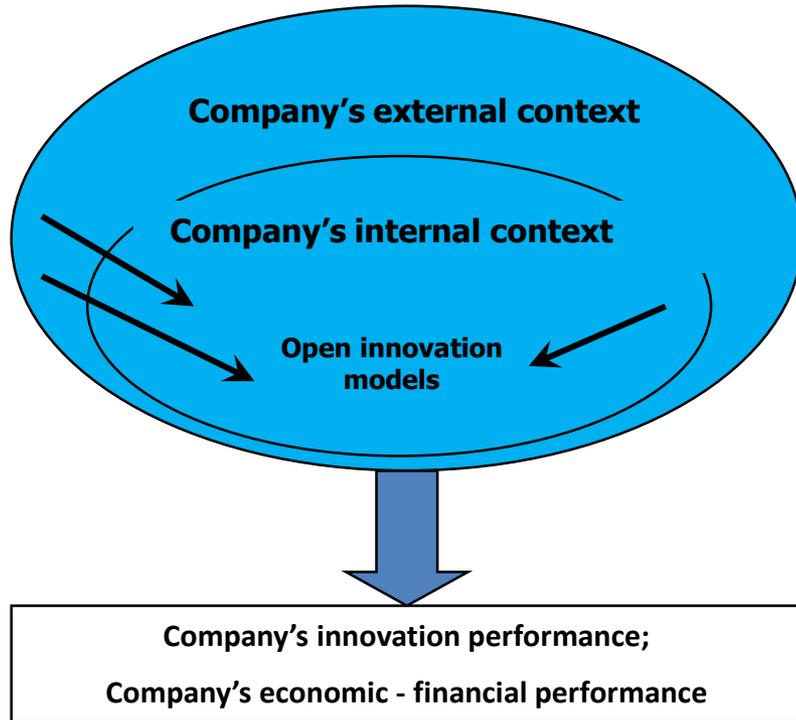
Organizational and managerial implications of different forms of collaboration

	Speed	Cost	Control	Potential for leveraging existing competences	Potential for developing new competences	Potential for accessing other firms' competences
Only internal development	Low	High	High	Yes	Yes	No
Strategic alliances	Varies	Varies	Low	Yes	Yes	Sometimes
Joint ventures	Low	Shared	Shared	Yes	Yes	Yes
Licensing-in	High	Medium	Low	Sometimes	Sometimes	Sometimes
Licensing-out	High	Low	Medium	Yes	No	Sometimes
Outsourcing	Medium/high	Medium	Medium	Sometimes	No	Yes
Collective research organizations	Low	Varies	Varies	Yes	Yes	yes

Open innovation models



The decision to adopt an Open Innovation model



- Open innovation models = different ways chosen by companies for opening up their innovation process
- Company's internal context =
 - size;
 - strategy;
 - organisation;
 - management style;
 - culture.
- Company's external context =
 - competitive arena (industry, geo-political area, target clients, type of products and services)
 - Socio – cultural – political context

Types of technology strategy

- Types of technology strategy decisions could be mapped within the skill / application matrix

