

# Managing NPD teams II

## - Managing for entrepreneurial behaviour -

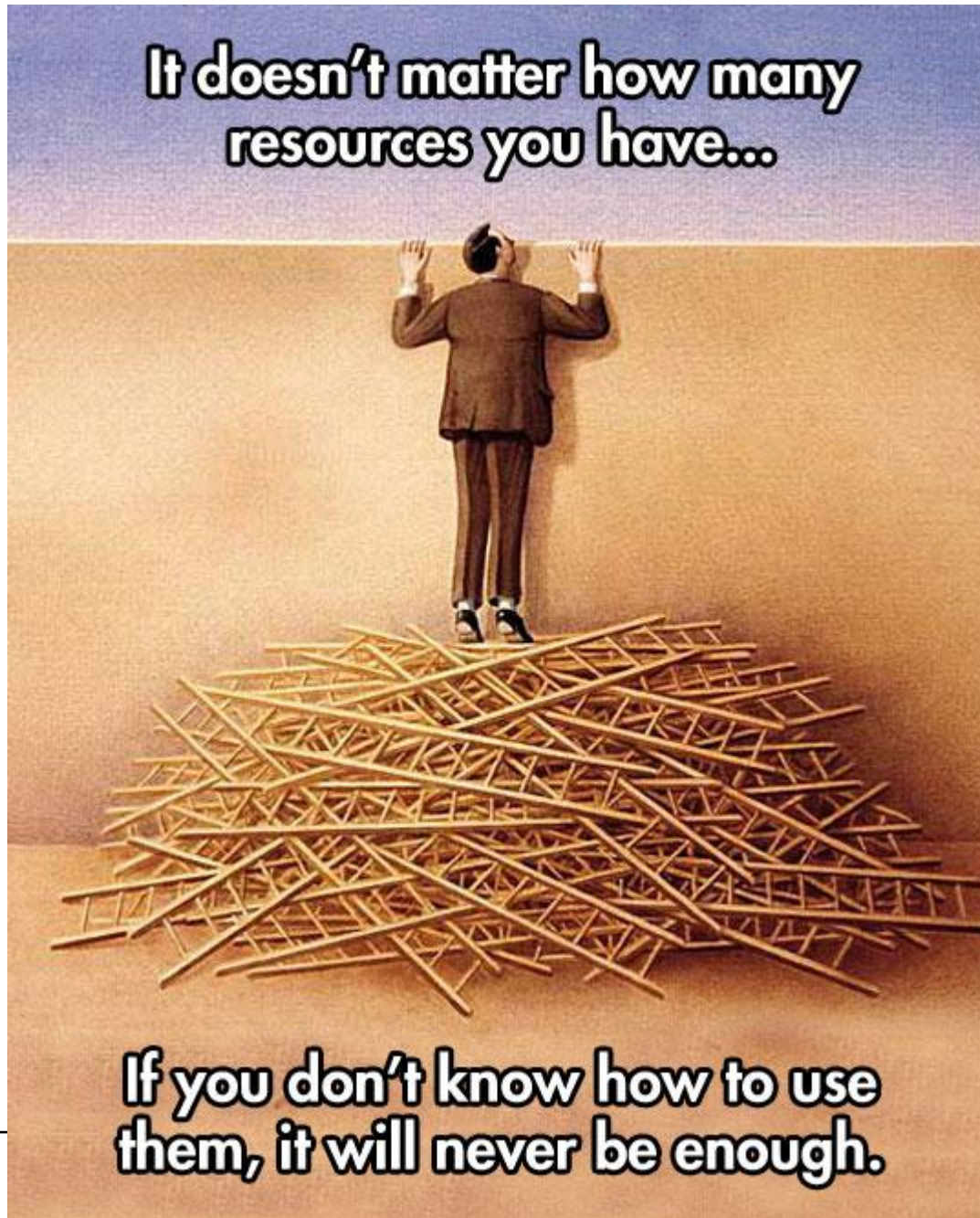
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*[www.tudelft.nl/dce/education](http://www.tudelft.nl/dce/education)*

MoT132  
Technology, Strategy & Entrepreneurship

# Objectives today

1. Exploration versus exploitation/ ambidextrous organization
2. Entrepreneurial NPD teams
3. Social networks
4. Open versus closed innovation

**It doesn't matter how many  
resources you have...**



**If you don't know how to use  
them, it will never be enough.**

# Heart of Entrepreneurship

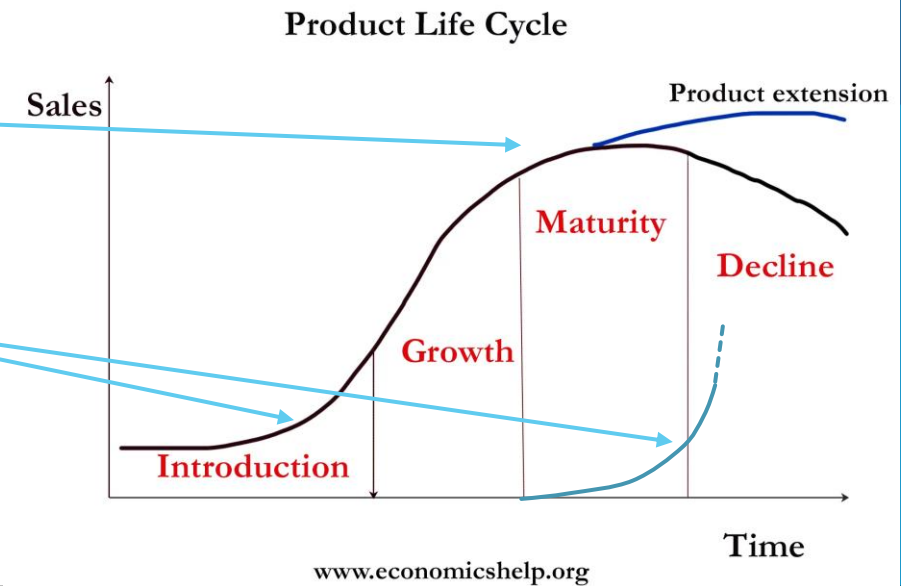


Entrepreneurial versus strategic thinking

The task environment/ competitive landscape requires both effective entrepreneurial and strategic actions (Ireland et al., 2001; Kuratko et al., 2001)

- *Advantage seeking behavior (strategy)*

- *Opportunity seeking behavior (entrepreneurship)*



# Exploitation vs Exploration

Strategic Management and Entrepreneurship can be traced back to James March ([https://en.wikipedia.org/wiki/James\\_G.\\_March](https://en.wikipedia.org/wiki/James_G._March))

- ▶ A firm's ability to compete over time lies in its ability both to integrate and build upon competencies while simultaneously developing fundamentally new capabilities (Teece et al., 1997)
- ▶ Process management to improve building competencies (exploitation) by developing an interlinked system of organizational routines (repetition)
- ▶ Too often, process management is efficiency- oriented and ***variation decreasing***, it triggers internal biases for certainty and predictable results, and limits exploratory innovation and responsiveness to new customer segments.

# Exploitation vs Exploration

- ▶ Process management is concerned with
  - ▶ Mapping process, improving them and adhering to it
  - ▶ Developing core capabilities, reducing repeatability, tighter intra-organizational linkages, speeding up activities and therefore better satisfies customers and increased revenues and profits
  - ▶ But not in every context it will result in higher profits
  - ▶ Core capabilities may become core rigidities or competency traps in rapidly changing environments
  - ▶ It slows down exploratory learning, experimenting and absorbing technological knowledge from external sources.



Short-term, easy-to-measure exploitation > long term, difficult-to-quantify exploration



# Exploitation vs Exploration

Underlying problem to explore and exploit simultaneous:

Bounded Rationality (*Herbert Simon, 1955*)

- ▶ Individuals have limits:
  - ▶ In formulating the problem
  - ▶ In solving complex models
  - ▶ In processing (receiving, storing, retrieving, transforming) information
- ▶ And therefore tend to innovate close to the known:  
incremental, process innovations, single loop learning



# Exploitation vs Exploration

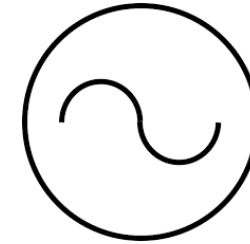


- ▶ Agents with bounded rationality look for satisfying answers, which means that agents deliberate only long enough to come up with good enough course of actions.
  - ▶ Neighbourhood search
  - ▶ Local search
  - ▶ Incremental search
- ▶ Bounded rationality will favor specialization and inhibit experimentation



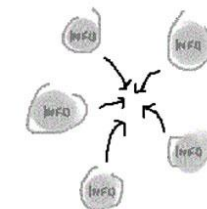
# Exploitation vs Exploration

Ambidextrous organizations solve the exploitation  $\leftrightarrow$  exploration dilemma  
(O'Reilly II & Tushman, 2004)

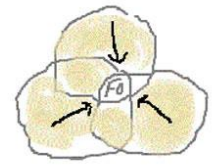


THIS IS WHAT WE CALL...  
**INNOVATION FRIDAY**

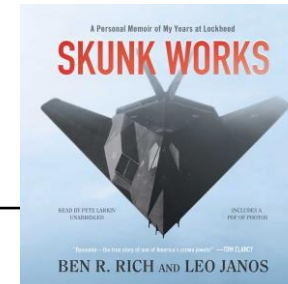
- ▶ Alternating between different organizational designs  
(*rhythmic ambidexterity*: organic and mechanistic structures)  
(Burns and Stalker, 1961; Hedberg et al., 1976)
- ▶ Creating loosely coupled organizations, Sun with Javascript, (contextual ambidexterity) (Levinthal, 1997)
- ▶ Separating distinct units, Skunk works  
structural ambidexterity (Christensen, 1998)



Loosely Coupled



Tightly Coupled



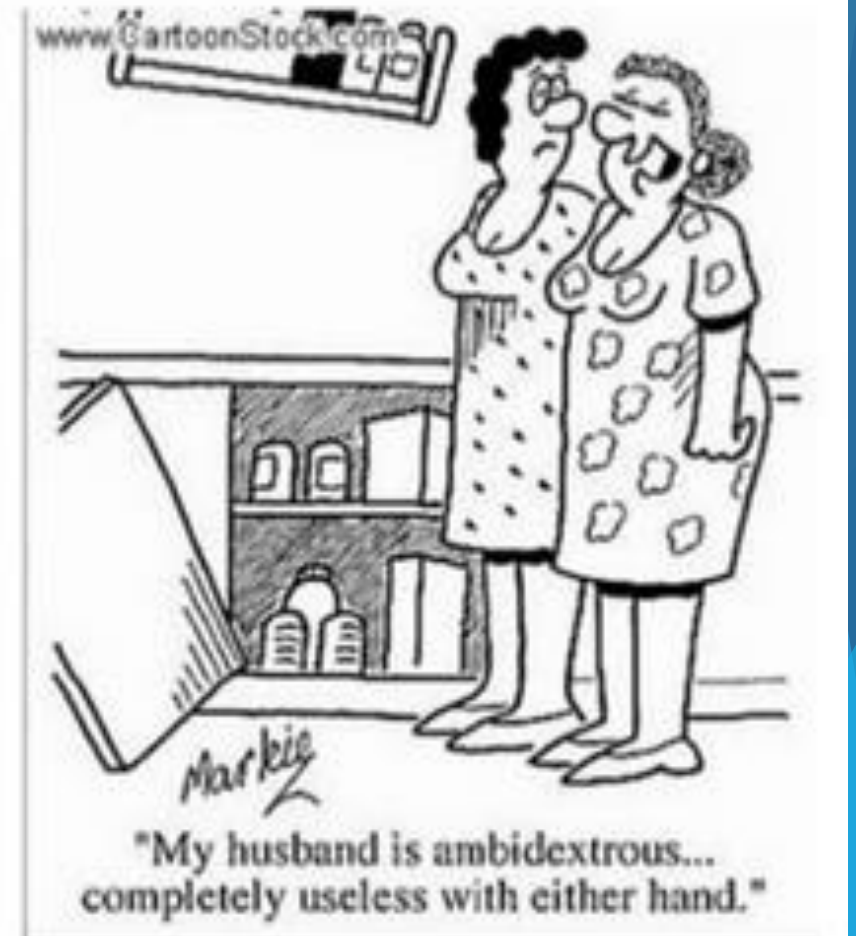
"An organization given a high degree of autonomy and unhampered by bureaucracy, tasked with working on advanced or secret projects"

# Ambidextrous Organizations

- ▶ Companies need an organization that can do two things at the same time (*Birkinshaw and Gibson, 2004*)
- ▶ Exploit existing businesses/ mainstream activities. Capitalize on the core competencies. Thus improve existing knowledge, technologies, business models,

but also

- ▶ Explore new opportunities by inventing new and disruptive technologies



# Ambidextrous Organizations



THIS IS WHAT WE CALL...  
INNOVATION FRIDAY

	Structural	Contextual
How is it achieved	Organisational separate units	Individuals alter between activities
Locus of decision	Top down	Bottom up
Role of TMT	Define, structure, direct	Facilitate, develop context
Nature of roles	Clearly defined	flexible
Skills required	Specialists	Generalists
	Venture funds	Google's 20% time

*(Birkinshaw and Gibson, 2004)*

# Entrepreneurial NPD teams

NPD teams are critically important for exercising strategic entrepreneurial behavior. They

- ▶ Identify new developments
- ▶ Exploiting opportunities
- ▶ Influence the firm's strategies
- ▶ and help that they are implemented through further development



Diversity and dynamics of NPD teams affect firm level innovation behaviour



# Entrepreneurial NPD teams

Team Diversity (*Reagens and Zuckermann, 2001*)

## Pessimistic view

Team members that are more diverse have different experiences, different beliefs, and their different perspectives cause them to “see different environments” which can have a *negative effect*

- ▶ It introduces social divisions
- ▶ Different viewpoints and communication makes communication difficult
- ▶ Less willingness to reach consensus
- ▶ Limits the smooth flow of activity and quick development

# Entrepreneurial NPD teams

Team Diversity (*Reagens and Zuckermann, 2001*)

## Opportunistic view

Team members that are more diverse have different experiences, different beliefs, and their different perspectives cause them to “see different environments”, which can have a *positive effect*:

- ▶ Augments to the discussion among team members
- ▶ Improves decision quality
- ▶ Improves the scope for identifying opportunities





# Entrepreneurial / NPD teams

## Cognitive conflict

Functional, constructive and task-focused disagreement

- ➔ improve overall decision quality and understanding
- ➔ and thus a beneficial element of effective strategy making
- ▶ Considering multiple strategic alternatives from various perspectives
- ▶ Improves the quality of final decision and eventually the new product
- ▶ Improves the flexibility to adapt to new conditions

Affective conflict is the disliking which is negative in any case

Group thinking agree with little discussion/ imbalanced power politics



# Entrepreneurial NPD teams

Diversity moderates the relationship between an entrepreneurial/  
explorative attitude and firm performance

## High diversity

Improves discussion making  
quality

Questions the status quo

New info/ knowledge

Larger scope of opportunities

More likely for radical ideas

## Low diversity

Provides consensus

Benefits the status quo in  
organizations,

Same info/ easy communication

Redundancy in the team

Speedy incremental innovations

# Entrepreneurial NPD teams

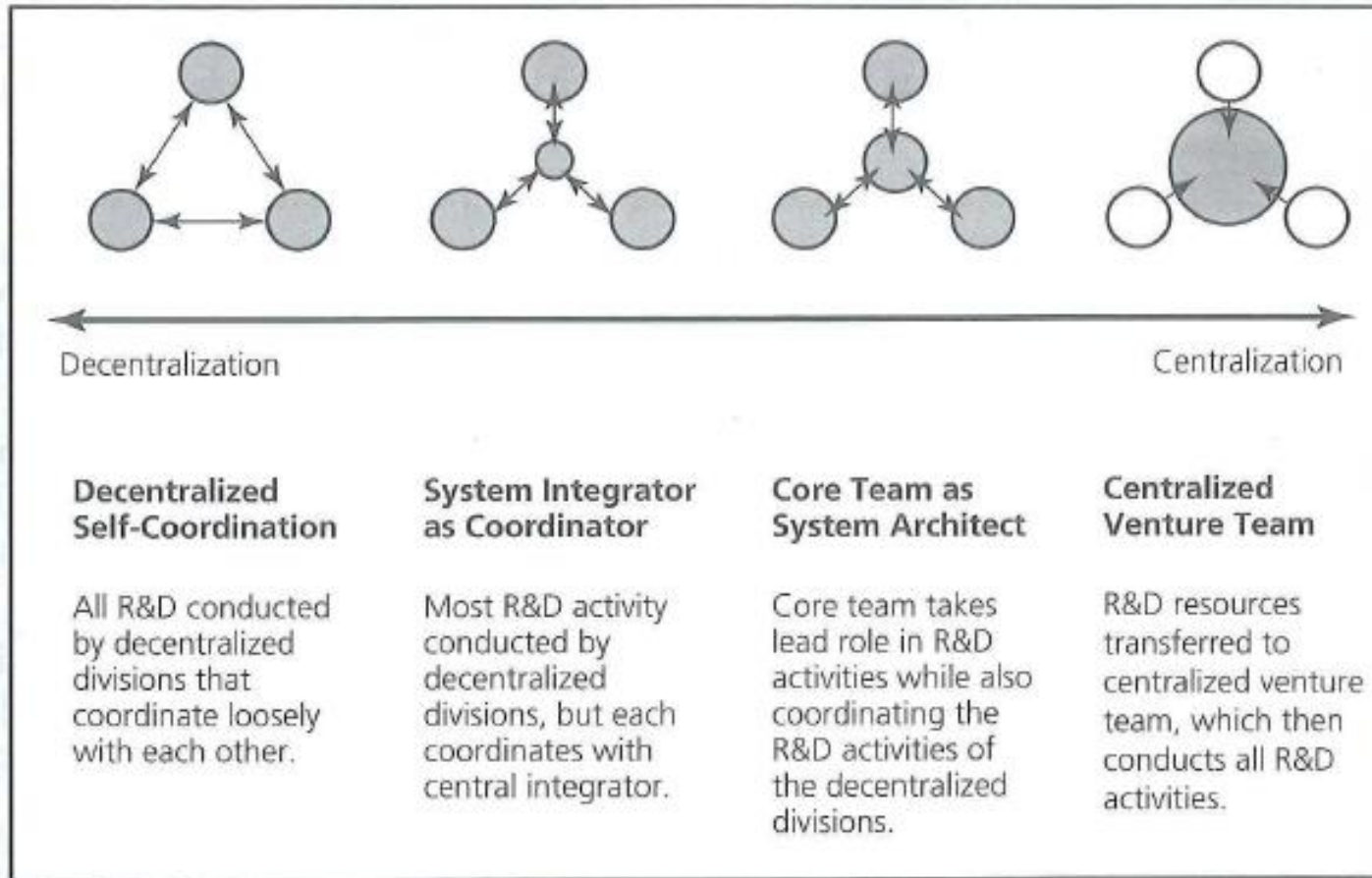
Innovation and various NPD teams (*Schilling, 2013*)

- Functional teams where members remain in their departments, spending little time on a common project
- Lightweight team has a project manager managing the members in their respective organisations, who spend little time on the project
- Heavyweight teams spend considerably more time on the project and have a more senior project manager
- Autonomous teams are more at arm's length and operate in a distinct organisation



*Breakthrough  
/ disruptive  
innovations*

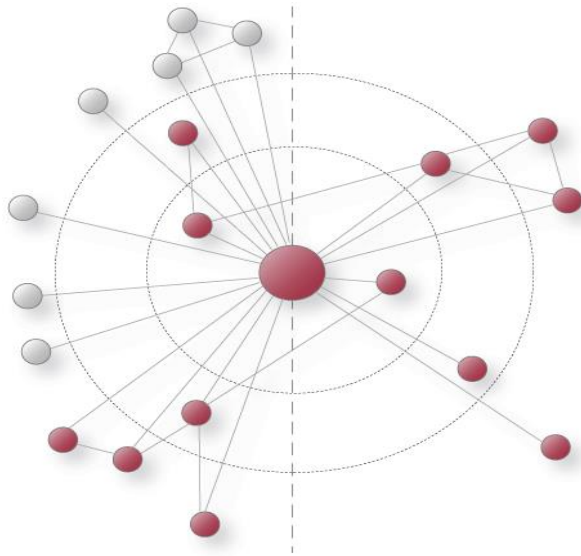
# Entrepreneurial NPD teams



Source: From O. Gassman and M. von Zedtwitz, 2003, "Trends and Determinants of Managing Virtual R&D Teams," *R&D Management*, vol. 33, no. 3, pp. 243–62. Reprinted with permission of Blackwell Publishing.

# Social Networks

- ▶ Team composition within and outside the firm
- ▶ Structural Holes and Good Ideas (*Burt, 2004*)
  - ▶ In Raytheon company: people that bridge between networks have better ideas
  - ▶ Social Network Analysis



## Social Capital

‘the sum of the actual and potential resources embedded within, available through and derived from the network of relationships possessed by a firm and its members (divisions or employees)’

‘people develop a certain [disposition](#) for social action that is conditioned by their position on the field’

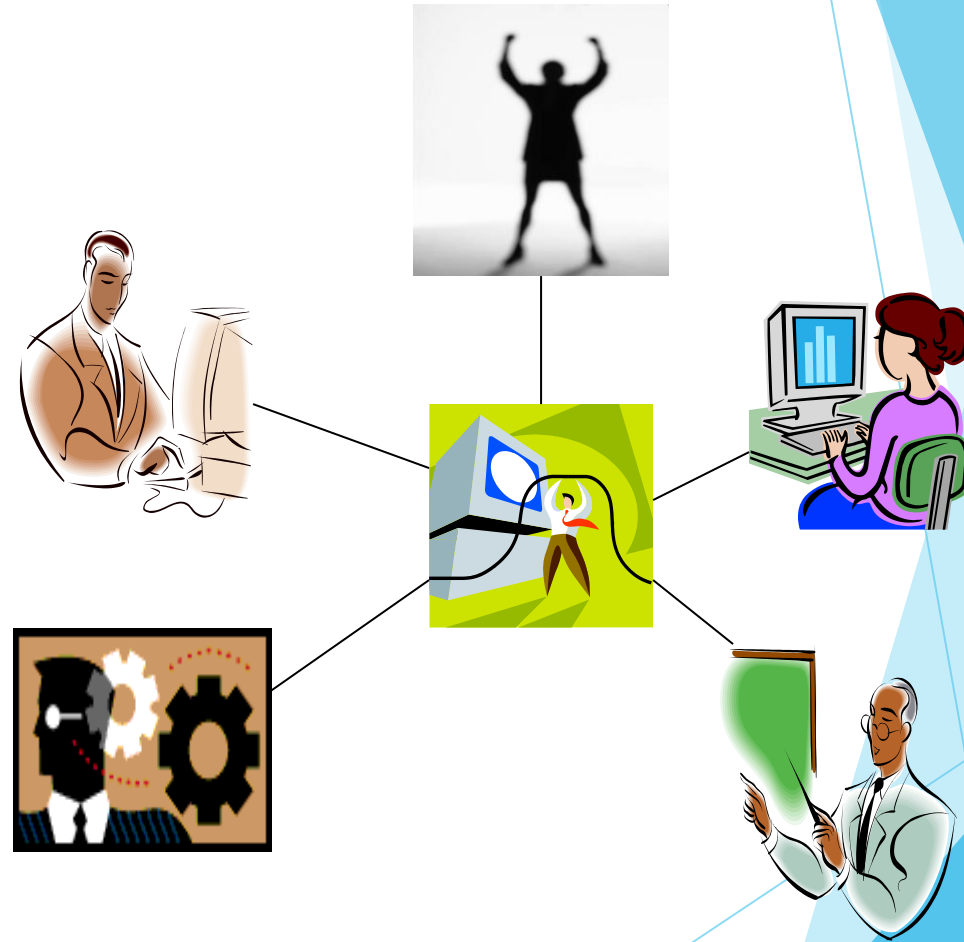
(based on Bourdieu, 1986 and Nahapiet and Ghoshal, 1998)

# Social Networks

A **social network** is a description of the social structure between actors, mostly individuals or organizations.

It indicates the ways in which they are connected through various social familiarities ranging from casual acquaintance to close familiar bonds.

**Social constructions shape the context in which ideas emerge**





# Social Networks

## **relational dimension**

e.g. trust, trustworthiness, norms, culture

## **structural dimension**

e.g. density, centrality, dominant or peripheral figures

## **cognitive dimension**

e.g. shared values, shared vision, collective mind

# Social Networks

## relational dimension

e.g. trust, trustworthiness, norms, culture

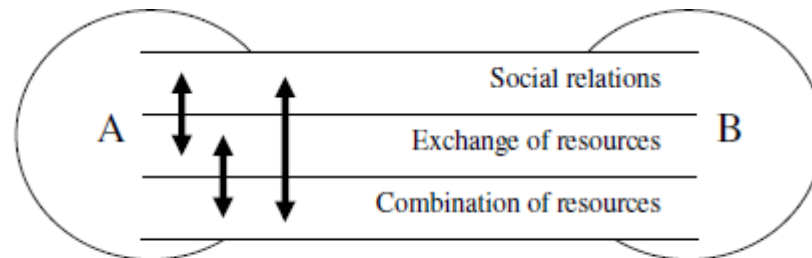


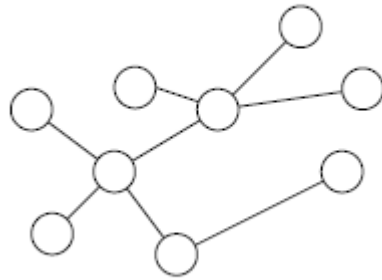
Figure 1. Relational Embeddedness

# Social Networks

## structural dimension

e.g. density, centrality, dominant or peripheral figures

(A) Open network



(B) Closed network

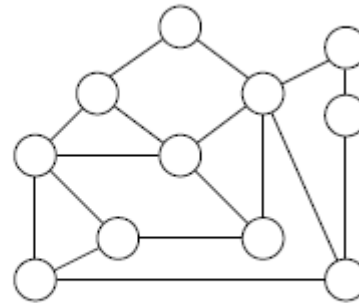


Figure 2. Open (A) and Closed (B) Networks

# Social Networks

## **cognitive dimension**

e.g. shared values, shared vision, collective mind

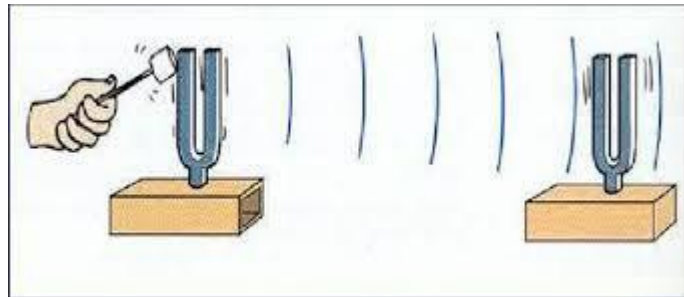
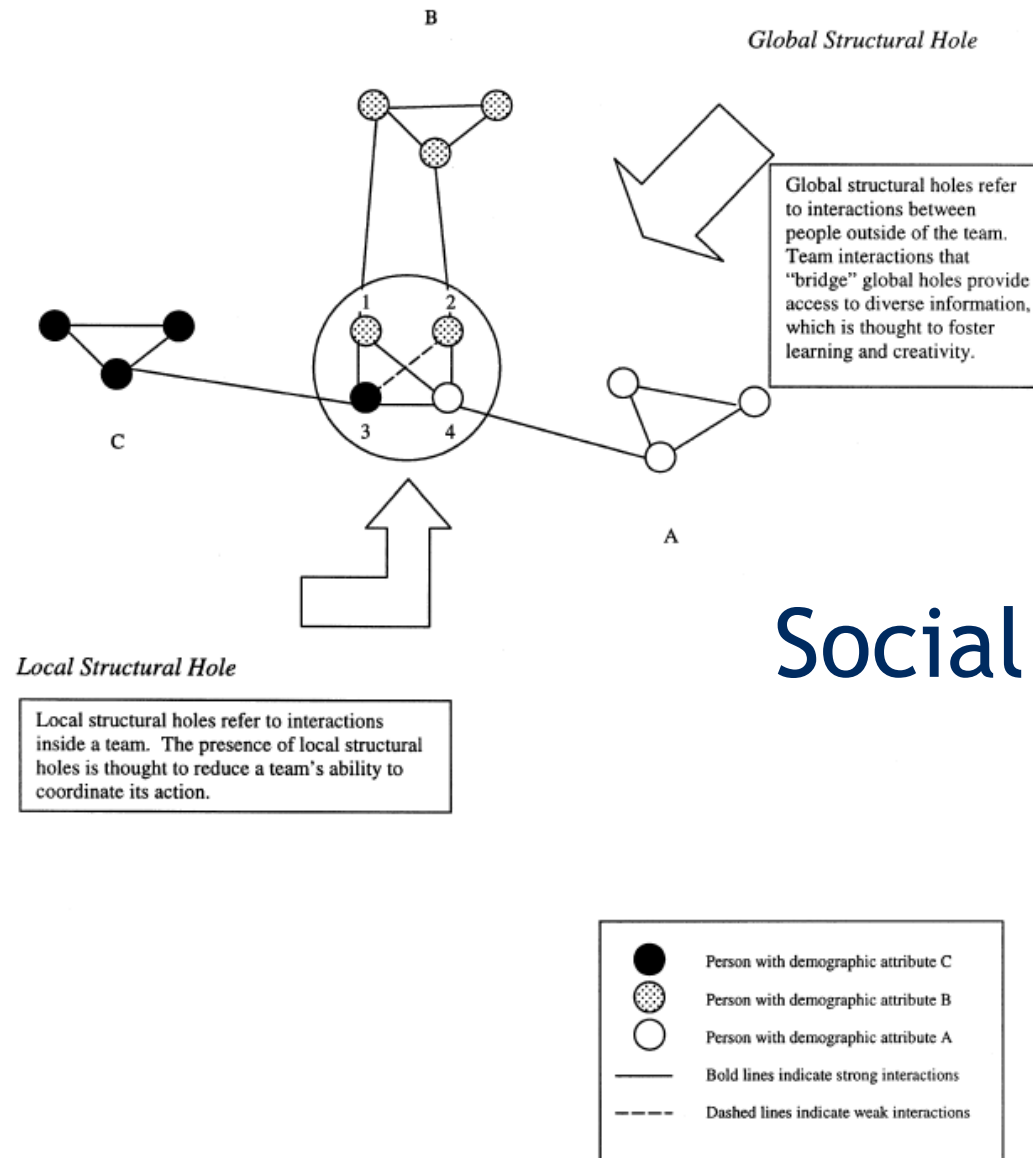


Figure 1 Structural Holes In the Team Context



# Social Networks

# Social Networks

- ▶ Bridging to other networks provides access to knowledge domains more distant from current ones (Burt, 2004), remember Marco Polo
- ▶ Especially for new ventures to succeed, entrepreneurs must attend to building **new ties** that link to others and create differential advantages through bridging and building network ties
- ▶ These **bridging ties** change the network into more **sparsely** connected networks with many *weak ties* that enjoy *brokerage advantages* based on the ability to arbitrage non-redundant information exchanges,
- ▶ whereas **bonding ties** reflect the *strong and dense network* ties that promote trust and cooperation among its members.





# Social Networks

## ▶ Bonding ties

- Connecting the people within existing networks
- Same information, same experience, same cognitions, same language
- Communication benefits
- Fast development
- But little new information, less creativity



## ▶ Bridging ties

- Connecting with people in networks that are disconnected from other networks
- Information benefits
- Time benefits
- Referral and scope benefits for better evaluation
- Negotiation benefit



# Social Networks

Networking strategies and importance of bridging and bonding ties

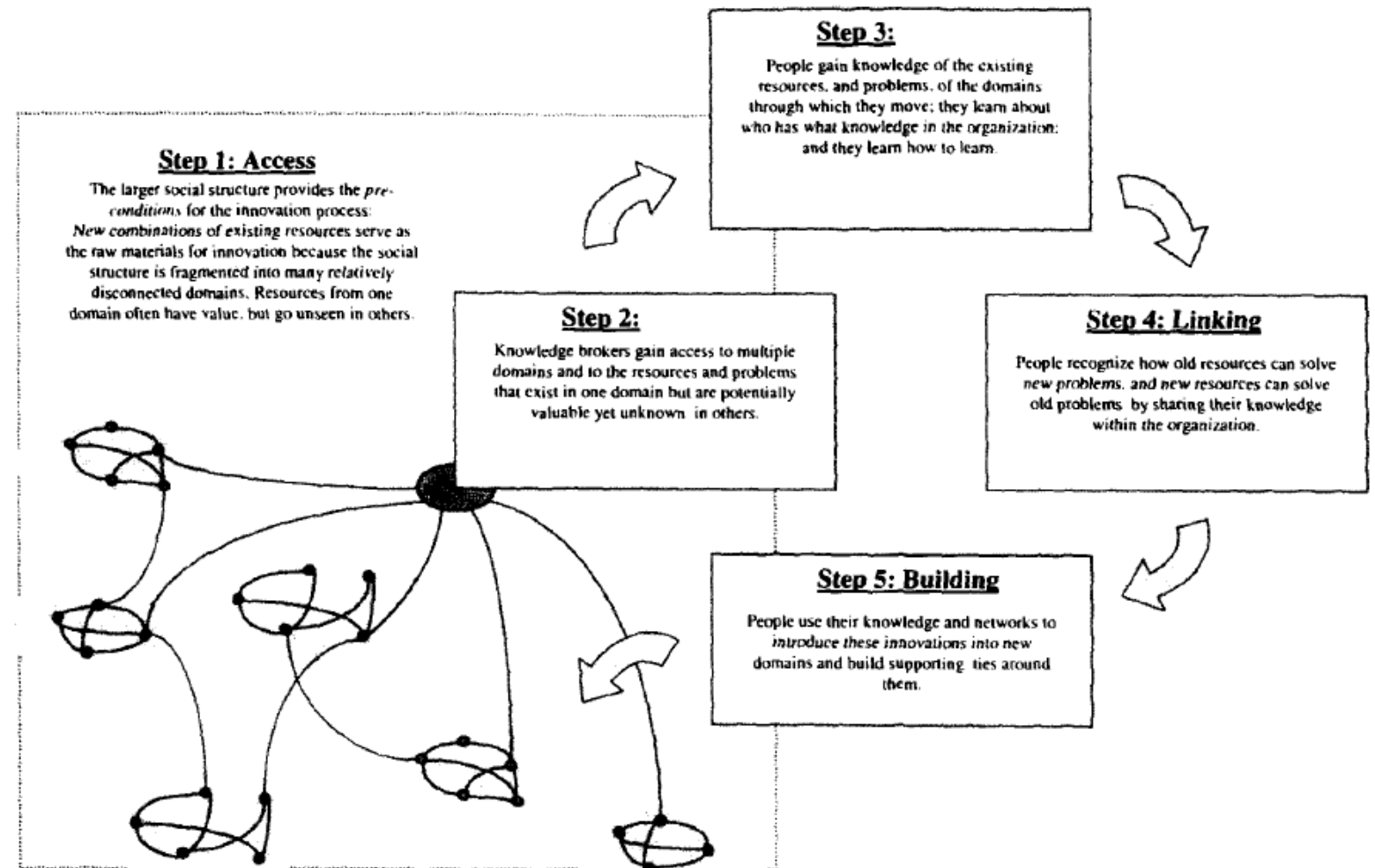
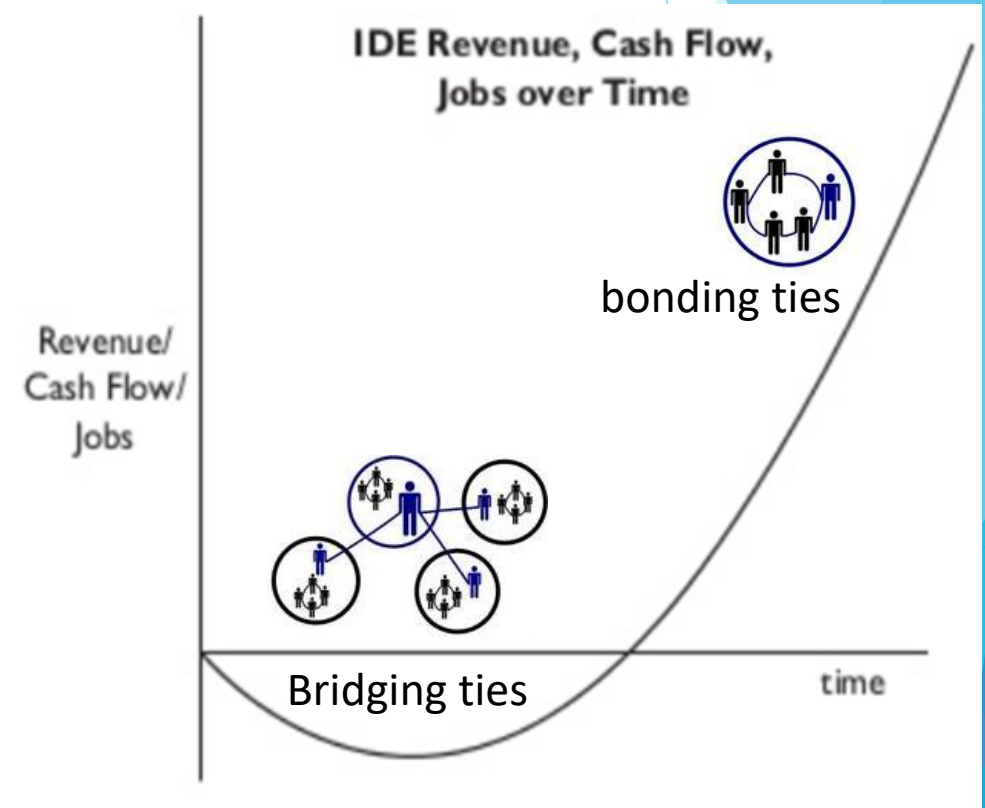


Fig. 1. A Process Model of Knowledge Brokering.

# Social Networks

Networks provide two things

1. They help you identify ***opportunities*** to be creative (create value)
2. They help you ***capture value*** from an opportunity

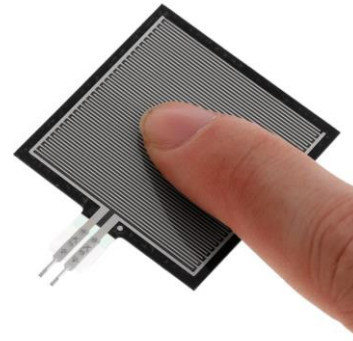


# Social Networks

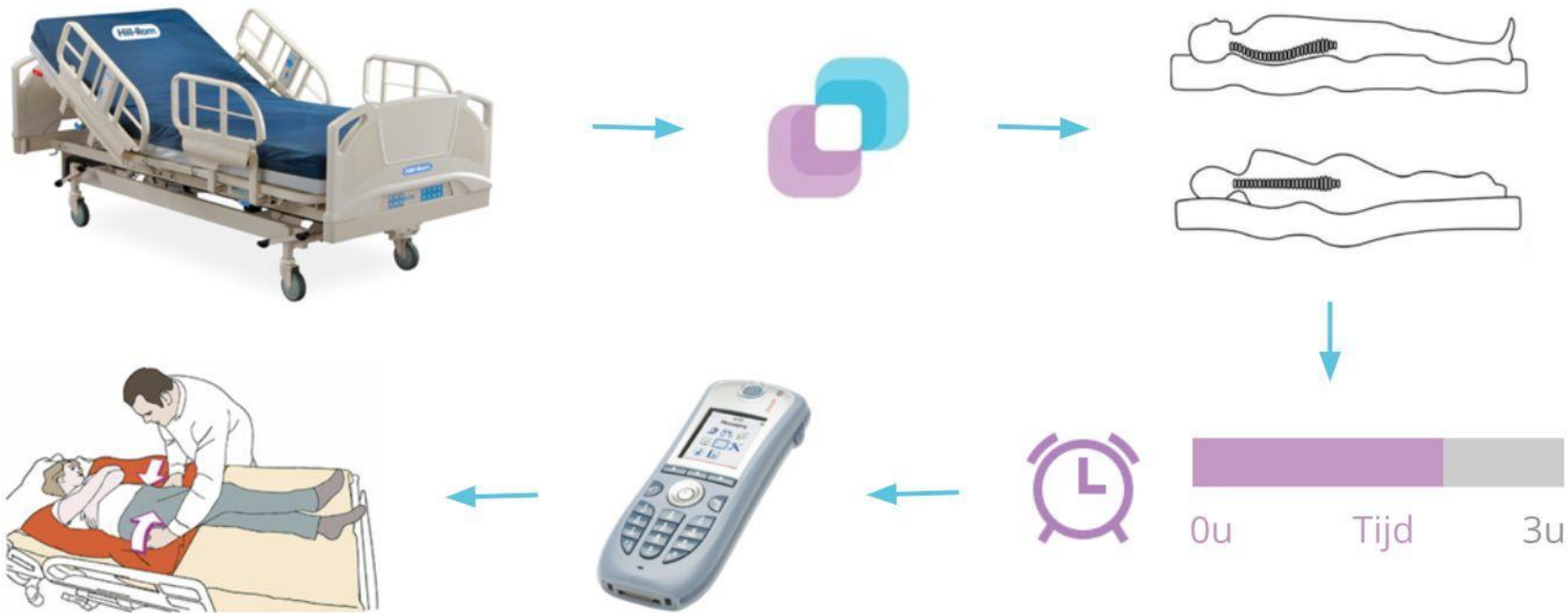
Technology \* Network \* Commitment = Opportunity



Ide Swager and Menno Gravemaker



# Solution: giving insight and smart alarms





# Social Networks

Jan van der Tempel

PhD research on windturbine structures  
with civil engineering & aerospace

At a conference in Berlin  
He witnessed the challenge of maintenance





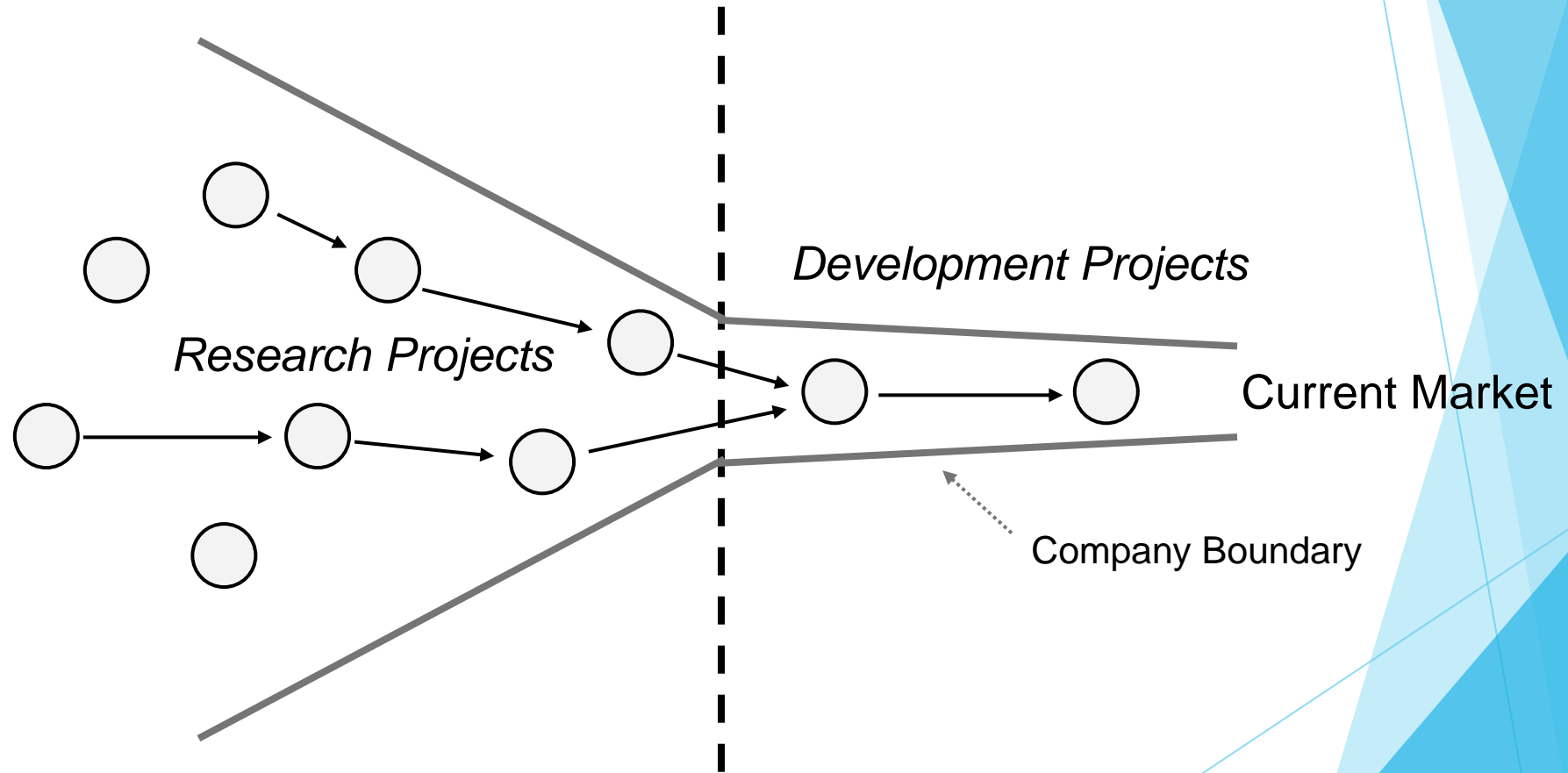
# Open/ closed innovation approach

## Closed Innovation

*Successful innovation requires control*

- ▶ Attract the best and brightest scientists
- ▶ Develop and manufacture yourself
- ▶ Market and distribute yourself
- ▶ Take profits and reinvest yourself (circle of innovation)
- ▶ Control your own IP and protect it from others
- ▶ High R&D investments

# Open/ closed innovation approach



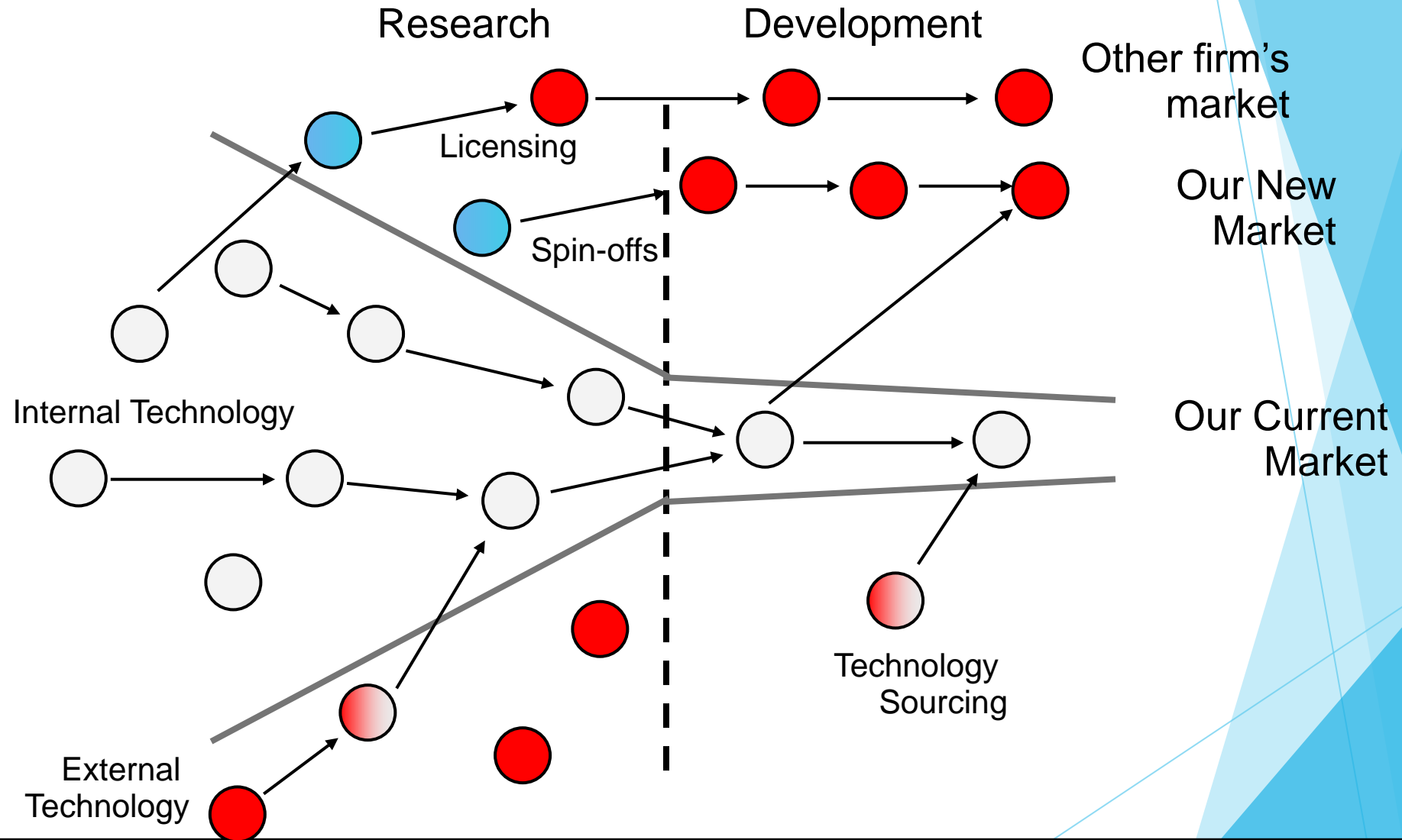
# Open/ closed innovation approach

## Open Innovation Approach

*Not all the smart people work for us*

- ▶ Commercialization of own ideas as well as from other firms
- ▶ Bring inhouse ideas outside the current business
- ▶ No lock up of IP but use in licensing, joint ventures and corporate ventures
- ▶ Porous boundaries of the firm

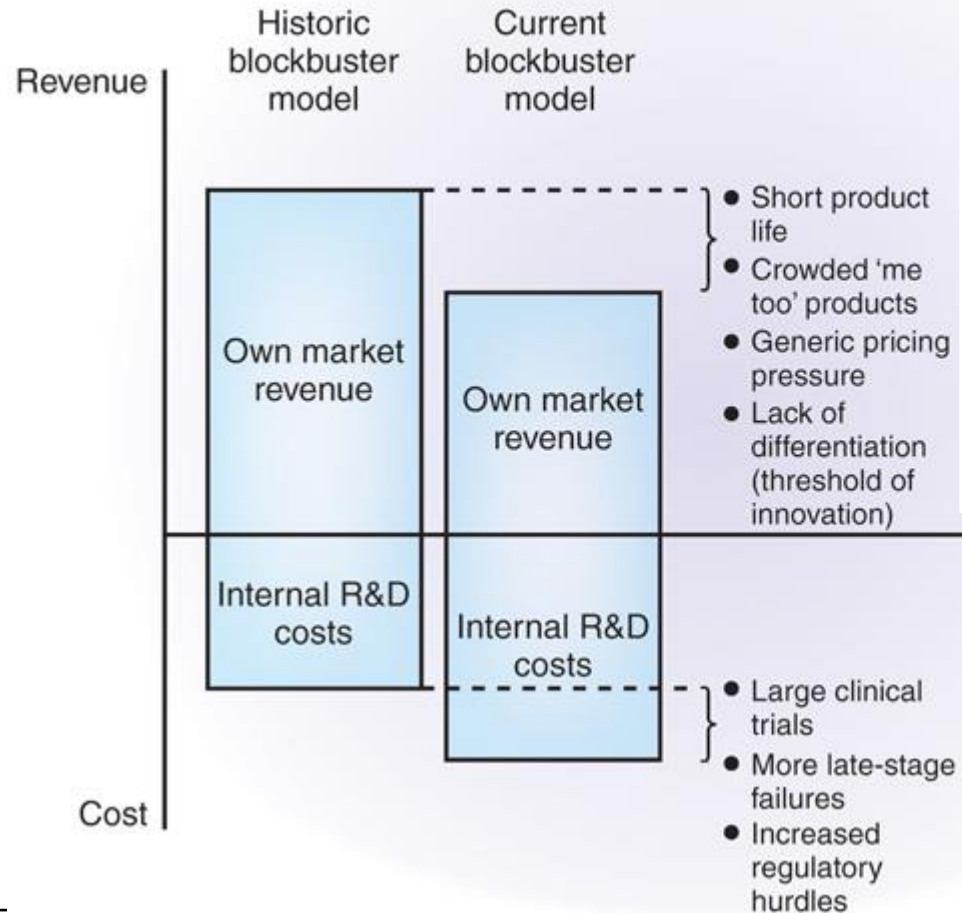
# Open/ closed innovation approach



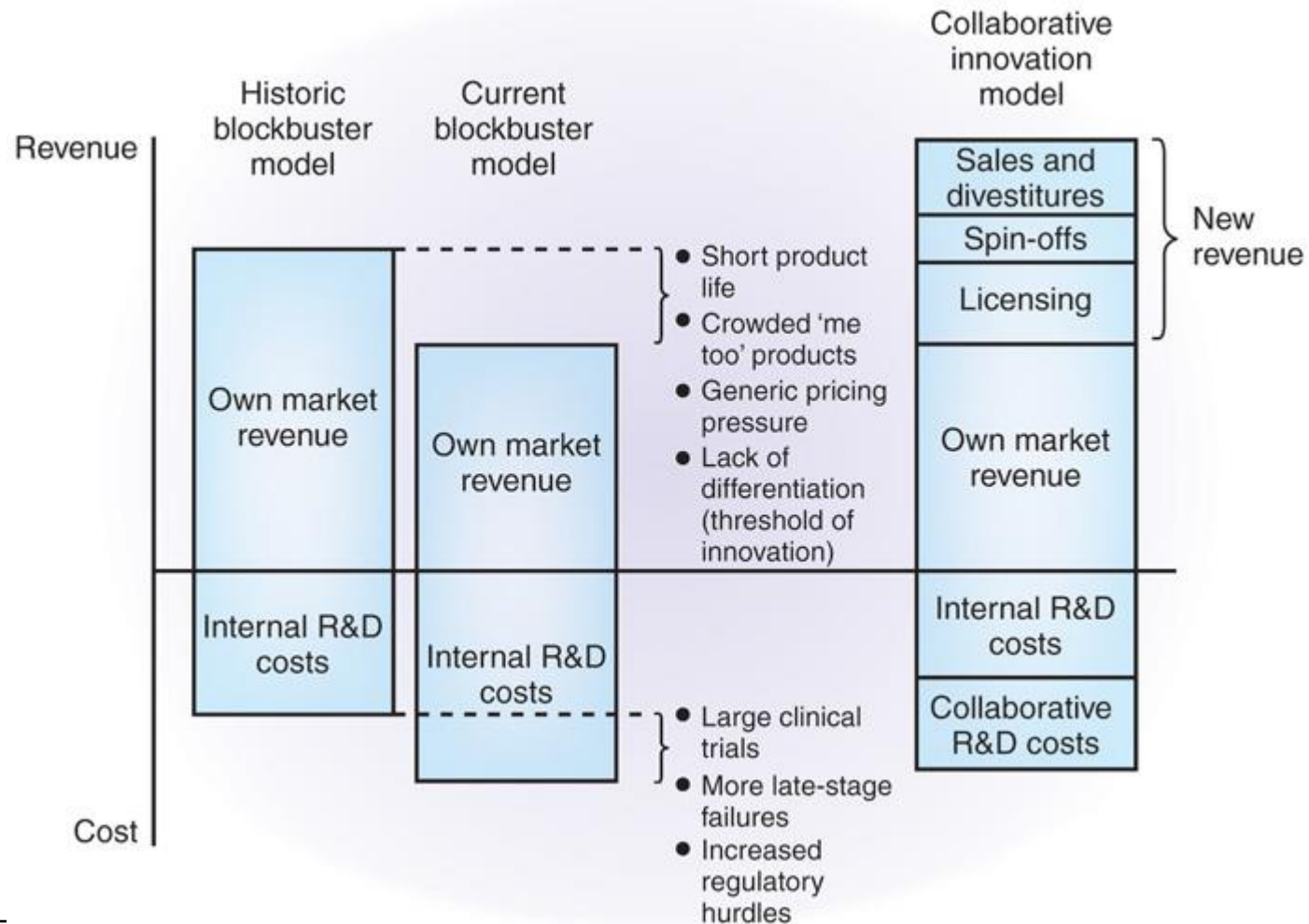
# Open/ closed innovation approach



# Open/ closed innovation approach



# Open/ closed innovation approach







Why gas stations of the future might not include EV chargers – yet

It doesn't pencil out – but unlike at stations, charge all you want to at home

YAHOO FINANCE  
Apr 26th 2021 at 7:30PM





## FASTNED OVER ZIJN STRIJD MET DE GEVESTIGDE ORDE

13 aug 2013 | [Diana Ottenhof](#) ☆☆☆☆☆



**Pomphouders willen niet dat Fastned laadpalen aan de snelweg plaatst. Michiel Langezaal (Fastned): 'Het terrein is niet van hun.'**

Nieuwe toetreders roepen weerstand op. Hoe ga je ermee om als de gevestigde orde via de rechter probeert een duurzaam initiatief te dwarsbomen? **Fastned**, dat langs de snelweg laadpalen voor elektrische auto's wil plaatsen, kreeg met zo'n situatie te maken. Het bedrijf had eind 2011 van de staat een vergunning gekregen om bij tweehonderd tankstations een laadstation voor elektrische auto's

neer te zetten. Pomphouders eisten vorige maand in een kortgeding dat de rechter de vergunningverlening ongeldig zou verklaren.

De rechtbank Den Haag wees dit [verzoek van de hand](#). De vergunningen zijn geldig en daarmee is een belangrijk juridisch obstakel voor Fastned uit de weg geruimd. [Michiel Langezaal](#), oprichter van Fastned, vertelt over de weerstand van de gevestigde orde, de pomphouders.

### MT.NL: WAT DRIJFT DE POMPSTATIONHOUDERS OM ZICH TE VERZETTEN?

Michiel Langezaal: 'Ik denk dat het gevoel is 'wij zouden toch de enige zijn, het hele terrein is toch



## Fastned expands its network to over 250 fast charging stations across Europe

16 February 2023

Fastned, the European fast charging company, has achieved an important milestone and surpassed the mark of 250 stations across Europe. Today, Fastned added two stations to its network, one in France and one in the UK. The openings solidify even further...

[Read more](#)

The Siemens logo, consisting of the word "SIEMENS" in a bold, teal, sans-serif font.

## Siemens Venture Capital

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### Siemens Venture Capital (SVC)

Our goal is to identify and finance young companies worldwide during their start-up phase and to provide established companies with additional capital for their growth plans during the expansion phase. Through our portfolio companies, we offer our customers new technological solutions and tap new markets. Our focus is on growth segments in the energy, industry and healthcare sectors.

Our portfolio includes further Private Equity activities: In the context of our Private Equity Advisory Service, we offer customers such as the Siemens Pension Fund professional consulting in Private Equity asset allocation. As of January 2009, Siemens Venture Capital has launched its first own fund-of-funds: Siemens Global Innovation Partners I, offered also to non-Siemens investors.

### News ++++ News ++++ News ++++ News

Orlando, FL, and Boulder, CO, June 13, 2011

► Siemens Energy, Inc. and Tendril, a leading energy platform company, have entered into a strategic alliance to market the Tendril Connect™ platform to utilities. Siemens will deliver the Tendril solutions to energy marketers and distribution network operators with its proven project management capabilities, PM@Siemens. The partnership will initially target the U.S. and Canadian markets and then expand internationally. Additionally, Siemens Venture Capital (SVC) has invested in Tendril, making this its eighth investment in the Smart Grid area. Both actions enhance Siemens' portfolio of Smart Grid solutions by extending available applications to include home energy management, enabling Siemens to create larger operational value for utilities.



# Open/ closed innovation approach

A graphic titled "P&G's Open Innovation Strategy" with a background of red, yellow, and white curved bands. It features a portrait of A.G. Lafley on the right and text on the left stating a 50% innovation acquisition goal. The P&G logo is in the bottom left corner.

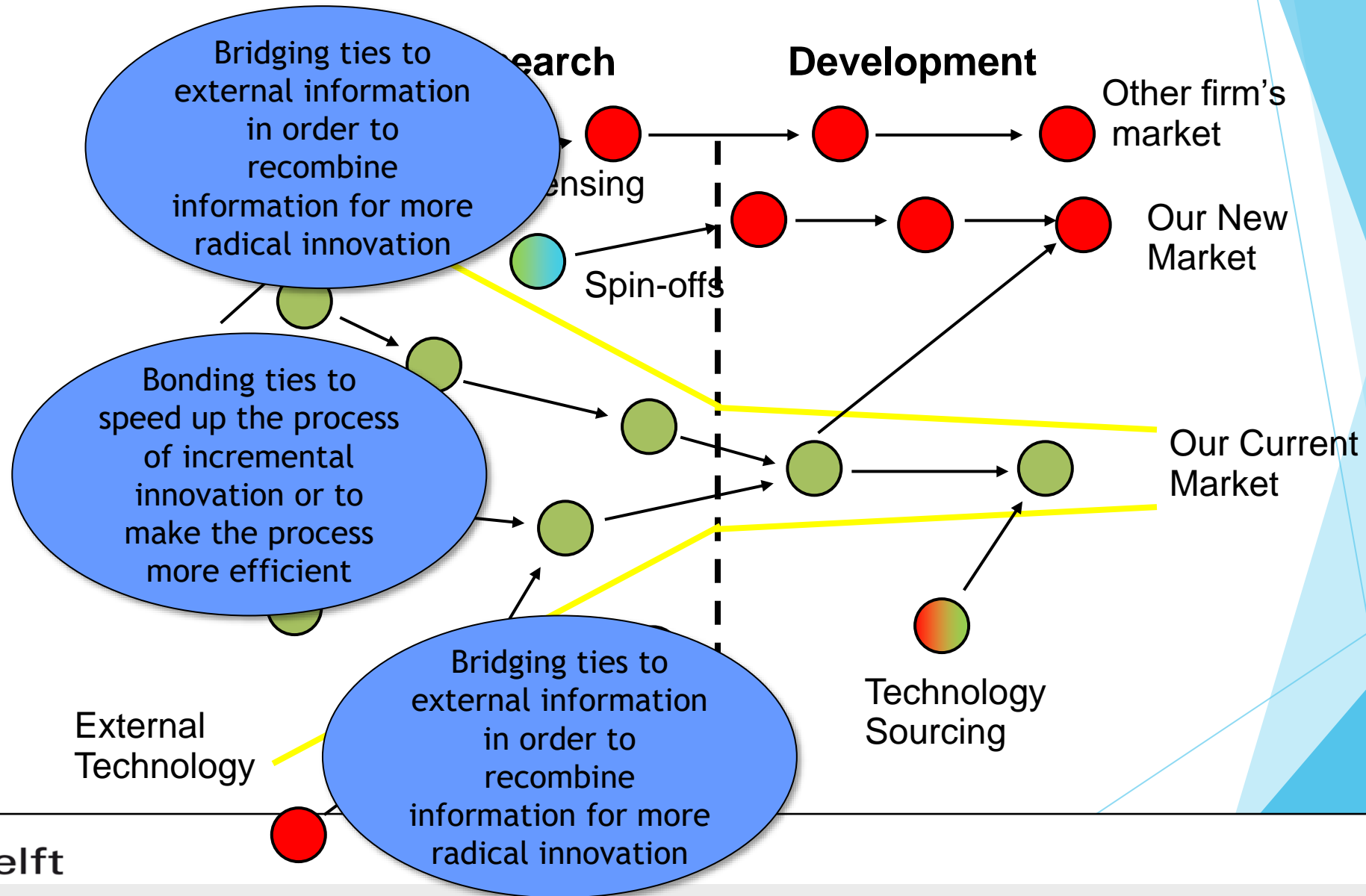
**P&G's Open Innovation Strategy**

**"We will acquire 50% of our innovations from outside P&G"**

**A.G.Lafley**  
President and Chief Executive  
The Procter & Gamble Company

**P&G**

# Open/ closed innovation approach



# Summary today

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# Overview of entrepreneurship education - MSc

## Empowering Entrepreneurial Minds

Delft Centre   
for Entrepreneurship

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