

“Open Innovation, what’s behind the buzzword?”

*How open innovation can create value
for your company?*

Prof. dr. Wim Vanhaverbeke

Hasselt University

ESADE Business School

National University of Singapore

Luxinnovation - Luxembourg, December , 2013

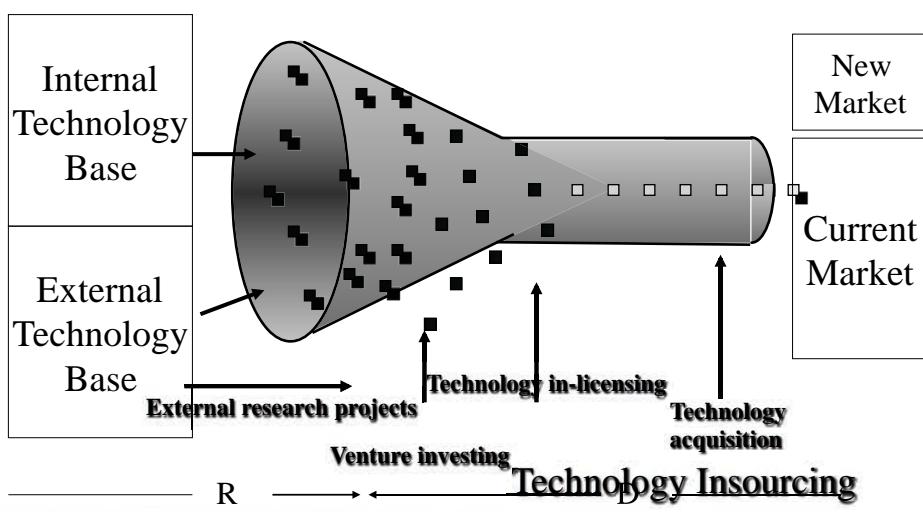
What is open innovation (OI)?

What is Open Innovation?

“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.”

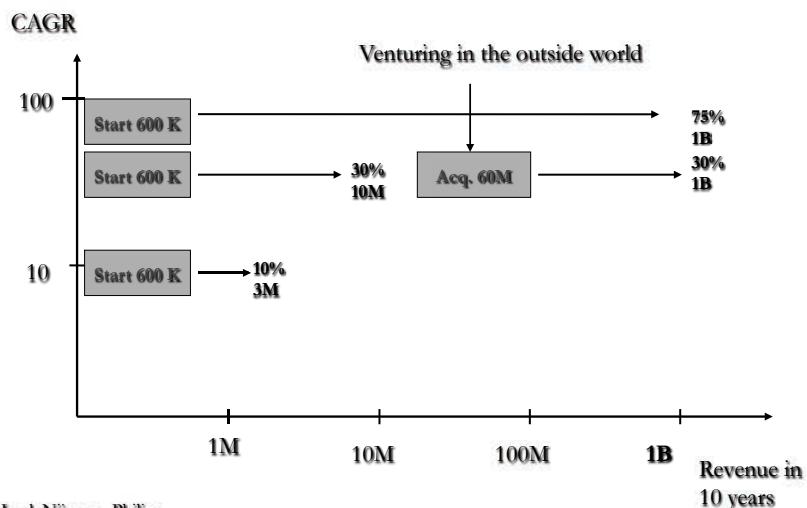
Chesbrough, Vanhaverbeke, West
Open Innovation: Researching a New Paradigm
(OUP, 2006)

Inbound OI: Filling the gaps with external technology

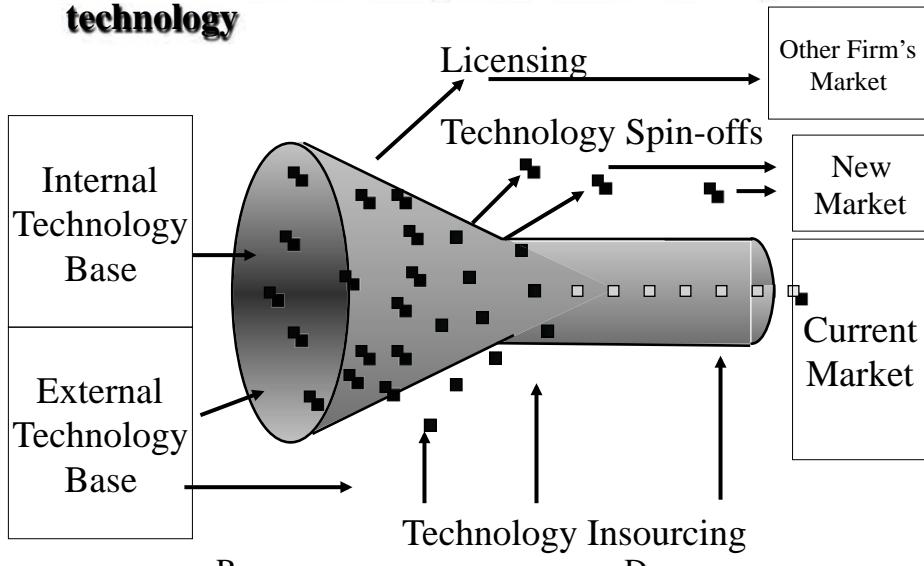


**Breakaway innovation takes a lot of time
for reaching large business sizes**

Immediate growth requires acquisition of early growth ventures



Outbound OI: Profiting from others' use of your technology



Source: H. Chesbrough, *Sloan Management Review*, Spring 2003

Extension of the original model

**By combining open / closed innovation
with open / closed business models**

Business models - Chesbrough (2006)

- **Performs two important functions:**
 - ◆ **it creates value, and**
 - ◆ **it captures a portion of that value**
- **Creation of value: by defining a range of activities that will yield a new product or service valued by a (target) customer group**
- **Value capturing: by establishing a unique resource, asset or position within that series of activities where the firm enjoys a competitive advantage**

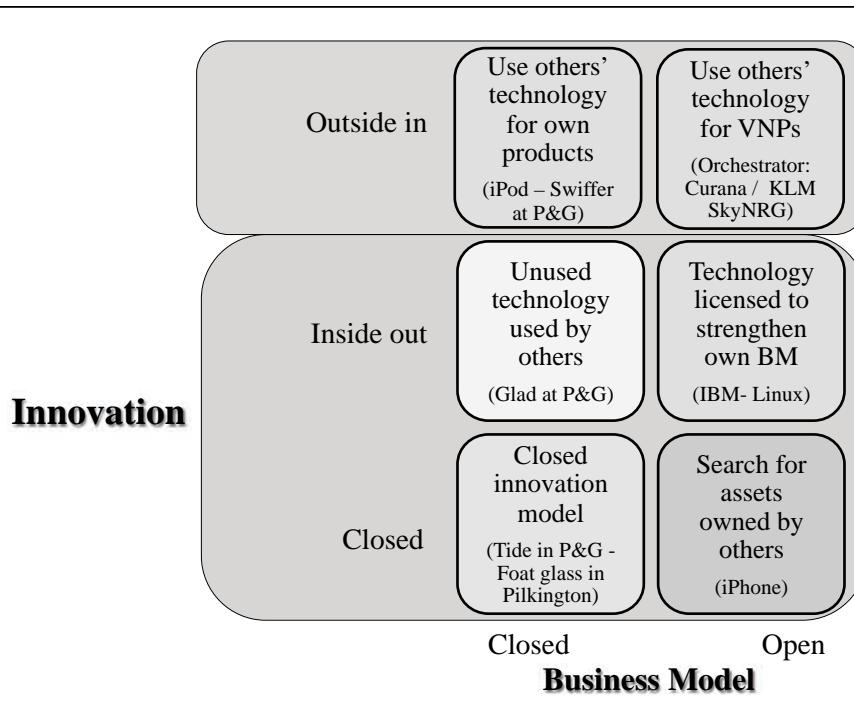
Open business models - Chesbrough (2006)

Division of labor:

- ◆ one party develops a novel idea but does not carry this idea to the market itself...
- ◆ ... but sells it to another party, who carries it to the market

Open business model: uses the division of labor to

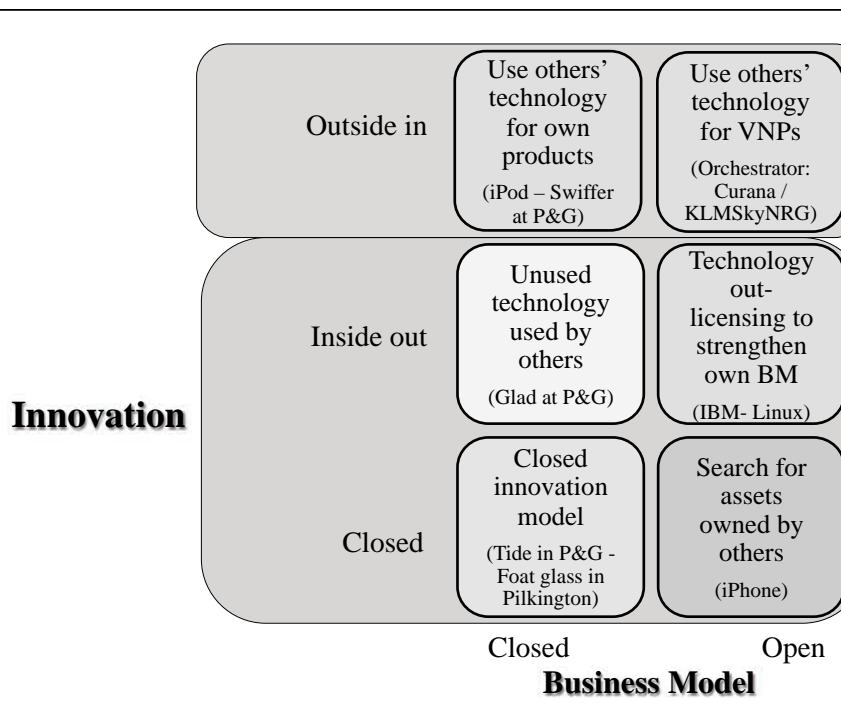
- ◆ create greater value by leveraging more ideas (external ideas)
- ◆ capture greater value by using key asset, resource, or position not only in the company's own business but also in other companies' businesses



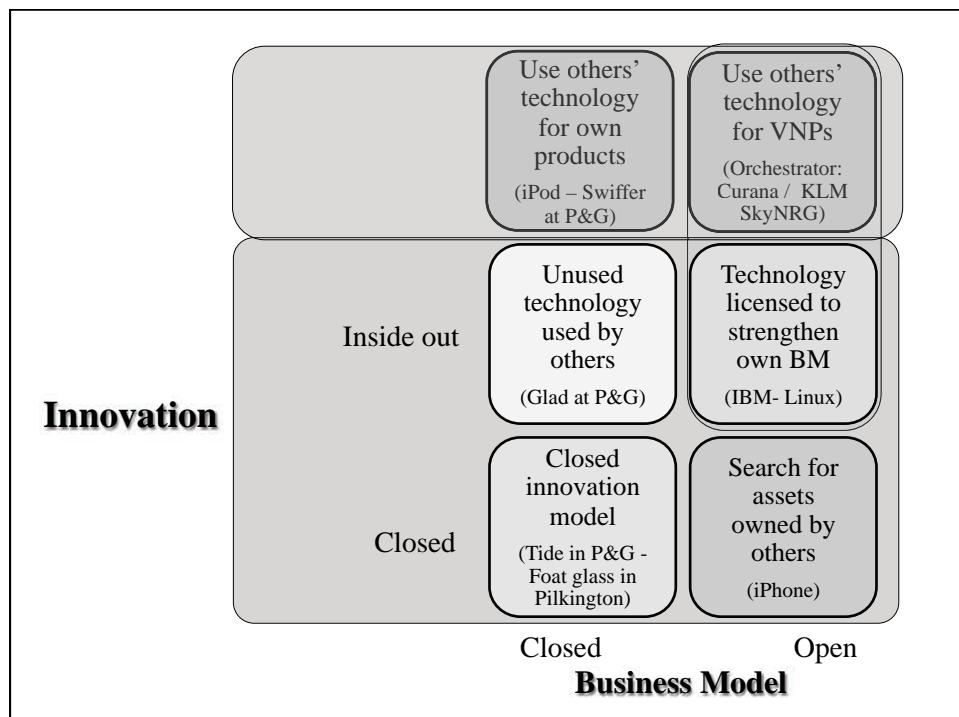
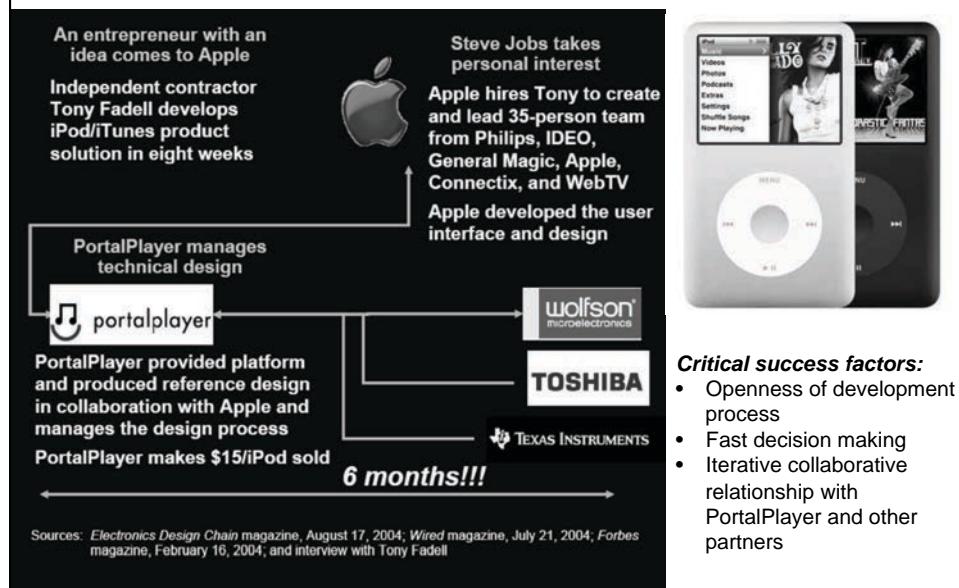
P&G – Clorox: Joint-venture with a competitor

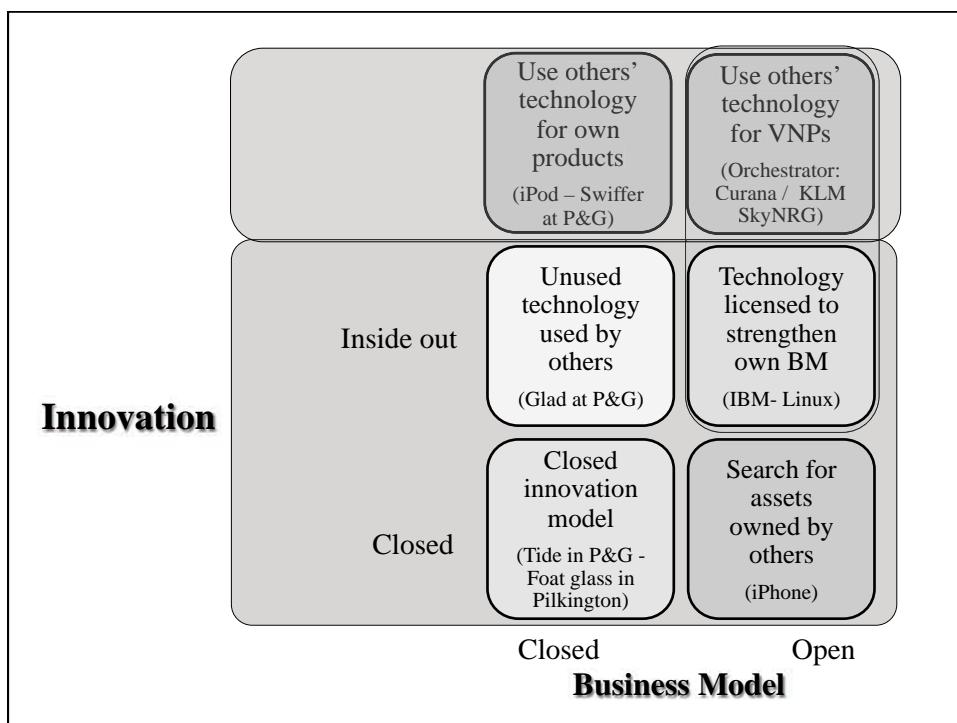


- P&G : develops a promising plastic film technology discovered through diaper research proved successful in test market
- It was not strategic for P&G to be a new player in such a well-established category.
- C+D led to a joint venture with Clorox who already had strong brand equity and the leading plastic wrap – Glad.
- What partners bring in :
 - ◆ P&G brings global marketing expertise and intellectual property behind Press'n Seal as well as future innovations, including the revolutionary Glad ForceFlex trash bag technology.
 - ◆ Clorox brings brand equity, focused R&D in plastics and resins, and the organizational structure for creating and distributing new plastic film products.
- ◆ Source: P&G C+D



Outside-in open innovation







SkyNRG

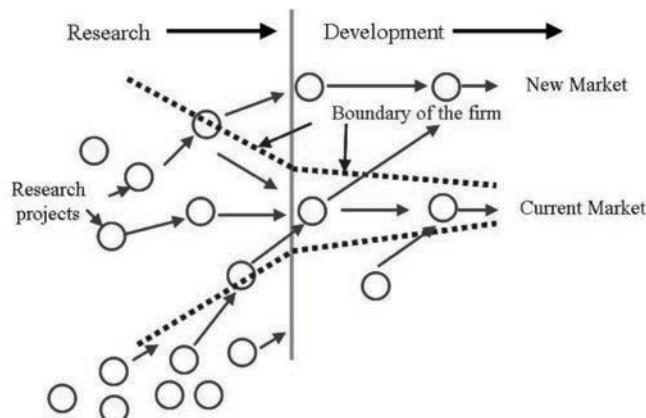
Sky Energy | The Fuel Future

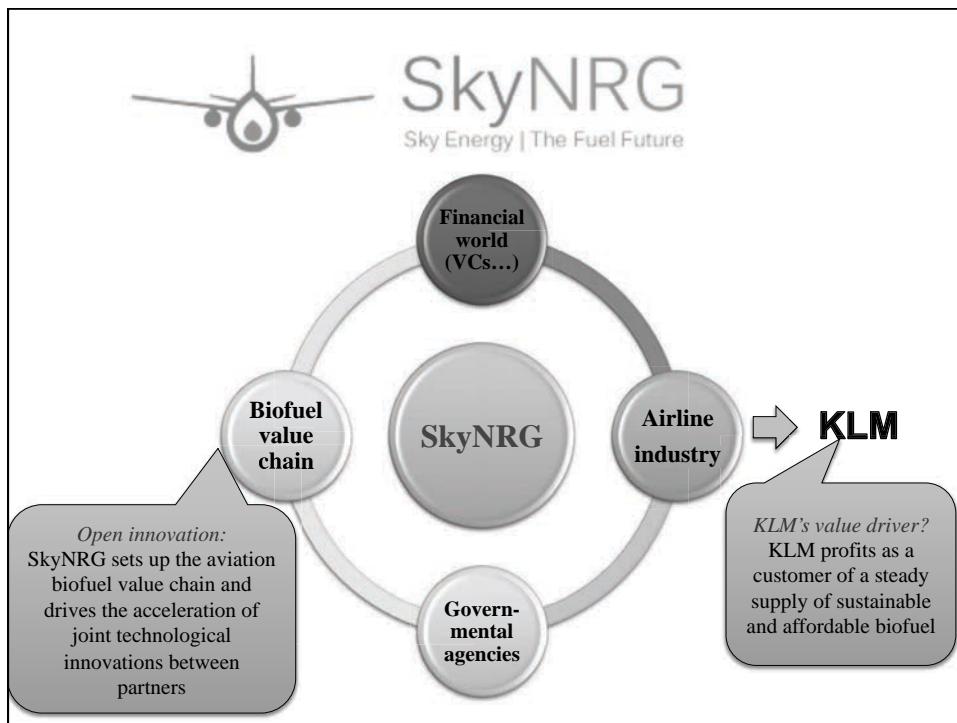
- KLM Royal Dutch Airlines, the North Sea Group and Spring Associates joined forces and founded **SkyNRG** in Nov 2009.
- Goal: to help create and accelerate the development of a market for sustainable jet fuel (safe, sustainable and affordable) & avoid large price swings in petro-based kerosene
- Creating a viable market for sustainable jet fuels for aviation can only be achieved *by combining expertise and experience in the fields of air transport, product knowledge, R & D, regulation and effective sustainability criteria*
- *SkyNRG is the hub firm in the ecosystem*



SkyNRG

Sky Energy | The Fuel Future





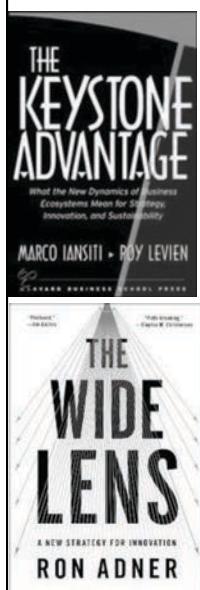
Broadening the scope

- OI when it is not related to your NPD:
 - ◆ You are a service company with no technical expertise
 - ◆ SME with insufficient technological expertise
 - ◆ Government agency:
 - ◆ Nasa: new technologies may help you a lot in your mission as space agency
- *Insourceing knowledge of others in an indirect way through an open business model (OBM)*

What if your products are commodities?

- BP pumps crude oil from wells and produces petro products (commodities)
- Product innovation is not a *value driver*
- *Oil well exploration and extraction* are major value drivers
- Collaborate with Schlumberger and others technology services to advance their technology in order to find the best wells earlier than competitors.

Strategy as ecosystem building



- Multiple partners in a network innovation ecosystem
- Health of your company depends in the health of your ecosystem
- Nurturing your ecosystem is necessary
- Nambisan and Sawhney; Network-centric innovation, AMP, 2011
- The wide lens – Ron Adner

OI and SMEs

**Low tech industries:
A fruitful place for OI by SMEs**

Curana



Curana: combining innovation and industrial design

- **The old situation:**
 - ◆ steel mudguards and fenders
 - ◆ Belgium as market (10 million inhabitants)
 - ◆ Family owned business
- **Challenge:**
 - ◆ Growing economies of scale and globalization of the industry
 - ◆ Strategic change:
 - ◆ differentiation through innovation
 - ◆ or price competition with low-cost import

Curana: B''Lite : Mudguard of Curana



Curana: innovation combined with industrial design in low-tech markets

■ Advantages:

- ◆ Lighter mudguard (25% less weight than plastic mudguards).
- ◆ Production cost are low enough to be competitive with standard mudguards
- ◆ Installation of the mudguard is easier
- ◆ Nice design
- ◆ Aluminum separated by plastic can be used as a conductor for electricity (no more wires required for lights)

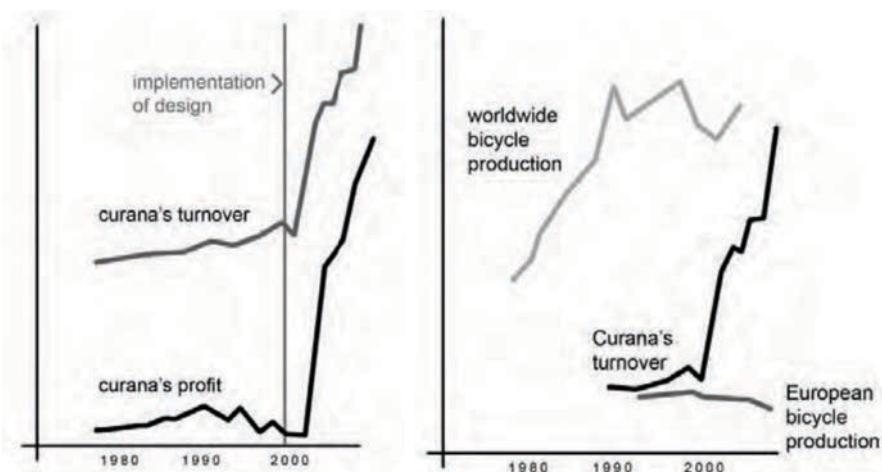
■ IP

- ◆ European patents
- ◆ Curana also applied for a patent on the production process

Curana : Open innovation

- ◆ combination of internal and external knowledge
 - ◆ external design company
 - ◆ polymer extrusion manufacturer
 - ◆ coordination with customers (bicycle producers) in exchange of an exclusive deal that is limited in time (Batavus and Sparta (both belong to the Accell-group))

Curana: Spectacular results



Curana: a small company in transformation

1946 1990 1999 2006 2008 →

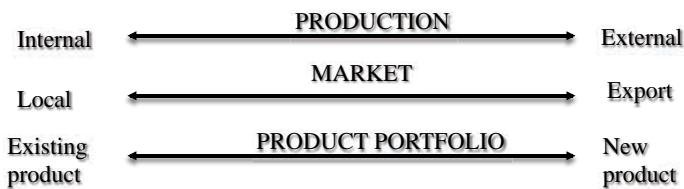
Started in 1946
As a family business
Producing bicycle parts

Introduction of design
First cooperation with
external design office

Start of brand extensions
Co-branding

Take over of the
company by the 2 sons

Start of an internal
design office



06/12/13

Wim Vanhaverbeke

41

Curana: a small company in transformation

OEM > ODM > OSM > OBM

Original
Equipment
Manufacturer

- price pressure
- technology driven
- no added value

Original
Design
Manufacturer

- price setting
- design driven
- added value

Original
Strategic
Management

- vision driven
- proactive design
- Innovative

Original
Brand
Management

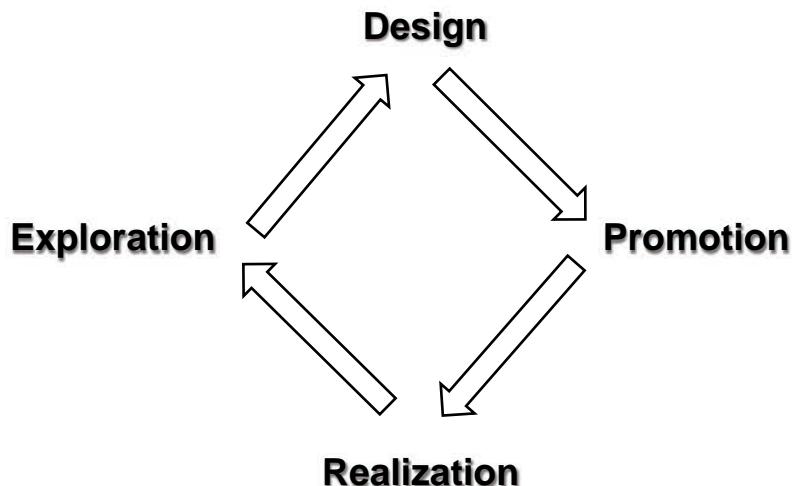
- Image driven
- Reliability & authenticity
- Market pull from customers

06/12/13

Wim Vanhaverbeke

42

How innovation is processed at Curana?



06/12/13

Wim Vanhaverbeke

43

Exploration

- **Scouting**
 - ◆ Fashion, interior, architecture, ...
 - ◆ Technology materials, ...
 - ◆ SWOT: economic analysis
- **Partner analysis**
 - ◆ Clients DNA
 - ◆ Users (field research, questionnaires, user profiling)
 - ◆ Value chain analysis
- **Learn: learn in networks with peers**

06/12/13

Wim Vanhaverbeke

44

Design

- Creative sessions to generate new ideas
- Feasibility study
- Concept workout, styling and system design
 - ◆ Constant interaction with:
 - ◆ Production partners
 - ◆ Knowledge centers
 - ◆ Mold makers

06/12/13

Wim Vanhaverbeke

45

Promotion

- Proactive development: so customers have to be convinced
 - ◆ Give presentations to clients and users
 - ◆ Show the economic benefits
 - ◆ Present solutions that solve the real problems
 - ◆ Capture important feedback
 - ◆ Build a strong image: Awards, lectures, etc...

06/12/13

Wim Vanhaverbeke

46

Realisation

■ Curana is not a design house: it develops its own products, but...

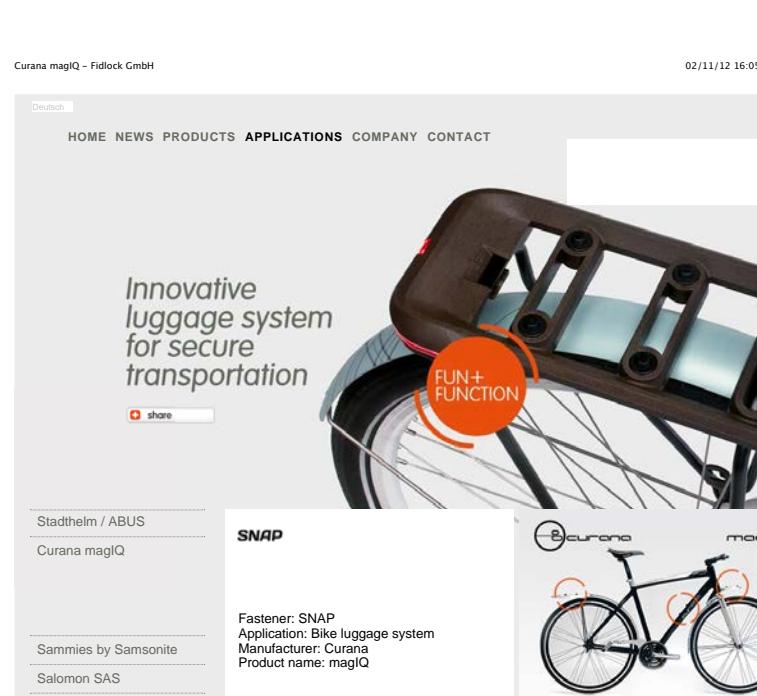
- ◆ works closely together with external engineering partners
- ◆ verification in each phase through rapid prototyping
- ◆ improvements via discussions with network partners (production partners, mold maker, material experts)

06/12/13

Wim Vanhaverbeke

47

MagIQ



Application: bags



Jaga

- Differentiation vs. competition through:
 - ◆ Eco-radiators
 - ◆ Design-radiators
- The company is not selling products but experiences, ideas, values, etc....
- Differences:
 - ◆ radiators as heating machines
 - ◆ radiators to reduce carbon-footprint
 - ◆ radiator as a creative part of the house, heating the "soul"

Some JAGA products



Some JAGA products

Jaga Oxygen :
controlling temperature,
moisture and oxygen in the
house

Wearable heating?



Open innovation # 1



Jaga Experience Lab : JEL

- Product: test-facility
- Experience: test and develop your own products
- Jaga invites professors & engineers worldwide
- Low cost form of publicity: new projects as Federation Tower / Telefonica

Experience Strategy



Open innovation #2 Jaga Product days 2007

- Total number of projects: 119
- Total number of products by 1 or more designers/engineers: 70
- Total number of products created by non professionals: 49
- Total number of solo projects*: 95
 - ◆ created by a designer/engineer: 47
 - ◆ made by non professionals: 48
- Number of Jaga Product days ideas taken into production within 6 months: 6

*= *Created by only one person*

06/12/13

Wim Vanhaverbeke

55

Jaga products days



Example: Play radiator

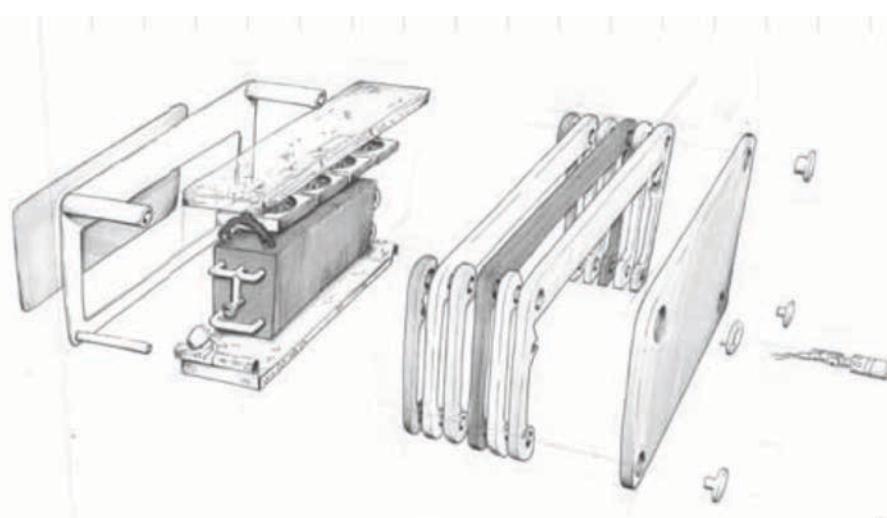


06/12/13

Wim Vanhaverbeke

57

Example: The play radiator



Open innovation #3

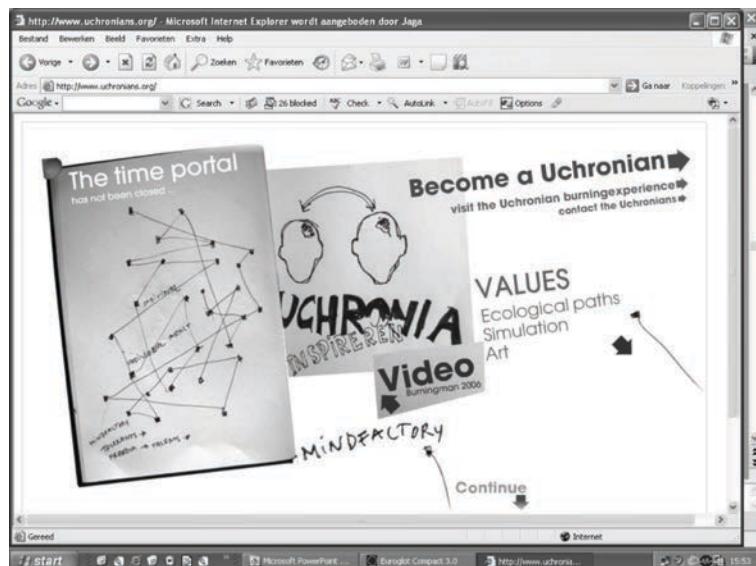
Uchronians and the Burning Man

- Birth of an entire city **BLACK ROCK CITY** in the Black Rock Desert in Nevada
- 40.000 people
- a cross-pollination of art, music, theatre, sensation
- wonderful creations > go up in flames at the end of the 3 weeks



www.uchronians.org

Start of the creative (internet) community



QOD:Vamdrup - Denmark

Founded 2000

Founders

- Søren Løgstrup (Sales and marketing)
- Hans Erik Schmidt (Business development)



Quilts of Denmark - About us - view our latest film.flv

Quilts of Denmark: quilts & duvets with active temperature and humidity control



The bedding textile industry

- Overview late '90s
 - ◆ Very traditional industry without any major innovation
 - ◆ Through the nineties there was a trend towards falling prices (quality).
 - ◆ Price was the only dominating factor!
- QOD wanted to change this !

Changing the industry?

- Founders formulated two guidelines for the QOD business:
 1. "to promote a *healthy sleep* for a *better tomorrow*"
 2. *A dream team* : only best people in the industry

Provider of healthy sleep

- Vision:
 - ◆ We are not a textile company.
 - ◆ We are providers of *healthy sleep!*
- Sleep is a major problem
 - ◆ We sleep less than we did 50 years ago
 - ◆ More than 70 million Americans do not sleep well (309 mill inhabitants or 23%)
 - ◆ The lack of sleep is costing the American society billions of dollars annually.
 - ◆ It is estimated that 56.000 car accidents in the United States happen because the driver falls asleep behind the wheel.
 - ◆ Danish teenagers sleep too little and have difficulties attending early lectures.

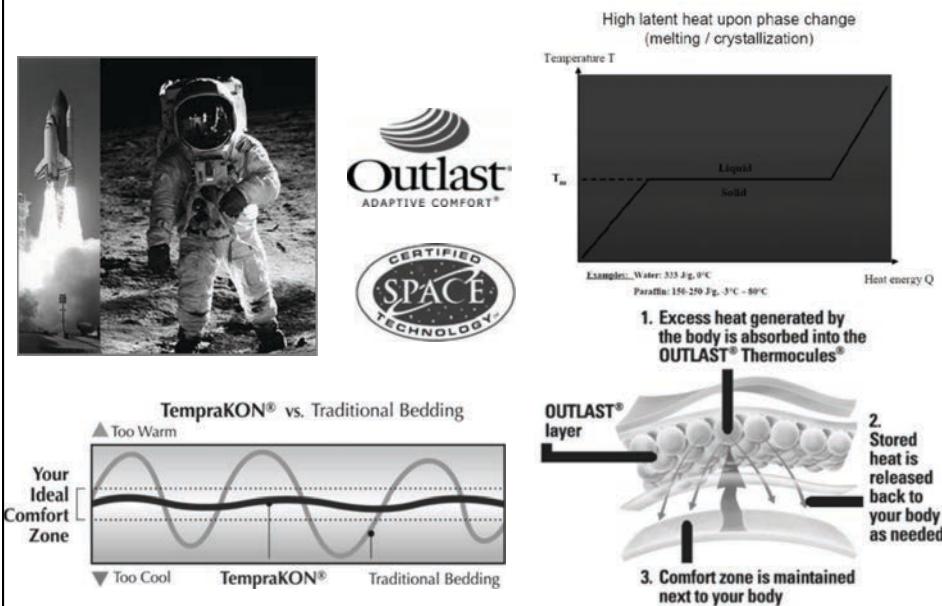
How to improve sleep?

- In order to become a provider of healthy sleep, QOD needed to know which factors are important for a good night's sleep:
- They started a cooperation with external experts:
 - ◆ Sleep scientists (Glostrup hospital)
 - ◆ Danish Asthma & Allergy Association
 - ◆ Physiotherapists
- Temperature (variation) rapidly emerged as one of the major determinants of a good / bad sleep

How to find the required technology?

- Lot's of trials with different technologies
- H-E Schmidt reads an article in a scientific journal about phase change technologies developed by Nasa
- Contacts Nasa & Outlast

Phase change materials



How to develop the required technology?

- Outlast was mainly interested in building material applications
- Gradually shifted attention towards textiles when it saw the economic opportunities while collaborating with QOD
- Outlast invented the microcapsules with PCMs
- QOD optimized the technology (getting the right mix) to have a better sleep
 - ◆ combining the insights of different fields

How to deal with IP?

- **Outlast licenses the technology to QOD**
 - ◆ Worldwide and exclusive license for quilts & pillows
 - ◆ Sublicenses to other manufacturers in countries where QOD is not active / interested
 - ◆ Outlasts licenses to other firms for other applications
 - ◆ Shoes, jackets, underwear, etc...

How to launch a new, OI-developed product?

- **QOD launched the product in the largest fair in Frankfurt in September 2003**
 - ◆ An immediate success
 - ◆ Sublicenses lead to easy price erosion, insufficient control
 - ◆ Company grows fast and internationalizes fast – too many sublicenses
- **Need to educate the retail shops and final customer**
 - ◆ Lot's of training of sales people in retailing shops in return for a marketing budget.
 - ◆ Working on new concepts to reach the customer
 - Airborn, Temprakon shops

Open innovation in services:

Example: Pet insurance!

- Combining resources, knowledge and databases of insurance company and pet food manufacturer
- Characteristics:
 - Bonding of clients in a commodity like markets
 - Cross industry innovation,
 - Relational capital / open innovation
 - Sustainable competitive advantage

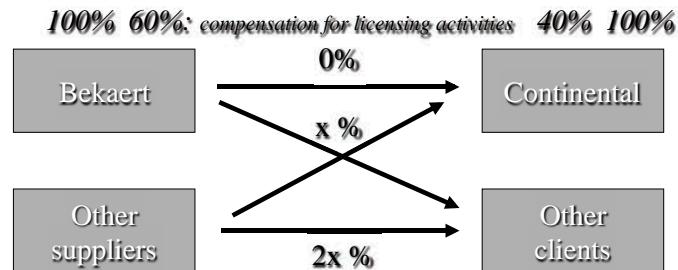
Example: KLM jet service!

- New technological applications + redesigning the VC

Strategic use of IP in open innovation

Some non ICT-examples

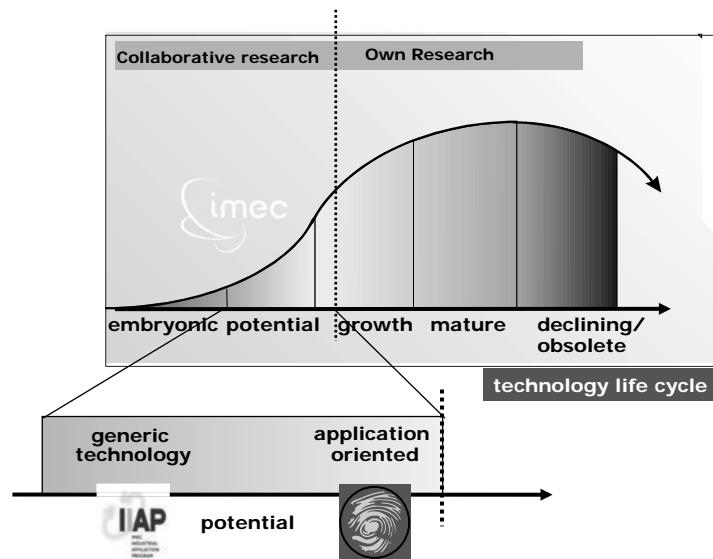
License scheme of Bekaert & Continental (technical standards)



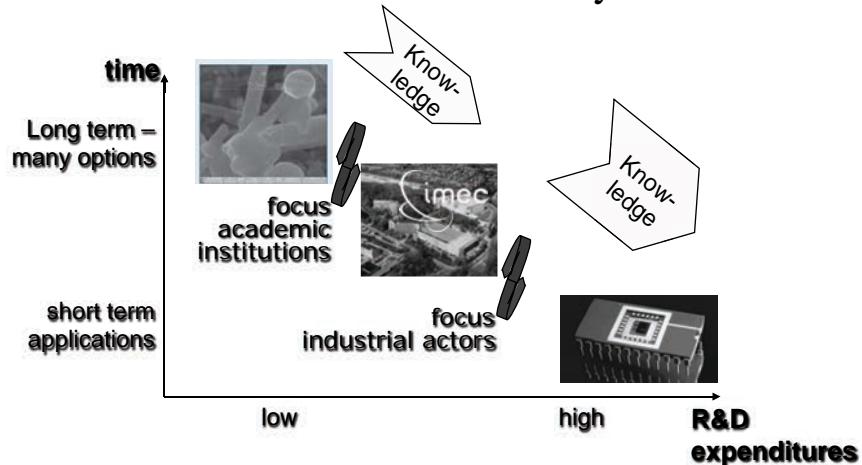
Proposal:

- X = ...% of net sales value of supplied product
- Supplier collects royalties
- Cross-license agreement between client and supplier implying:
 - Bekaert to supply "other clients" at X%
 - "Other suppliers" to supply the Continental at X%
 - Bekaert grants sublicenses to "other suppliers". The latter can supply to "other clients" at 2X%

IP policy: IMEC's position in the technology life cycle



IP policy: Imec's bridge function between academic institutions and industry

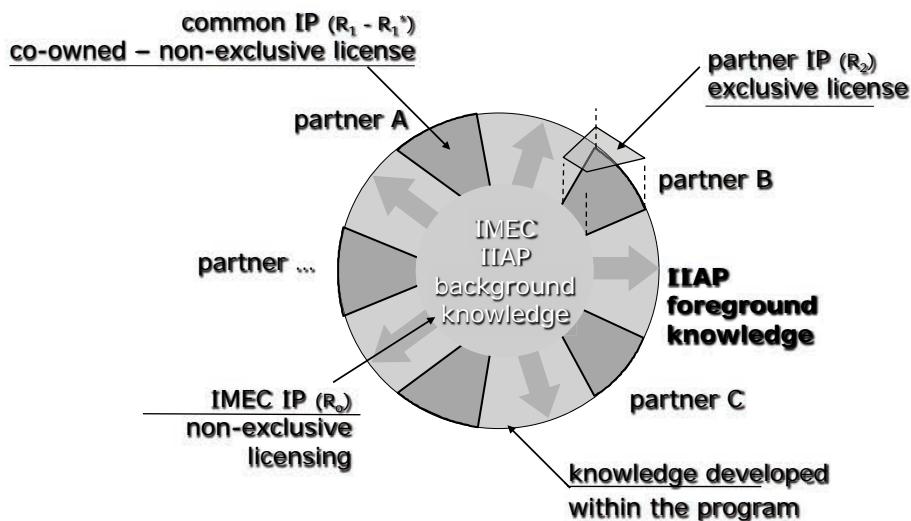


IP policy: IMEC Industrial Affiliation Program



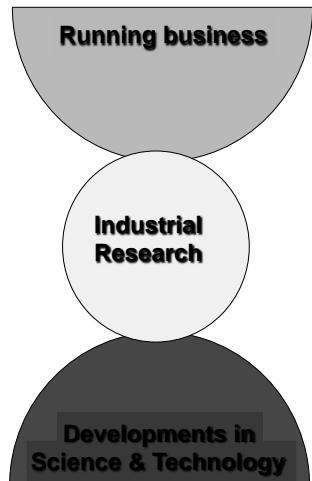
- What
 - ◆ R&D cooperation in generic technologies
 - ◆ Strategic program developed by IMEC and executed in IMEC
 - ◆ IIAP partners send guest researcher(s) to IMEC
- Advantages
 - ◆ Sharing costs, risks, research infrastructure, IP
 - ◆ IIAP partners get access to:
 - IMEC's background knowledge
 - selected results of other partners in IIAP
 - ◆ bilateral contract within the framework of IIAP
- Leverages
 - ◆ resources
 - ◆ knowledge
 - ◆ cross-fertilization of research of different partners
 - ◆ shortening time to market

IP policy: IIAP – Generic framework



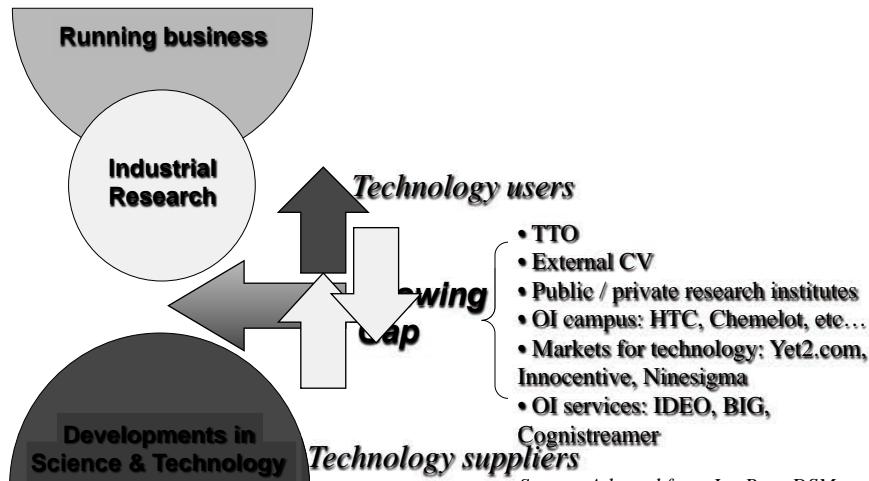
Technology markets and the role of innomediaries

Shifting roles and the emergence of (intermediate) technology markets



Source: Adapted from Jos Put - DSM

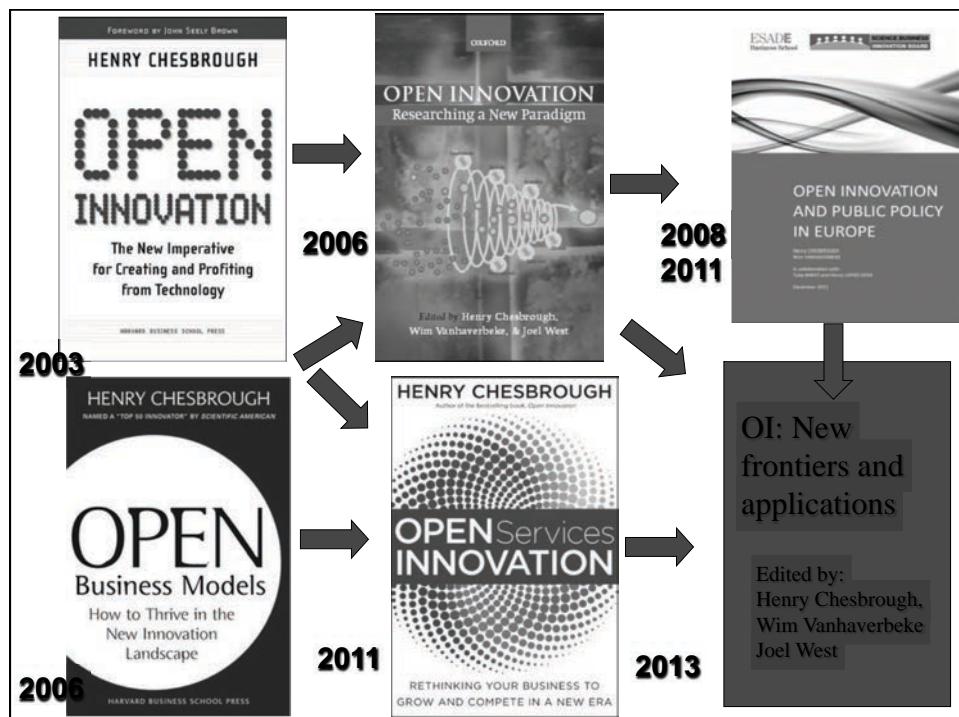
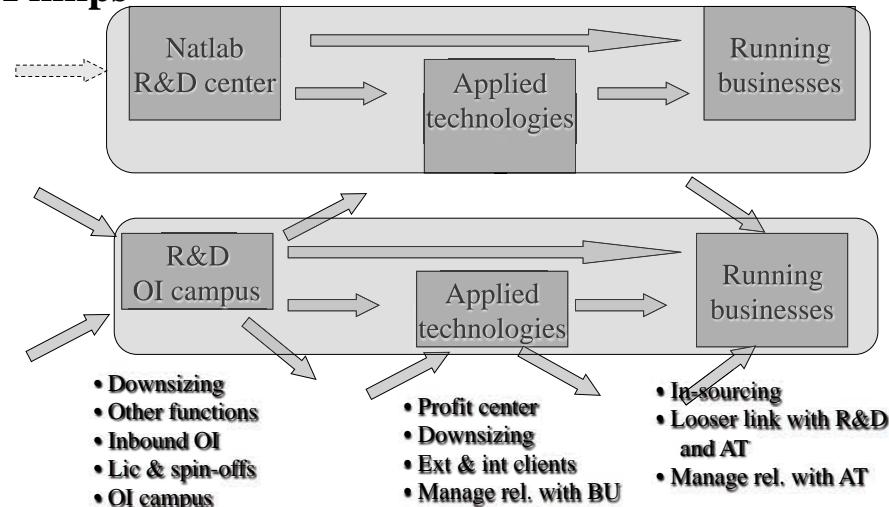
Shifting roles and the emergence of (intermediate) technology markets



Source: Adapted from Jos Put - DSM

Restructuring companies as a silent driver of OI

Philips



Exnovate as a network of excellence for OI-practitioners and scholars?

- www.exnovate.org
- An international network of excellence on Open and Collaborative Innovation
- Projects
 - ◆ PhD course OI in ESADE (5th time – 20-22 January Barcelona, 2014)
 - ◆ CE and OI Masterclass 10 times already; 12th time at ESADE Barcelona last week of May 2014)
 - ◆ Study on open innovation metrics
 - ◆ Using best practices to improve OI in SMEs
 - ◆ ...

MOOI-project 2013-2015



Join the new online community
for OI professionals



Prof. Henry Chesbrough,
UC Berkeley & ESADE
Prof. Wim Vanhaverbeke,
UHasselt, ESADE & NUS
Prof. Nadine Roijakkers,
UHasselt



12 monthly themes

1. Aligning open innovation (OI) with corporate strategy
2. Role and actions of top management in supporting OI
3. How to set up organization, management, and communication structures supporting OI projects?
4. How to recruit, select, train, etc. for open innovation: What skills,
5. How to create a corporate culture where OI can thrive?
6. How to use IP strategically to accommodate OI?
7. How to change the R&D-department for OI?
8. The OI implementation team
9. How to make effectively use of Innomediaries?
10. How to evaluate the success of OI activities?
11. Making it happen: From closed to open innovation
- 12.

<http://mooiforum.com>

<http://www.exnovate.org/>

wim.vanhaverbeke@uhasselt.be