

Open Innovation

Contribution to

International Workshop

“Bridging Russian and European Technology Platforms”

Open Innovation: Bridging the gap between science,
technological development institutions and industry

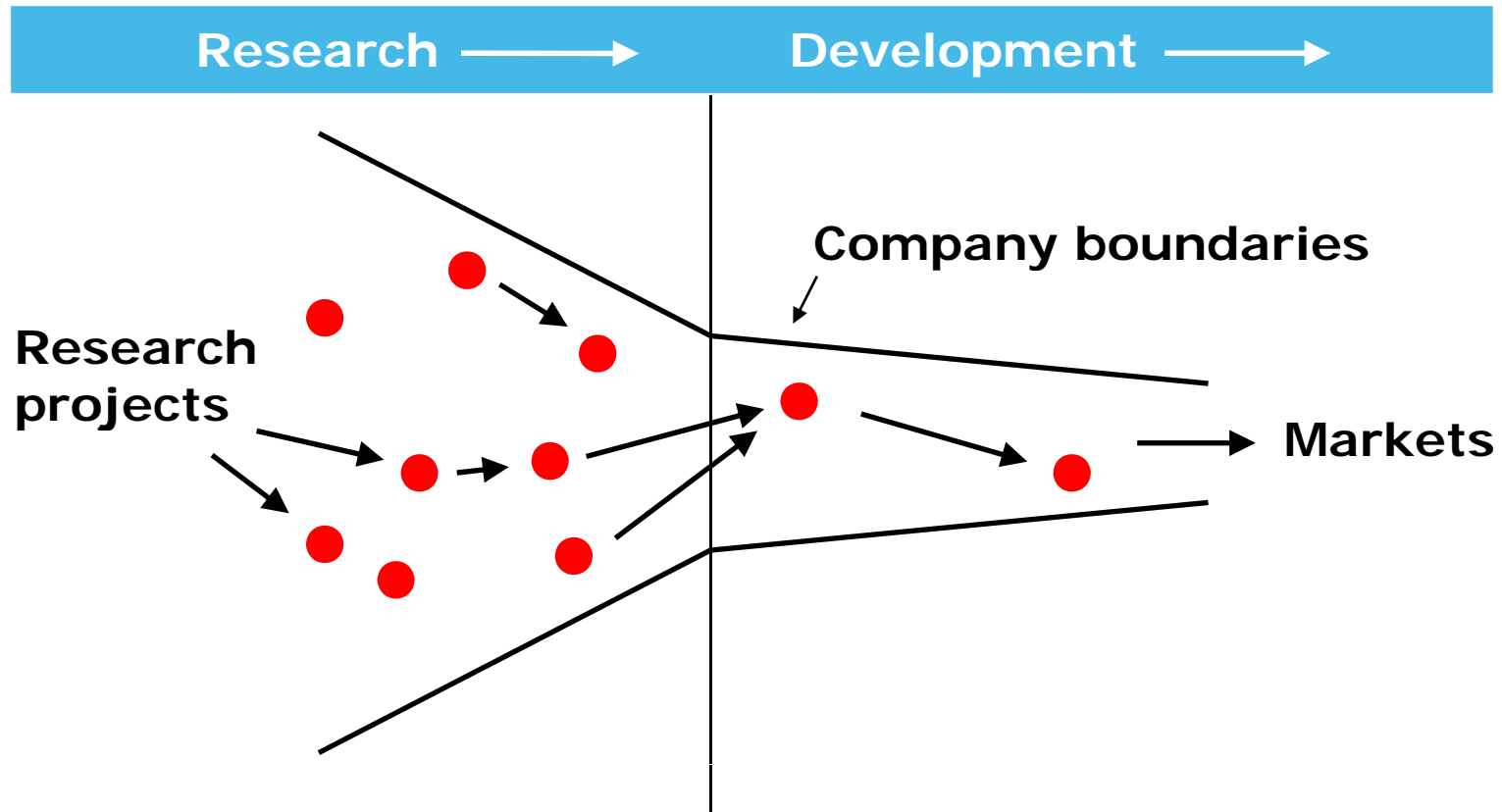
by Geert Schoch

Director International (retired),

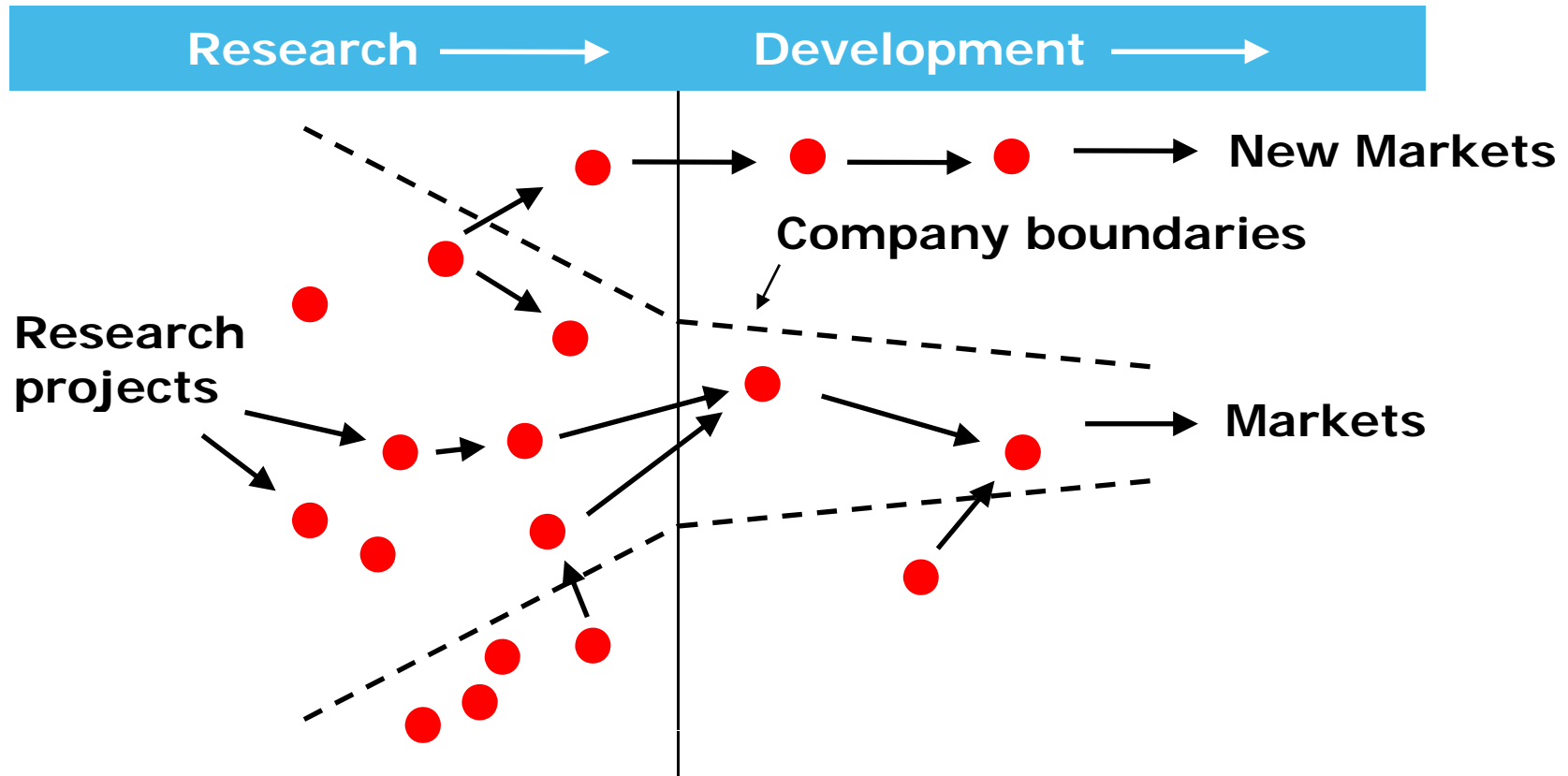
Netherlands Organisation for Applied Scientific Research- TNO

Managing Director Schoch & Company

Closed Innovation



Open Innovation



Closed and Open Innovation

Closed Innovation Principles

- We have the smartest people
- We discover, develop and produce ourselves
- Discover means market first
- Market means winning
- Create most and best ideas means winning
- Control IP to avoid profit for competitors

Open Innovation Principles

- There is smart people outside too
- External R&D can create value, internal R&D needed to claim portion of value
- We can profit without originating research
- Best use of internal and external ideas is winning
- Profit from others' use of our IP and buy others' IP when it advances our business model

The choice between closed (exclusive) and open innovation approaches is economically based. The R&D portfolio of the company is leading.

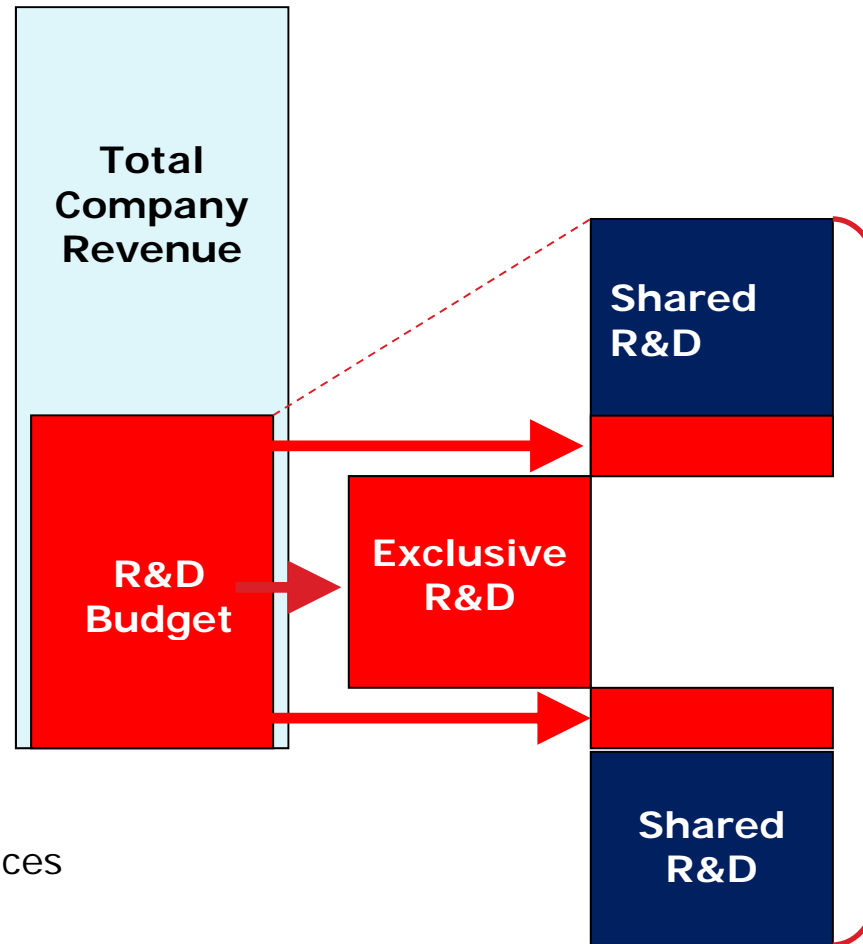
Open innovation is open to participants based on common funding

Open Innovation through Shared Programs

R&D budget
fixed % of
revenues

R&D costs grow
faster than
revenues: due to
increased
complexity

- Mechanics
- Physics
- Electronics
- Software
- Materials
- Bio / Life sciences
-



Leverage:

1. **Sharing ideas**
2. **Sharing of facilities**
3. **Shorter time to market**
4. **Leverage of R&D budget**

Open Innovation based on Public-Private-Partnerships

Three examples

- **Leading Technology Institutes (recently Top Sector approach)**
 - Virtual institutes based on programmes
- **High Tech Campus Eindhoven**
 - Infrastructural and sharing of facilities
- **Holst Center**
 - Physical center with locally based scientists from participants

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Leading Technology Institutes

- Launched in the nineties as part of industrial policy
- To boost the Netherlands' innovative capacity and competitive strength
- Partnerships for innovation between the business world, knowledge institutions and government
- Consistent with the increasing importance of networks, public-private cooperation, demand drive and programme funding

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Leading Technology Institutes

- To perform pre-competitive research, linking scientific knowledge to the industrial need for innovation: *Added value for the economy*
- Virtual organisations based on programmes
- Proposals for the establishment of LTI's were invited by the government from industry and knowledge institutions. *Top Down*
- Long term partnerships
- In 2010 10 LTI's exist in critical technological areas
- Very positive evaluation by OECD

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Leading Technology Institutes

- Government funding has been
 - 75% of costs for fundamental research
 - 50% of costs for industrial research
 - 25% of costs for experimental development

Dutch government has stopped this initiative in 2011. It has spend around Euro 500 m in total. It is now under evaluation related to new industrial policies

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New governmental industrial policies in The Netherlands

- Application in innovative products and services lag behind the opportunities, investments in R&D are too low
- SME's do not benefit enough of R&D in public funded institutions
- Public funded R&D shows unsatisfactory results in innovation
- More cooperation, joint actions, specialisation is beneficial
- Economies of scale needed
- More demand driven

Therefore:

- Per top sector (9) joint knowledge and research agenda to be adopted by industry, R&D institutions and government
- Less specific government funding, less tax burden and regulation, more freedom to undertake

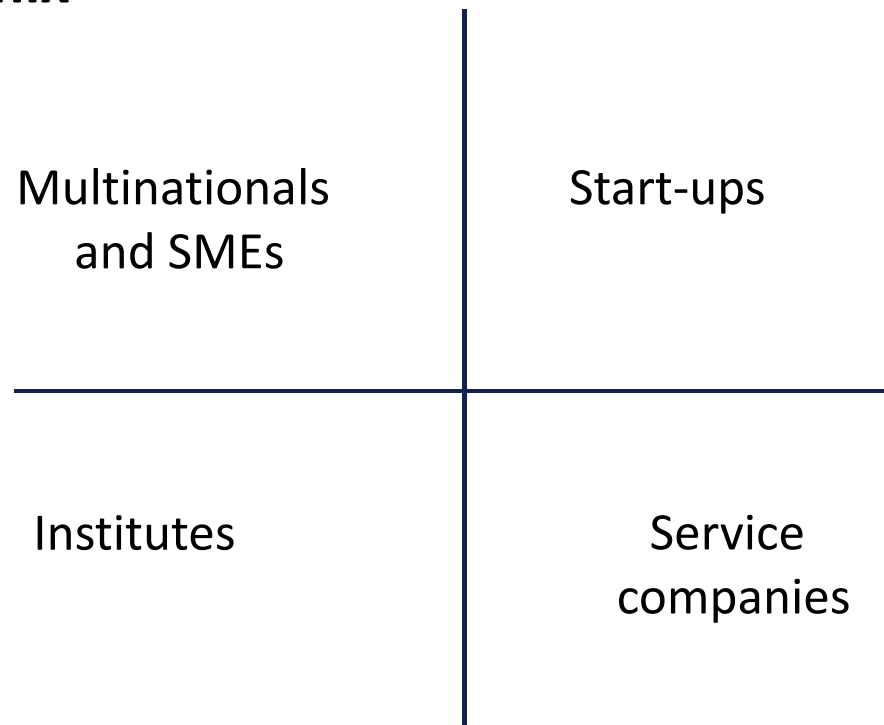
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High Tech Campus (Eindhoven, the Netherlands)



Open Innovation High Tech Campus, Eindhoven

The right mix



Open Innovation High Tech Campus, Eindhoven



Technology institutes



Companies as...



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High Tech Campus, Eindhoven

Open Innovation as work approach

- From closed to open
- From owning everything to focus on core competences
- From just knowledge sharing to developing together



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High Tech Campus, Eindhoven

Beneficial Ecosystem

- Sharing facilities: Clean rooms, laboratories, test environments, high tech equipment, high-end ICT network
- Challenging workplace
- Venture capitalists
- Desks for:
 - Patent management
 - Marketing communication
 - Recruitment & selection

Number of workers: 9000, 50% of all Dutch patent applications

The Intelligent Community Forum named the Eindhoven Region as the world's Intelligent Community of the Year 2011

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High Tech Campus, Eindhoven

- The **Eindhoven Region**, south of Amsterdam, has long been the industrial center of Holland, with 730,000 inhabitants and a workforce of 400,000. Eindhoven generates **€24 billion of GDP and €55 billion** in exports, **one-quarter of the Dutch total**. It is a manufacturing center in a high-cost country. By focusing on producing high-value, technology-based products, it is in competition with fast-growing manufacturing centers in nations with much lower costs. At the same time, however, Eindhoven is saddled with demographics familiar to Europe and much of the West, in which **a low birth rate and aging population** is reducing the regional labor force. To win the battle for the talent that provides its competitive advantage, the region must make itself **economically and socially attractive to knowledge workers** from around the world and **concentrate on innovation**.
- Eindhoven's answer to these challenges is **a public-private partnership** called Brainport Development. Its members include employers, research institutes, the Chamber of Commerce, the SRE, leading universities and the governments of the region's three largest cities. A small professional staff meets regularly with stakeholders to identify their strengths, needs and objectives, then looks for opportunities for them to collaborate on business, social or cultural goals. Its range of projects includes broadband deployment and applications, workforce development, digital inclusion, marketing and advocacy for the region – and especially innovation.

Open Innovation Holst Centre, Eindhoven

Open Innovation Centre for Autonomous Microsystems and Systems-in-Foil

N.B. Physical Centre, not virtual

- Joint centre of TNO (4500 fte, Netherlands) and IMEC (1650 fte, Belgium)
- Aimed at international excellence; partnering with industry worldwide
- Created in 2005, co-funded by government and industry
- Employing 25 nationalities, 220 employees
- 60 resident researchers from industry and universities



Open Innovation Holst Centre, Eindhoven

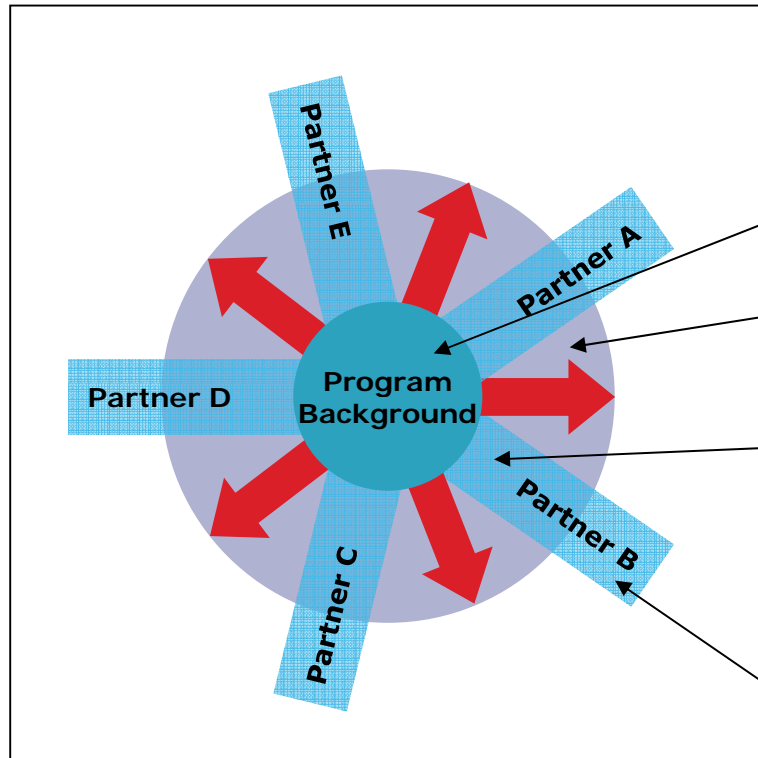
Characteristics

- Creating generic technologies, time to market 3..10 years
- Partnering with industry and universities
- Open innovation through precompetitive (fundamental) shared programs
- Results are shared between partners



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Holst Centre, Eindhoven



1. Background of Partners: remains theirs

2. Entrance fee: Non-exclusive license on program background

3. Participation fee: Non-exclusive license on program results

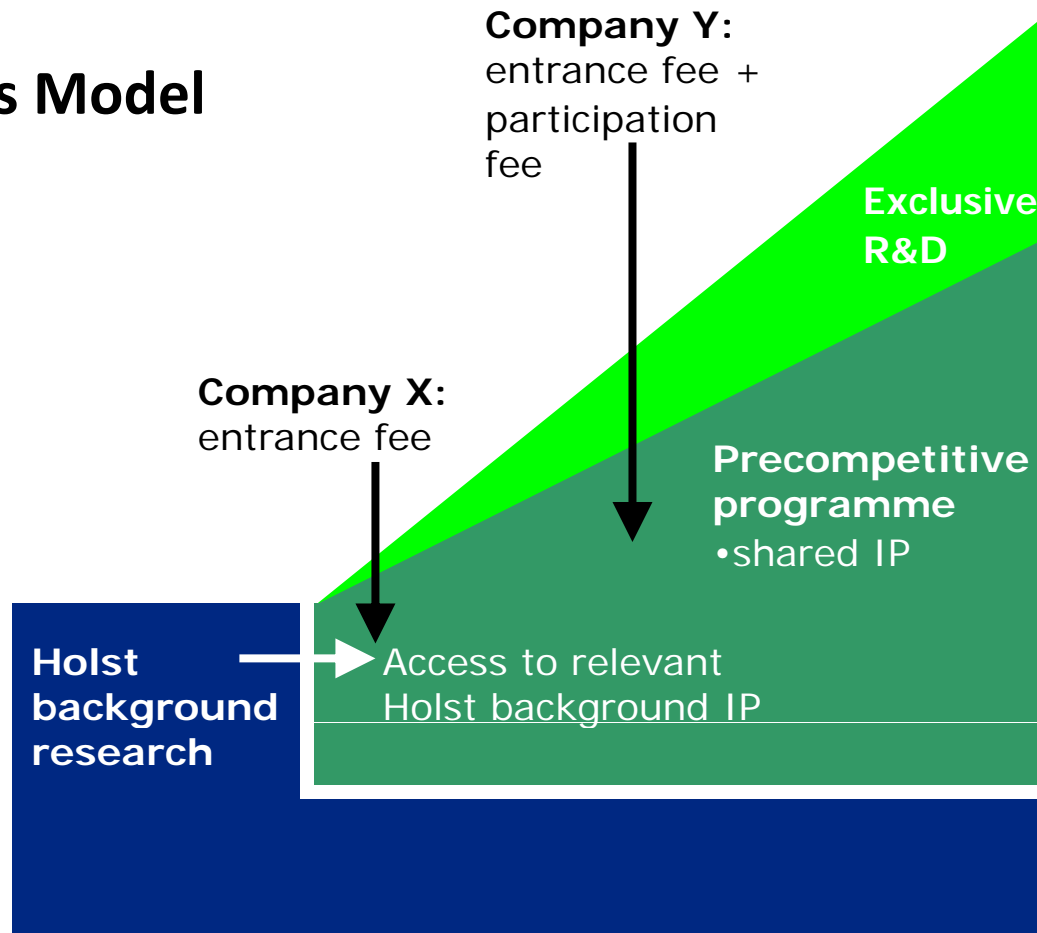
4. Co-inventing by Industrial Residents: co-ownership of IP, sublicensing rights

5. Non-Generic improvements of "Provided Background": ownership, exclusive in domain

6. Exclusive Programs: ownership of IP

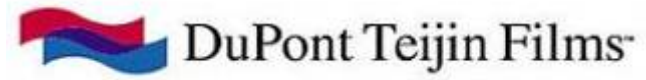
Open Innovation; Holst Centre, Eindhoven

Business Model



Continuous program adaptation and growth

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Industrial Partners



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Concluding remarks

- Open innovation is about economics, about sharing of costs and revenues, about demand driven approaches
- Emphasis on pre-competitive, fundamental research
- IP-policies concerning background and foreground knowledge should be clear
- Open innovation is open to the participants
- Public Private Partnerships are subjects of national industrial policies
- Open innovation is different from multi-client research projects
- National and local circumstances define many parameters
- Open innovation is not a panacea, closed innovation remains important