

New Business Strategies

11ème édition de la Journée luxembourgeoise de la propriété intellectuelle La propriété intellectuelle à l'ère de la digitalisation

Luxembourg, April 26, 2018



TUM-Tech GmbH
Die Transfer-Company

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2 Main Areas of Activities



Service Offering of TUM-Tech GmbH

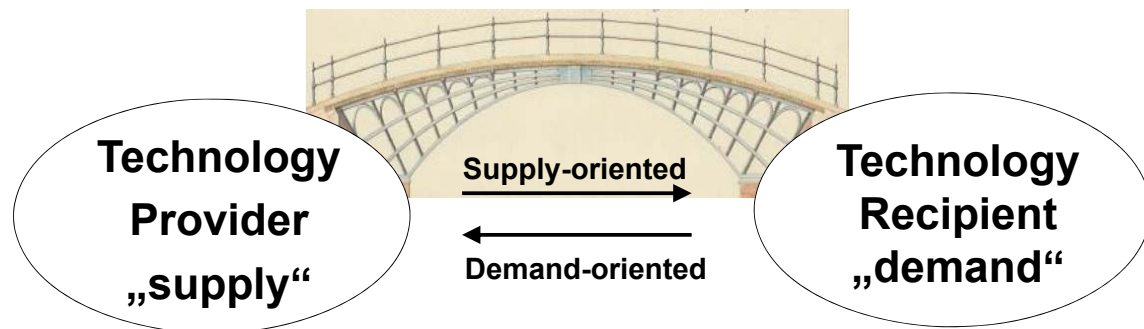
Technology-Transfer

- We identify the most suited expert in the academic field for individual questions of companies
- We work independent and demand-oriented
- We do have a large network, well beyond TUM*

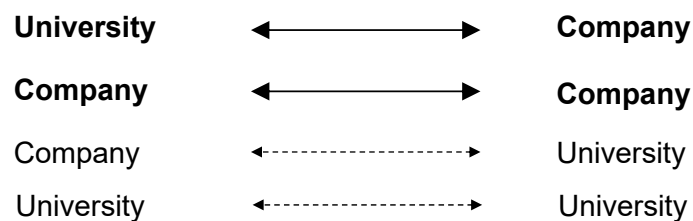
Innovation-Management

- We are experts on innovation-management
- We offer individual support (e.g. Start-up, market studies, IP)
- We offer additional services (e.g. public funding)

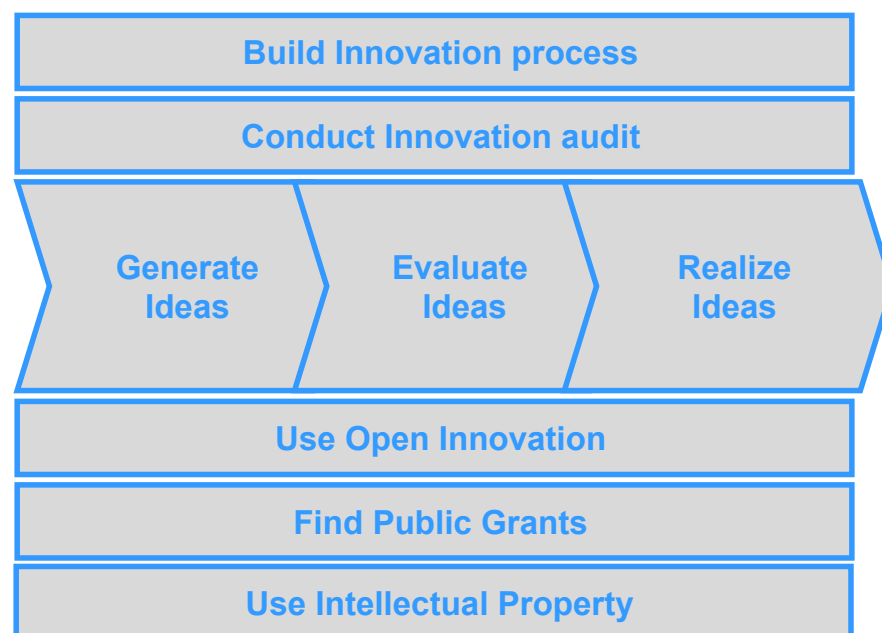
Technology - Transfer

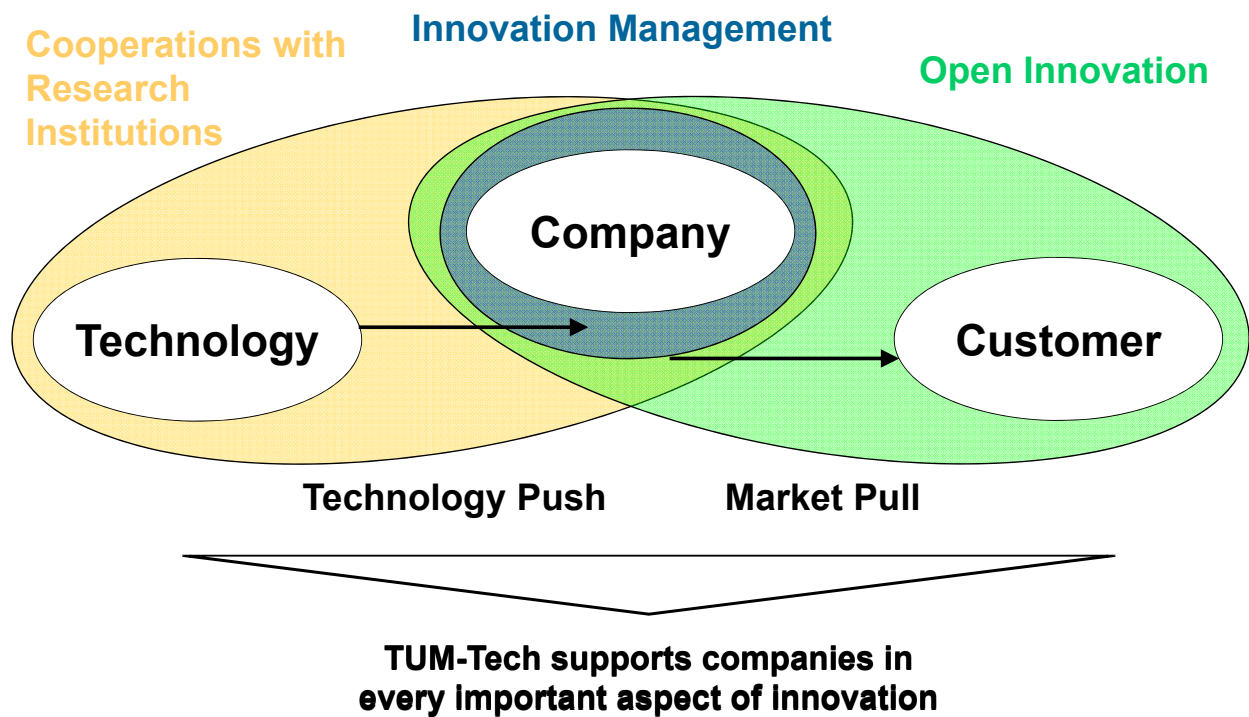


Types of Partnership:



Service Offering on Innovation





New Business Strategies (case studies)

- Digitalisation
- Open Innovation

“Chance / Option” or “Must Have”??

Election of Pope 2005**Election of Pope 2013**

www.spiegel.de/panorama/papst-momente-bilder-zeigen-vergleich-zwischen-2005-und-2013-a-889031.html

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Digital Business Models:

- **Fundamental change of existing business models**
- **e.g. music industry, film/camera**

- **Changing the way customer interact with company / product**
 - E.g. sales process, production, procurement
 - Option for standardization, automation and (mass) customization
 - Option for improvement of efficiency, reduction of cost (work flow)

Internet of Things (IoT):

“Connecting physical devices with electronics / software for exchange of data”

Some prerequisites:

- RFID
- Bar code, QR code
- Sensors, actuators



“Smart” Fridge:

Early days of IoT

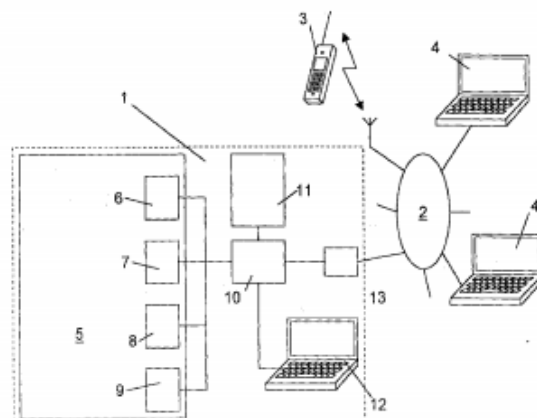
“automatically knows when to order milk”

Priority date: Dec 2000

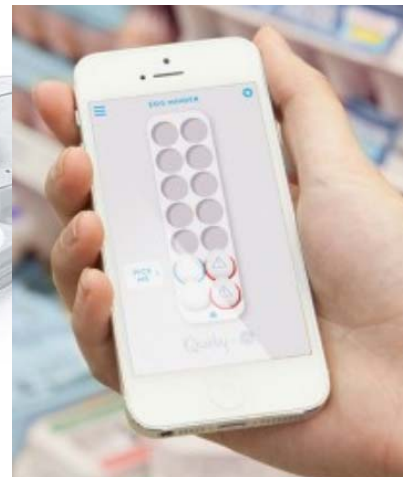


⑤4 Kältegerät mit einer Verwaltungseinheit

⑤1 Ein Kältegerät (1) umfasst eine Lagerkammer (5) und eine Verwaltungseinheit (10) zum Überwachen des Vorratsbestandes in der Lagerkammer (5). Die Verwaltungseinheit (10) ist mit einer Schnittstelle (13) zu einem Datenübertragungsnetzwerk (2) ausgerüstet und ist eingerichtet, einen in dem Kältegerät (1) erfassten Ist-Vorratsbestand mit einem Soll-Vorratsbestand zu vergleichen und in dem Fall, dass der Ist-Vorratsbestand hinter dem Soll-Vorratsbestand zurückbleibt, eine Übertragungsverbindung über die Schnittstelle (13) zu einem entfernten Endgerät (4) auszubauen und eine als Bedarfsliste bezeichnete Liste von Bezeichnungen von als im Ist-Vorratsbestand als fehlend festgestellten Artikeln an das entfernte Endgerät (4) zu übertragen.



Smart Fridge II: Smart Egg Tray “Egg Minder”



- How many eggs do you have in the fridge (syncs with app)
- Indicates oldest egg (LED, notification)

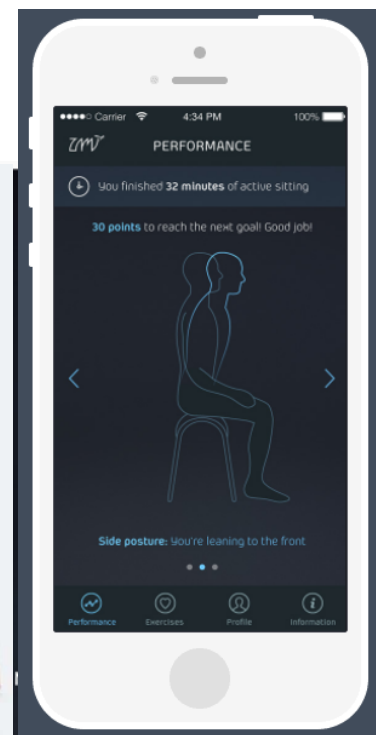
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Desk Chair: Is it smart?

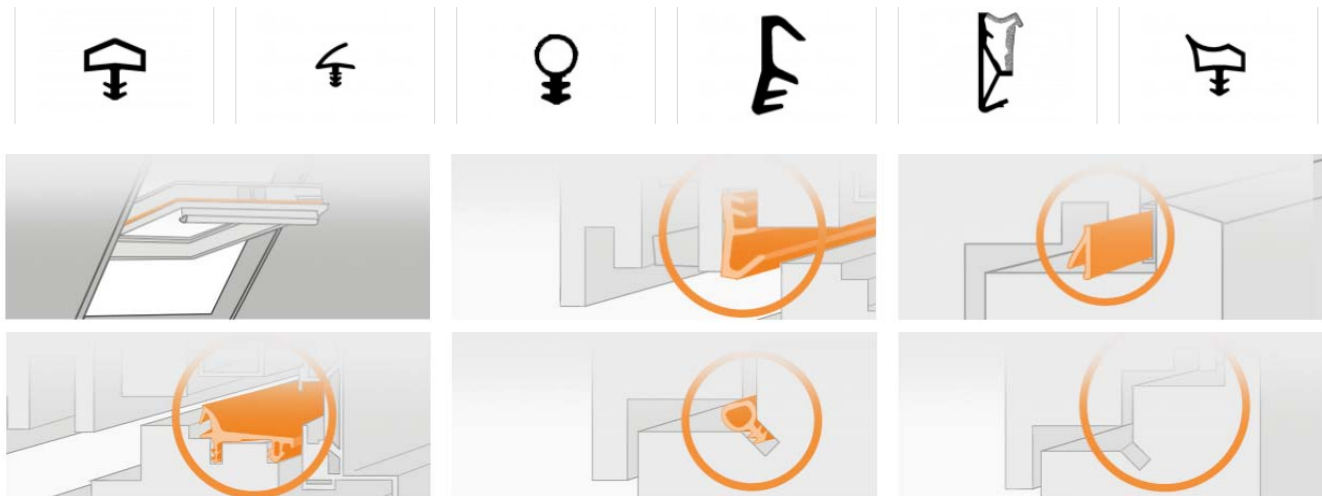


Zamilife.de, pixabay.com

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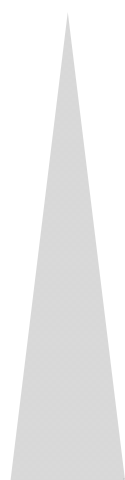
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- More than 4,000 seals for windows, doors, refrigerators....

You need a replacement for your old seal

Traditional



Innovative /
digital

- “Old” Economy
 - Go to shop with old seal, ask for replacement – description, drawing or picture of old seal
- New Economy 1: online shop
 - Browse through selection of seals (grouped into categories for easier location of specific seal)
- New Economy 2: picture, expert recognition
 - Send in picture of old seal (via whats app), sales rep. identifies correct new seal
- New Economy 3: picture, automated recognition
 - Send in picture (via whats app), automated image recognition identifies correct new seal

Smart Medical I Rythmic™ connect

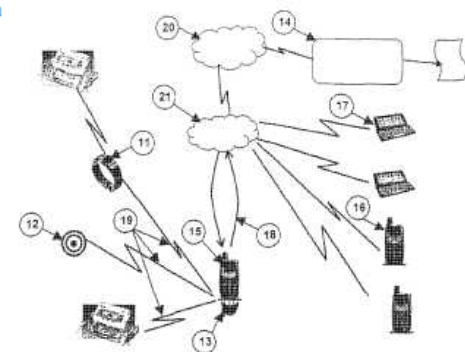
From an ambulatory
home instead of in the

Smart Drug Delivery

Remote control for home
infusion therapies



Described is a system for monitoring medical parameters of a being, in particular a human being, comprising medical functional means including at least one sensor section for detecting at least one predetermined medical parameter, a transmitting means for transmitting the medical parameter(s) detected by said sensor section, said transmitting means being adapted to be provided at the being, and a remote serving means for receiving and processing the medical parameter(s) from said transmitting means and providing instructions and/or data on the basis of the processed medical parameters.



EP1385420B1, priority date: April 2001

micrelmed.com, Espacenet.com

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Agenda

- Introduction TUM-Tech GmbH
- **Overview: Invention to Innovation**
- Selection of most interesting topics for next meeting

- Online configuration tools
 - for B2C products
 - also for complex B2B-products



Equipment

Exterior	▼
Assistance	▼
Mirrors	▼
Lights	▼
Driving Comfort	▼
Interior	▼
Seat Comfort	▼
Decor	▼

A4 Avant

2.0 TDI quattro 140 (190) kW (PS) 6-speed



Your Audi >



Dimensions



Print



Send e-mail

> New configuration

MULTILINE CONFIGURATOR

Size Form Insert Body Related Overview Request

Size

Please choose the desired size.

Size A	Size B	Size C	Size D
Details Tube up to OD6 Number of connections Max. 12 connections Functions With and without shut-off Utilization for media vacuum Pneumatics Liquids	Details Tube up to OD8 Number of connections Max. 10 connections Functions With and without shut-off DRIP-FREE Utilization for media Vacuum Pneumatics Liquids Electro Note ELECTRICAL M12 POWER CONNECTOR 5 - 8 pin A, B, D coded	Details Tube up to OD10 Number of connections Max. 6 connections Functions With and without shut-off DRIP-FREE Utilization for media Vacuum Pneumatics Liquids Note ELECTRICAL M12 POWER CONNECTOR On request	Details Tube up to OD14 Number of connections Max. 4 connections Functions With and without shut-off Utilization for media Vacuum Pneumatics Liquids

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TU select select select select 19

Online Configurator

• Advantages for customer, e.g.:

- Higher clarity
- Step by step guidance
- Avoidance of wrong combination of components
- Planning tool

• Advantages for company, e.g.:

- Less question/problems/complaints
- Higher customer loyalty
- Option for analysis (e.g. trends)
- Higher productivity



US 20020156698A1

(19) **United States**(12) **Patent Application Publication** (10) **Pub. No.: US 2002/0156698 A1****Machau et al.**(43) **Pub. Date: Oct. 24, 2002**(54) **PROCESS FOR CONFIGURING A PRODUCT OR A PRODUCT COMBINATION ON A PC**(52) **U.S. Cl. 705/26**(75) **Inventors: Norbert Machau, Goppingen (DE); Hong Zhou, Deizisau (DE); Robert Lang, Esslingen (DE)**(57) **ABSTRACT**

Correspondence Address:
Charles R. Hoffmann, Esq.
HOFFMANN & BARON, LLP
6900 Jericho Turnpike
Syosset, NY 11791 (US)

A process is proposed for configuring a product or a product combination on a PC, which can be connected or is connected via a data link with a data processing facility or computer of the product manufacturer. The product or product combination and/or their individual components are portrayed on the display of the PC by means of a configuration program in this computer, menu-guided on the basis of a selectable system concept for the product or product combination, where the dimensioning and working parameters (11, 12) are selected and/or fed in and the individual components required for this are automatically selected from the individual components present in the data bank of the computer and/or automatically configured or adapted. The resulting individual components are represented and/or listed. A client and user can thus configure a product himself according to his specifications in a simple manner in the case of a very large multiplicity of available individual components so that the individual components required for this are automatically selected and assembled into a product.

(73) **Assignee: FESTO AG & CO.**(21) **Appl. No.: 10/123,927**(22) **Filed: Apr. 16, 2002**(30) **Foreign Application Priority Data**

Apr. 20, 2001 (EP) 01 710 024.9

Publication Classification(51) **Int. Cl.⁷ G06F 17/60**

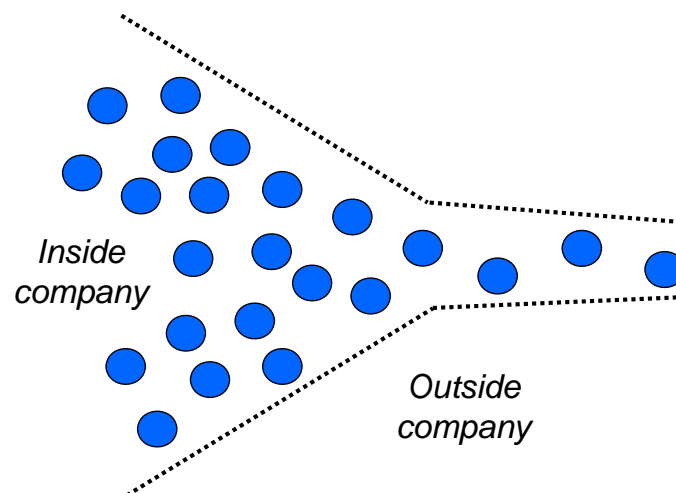
Espacenet.com

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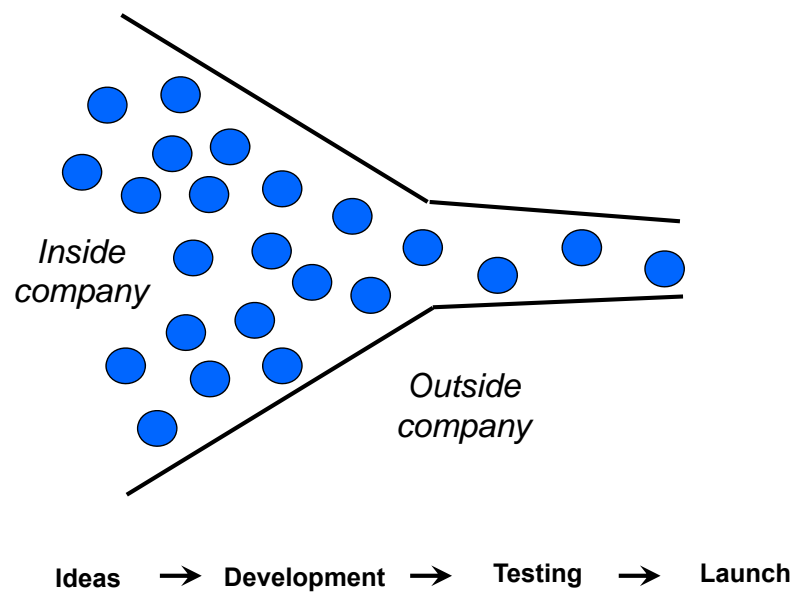
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Innovation Management

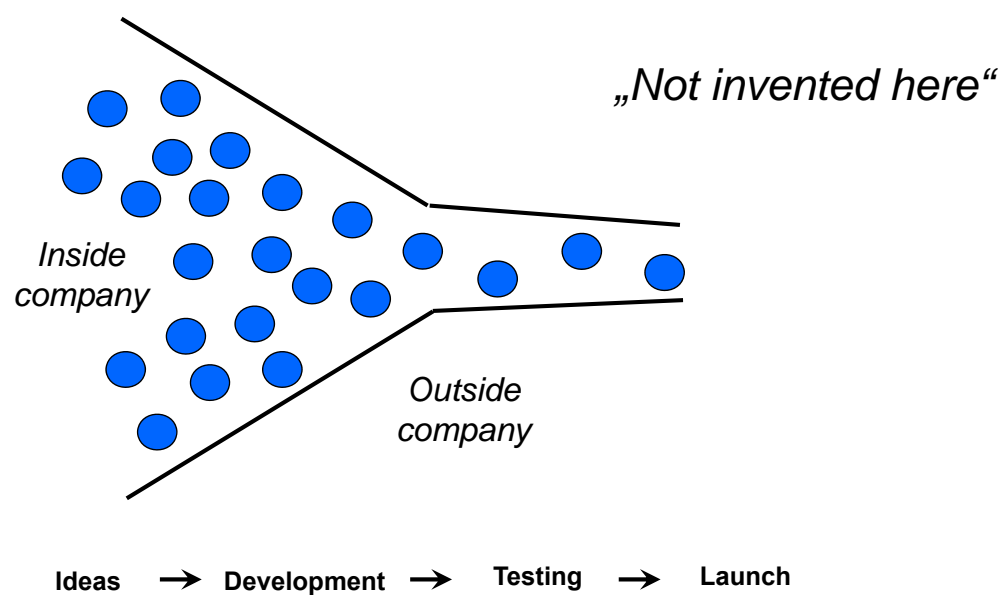


Ideas → Development → Testing → Launch

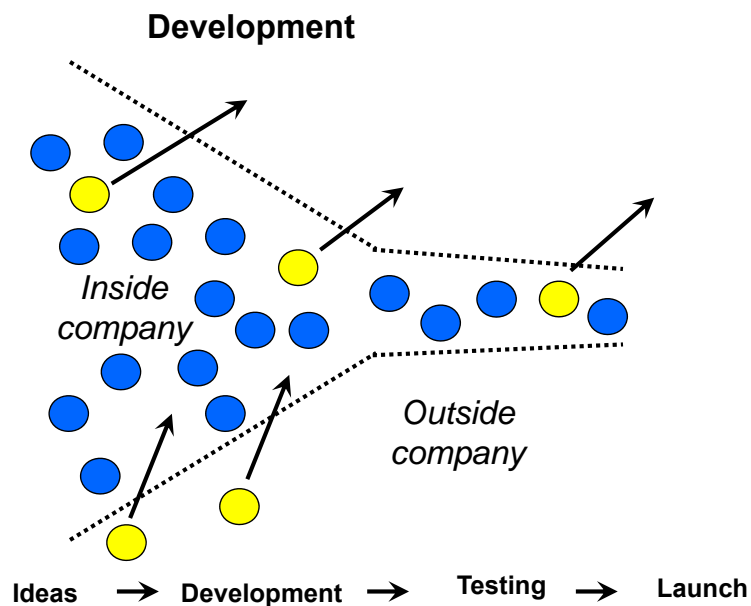
Innovation Management Traditional



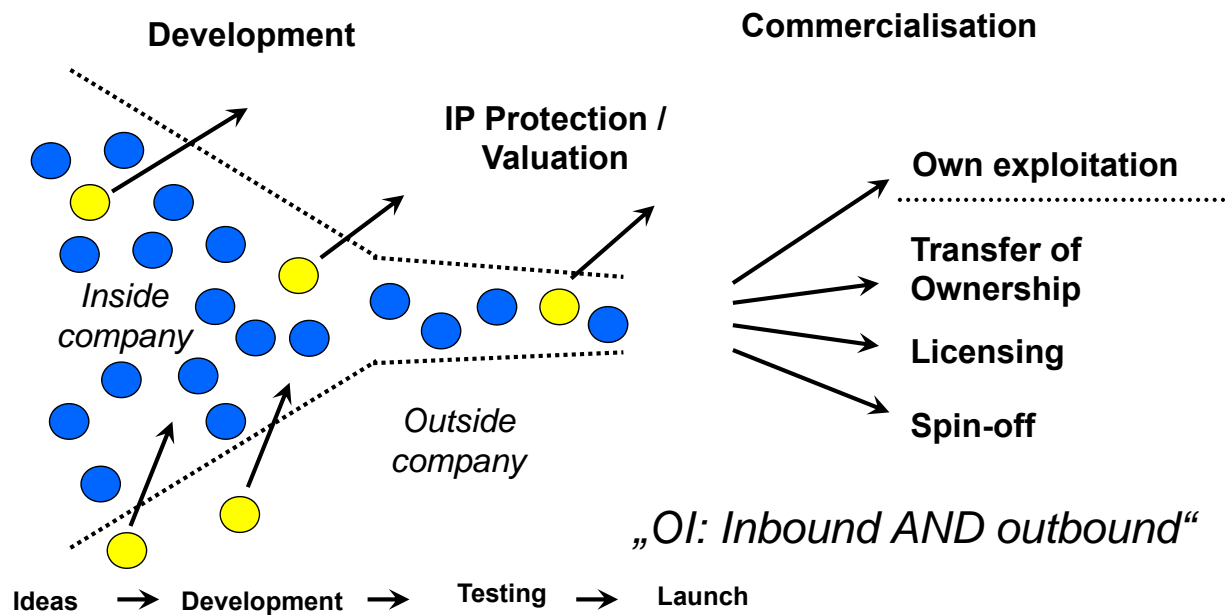
Innovation Management Traditional



Innovation Management Using Open Innovation (OI)



Innovation Management / IP Management Using Open Innovation (OI)



Open Innovation

Definition:

“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.

Open Innovation is a paradigm that 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”

(Chesbrough *et al.*, 2006)

Open versus Closed Innovation

Closed Innovation	Open Innovation
<i>Straight and sequential</i> line from research to product development, manufacturing and sales	<i>Networking, interacting, sharing with others and accessing</i> outside information and technology
Projects can only enter in one way , at the beginning, and can only exit in one way , by going into the market	There are many ways for ideas to flow into the process, and many ways for it to flow into the market

Two sides of Open Innovation

Outside-in: Use external knowledge

- Joy's Law: "No matter who you are, most of the smartest people work for someone else"
- The shift from "Not Invented Here" (NIH) to "Proudly Found Elsewhere"
 - NIH syndrome: "let's re-invent the wheel"
 - Proudly Found Elsewhere: crowdsourcing platforms e.g.: Procter&Gamble

Inside-out: Rely on external paths to market

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Questions

- « Open Innovation » and « Open Source »:
Are they based on the same principle?
- Do you need IPR for Open Innovation?

Open Innovation vs Open Source

~~Misconceptions:~~

~~Open innovation = Open source
Open innovation = public domain
Open innovation = no IP~~

Reality:

Open source is one (extreme) mode of open innovation
Open innovation results can be protected or released into the public domain
A functioning IP system and an effective market of IP rights supports open innovation

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(Established) Forms of Open Innovation

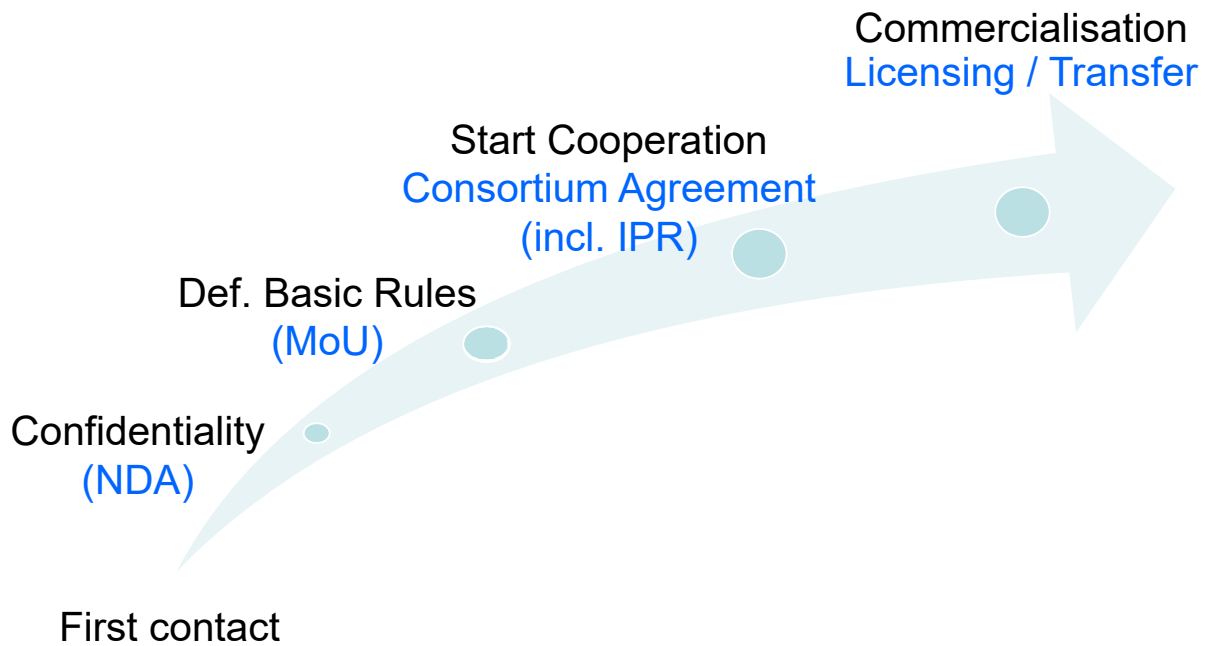
- Networking (even among different units in big firms)
- Employee suggestion system (in your own company)
- Collaboration and alliances: informal and formal
- R&D consortia
- Licensing-in and licensing-out
- Spin-off
- Acquisition and divestment
- Patent pools
-

„Networking“

„Connecting“

„Sharing“

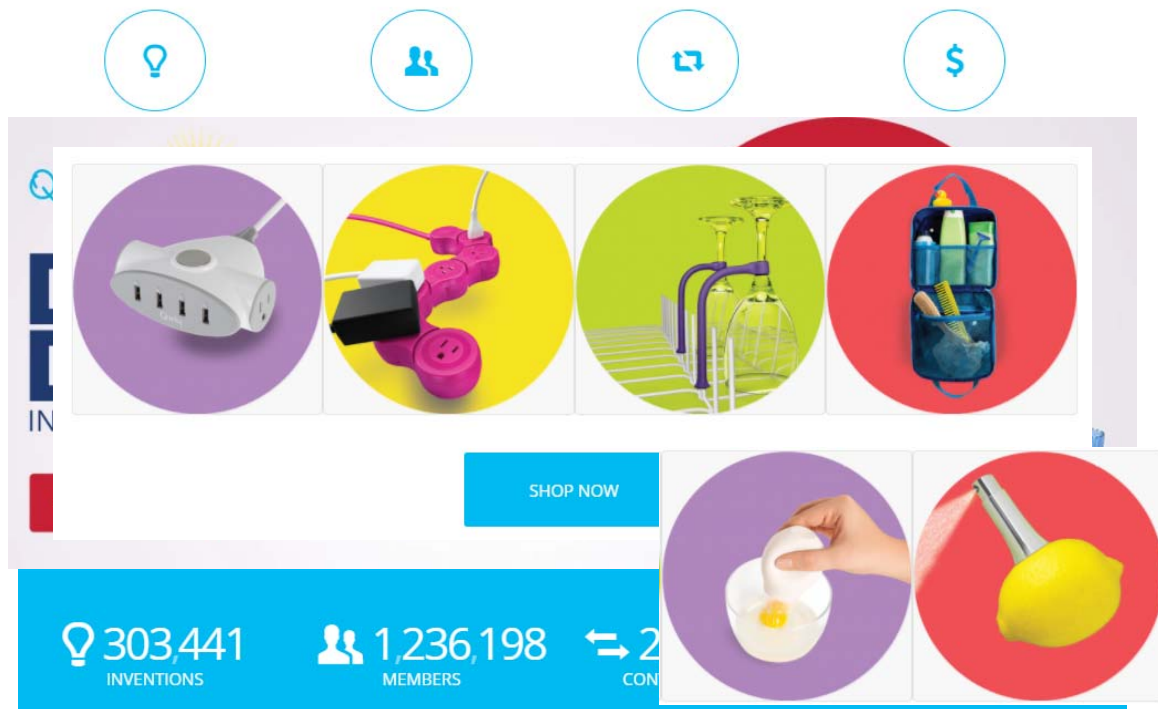
Phases of Cooperation



(Newer) Forms of Open Innovation

(online-):

- Innovation contests
- Innovation markets
- Innovation communities
- Innovation toolkits
- Innovation technologies



Quirky.com

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Open Innovation in Pharmaceutical Industry

Triggers for OI

- Growing mobility of skilled professionals
- Rise of cost / venture capital funding
- Faster cycles of product development
- Globalization of markets
- Increase in specialization
- Increasing capability of external suppliers

Open Innovation in Pharmaceutical Industry

Case Study: Eli Lilly

Innocentive:

- First internet platform to connect Seekers and Solvers
- Innocentive helps Seekers to post problems
- Solutions come from community (independ. scientists)
- Best solution which satisfies criteria will be awarded
- Spun-out in 2005, external VC (20% ownership Lilly)
- Example: Lilly R&D looking for ways to synthesize an active intermediate compound; solver was retired Lilly scientist (reward: 25T\$)
- Crowdsourcing

Lead User - Concept

- **Classical view:**
 - Product innovations introduced by the product manufacturer
 - The manufacturer generates ideas and develops prototypes
- **New perspective:**
 - Many innovations do not come from manufacturers – but from users of the product
 - Users often supply not only the idea, but also prototypes

Lead user method: Advantages

Classical market research:

- Aims at representative findings (“average customer”)
- Large-number studies
- Quantitative methods preferred for comparability

Problems: Average user...

- Is mentally focused on existing reality
- Has typically difficulties in articulating new needs (“sticky information” problem)
- Mostly has no pressing need for new products

➔ *Lead user method avoids these problems*

2 Variations of Lead User - Projects

- **Classical approach:**
 - Development of Product Concepts
 - Filling up your innovation pipeline
- **New Approach:**
 - Development of new applications for existing technologies
 - “Technology-Push”

Lead User Method: Critique

Risks / downsides:

- Development of niche solutions
- Secrecy might be compromised
- Costly and time-consuming
- Internal acceptance: “not invented here”
- Challenges with intellectual property

Operational difficulties:

- Identifying the right trends
- Identifying the true lead users
- Problems in lead user workshop
- Problems in test of acceptance

Different Functional Roles in User Innovation

- **A user innovator expects to benefit by using the innovation**
- **In principle, it could also benefit by manufacturing the innovative product or by licensing the innovation**
- **However:**
 - **Manufacturing:** a change from user to manufacturer (vertical integration) is typically difficult (e.g., complementary assets missing)
 - **Licensing** a user innovation might be possible, but requires effort (securing IP) and is typically not the intention of the user innovator
- **User innovators are often willing to reveal their innovations**



**Collaboration between user innovator and manufacturer
(e.g., development of product concept)
But: don't forget to discuss IP**

Case Study: Prevention of Counterfitting

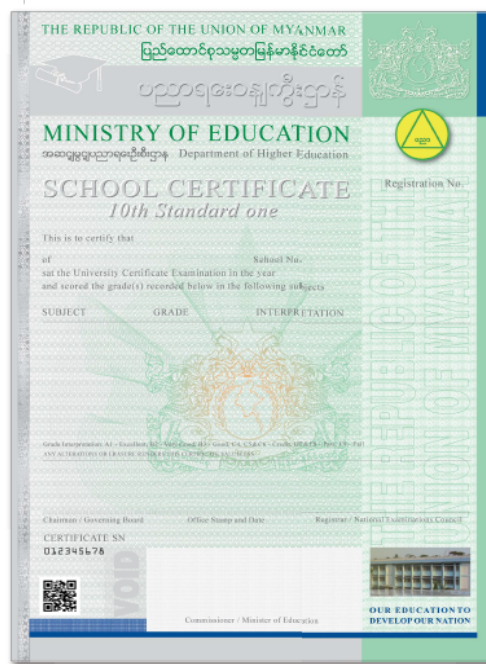
Step I:

Secure document design



THE REPUBLIC OF THE UNION OF MYANMAR - MINISTRY OF EDUCATION
School Certificate - 297 x 210 mm

Security Features

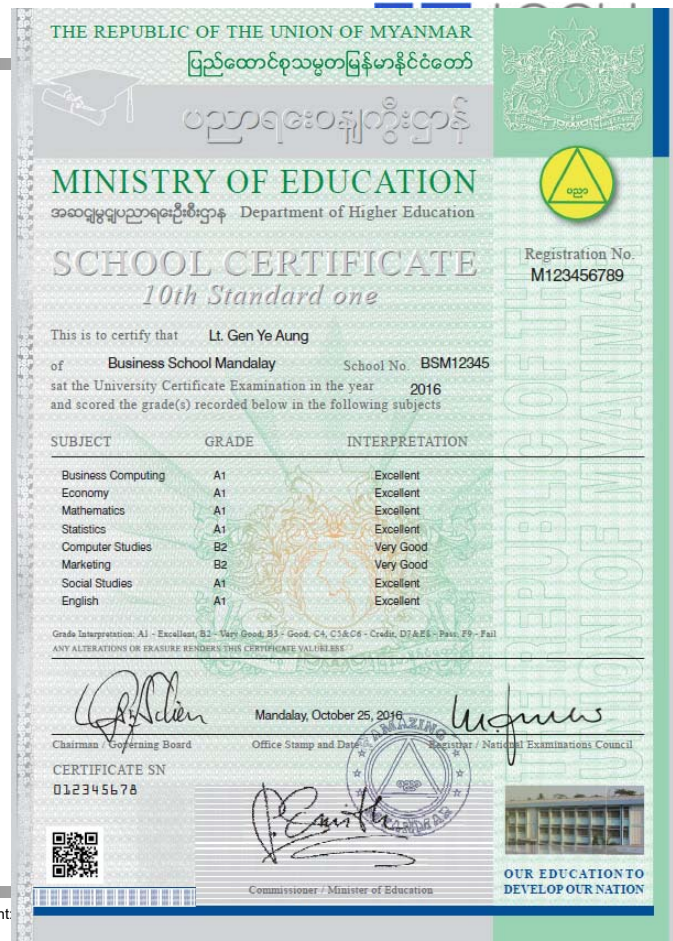


- Hologram
- Iris Print
- Security Guilloches
- Microlettering
(including 1 modification)
"THE REPUBLIC OF THE UNION OF MYANMAR"
and "MINISTRY OF EDUCATION"
- Anticopy-Orange
- UV-Fluorescence
- Security Paper
(Invisible and fluorescent Melier-Fibres)
- Anti-Copy VOID-Effect
- QR-Code / 2D-Code
- Digital Numbering

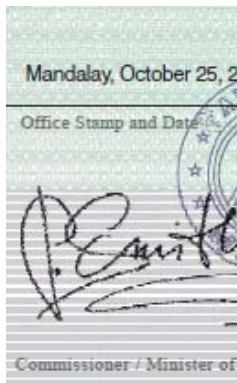
Case Study: Prevention of Counterfitting

Step II:

Personalization and Unique Numbering



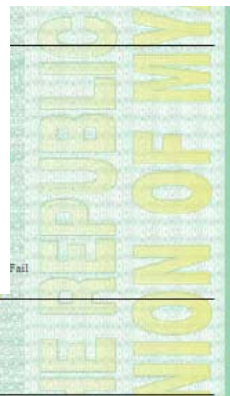
Step III: Authentication and Verification I



"(...) We have so many securities that it is more difficult to forge our certificate than to forge a currency. We have up to 18 security devices on our certificates. When we cannot stop people from forging, what we can assure our clients is that it is very difficult to come close to forging it. The place we print our certificates is where many respectable countries print their duty stamps, (...)"

SUBJECT	GRADE	INTERPRETATION
Business Computing	A1	Excellent
		Excellent
		Excellent
		Very Good
		Very Good
		Excellent
		Excellent
		Excellent

Prof Promise Okpala
(Registrar of the examinations body)



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Step III: Authentication and Verification II



Trusted results verification service:

- In order to verify document: scan of QR-code
- QR code contains embedded link to secure database (e.g. Ministry of Education)
- QR check on database retrieves relevant documents, e.g. copy of document, picture of person

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Open Innovation and IPR

IPR can hinder Open Innovation:

- Uncertainty how to protect own products when technology is coming from a third party?
- Uncertainty how to protect own know-how in an Open Innovation process
- Fear of own position being weakened by sharing IPR

IPR can support Open Innovation:

- Willingness to share ideas/technology is based on defined IPR (several studies show positive correlation)
- Applies for both inbound and outbound
- Consider all options of IPR, not only patents

Thank you!

Questions?

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