MAFEX

Marburger Institut für Innovationsforschung
und Gründungsförderung

Philipps Universität Marburg

Challenge of Managing and Protecting Innovation:

"Pitching your Ideas while Protecting your Business"

Prof. Dr. Michael Stephan

Executive Director

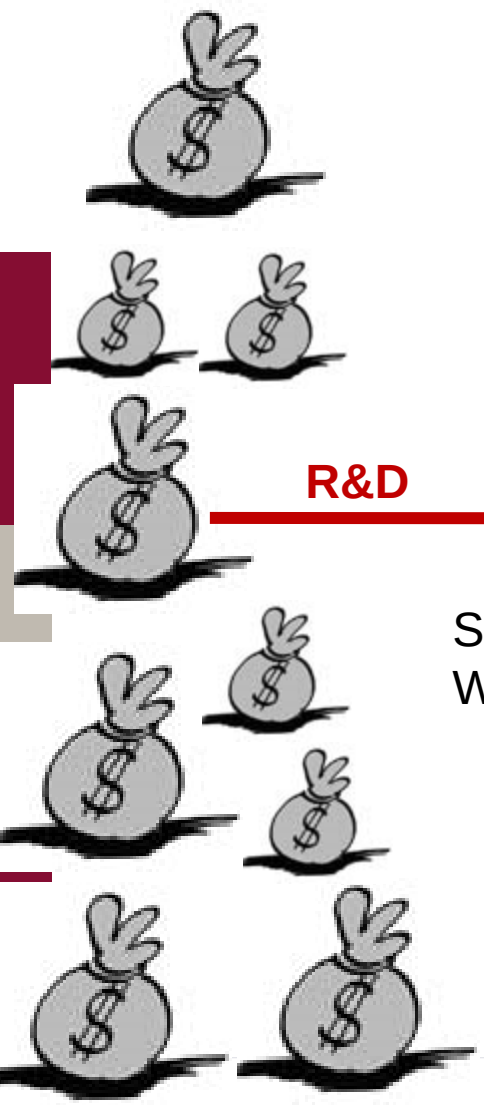
Marburg Center for Innovation and
Entrepreneurship Support (MAFEX)

Challenge of Managing and Protecting Innovation:
"Pitching your Ideas while Protecting your Business"

1. **Challenge of Managing Innovation**
2. **Insights from Innovation Management in Practice**
3. **Challenge of Protecting Innovation**
4. **Introduction to IP Protection**
5. **Strategic View on Patents and other IPR**

1. Challenge of Managing Innovation

1. Challenge Innovation Management: In a Nutshell



AIWA

Philips

R&D

Sony
Walkman
1979

R&D

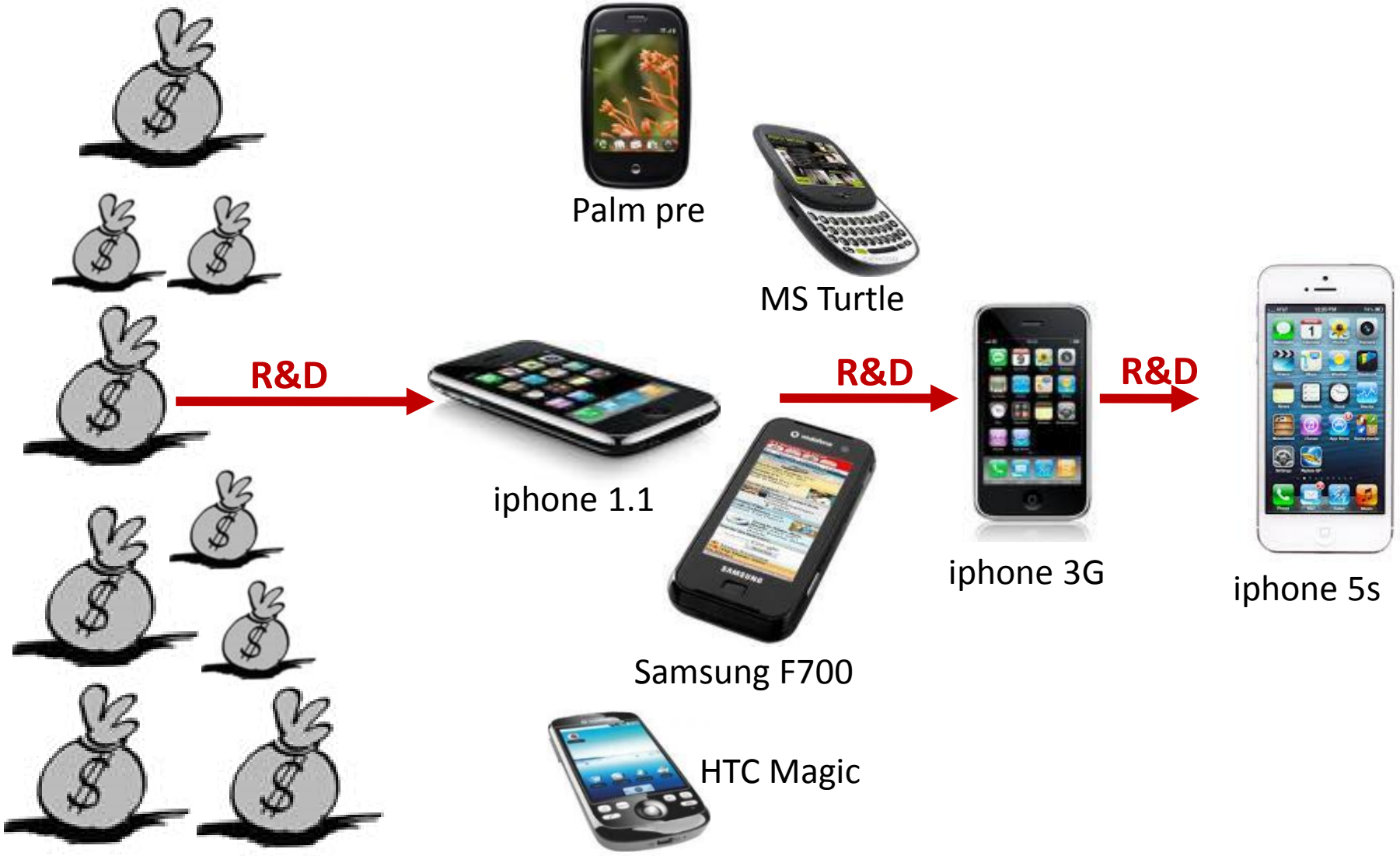
Sony Walkman II
1984

R&D

Sony
Walkman
2000

Jensen
Cassette Player

1. Challenge Innovation Management: In a Nutshell



1. Challenge Innovation Management: In a Nutshell

&

Scarce resources require efficiency…

- Cut budgets and streamline innovation processes
- Implement planning and management control systems
- Create transparent structures

Creativity requires Freedom…

- …to operate
- …to take risks
- …to make mistakes
- …to experiment
- …for accidents and luck!

1. Challenge Innovation Management: In a Nutshell

Formal structures and too much bureaucracy block creativity and innovation

1. Challenge Innovation Management: In a Nutshell

Formal structures and too much bureaucracy block creativity and innovation

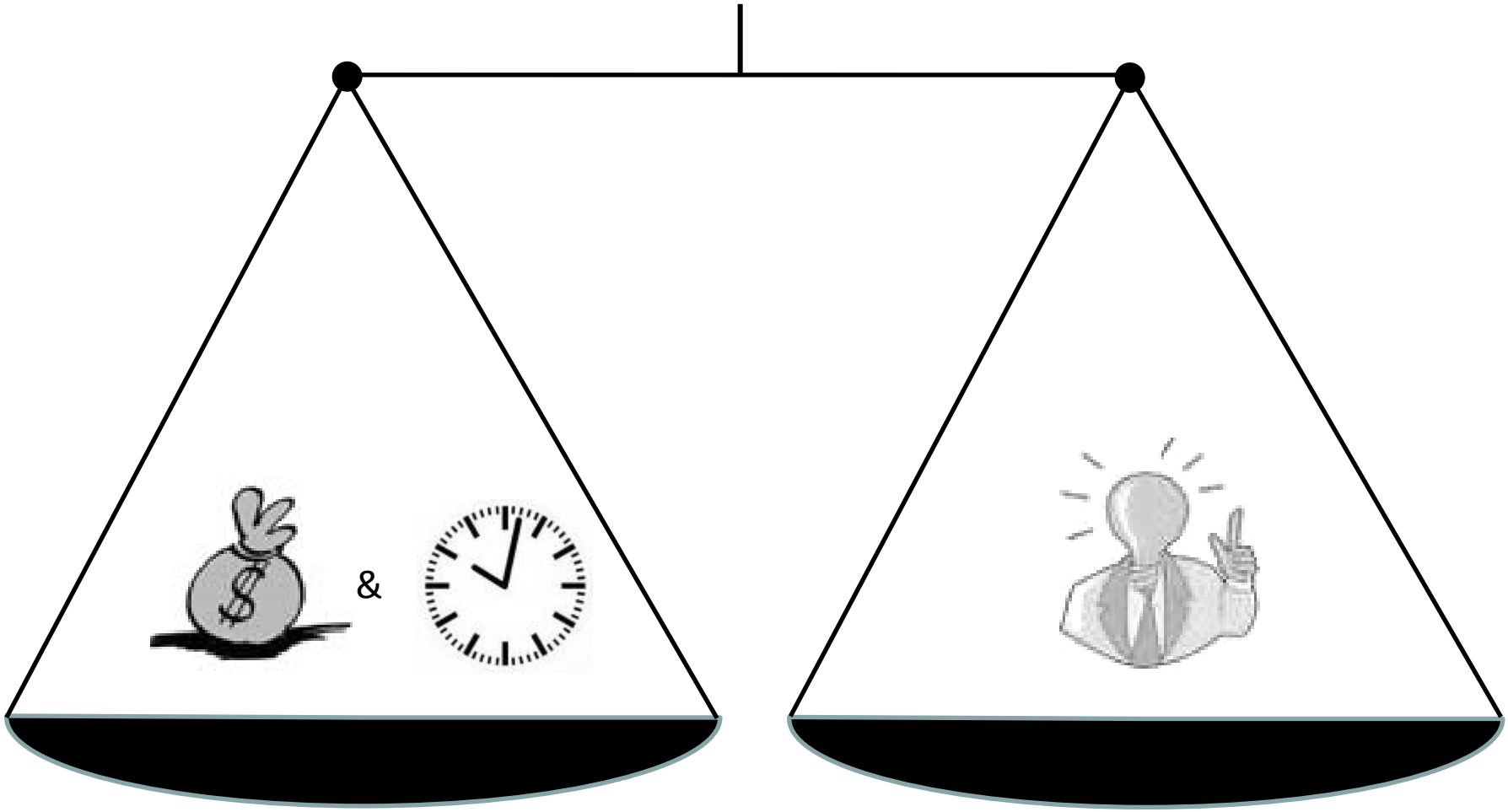
"I love this room, so many happy memories of killing innovation..."

1. Challenge Innovation Management: In a Nutshell

Too much freedom (to operate) bears risk – “Over Engineering”

„The model is not really cheap, but the performance is excellent – You can fill the bathtub within twelve seconds…“

1. Challenge Innovation Management: In a Nutshell



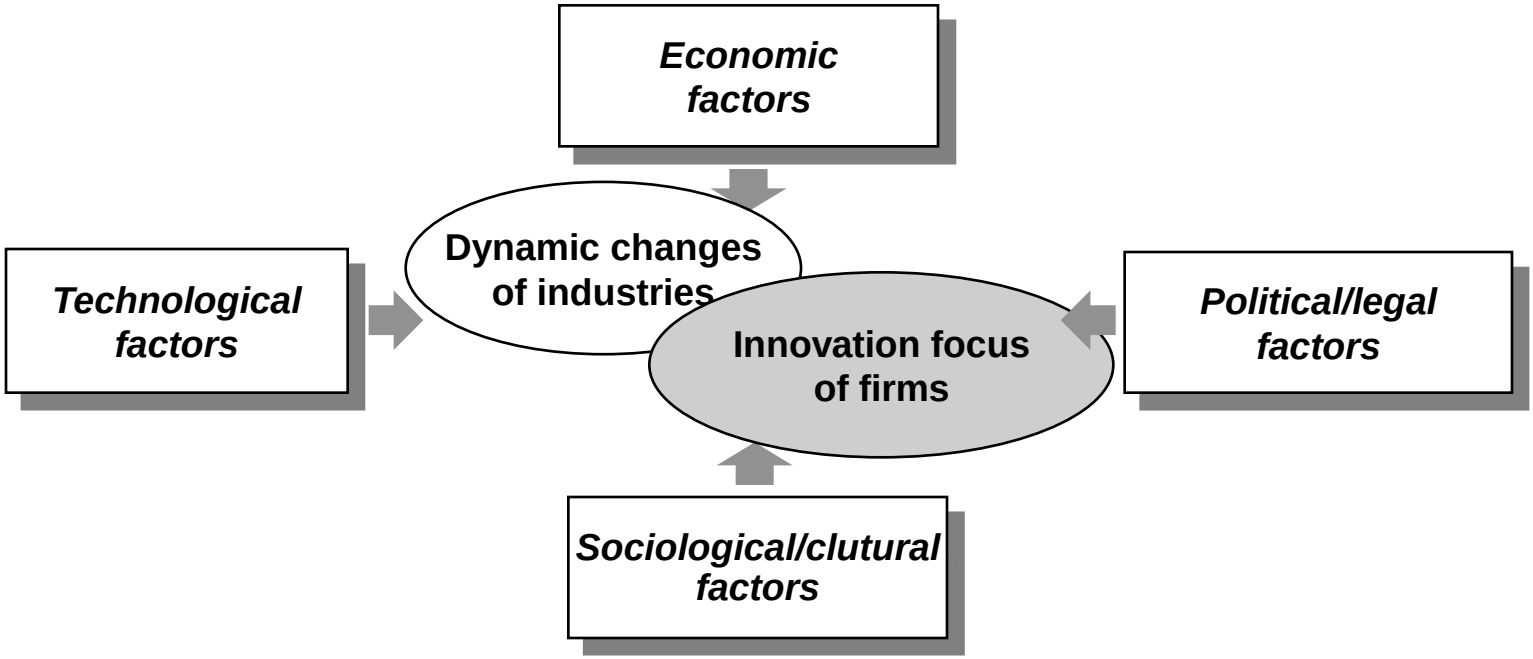
Finding the right balance is the Core Core Challenge in Innovation Management

2. Insights from Innovation Management in Practice

2. Insights from Innovation Management in Practice

New competitive situation for firms/companies: Focus on innovation!

- Innovations are a prerequisite for most start-ups & companies to survive.
- Firms can stand and maintain their market position only with permanent product and service improvements (→ Innovation !).
- Innovation-based competition (innovating ahead) today is the most prominent business model for firms (in contrast to traditional cost leadership strategies).



2. Insights from Innovation Management in Practice

Technology & Innovation Leadership as Dominant Competition Strategy

Technological innovation is now the single most important driver of competitive success in many industries AND for Start-ups

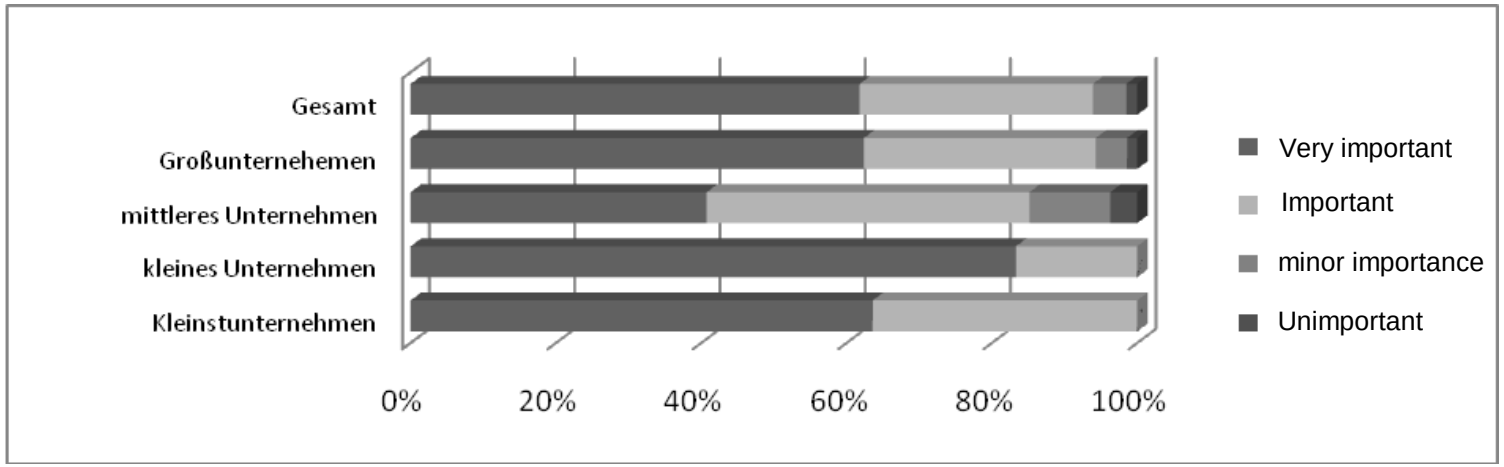
- An important consequence of the shift towards competition in innovation leadership: Product and technology life cycles are getting shorter and shorter
- Firms introduce an increasing number of new products to the market in much shorter time spans / intervals → rising time pressure in innovation management.
- Exploding R&D costs: Products are getting more and more complex; in most industries R&D costs „explode“ (Pharma: 7.5 Mio. US-$ versus 400 Mio. U.S.$).

Specific implications for product innovation management in companies (globally)

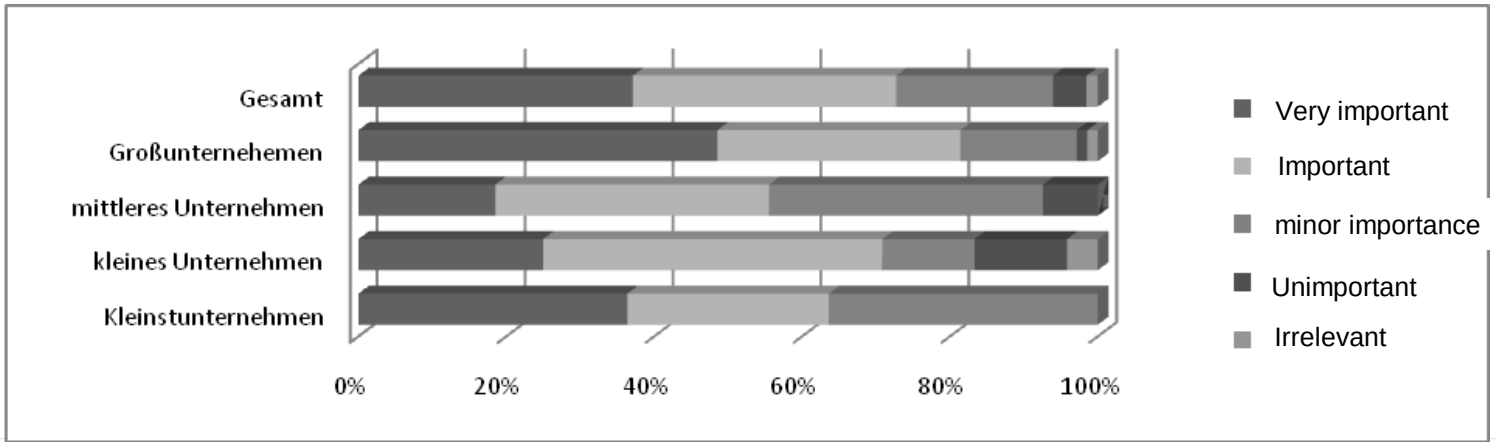
- Imitation or small innovations (incremental changes) are not enough to sustain the competitive advantage.
- Firms must differentiate themselves with superior product performance or a better cost/quality ratio in the eye of the customer.
- „Happy Engineering“ is not adequate any more! Innovation should be planned carefully, innovation must be a core subject/focus in strategic management.
- “Technology and Innovation Management” is a new subject at the intersection of Strategic Management, Marketing, Finance, Controlling, Engineering etc.

2. Insights from Innovation Management in Practice

Survey on the Importance of Innovation in European Firms & Start-ups



Relevance of Implementation of Innovation Management in Firms & Start-ups



2. Insights from Innovation Management in Practice

Innovation and Firm Performance – General Empirical Evidence

Results of the PIMS-Study

- Innovation activities have a positive impact on firm performance
- Background: The PIMS-study has identified the 18 prime drivers (out of 37) of corporate success (Return-on-Investment)
- Innovation success can be traced back to the positive correlation of product innovations and R&D expenditures on ROI.

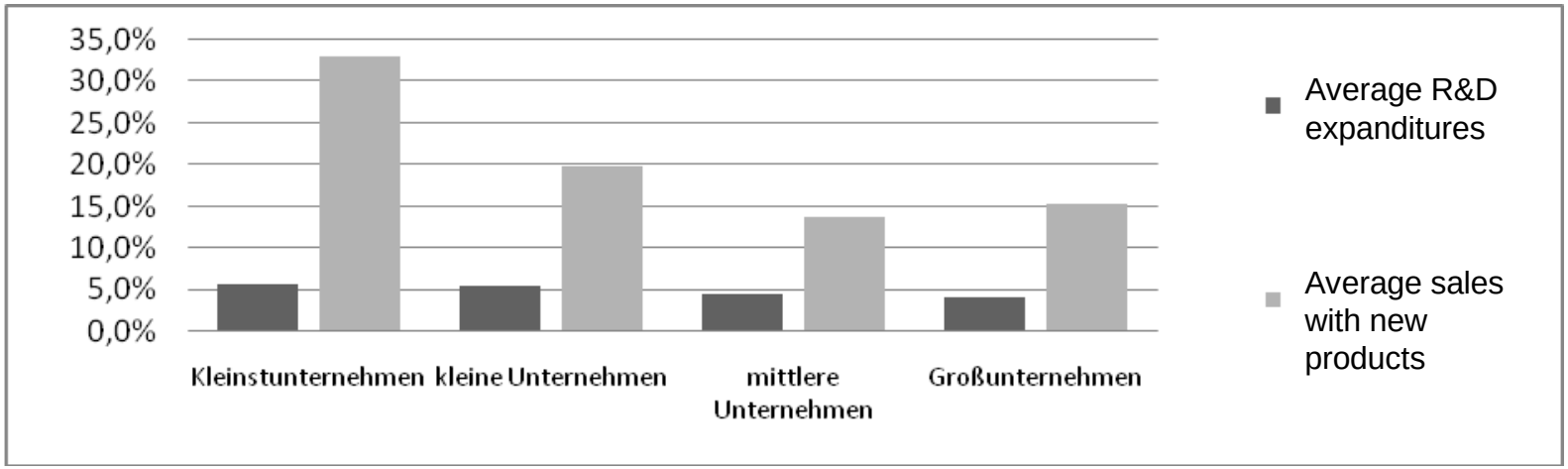
Results of the ZEW-Study (Center for European Economic Research)

- *What is the impact of innovation on the firm level?*
- *Result I: Improvement of* product quality, increasing market share and diversification/ exploration of new market segments (Blue Ocean Strategy)
- *Result II: Process improvements, cost savings (both material and staff costs), quality improvements → increases in efficiency („*Rationalisierungseffekte“)
- *Result III: Improvements in ecological and social performance of firms („Greening“ the corporation“); firms meet regulatory standards etc.*

Prerequisite: Permanent investments in R&D and corporate implementation of innovation management

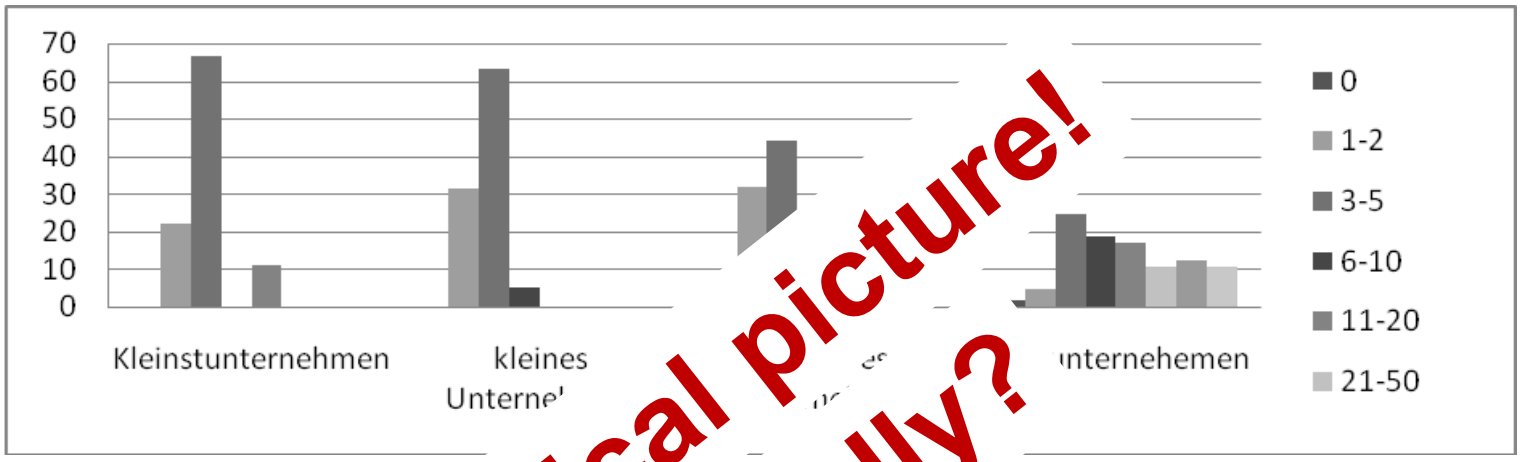
2. Insights from Innovation Management in Practice

R&D Expenditures and Sales with New Products in 2009 in European Companies & Start-ups: A nice picture!

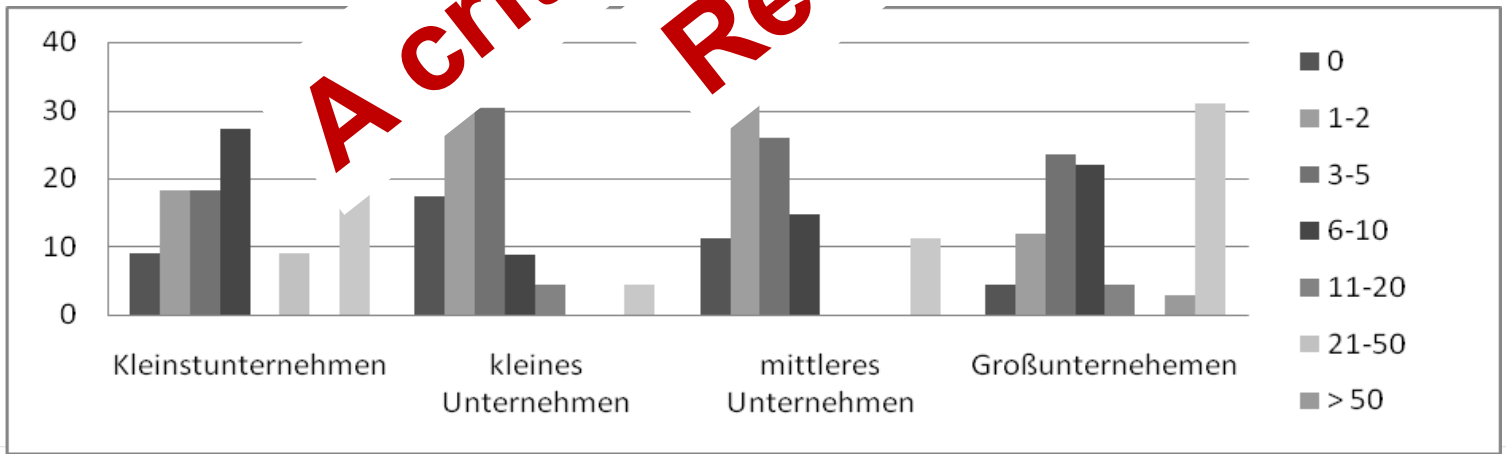


2. Insights from Innovation Management in Practice

Number of successfully completed innovation projects



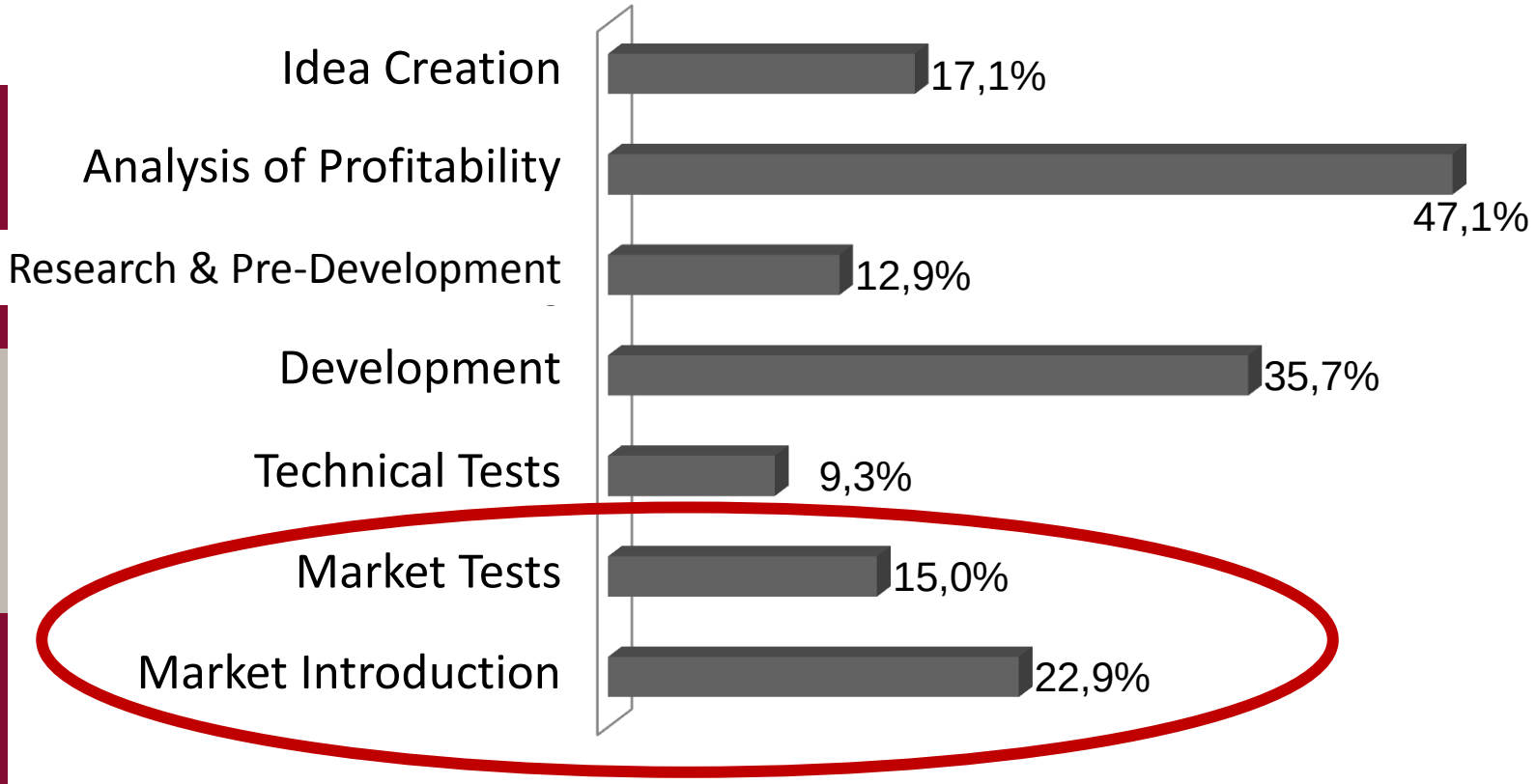
Number of non-fin… …cts



A critical picture! Really?

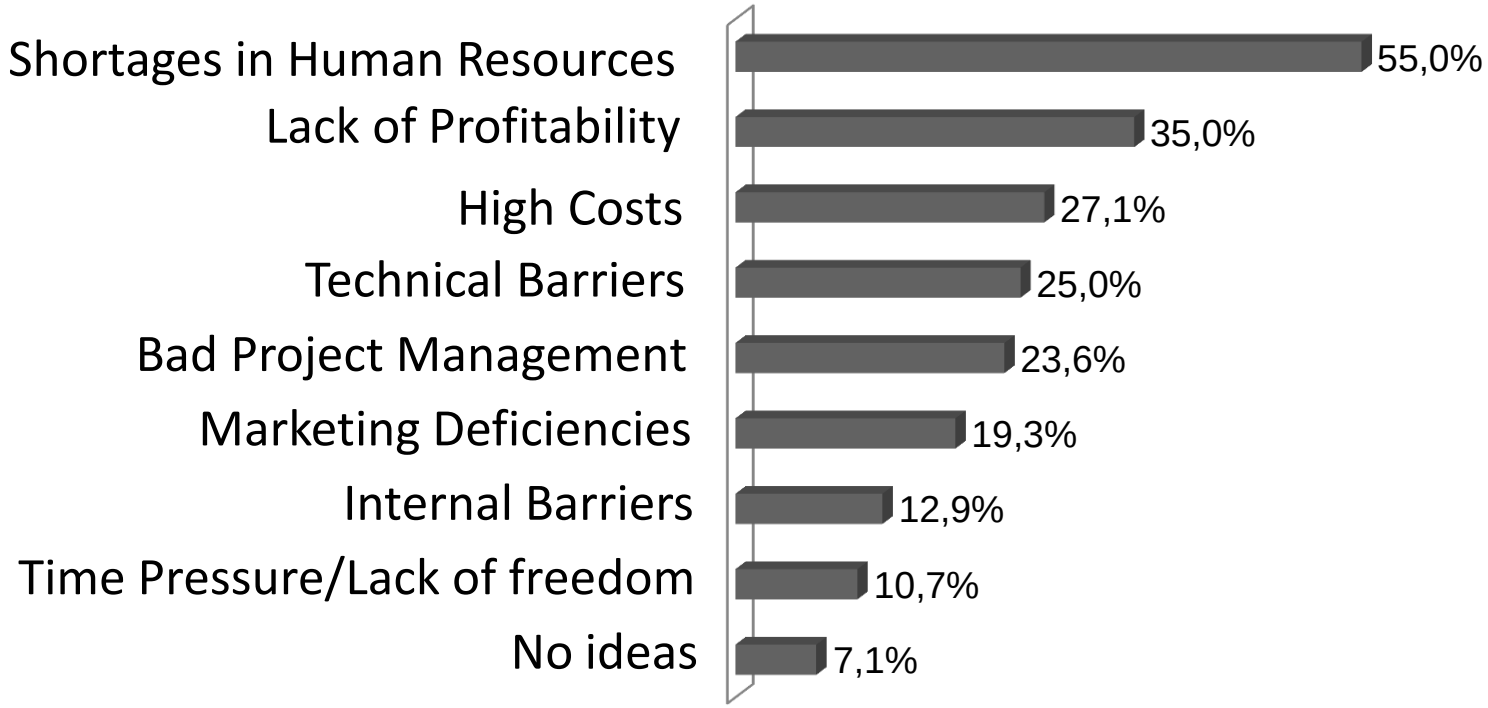
2. Insights from Innovation Management in Practice

When do innovation projects fail ? (in phase of the innovation process)



2. Insights from Innovation Management in Practice

Why do innovation projects fail? (Primary factors of failure)



3. Challenge of Protecting Innovation:

Copying and counterfeiting is a prominent and profitable business model!

3. Challenge of Protecting Innovation

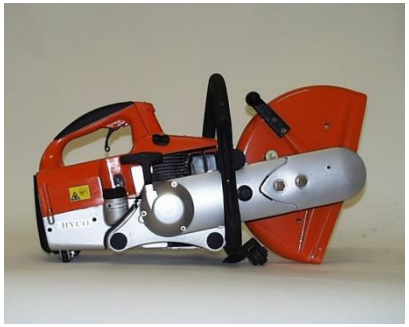
The Usual Suspects – Counterfeit Consumer and Luxury Goods

3. Challenge of Protecting Innovation

The Usual Suspects – Counterfeit Consumer Durables

3. Challenge of Protecting Innovation

But: Piracy Affects also Investment Goods….and



3. Challenge of Protecting Innovation

….even Services are Hit by Counterfeiters

3. Challenge of Protecting Innovation

….even Services are Hit by Counterfeiters

3. Challenge of Protecting Innovation

….even Services are Hit by Counterfeiters

3. Challenge of Protecting Innovation

Pharma Industry: The threat of generics

Number of months after expiration of patent	Number of generics in market	Market share of generics producers	Price decline (in %)
1	10	44.6	69.6
3	12	67.3	70.7
6	13	78.8	76.9
12	15	86	73.4

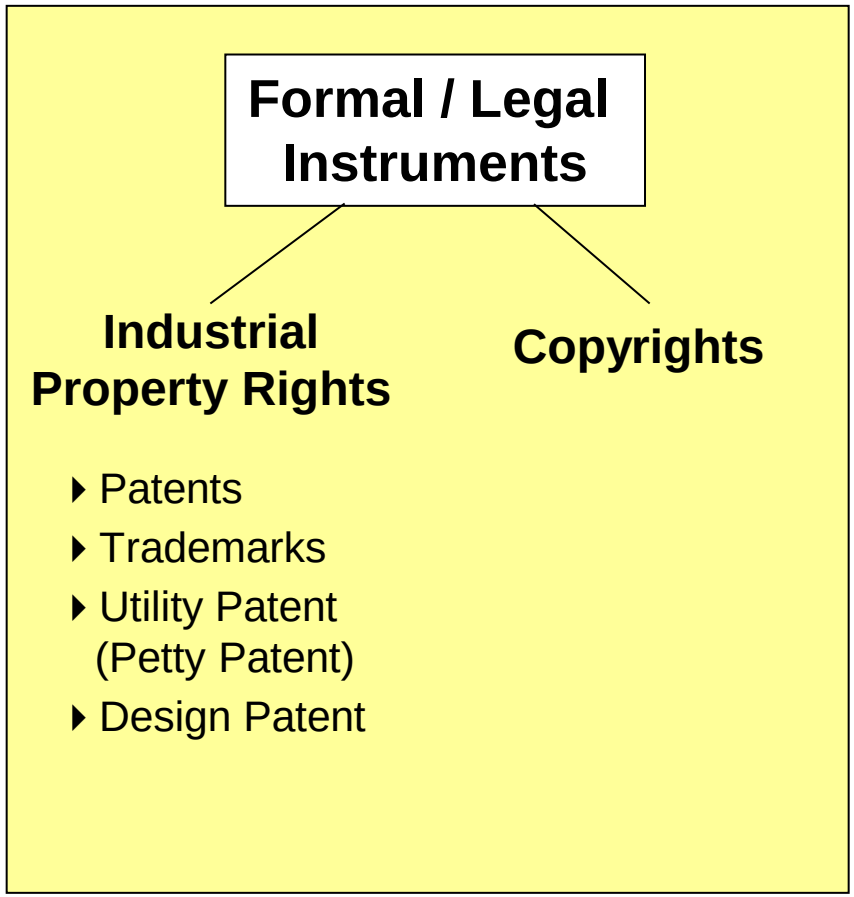
Source: Rehwald (2002), p. 11

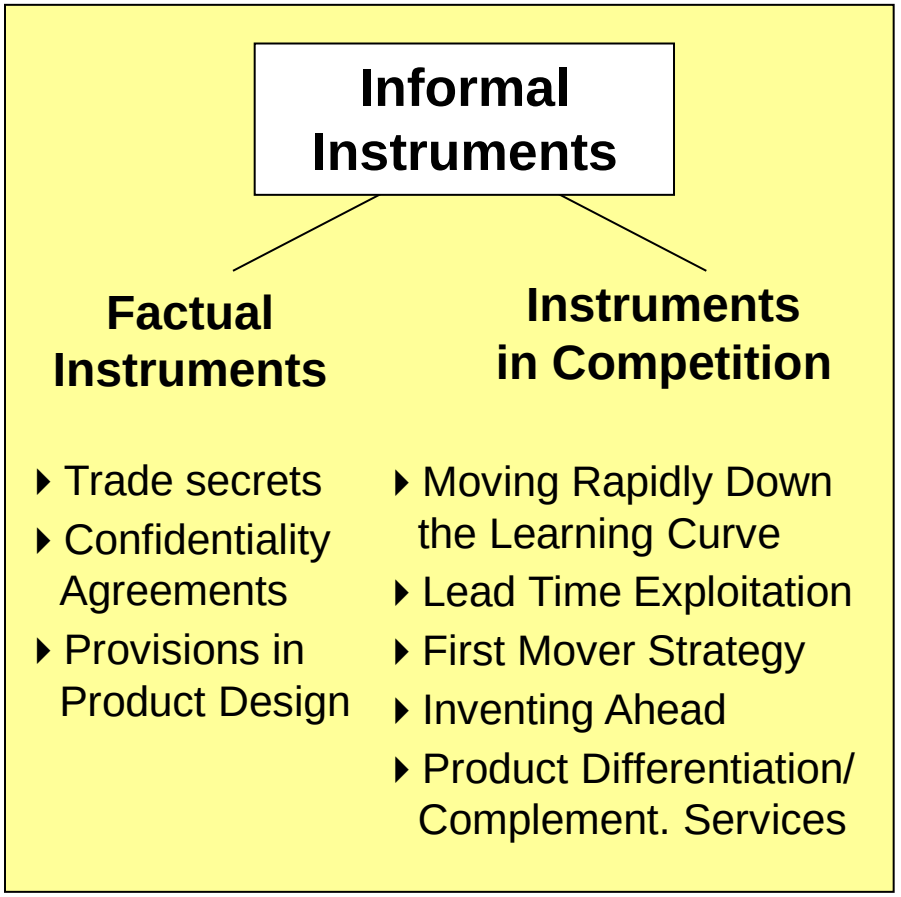
4. Introduction to Intellectual Property Rights:

Basics of the legal protection of Innovation

4. Introduction to Intellectual Property Rights: Instruments for Intellectual Property Protection

Mechanisms and instruments that firms can use to protect their innovation





4. Overview: Patents to Protect IP

Patents are Granted as a Temporary Monopoly Right with two Major Economic Functions:

(1) Incentives for Innovators:

Intellectual property rights (IPR) provide incentives for innovators to invest in new products and processes by guaranteeing them a period where they can recoup a return from their investment unchallenged by competitors

(2) Diffusion of Technology:

Patents help diffuse technology since they force innovators to disclose information regarding the underlying technology

But IPR are not without social cost (risk of deadweight losses).....

4. Overview: Patents to Protect IP

Patents

Definition:

A patent provides an inventor with exclusive rights to a new and useful *product, process, substance or design* (including *improvements* on existing products, processes and substances)

Term of rights:

20 years from date of application (“filing”)

Issuance:

2-5 years, usually

Infringement

“…whoever without authority makes, uses or sells any patented invention within the [geographic extent of the patent] during the term of the patent infringes the patent.”

4. Overview: Patents to Protect IP

Patents (cont.)

Characteristics:

Description must enable someone “skilled in the art” to practice the “best mode” of the invention.

Claims define rights to technology and the basis of prosecution.

The underlying idea is not protected.

Conditions for Patentability:

Novelty (for no more than one year prior to application can invention be known or used by others)

Non-obviousness (not patentable if a person of “ordinary skill in the art” finds the invention obvious…this is the toughest requirement)

Usefulness (weakest link)

4. Overview: Patents to Protect IP

Patents (cont.)

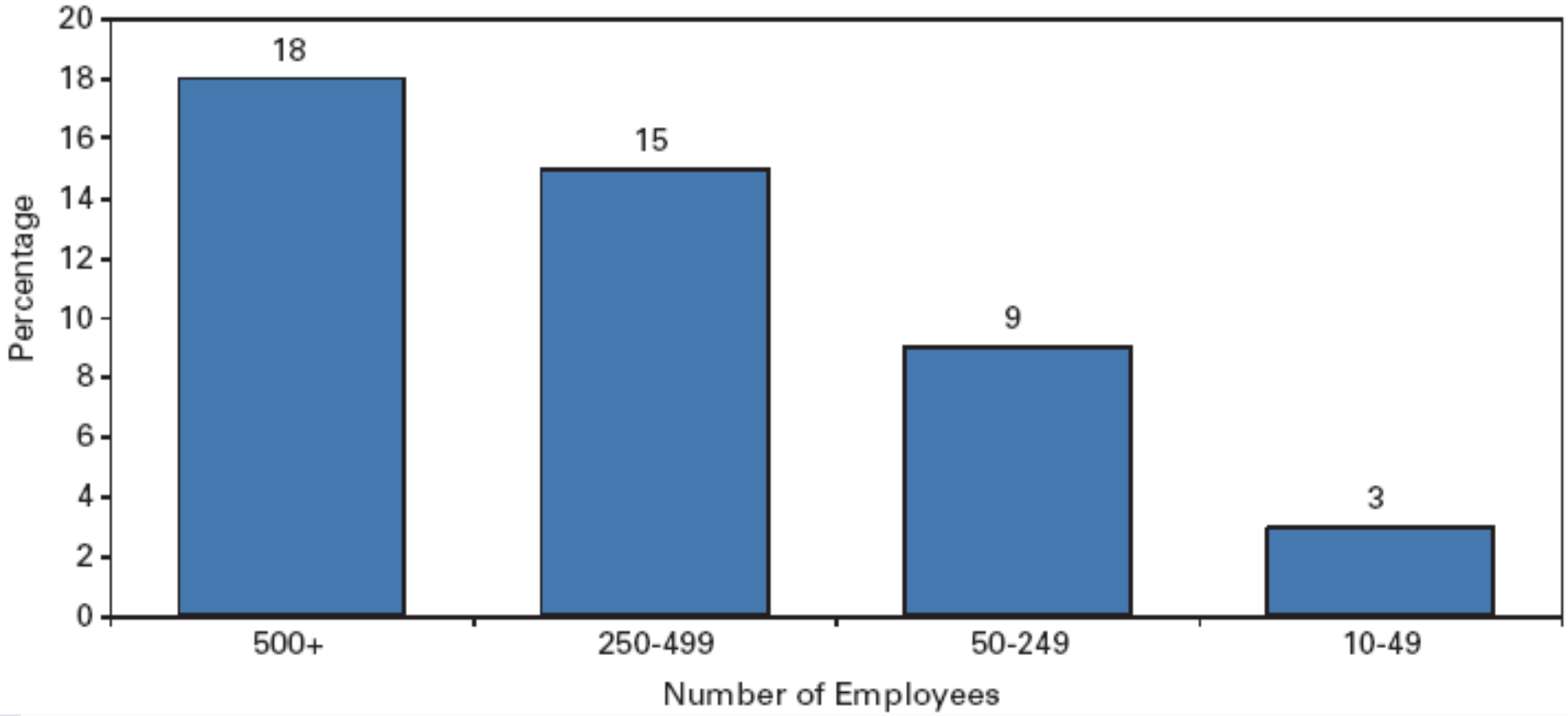
Patenting Activity By Industry (OECD)

Industry	% R&D Units Applying in Last 3 Years	
Food	52.9	
Textiles	43.5	
Printing/Publishing	41.7	
Petroleum	73.3	
Misc. Chemicals	72.4	
Glass	50.0	
Machine Tools	72.7	
Computers	80.0	
Medical Equipment	89.4	**2.**
Car/Truck	89.0	**3.**
Auto Parts	77.4	
Special Purpose Machinery	92.1	**1.**
All	69.8	

4. Overview: Patents to Protect IP

Patents (cont.)

Patenting Activity By Firm Size: Proportion of Firms taking out Patents by Size



4. Overview: Utility Patents to Protect IP

Utility Patents

Overview:

Like the patent, it can protect all technical inventions, including also chemical substances, food and medicinal products, except for processes (manufacturing and working processes, measuring processes, etc.)

Issuance:

The examination and grant of a patent usually takes several years. The utility model, in contrast, will be registered within a few weeks after filing the application

Differences to Patents

The IP right becomes effective upon registration and it gives the same rights as a patent. However, the utility model is an unexamined IP right. The registration procedure does not examine novelty, inventive step and industrial applicability. The applicant should conduct thorough searches to make sure that the application actually meets these requirements applying to effective IP rights. Otherwise he may not invoke any rights based on the utility model registration

Term of rights:

10 years from date of application (“filing”)

4. Overview: Design Patents to Protect IP

Design Patent

Definition:
An industrial design is the ornamental or aesthetic aspect of an article. The design may consist of three-dimensional features, such as the shape or surface of an article, or of two-dimensional features, such as patterns, lines or color

Term of rights:
The term of protection is generally five years, with the possibility of further periods of renewal up to, in most cases, 15 years

Conditions:
An industrial design is primarily of an aesthetic nature, and does not protect any technical features of the article to which it is applied. As a general rule, to be registrable, the design must be "new" or "original"

Coverage:
Industrial designs are applied to a wide variety of products of industry and handicraft: from technical products to consumer goods

4. Overview: Copyrights to Protect IP

Copyrights

Definition:
A copyright gives to its creator the exclusive production, publication, or sales rights to artistic, dramatic, literary, or musical works

Term of rights:
Immediate protection upon creation. For individuals, life + 70 years. For "works for hire", minimum of 95 years from publication or 120 years from creation

Coverage:
Works of authorship, including writings, music, works of art, computer programs and the like, that have been reduced to a tangible medium of protection (artistic expression)…"In no case does copyright…extend to any idea, procedure, process, system, method of operation, concept, principle, or discovery. […]hard work rather than originality or creativity…is not protectable."

4. Overview: Trademarks to Protect IP

Trademarks

Definition:
Trademarks are words, symbols or other marks used to distinguish a good or service provided by one firm from those provided by other firms

Term of rights:
EU Trademark protection lasts 10 years (renewable) as long as used within at least one country within 5 years. In US, no formal expiration date. In either area, a firm may lose its right if mark becomes generic rather than brand specific (e.g. Yo-yo, Trampoline, thermos…)

Four General Functions for the consumer:
1. Inform the customers and structure the offer
2. Represent a guarantee of quality and continuity
3. Have a signalling effect; and/or
4. Guarantee the use of a particular recipe or procedure

4. Overview: Trademarks to Protect IP

Trademarks (cont.)

Which kind of signs may be registered as trademark?

Word, symbol, or other signs used to identify a good or a service can be trademarked. A descriptive word cannot be trademarked (e.g., carboxymethylcellulose sodium – no – Celluvisc – yes)

Signs include:

- word marks including letters, numbers or combination of letters, numbers and words;
- figurative marks, whether or not including words;
- figurative marks in colour;
- colours or combinations of colours;
- three-dimensional marks;
- sound marks;
- trademark for aroma

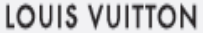
4. Overview: Trademarks to Protect IP

Types of acoustic trademarks

DE	39940591		38	Deutsche Telekom	1999
DE	30004649		38	ProSiebenSat. 1	2000
DE	30022635		32	Erdinger Weißbräu	2003

Best Global Brands 2013

Interbrand — Creating and managing brand value™

01	02	03	04	05	06	07
						
Apple +28% 98,316 $m	Google +34% 93,291 $m	Coca-Cola +2% 79,213 $m	IBM +4% 78,808 $m	Microsoft +3% 59,546 $m	GE +7% 46,947 $m	McDonald's +5% 41,992 $m
08	09	10	11	12	13	14
						
Samsung +20% 39,610 $m	Intel -5% 37,257 $m	Toyota +17% 35,346 $m	Mercedes-Benz +6% 31,904 $m	BMW +10% 31,839 $m	Cisco +7% 29,053 $m	Disney +3% 28,147 $m
15	16	17	18	19	20	21
						
HP -1% 25,843 $m	Gillette +1% 25,105 $m	Louis Vuitton +6% 24,893 $m	Oracle +9% 24,088 $m	Amazon +27% 23,620 $m	Honda +7% 18,490 $m	H&M +10% 18,168 $m
22	23	24	25	26	27	28
						
Pepsi +8% 17,892 $m	American Express +12% 17,646 $m	Nike +13% 17,085 $m	SAP +7% 16,676 $m	IKEA +8% 13,818 $m	UPS +5% 13,763 $m	eBay +20% 13,162 $m
29	30	31	32	33	34	35	36	37
								
Pampers +15% 13,035 $m	Kellogg's +8% 12,987 $m	Budweiser +6% 12,614 $m	HSBC +7% 12,183 $m	J.P. Morgan 0% 11,456 $m	Volkswagen +20% 11,120 $m	Canon -9% 10,989 $m	Zara +14% 10,821 $m	Nescafé -4% 10,651 $m

4. Overview: NDAs and CDAs

When do I need an Non-Disclosure Agreement ?

Source: Fabry (2006)

4. Overview: NDAs and CDAs

What is a CDA?

- Confidential Disclosure Agreements (CDAs), also known as Non-Disclosure Agreements (NDAs), are legally-binding documents that enable you to record the terms under which you exchange secret information
- The other party to the agreement can be any person or an organization
- Normally confidentiality clauses will form part of a broader agreement, such as a contract of employment [Arbeitsvertrag]
- There is no “one-fits-all” CDA. The following is an example of a CDA that shows the types of clauses that are often found in these documents
- There’s no set formula for a CDA. They come in all shapes & sizes, from the short and simple to the long and legalistic
- Typically CDAs have terms of about two to five years…

4. Overview: NDAs and CDAs

CONFIDENTIAL DISCLOSURE AGREEMENT
Between: [Company name and address] and [Your name and address]
Head

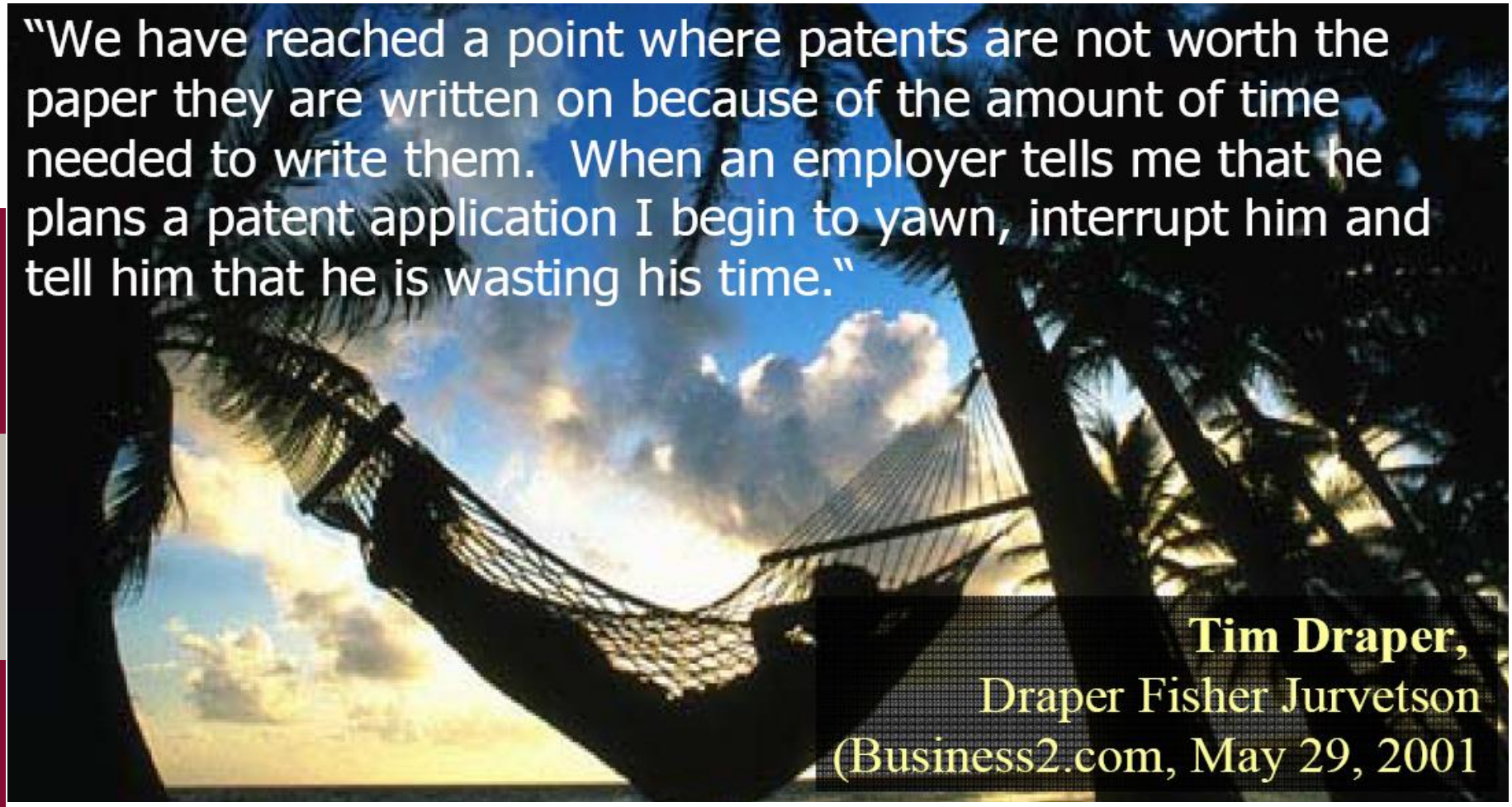
1. On the understanding that both parties are interested in meeting to consider possible collaboration in developments arising from [your name]'s IP it is agreed that all information, whether oral, written or otherwise, that is supplied in the course or as a result of so meeting shall be treated as confidential by the receiving party.
   Nondisclosure receiving party
2. The receiving party undertakes not to use the information for any purpose, other than for the purpose of considering the said collaboration, without obtaining the written agreement of the disclosing party.
   Nondisclosure disclosing party
3. This Agreement applies to both technical and commercial information communicated by either party.
   Issues of CDA
4. This Agreement does not apply to any information in the public domain or which the receiving party can show was either already lawfully in their possession prior to its disclosure by the other party or acquired without the involvement, either directly or indirectly, of the disclosing party.
   Exceptions to CDA
5. Either party to this Agreement shall on request from the other return any documents or items connected with the disclosure and shall not retain any unauthorized copies or likenesses [ähnliche Dinge].
   Obligation to return
6. This Agreement, or the supply of information referred to in paragraph 1, does not create any license, title or interest in respect of any Intellectual Property Rights of the disclosing party.
   Abandonment of a legal title
7. After X [numerals] years from the date hereof each party shall be relieved of all obligations under this Agreement.
   Contract period

Signed [Your signature] For [Your business/trading name if relevant], Date
Signatures of both parties
Signed [Company representative's signature], For [Company name], Date

Source: Fabry (2006)

5. Strategic View on Patents and other IPRs

5. Strategic View on IPR



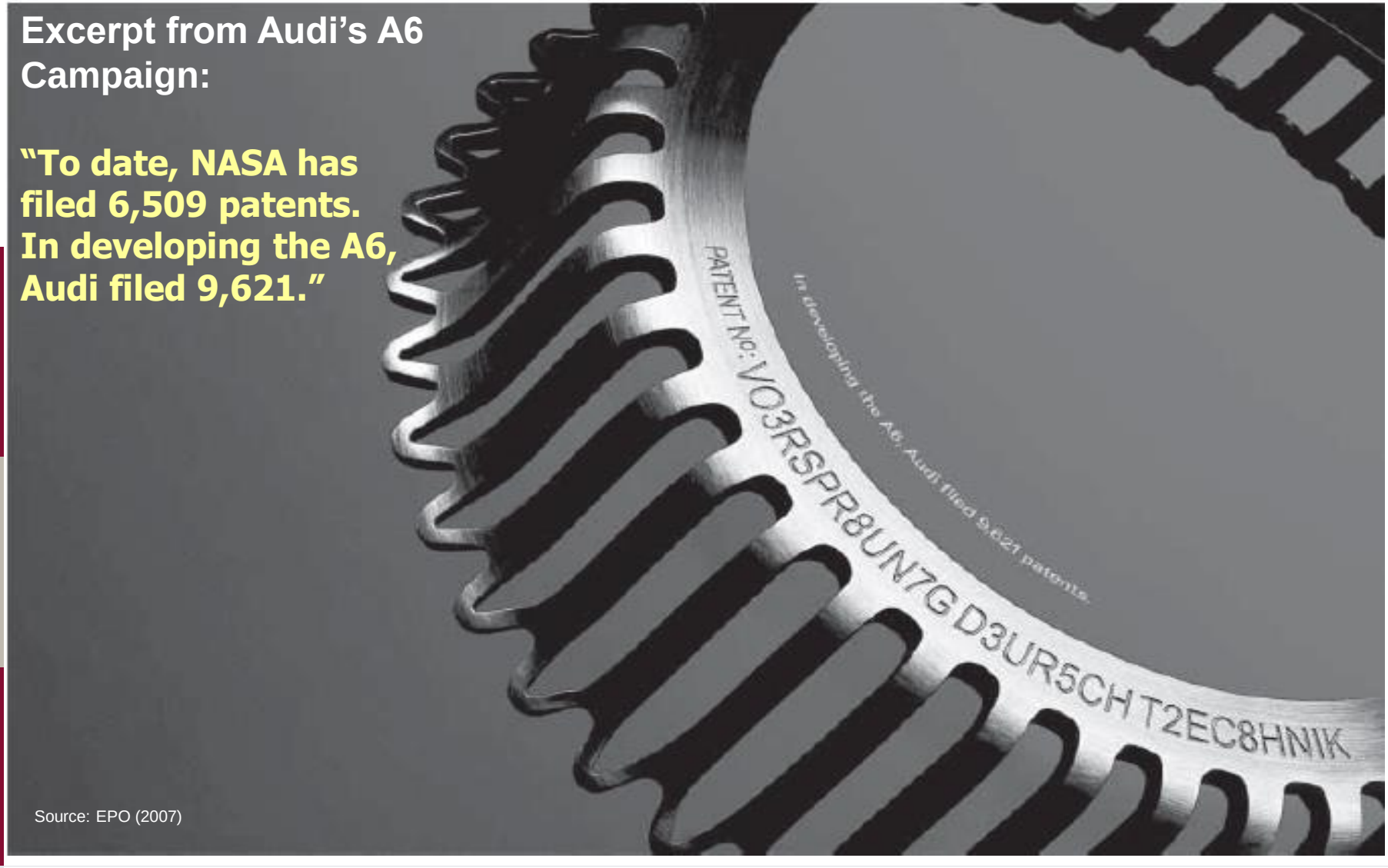
* Draper Fisher Jurvetson is a global VC firm with offices in more than 33 cities around the world and over $5.5 billion in capital commitments. DFJ has backed more than 300 companies across many sectors including Hotmail (acquired by MSFT), Baidu (BIDU), Skype (acquired by EBAY), United Online (UNTD), Overture (acquired by YAHOO) etc.

Source: Fabry (2006)

5. Strategic View on IPR

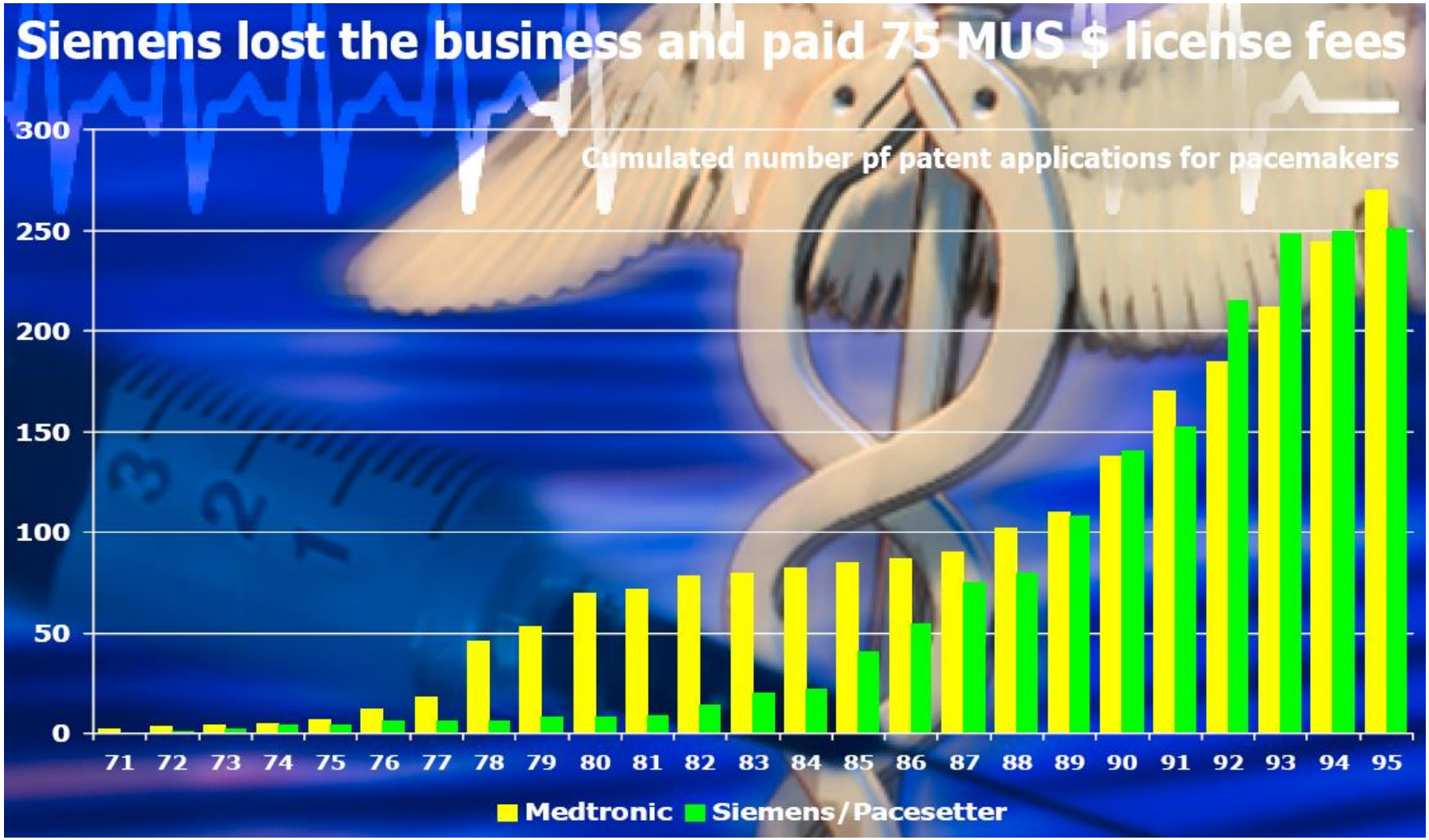
Excerpt from Audi's A6 Campaign:

"To date, NASA has filed 6,509 patents. In developing the A6, Audi filed 9,621."



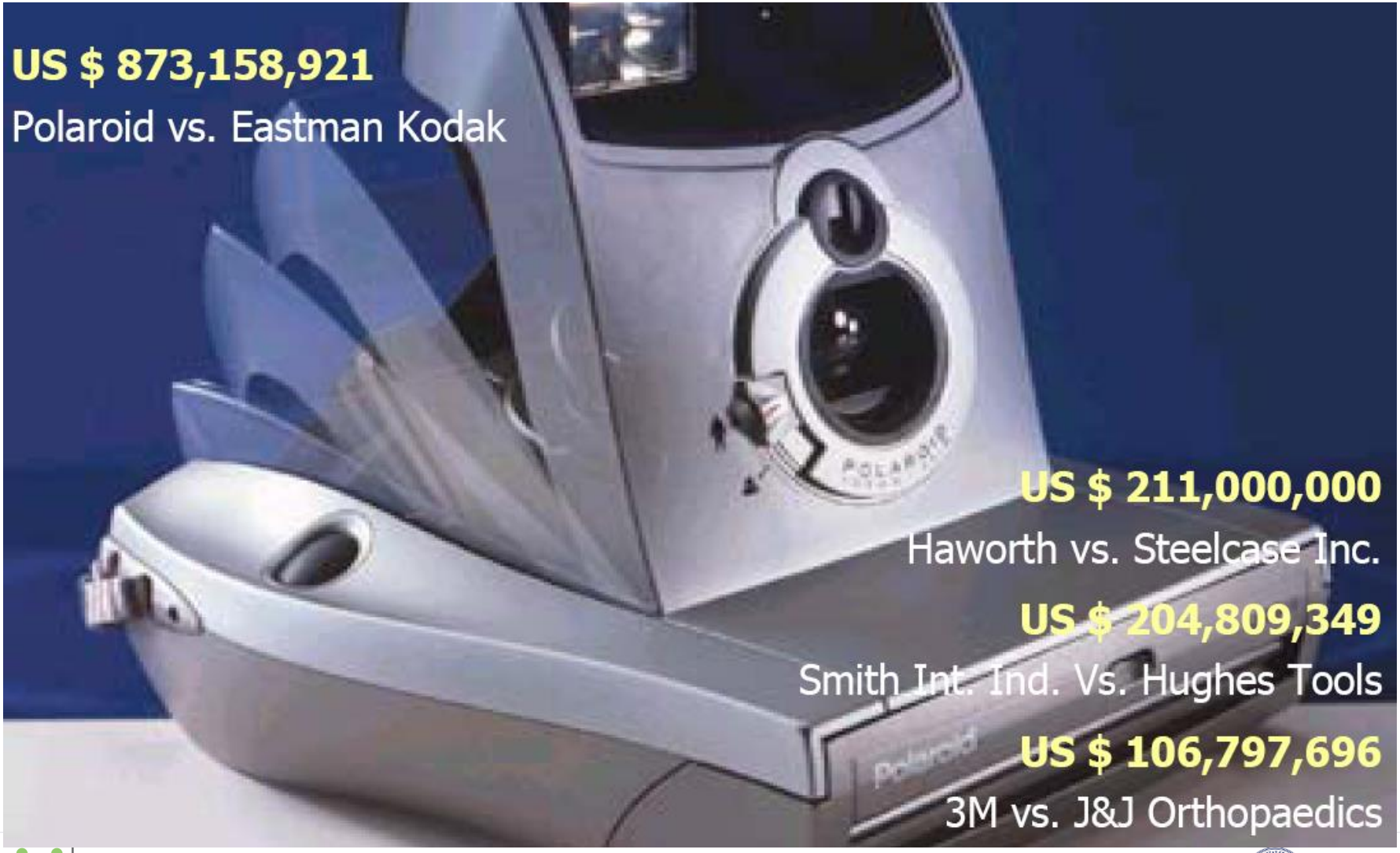
Source: EPO (2007)

5. Strategic View on IPR



Source: Fabry (2006)

5. Strategic View on IPR



Source: Fabry (2006)

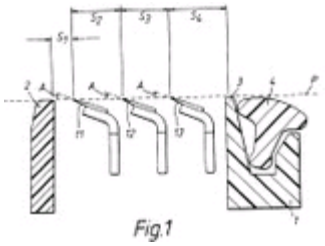
5. Strategic View on IPR

Pharma Industry: The threat of generics

Number of months after expiration of patent	Number of generics in market	Market share of generics producers	Price decline (in %)
1	10	44.6	69.6
3	12	67.3	70.7
6	13	78.8	76.9
12	15	86	73.4

Source: Rehwald (2002), p. 11

5. Strategic View on IPR



An example for a Patent Thicket: Gillette Sensor 3

- **An example for a patent thicket is the Sensor razor from Gillette**
- **Out of seven different versions they realized the one for which the best patent protection could be achieved.**
- **Today, 22 patents protect this product, starting with the central construction features…**
- **…via the angle of inclination of the blades….**
- **…to the packaging that is said to produce a particularly „masculine“ sound when torn open.**
- **By the way: The successor of the Sensor 3 – the Mach 3 Turbo – is protected by 35 Patents**

Source: Bagley (2008); Fabry (2006)

Literature

Basic Reading

- Burr, W., Stephan, M., Soppe, B., Weisheit, S. (2007): Patentmanagement, Schäffer-Poeschel Verlag, Stuttgart 2007.

Additional Readings

- Granstrand, O. (2000): The Economics and Management of Intellectual Property, Cheltenham (UK) 2000.
- DPMA (2007): Annual Report 2006. München 2007.
- Katz, A. (2005): Intellectual Property, Antitrust, and the Presumption of Market Power: Making Sense of Alleged Nonsense, American Law & Economics Association 15th Annual Meeting, Working Paper 8.
- Régibeau, P./Rockett, K.(2004): The Relationship Between Intellectual Property Law and Competition Law: An Economic Approach, University of Essex and CEPR, June 2004.
- Schmidtchen, D. (2006): Wettbewerbsrecht und Recht geistigen Eigentums, in: Oberender, P. (Hrsg.): Wettbewerb und Geistiges Eigentum, Berlin 2006.