



Vorlesung Technologieverwertung

IP Strategie & IP Management

Mag. Gernot Grober, LL.M.

Nov 2017

Agenda

Introduction

IP-Strategy

IP-Management

Patent Valuation

Perspectives on Patents

Introduction

- Historical development of IP
- Definition of IP
- The world in patents
- Interpretation of patent statistics

The first patent

~ 700 BC: Sybaris: Greek colony in Southern Italy

*„Wenn einer der Köche ein neues, köstliches **Gericht erfinden** würde, so sollte es **keinem anderen vor Ablauf eines Jahres gestattet sein**, von dieser Erfindung Gebrauch zu machen, sondern nur dem Erfinder selbst. Während dieser Zeit sollte er den **geschäftlichen Gewinn** davon haben, damit die anderen sich anstrengten und wetteifernd sich in solchen Erfindungen zu übertreffen suchten..“*
(Athenäus the Elder: Yonge, C. D. (1854). The Deipnosophists)



No individual authorship / individualism

Art is given by good and for the glorification of good

Religious authority limits kreativty (scholasticism)

Very limited markets (no akkumulation of capital for citizen)

No availability of ancient literature

Individualism, genius

Technical and scientific thinking
stimulates kreativty

Citizen (city states in north italy,
transport (ships), markets, early capitalism
1453 conquest of Byznaz by Islam/Ottoman

- **The right to control the use of the property** (lat. usus)
- **The right to manipulate the property in terms of consistency and quality** (lat. absus)
- **The right to appropriate any benefit from the property** (lat. usus fructus)
- **The right to transfer, sell or exclude others from the property**

Property is based on ownership

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Zimbabwe before and after land reform 2000



Property is based on ownership

AT&S



History of IP

1421 first technically applicable patent (Filippo Brunelleschi):
Ship with special lifting device for the transportation of marmor

1474 first patent law (Venice)

1790 first US patent act

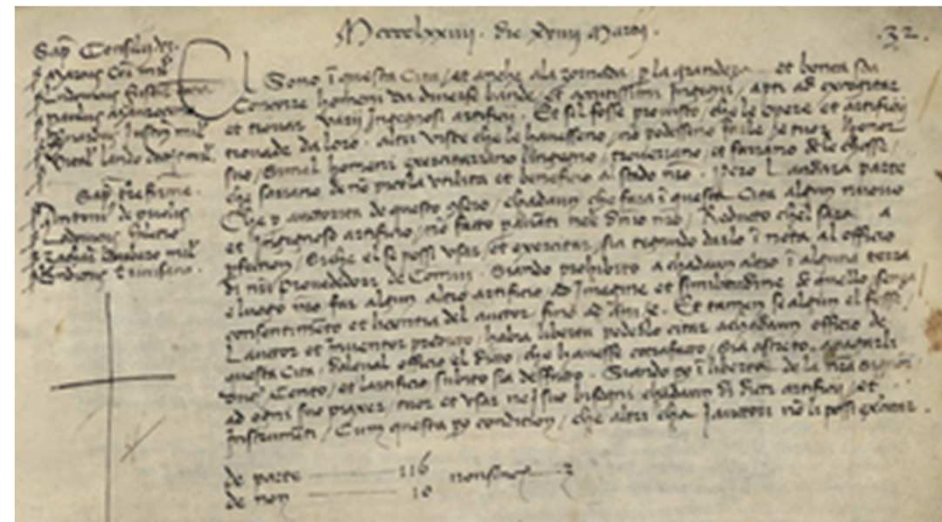
1794 Establishment of privileges for inventors in Austria

1883 Paris Convention

1897 Patent law Austria

1973 European Patent Convention

1984 Patent law China



"Intellectual Property is the crude oil of the 21st century"

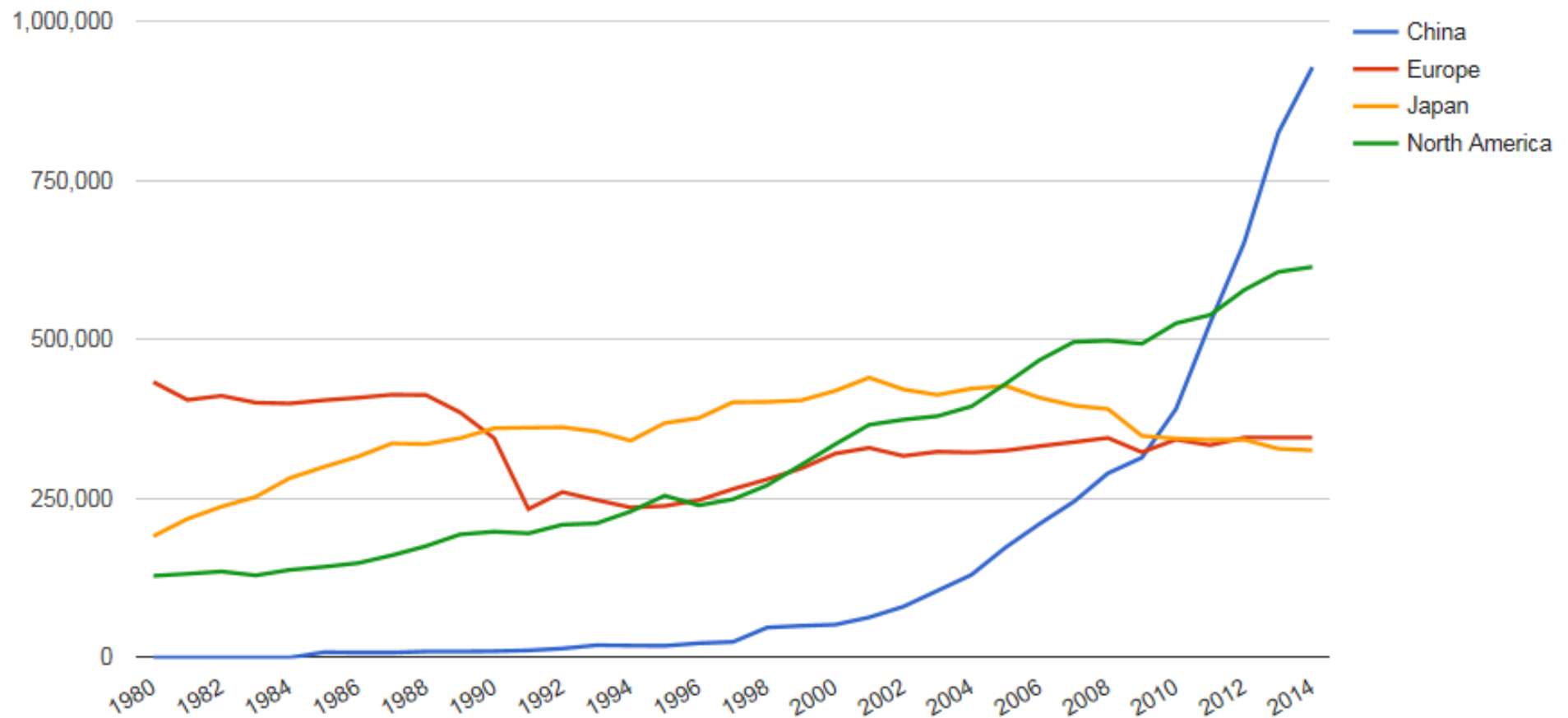
Mark Getty, chairman of Getty Images, one of the world's largest Intellectual Proprietors and member of the Getty family, which originally made its money from oil



The world in patents

AT&S

Patent Applications



Source: WIPO - IPstats

Applicant	Origin	Total number of patent families (2003-12)	Rank		
			1980s	1990s	2000s
PANASONIC CORPORATION	Japan	111,653	1	1	1
SAMSUNG ELECTRONICS	Republic of Korea	95,852	38	7	2
CANON	Japan	74,193	7	2	3
TOYOTA JIDOSHA	Japan	73,220	15	16	4
TOSHIBA	Japan	65,151	4	3	5
LG ELECTRONICS	Republic of Korea	64,593	80	12	6
SEIKO EPSON	Japan	62,305	16	18	7
INTERNATIONAL BUSINESS MACHINES (IBM)	United States of America	45,473	40	17	8
RICOH	Japan	45,306	8	9	9
SONY	Japan	44,261	9	5	10
SHARP	Japan	43,094	10	14	11
MITSUBISHI ELECTRIC	Japan	42,852	5	8	12
HITACHI LTD	Japan	35,369	3	4	13
DENSO	Japan	34,219	124	27	14
FUJITSU LTD	Japan	33,655	6	10	15
HONDA MOTOR	Japan	33,367	23	24	16
ROBERT BOSCH	Germany	32,227	41	33	17
ZTE CORPORATION	China	31,673	155	144	18
HONGHAI PRECISION INDUSTRY	Taiwan, Province of China	30,848	127	129	19
HYUNDAI MOTOR	Republic of Korea	30,735	90	20	20
HUAWEI TECHNOLOGIES	China	28,726	141	117	21
FUJI XEROX	Japan	27,457	25	28	22
SIEMENS	Germany	26,857	20	21	23
MICROSOFT	United States of America	23,925	104	81	24
FUJIFILM CORP	Japan	23,314	132	165	25

Source: WIPO

Ideas

~ 70 p.a.

Patents & UMs

published:

196 families

602 Patents & UMs

Granted:

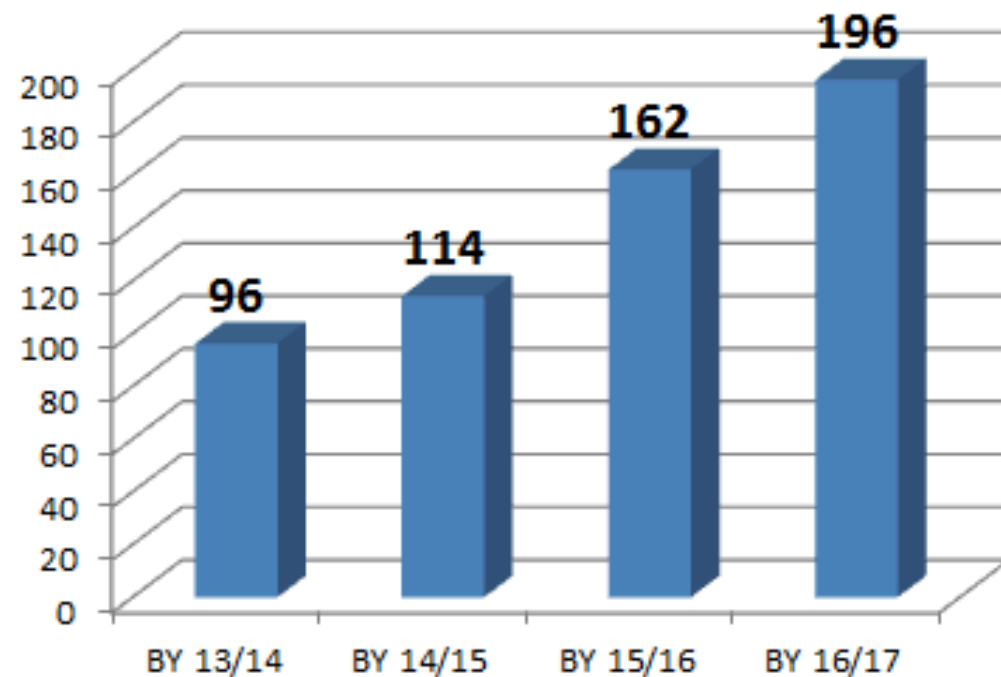
77 families

227 Patents & UMs

Trademarks

AT&S[®], 2.5D[®], NucleuS[®], ECP[®]

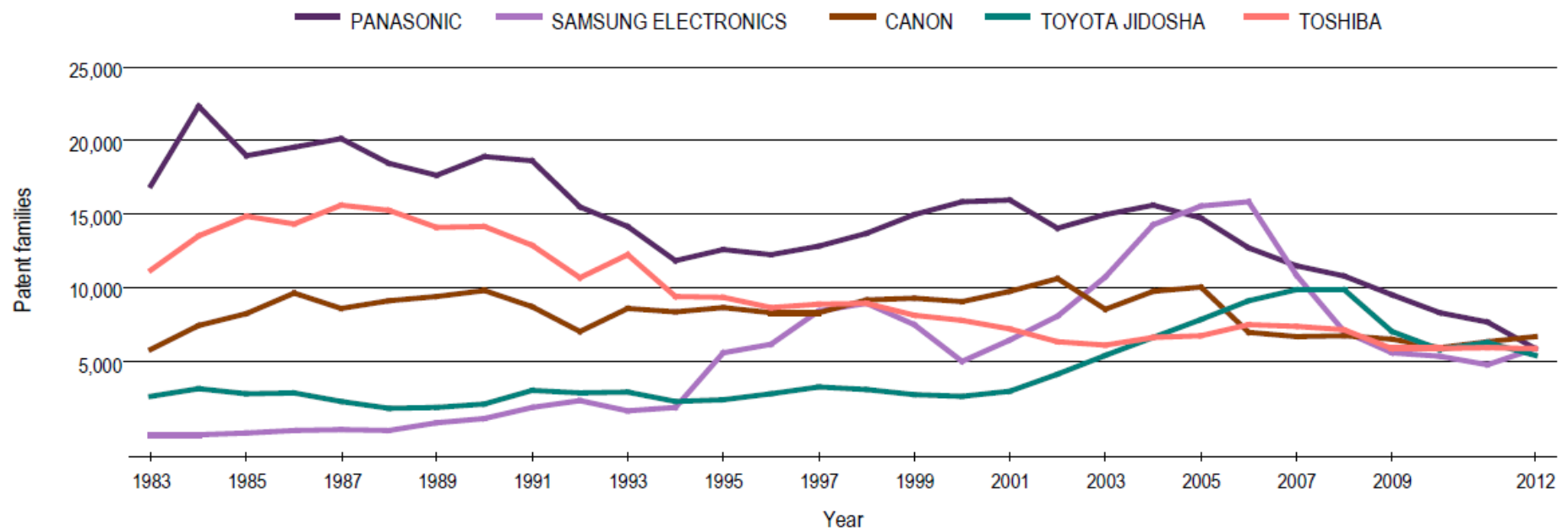
Growth of Patent Families



The world in patents

Total filings of TOP 5 applicants

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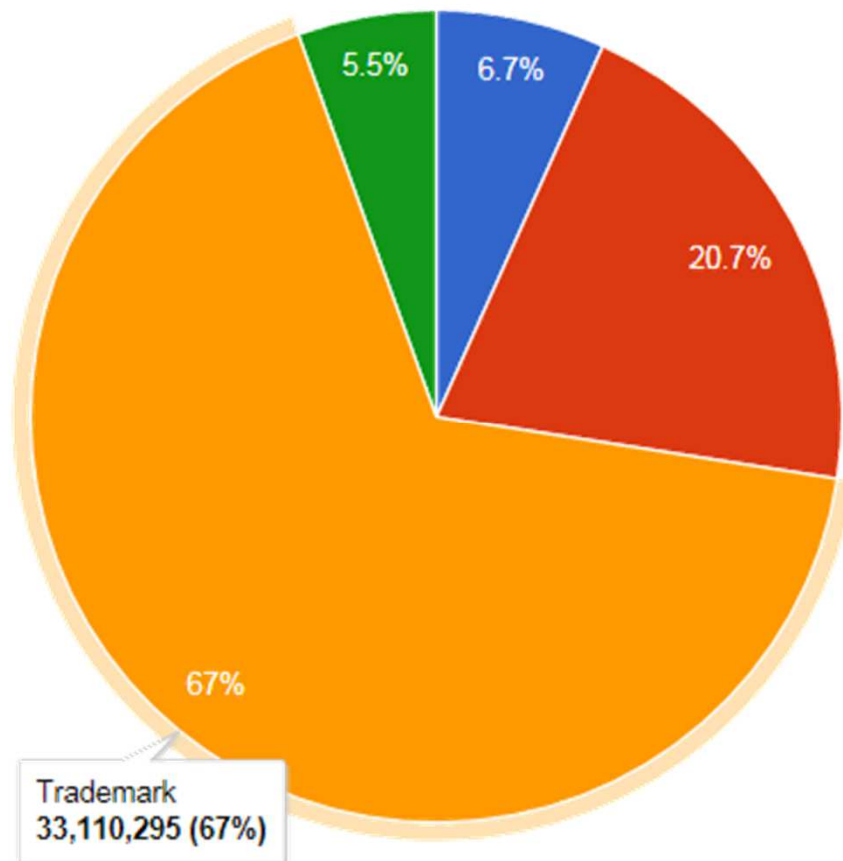


Source: WIPO Stats 2015

The world in patents

IP-Rights in Force

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Source: WIPO Statistic Database 2015 and 2016

- Industrial design
- Patent
- Trademark
- Utility model

Patents in force 2015:
10,6 Mio.

90% thereof are filed in IP5-
Patent offices (US,EP, CN JP, KR)

Filings worldwide

Patents: 1995: 1,05 Mio.

2015: 2,9 Mio.

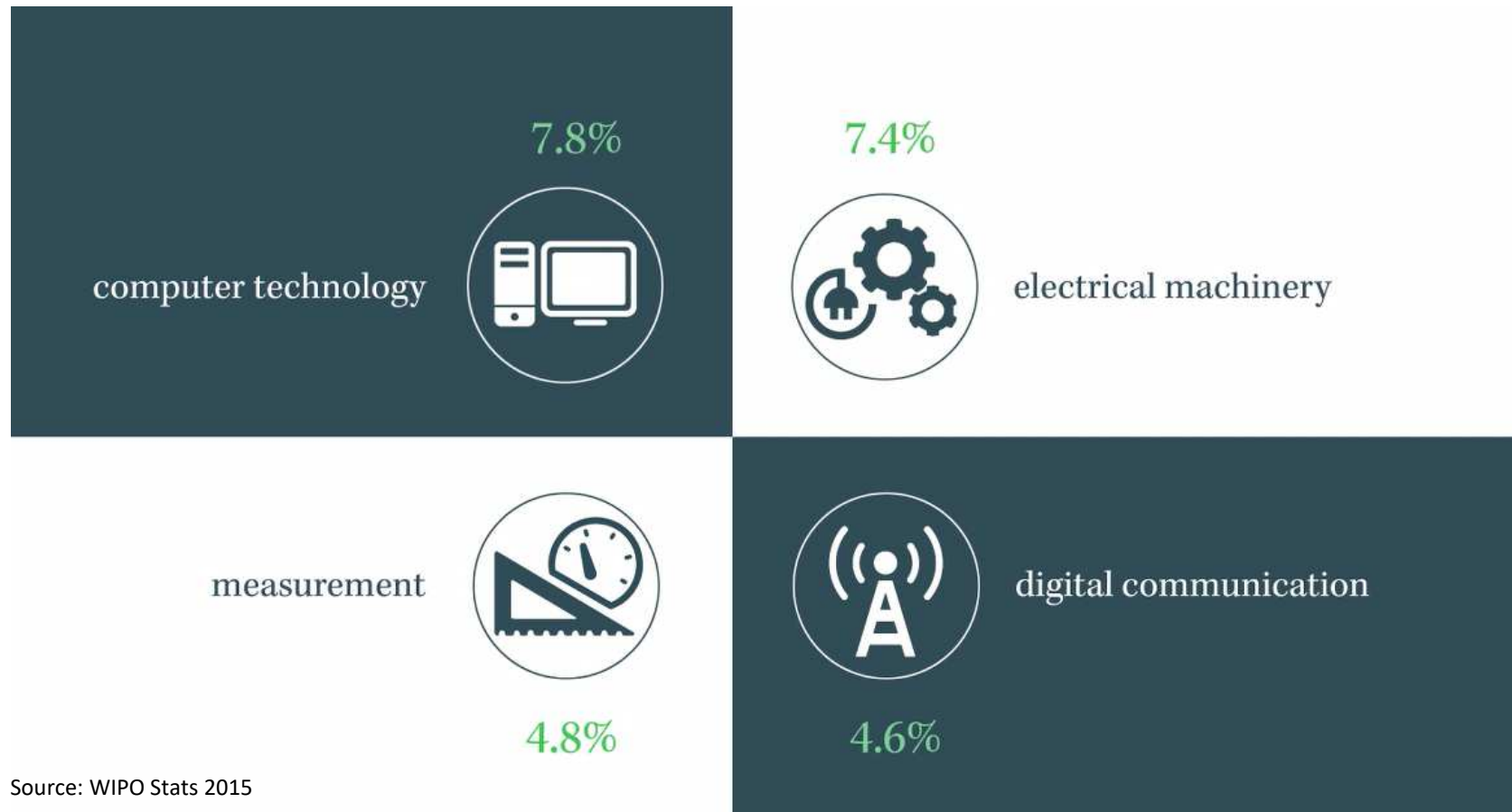
Increase 2014 - 2015: 7,8 %
(main reason: China)

Utility Models: 2015: 1,21 Mio.

94% in China

IPR Total: 2014: 11,2 Mio.

4 leading technology areas

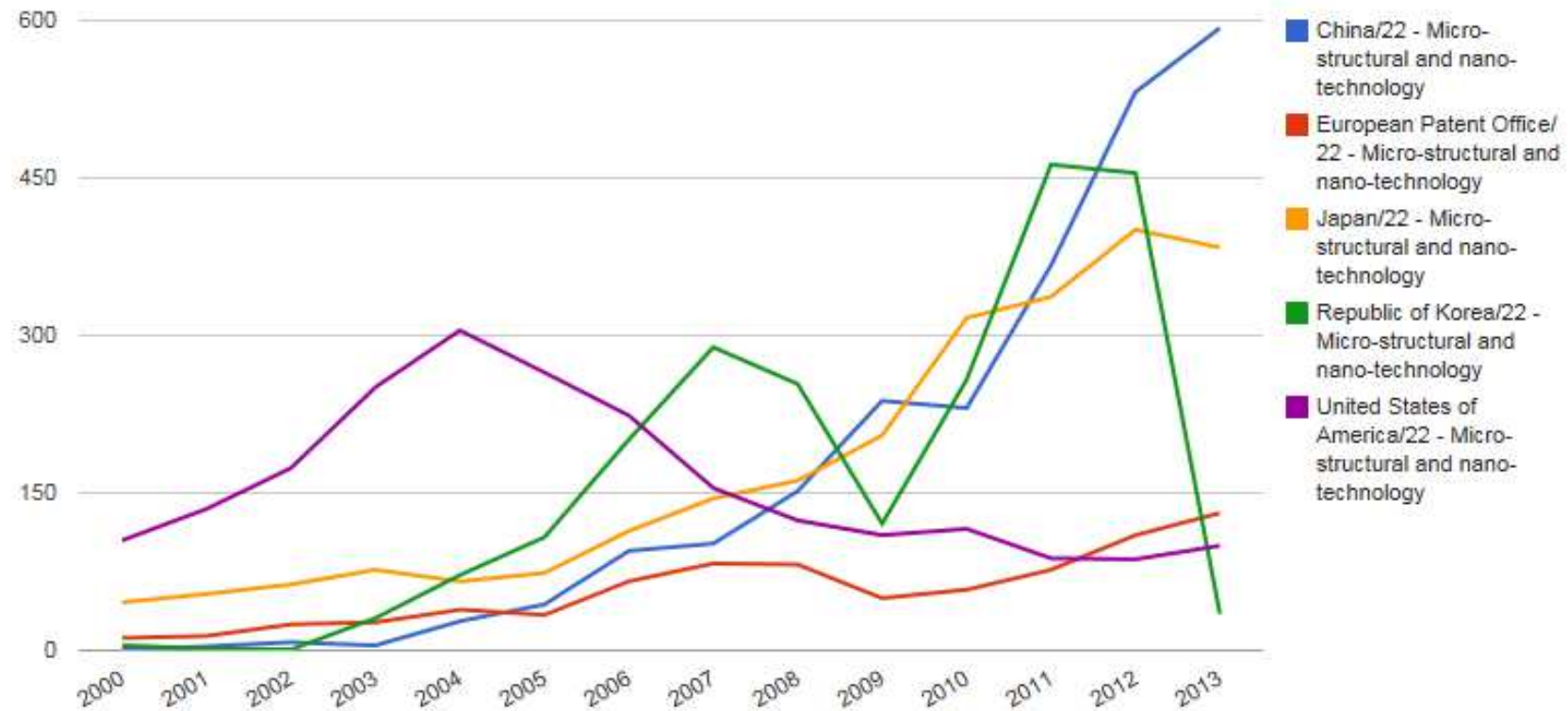


covering approx. 25% of total world wide filings 2014

Patents provide insights into markets and (political) prioritizations

AT&S

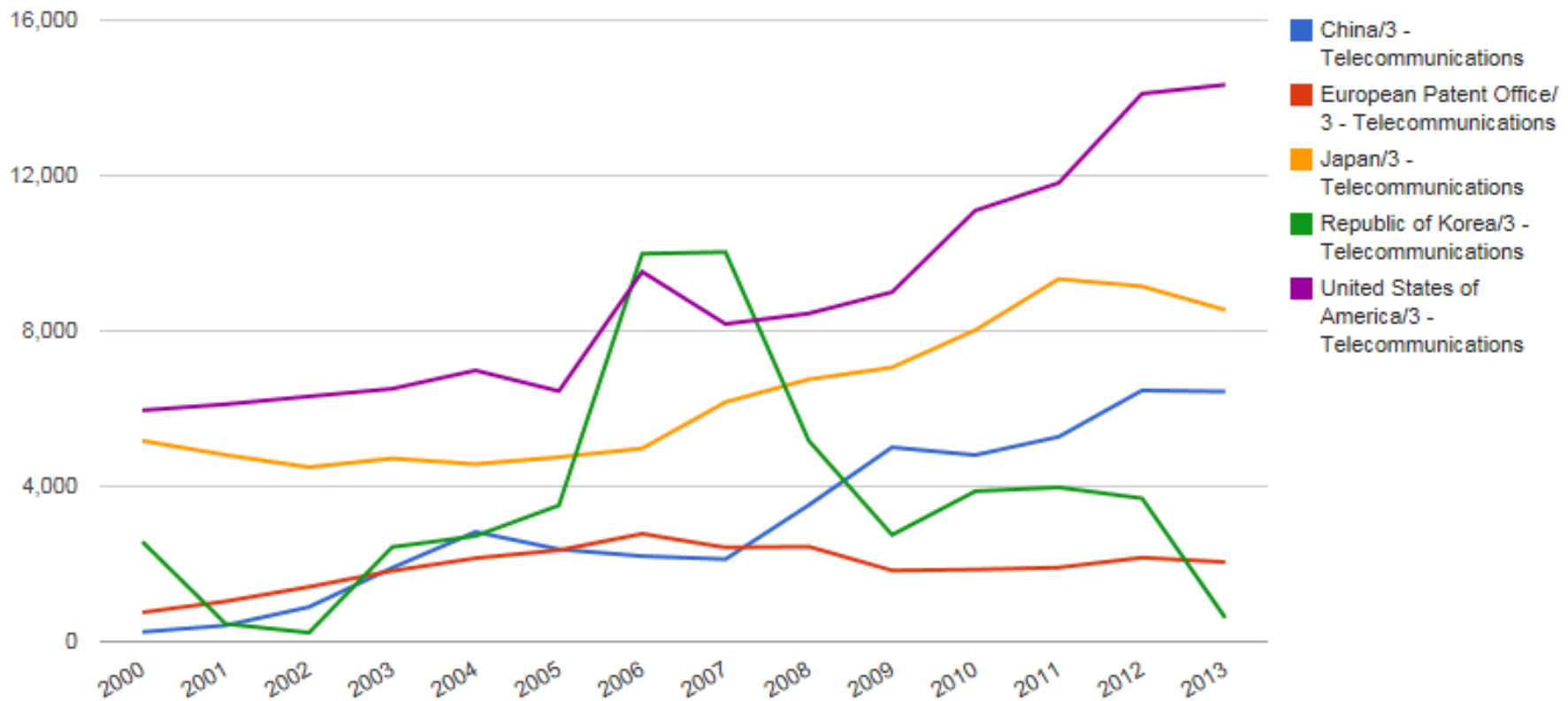
Micro- and Nanotechnology



Patents provide insights into markets and (political) prioritizations

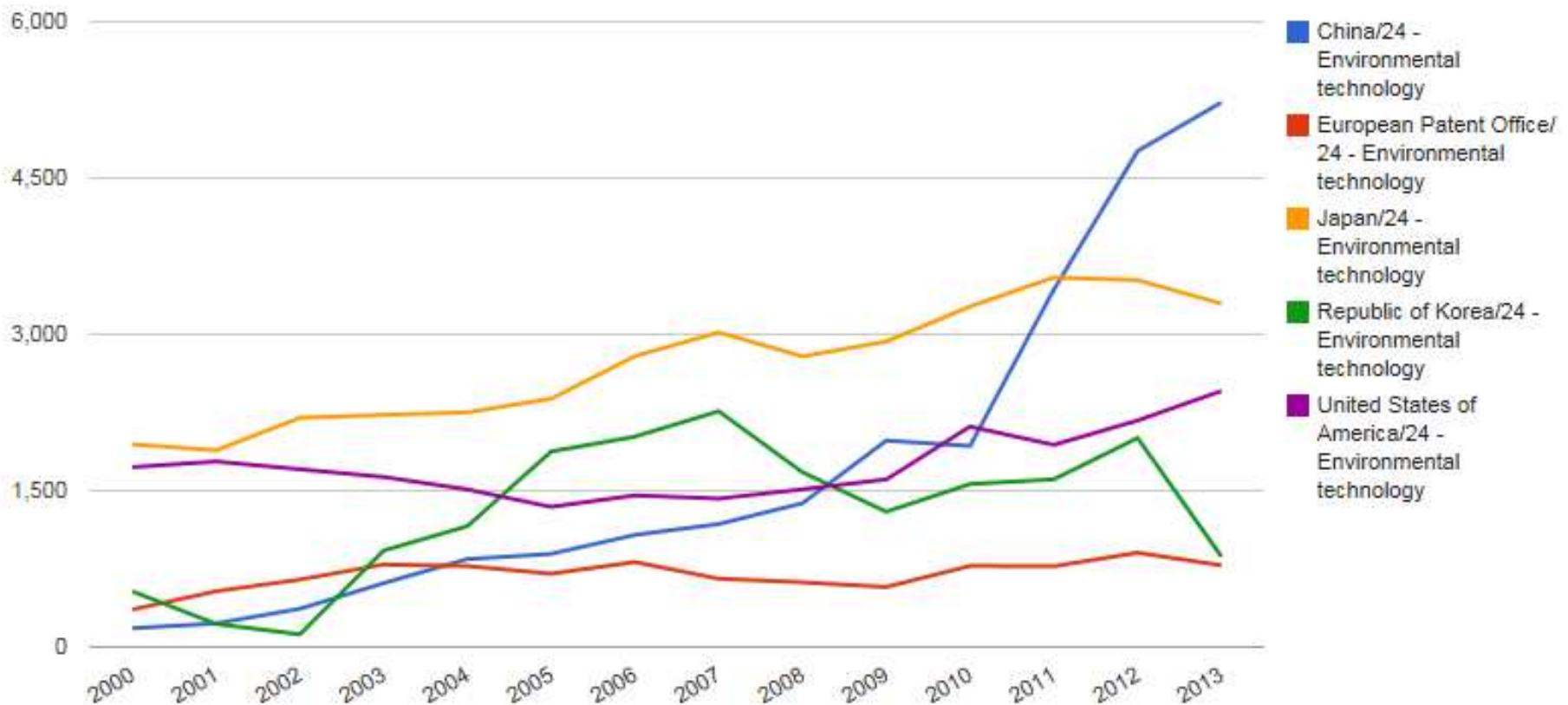
AT&S

Telecommunications



Patents provide insights into markets and (political) prioritizations

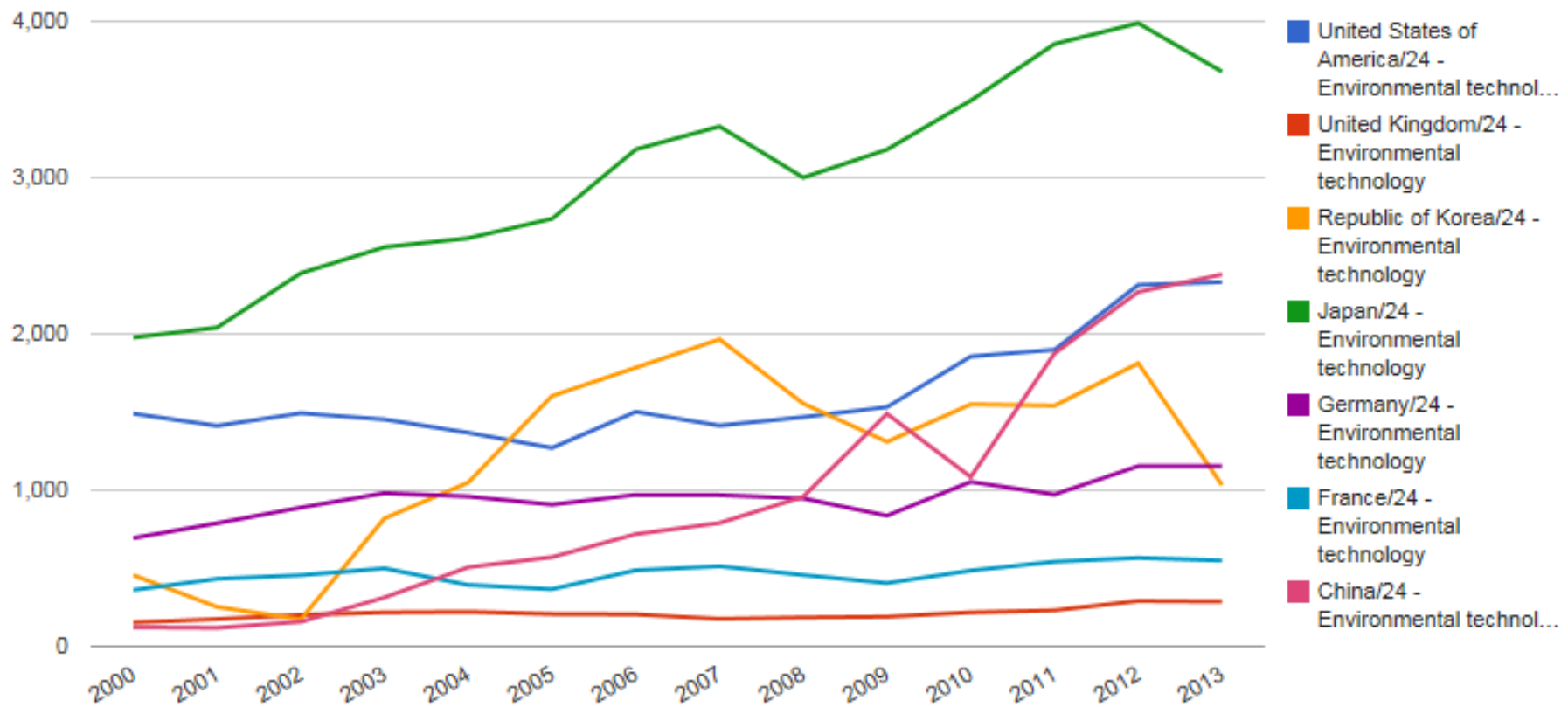
Environmental technology



China: Neue Energien, neue Materialien und Umwelttechnologie im Fokus der Regierung

Patents provide insights into markets and (political) prioritizations

Environmental technology – by origin of applicant

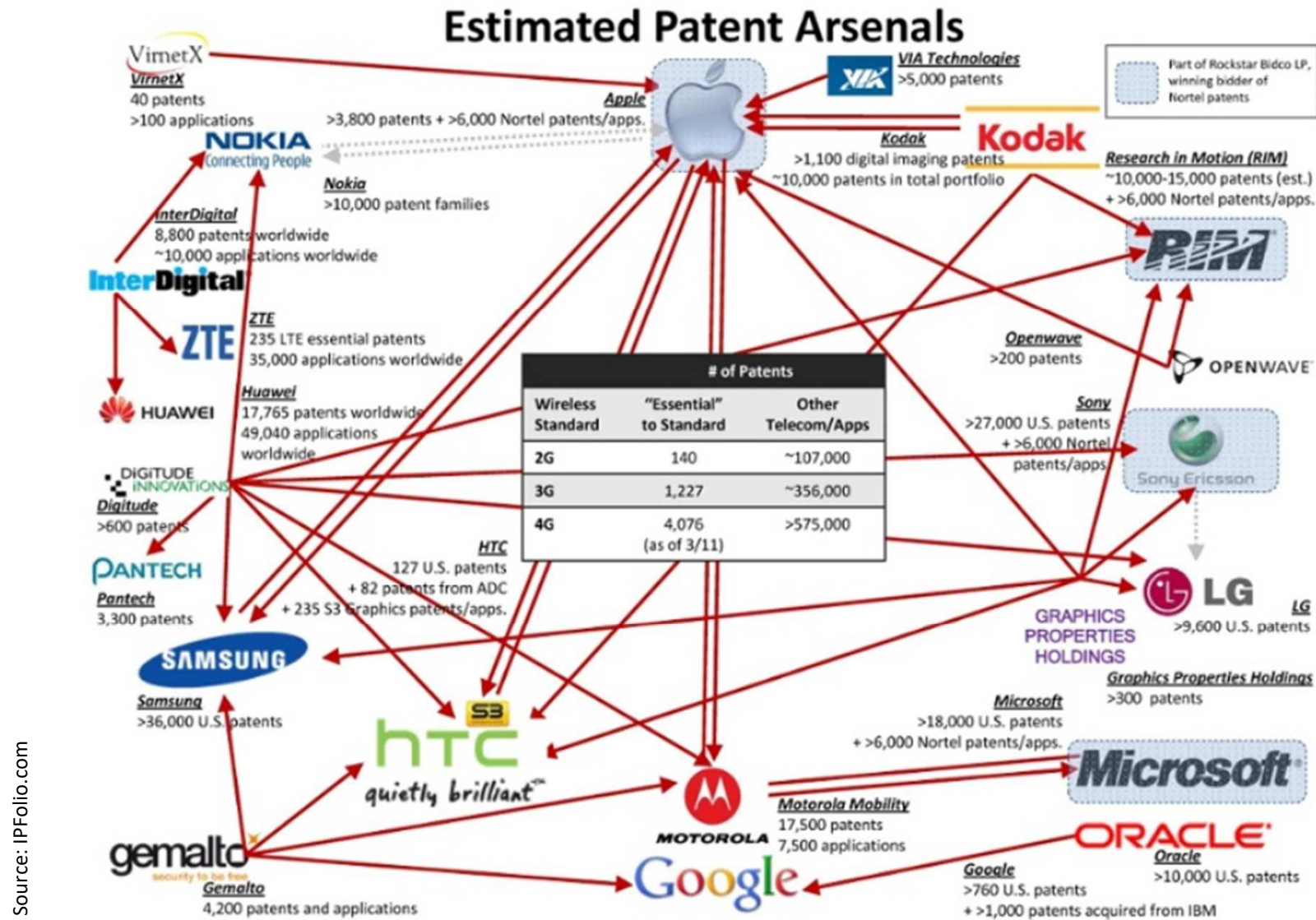


Patents

- are **indicators of innovation** (showing trends, technology landscape or industry policy prioritizations of countries)
 - provide **insight into competitors** (fields of technologies, activities)
 - show R&D activities but **not** necessarily **research successes**
 - are used more and more to **protect markets**
- **Patents are gaining in importance as intangible asset**

Google: „The most valuable of Motorola is its patents“			
Google (Motorola)	5,5 billion \$	24.000 Patents	229.000 /Patent
Microsoft/Apple (Nortel)	4,5 billion \$	6.000 Patents	750.000/Patent
Facebook (Microsoft)	550 billion \$	650 Patents	846.000/Patent

Patent Wars



Source: IPFolio.com

Future of IP - The 4th sector

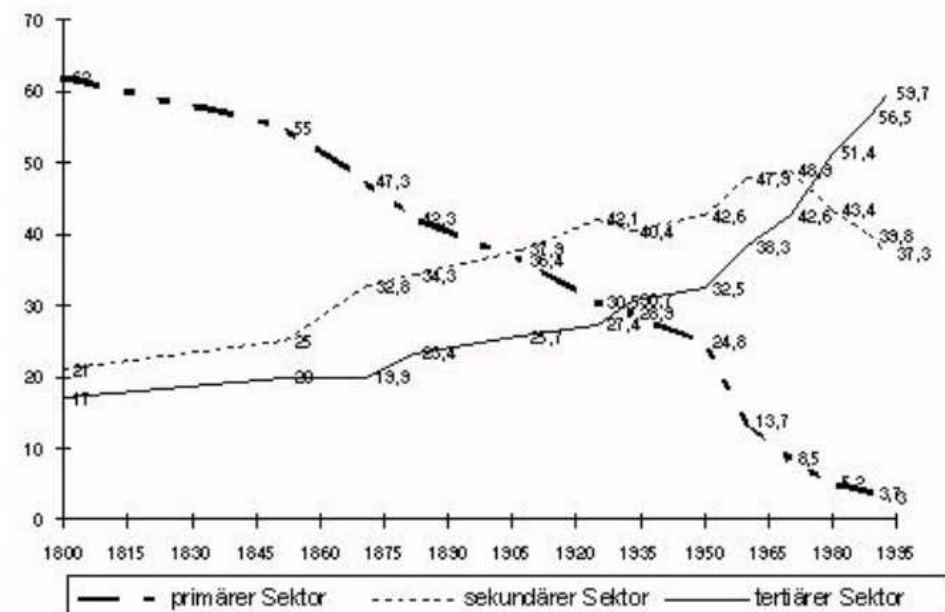
Extension of three-sector hypothesis of industrial evolution

Concerns the intellectual services such as:

- Information generation and sharing
- Consultation
- Education and training
- Research and development

Companies intends to invest in this sector in order to increase benefit an expand!

→ Patents, Trademarks, ...



IP-Strategy

- **Strategy Development**
 - Development Process
 - Impact and functions of Patents, Trademarks
- Deductions of IP-Strategy
 - Acquisition
 - Exploitation
 - Monitoring
 - Enforcement
- Strategic Creation of IP
- IP-Strategy in practice



Wayne Gretzky: *"I skate to where the puck will be, not to where it has been."*

Economic Characteristics of IP

Nonrivalry in consumption

IP can be used in multiple parallel applications to generate income.

Scalability in use

In contrast to tangible assets scalability of IP is only limited by market volumes.

Sunk costs

Investment in IP and related costs cannot be used within other purposes.

Inverse value development of IP throughout Usage


Intangible Assets have no use-related abrasion or decline of value

Source: Grant (2005) Contemporary Strategy Analysis

Strategy is **not** planning

➡ **Not** a detailed plan of actions

➡ **It is** a unifying theme



*Gives coherence and direction to decisions
and actions of an individual / organization*

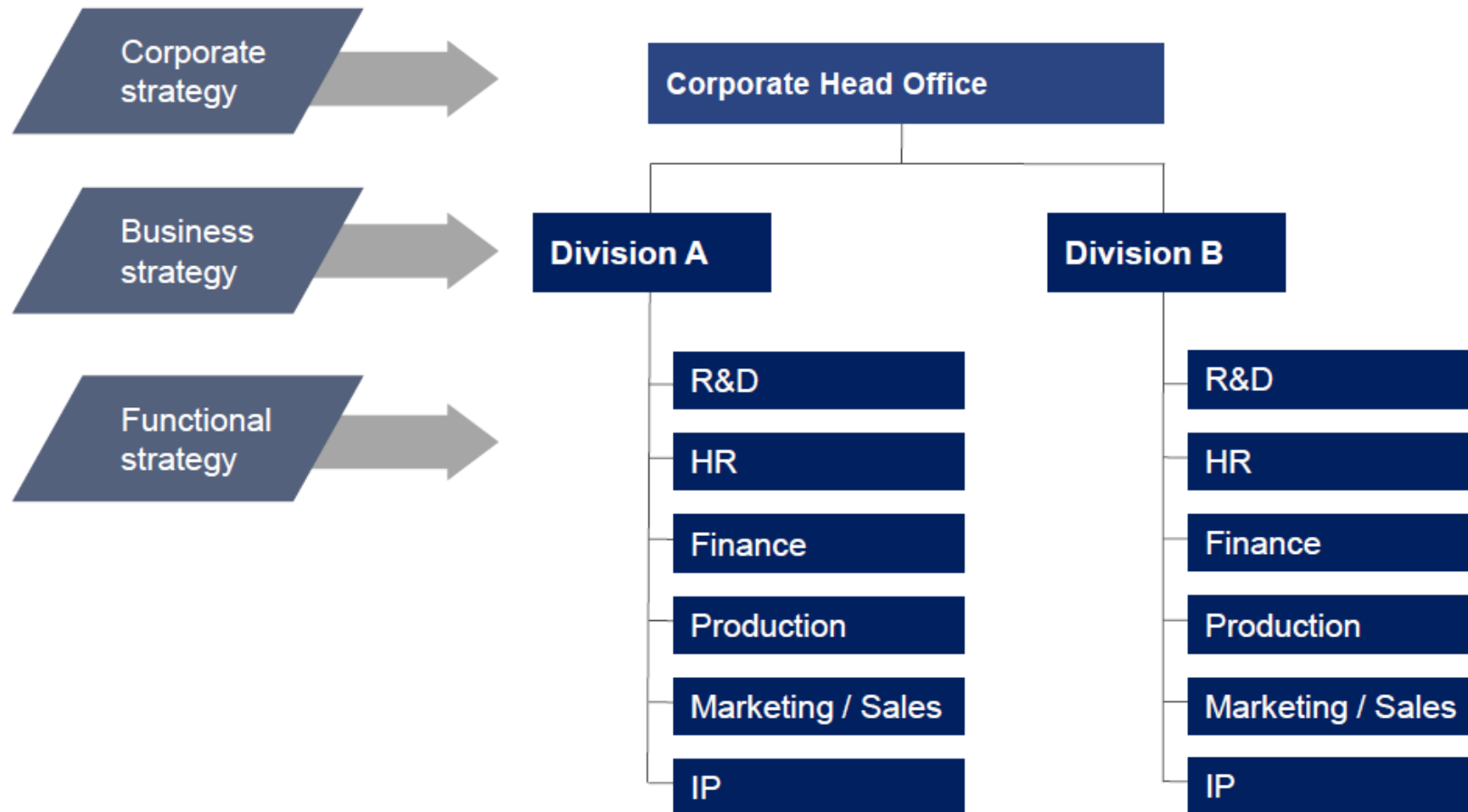
Source: Grant (2005) Contemporary Strategy Analysis



Strategy Development

IP within a company

AT&S



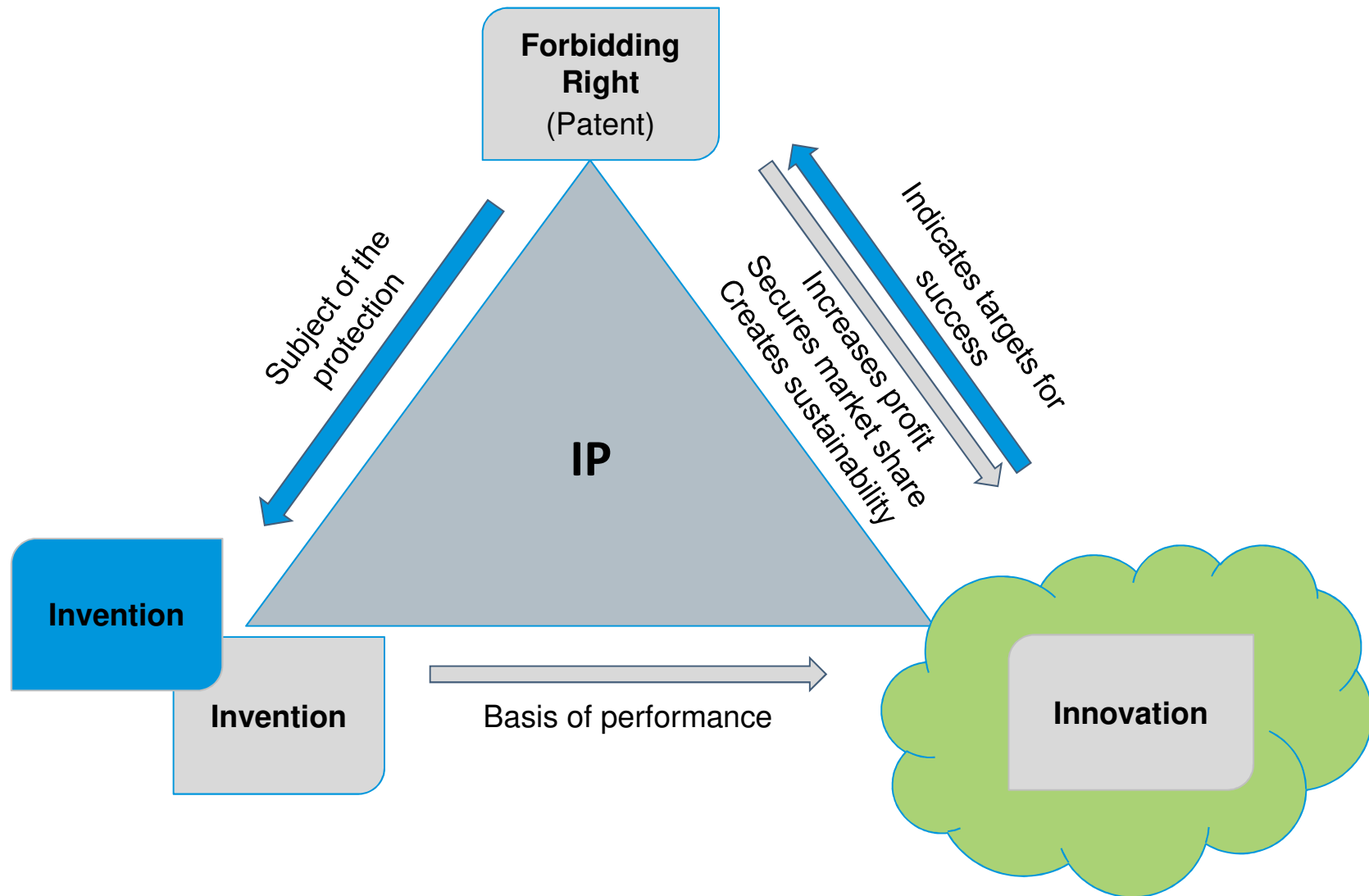
Source: Grant (2005) *Contemporary Strategy Analysis* (modified)

IP has to be deeply linked in the company's DNA

IP = EXCLUSIVITY

IP gives a company legally enforceable exclusivity

How to achieve exclusivity?



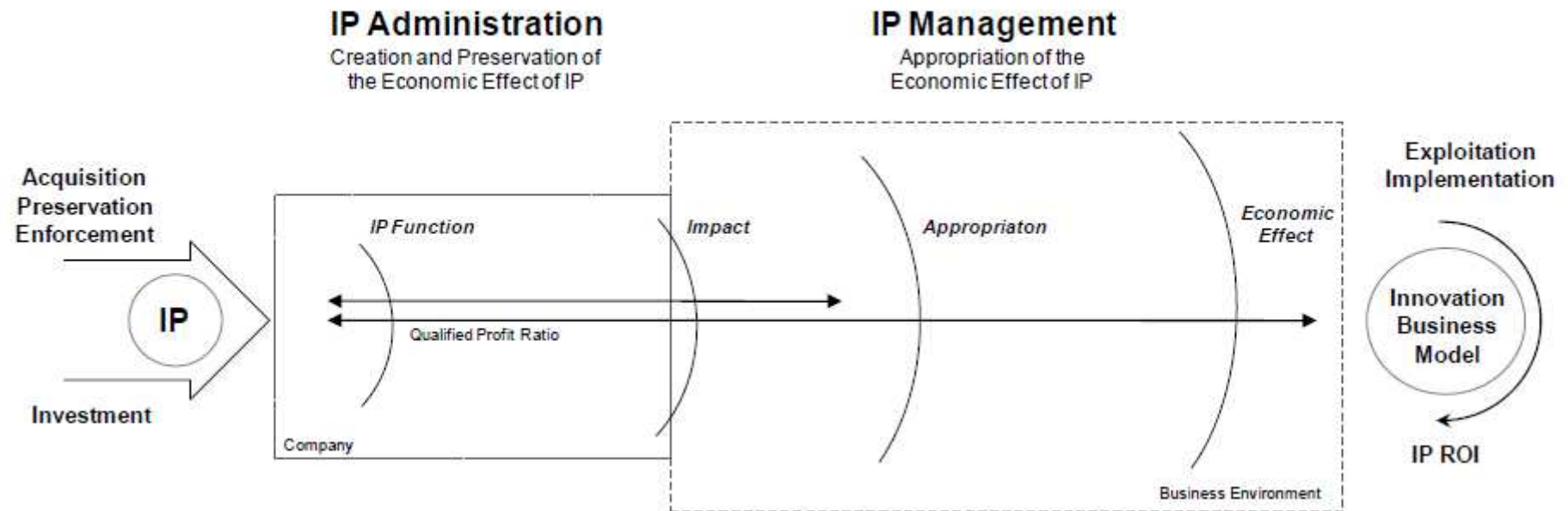
IP-Strategy

- Strategy Development
 - **Development Process**
 - Impact and functions of Patents, Trademarks
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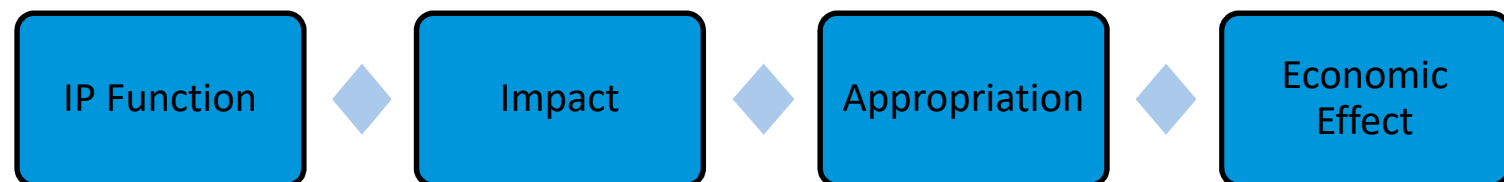
Strategy Development

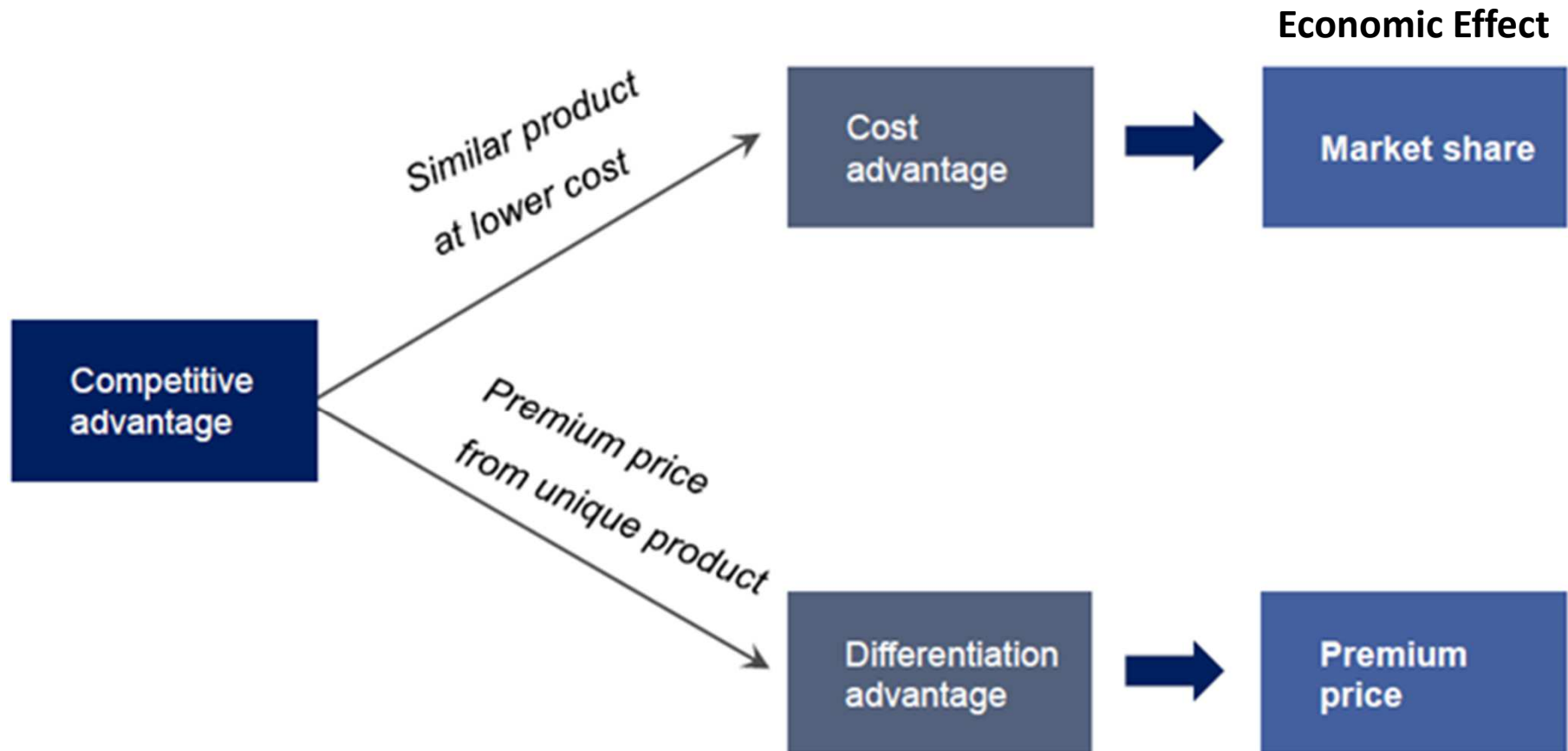
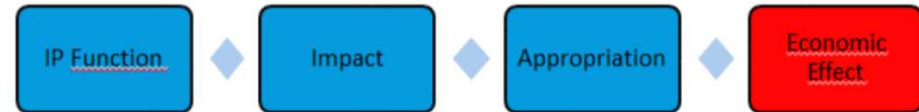
IP Strategy Development Process

AT&S



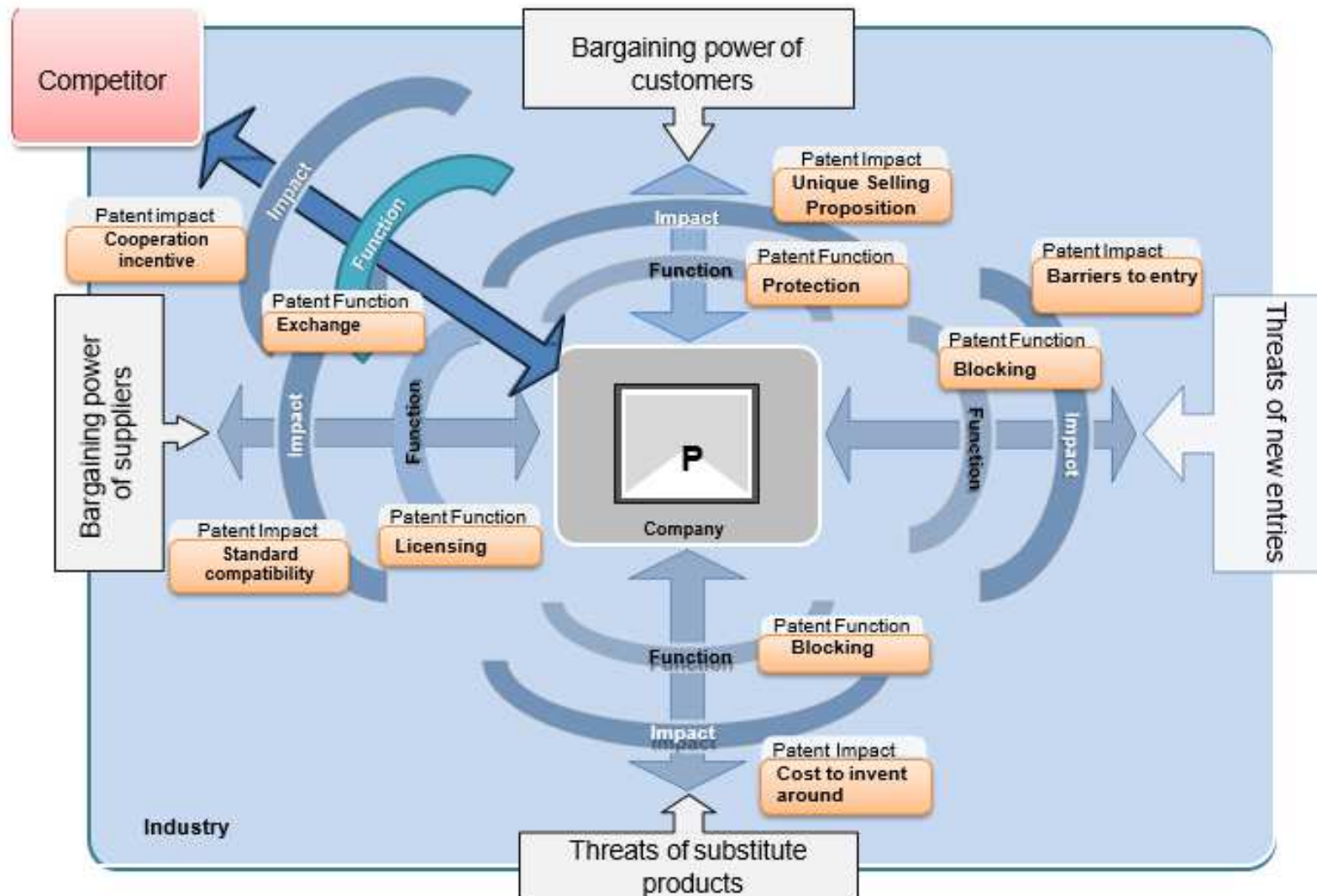
Source: Wurzer A. J / DiGiammarino, P (2008) *Managing IP in SMEs*

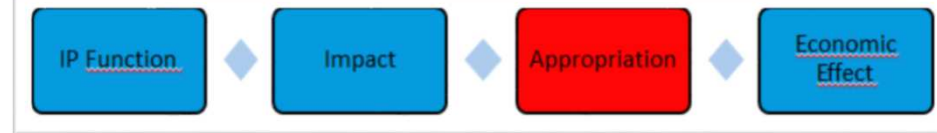




Example

IP in Porter's 5 Forces





- **Technological complexity**

Discrete and complex technologies

- **Product life cycle**

Time to realise return on investment in product or process innovation

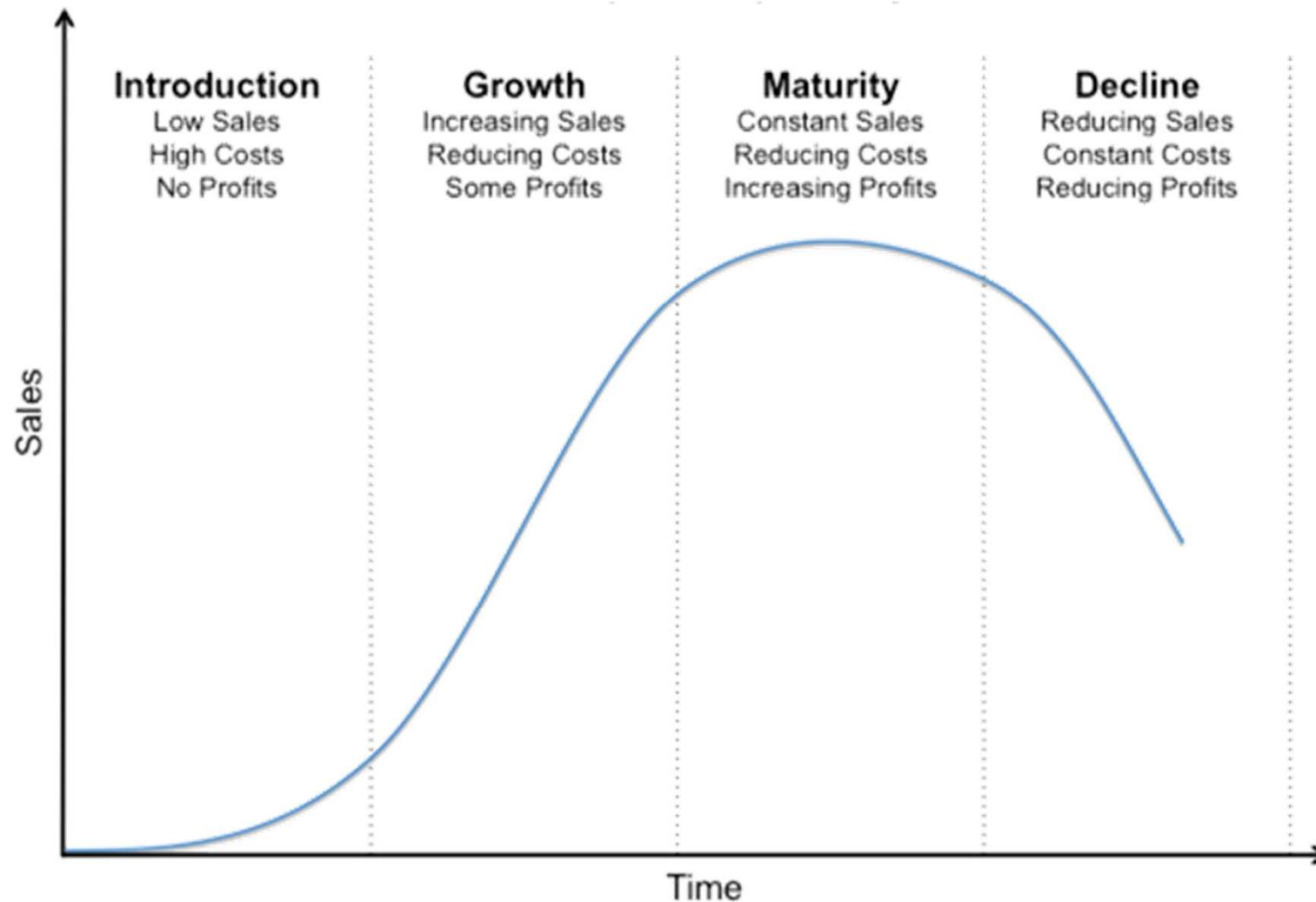
- **Company size**

Company bargaining position and resources

Strategy Development: Development Process: Appropriation

Product Life Cycle

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Source: <http://www.businesssetfree.com/small-business-product-life-cycle/>

Strategy Development: Development Process: Appropriation

Product Life Cycle of Commodore C64

The Commodore 64 was an 8-bit home computer released in August, 1982.

- **During its lifetime, sales totaled 30 million units, making it the best-selling single model of all times.**
- **Between 1983-1986 it dominated the market with approximately 40% share and 2 million units sold per year.**

Aggressive pricing of the C64 is considered to be a major catalyst.

Price war with Texas Instruments

Attempts by Commodore to discontinue the C64 in favor of other, higher-priced machines failed.

By 1988, Commodore was selling 1.5 million C64s worldwide.

In 1994 Commodore claimed that the C64's disk drive was more expensive to manufacture than the C64 itself.

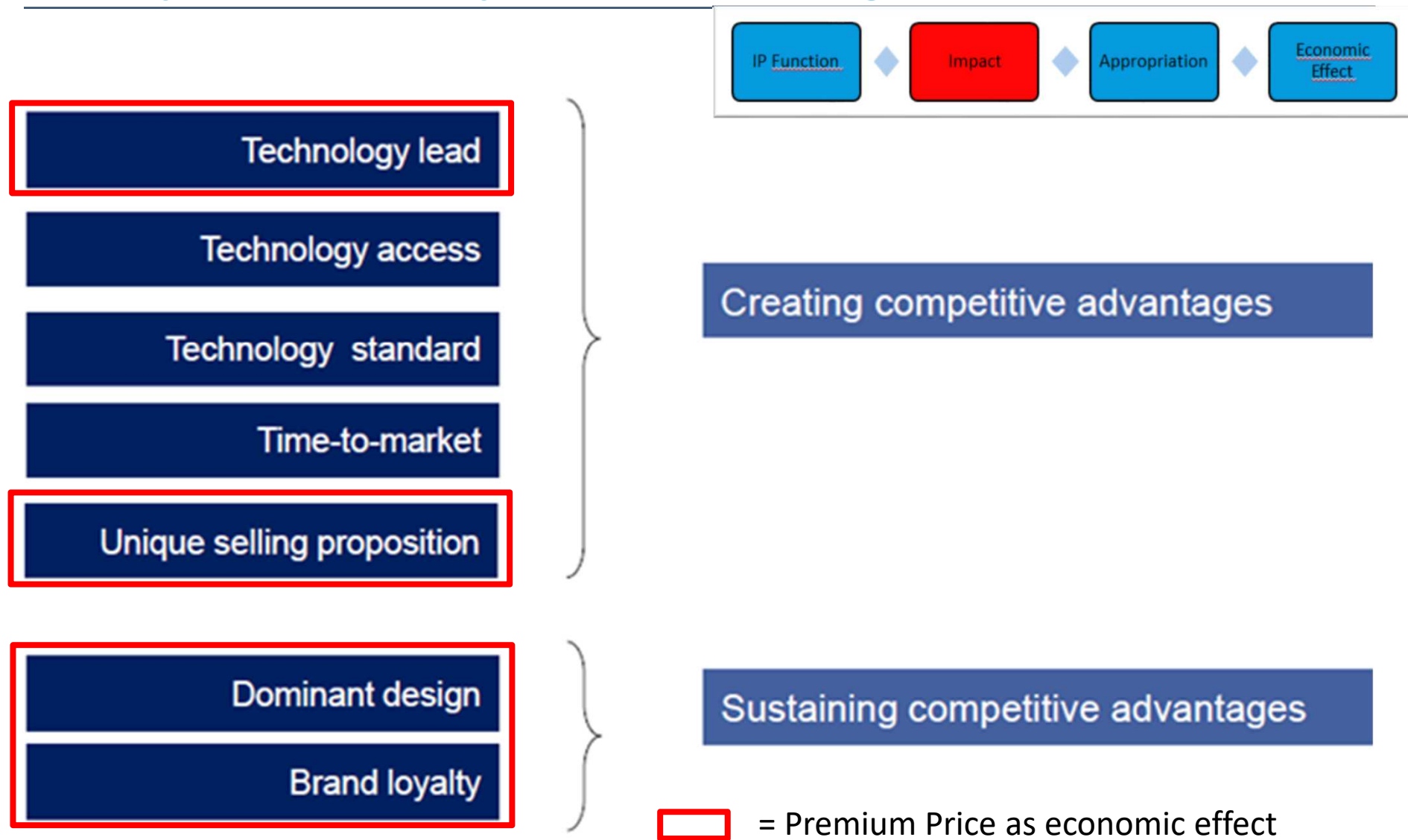
- **The company filed for bankruptcy a month later, in April 1994**



Strategy Development: Development Process: Impacts

IP Impacts for Competitive Advantages

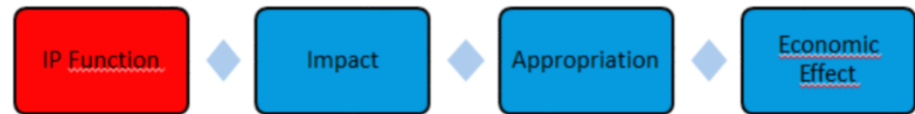
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Strategy Development: Development Process: IP Functions

Patent Functions

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Protection

Protection of own products / processes against copying

Reserve / Improvement

Protection of future or improved products / processes

Blocking

Patents not used by owner – only for blocking competitor's products

Cross licensing

Access to third party technologies through cross licensing

Licensing-out

Better market penetration, generating income through licensing

Patent transfer / M&A

Generating income or cost savings; providing basis for cooperations, joint ventures or start-ups

Confusion / Intimidation

Confusing or intimidating competitors

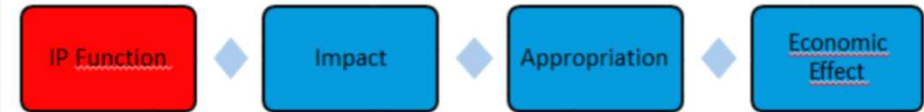
Reputation / Motivation

Improving company image; promoting sales; motivating employees

Strategy Development: Development Process: IP Functions

Trademark Functions

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Consumer oriented	Identification	<i>Identification of producer and orientation among homogeneous products</i>
	Quality	<i>communication of a certain level of quality</i>
	Distinction	<i>Distinction from competitors</i>
	Reputation	<i>External signalling potential for consumers</i>
	Licensing-out	<i>Better market penetration, generating income through licensing</i>
	Transfer / M&A	<i>Generating income; providing basis for cooperations, joint ventures or start-ups</i>

Offensive IP strategy

- build barriers to block competitors from gaining entry to your proprietary technologies
- filing patents as soon as is practicably possible
- Filing a large number of patent applications
 - high maintaining costs
- Possibly large licensing incomes

- Mostly in large organizations
- demonstrate innovations to industries and markets
- more important for companies operating in very competitive fields

Defensive IP strategy

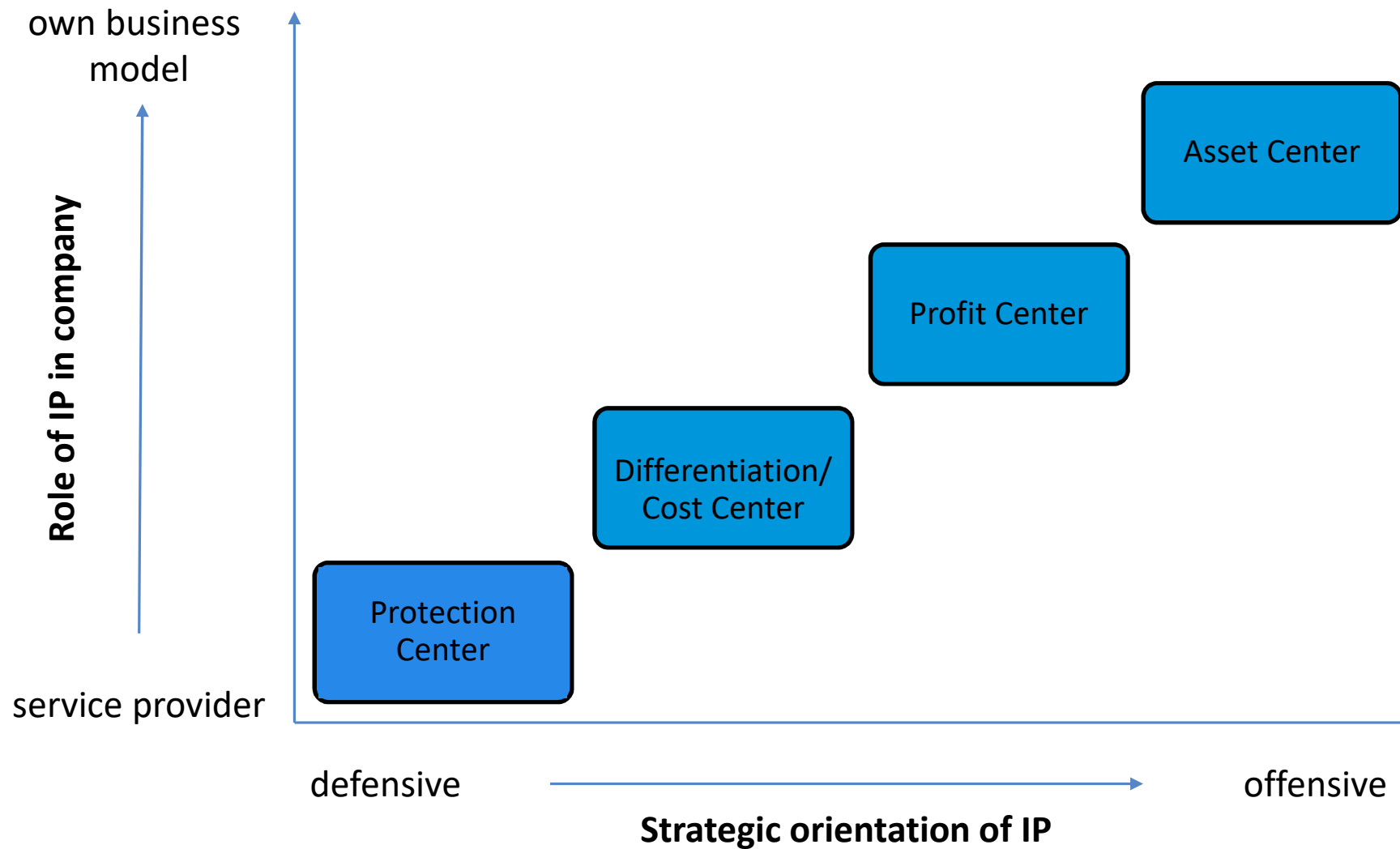
- company files patents primarily to ensure that innovations can be practically used
- filing and maintenance fees will be small
- Small chance to gain royalties from licensing

Mixture possible! (depending on the field and the type of the technology)

E.g.: A defensive patent strategy can be combined with a strong trade-secret portfolio, or a large number of in-licensed technologies.

Source: <http://www.iphandbook.org>

Positioning of IP in company



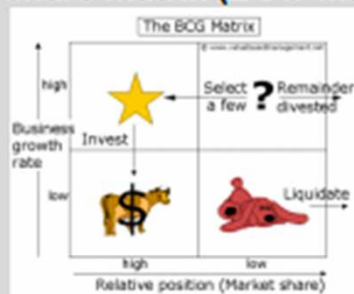
Tools for development of IP-Strategy

Business Analysis

Financial Ratio Analysis

(Investigating Financial Statements to analyze the success, failure, and progress of the business; e.g. analysis of ROI, Current Ratio etc.)

Growth-share matrix (BCG-matrix)



Value chain analysis



Environmental Analysis

Porter's 5 forces



Corporate foresight

(Early detection of discontinuous change, interpreting the consequences for the company, and formulating effective responses to ensure long-term survival and success)

Combined Business and Environmental Analysis

SWOT Analysis



Balanced Scorecard



IP-Strategy

- Strategy Development
 - Development Process
 - Impact and functions of Patents, Trademarks
- **Deductions of IP-Strategy**
 - Acquisition
 - Exploitation
 - Monitoring
 - Enforcement
- Strategic Creation of IP
- IP-Strategy in practice

For registrable industrial property rights:

- To apply or not to apply: costs-benefit analysis, patents vs. trade secrets, registered or unregistered works and designs
- When to apply: Timing of application for registration
- What to apply for: some features of a product may be protected with one or more IP rights. E.g. shape of bottle, textile design, etc.
- Where to apply (national, regional or international protection)
- Legal and technical advice
- In-house IP department or external IP lawyer/patent agent
- One product, many IP rights: protecting a single product with a whole variety of rights
- Patent mining

Incentives for employees for the development of IP assets

Source: <http://www.wipo.int>, Cherine Rhamy: Integrating IP in the Business Plan and Strategy

Deductions of IP-Strategy: Acquisition

Patent vs. Trade/Technical Secret

Trade Secret

Patent/UM

Reasons

- | | |
|---|---|
| <ul style="list-style-type: none">• No publication/instruction manual• Very long life-span (Coca Cola:120 years)• cheap | <ul style="list-style-type: none">• Keep others out of the market• Restrict competitors• Revenue from licenses or sale• Better bargaining position |
|---|---|

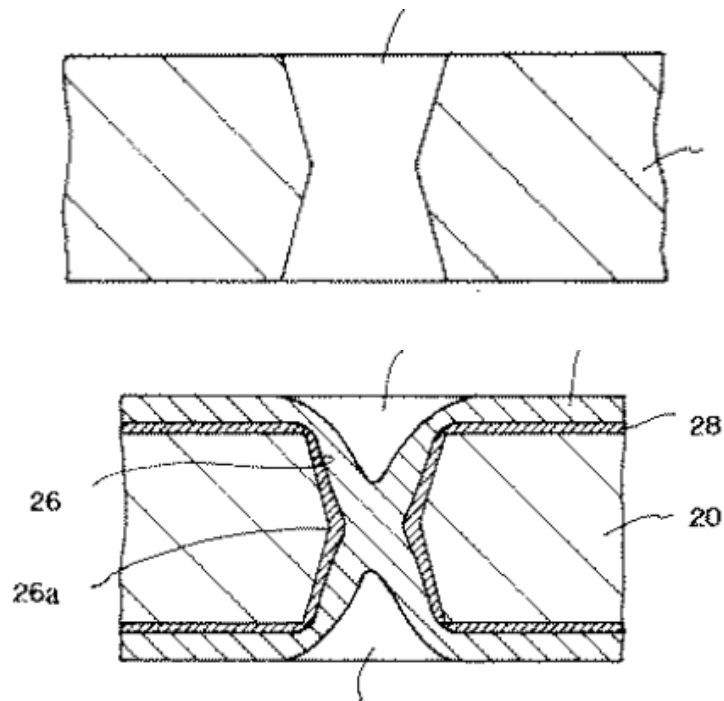
Risks/disadvantages

- | | |
|---|--|
| <ul style="list-style-type: none">• Hard to control ways of knowledge (employee fluctuation)• Others could patent the idea• Hard to detect unauthorized use | <ul style="list-style-type: none">• Scope of protection is unknown for the first time• Costly• Disclosure during enforcement actions |
|---|--|

Example: Strategic patent filing (and mining first)

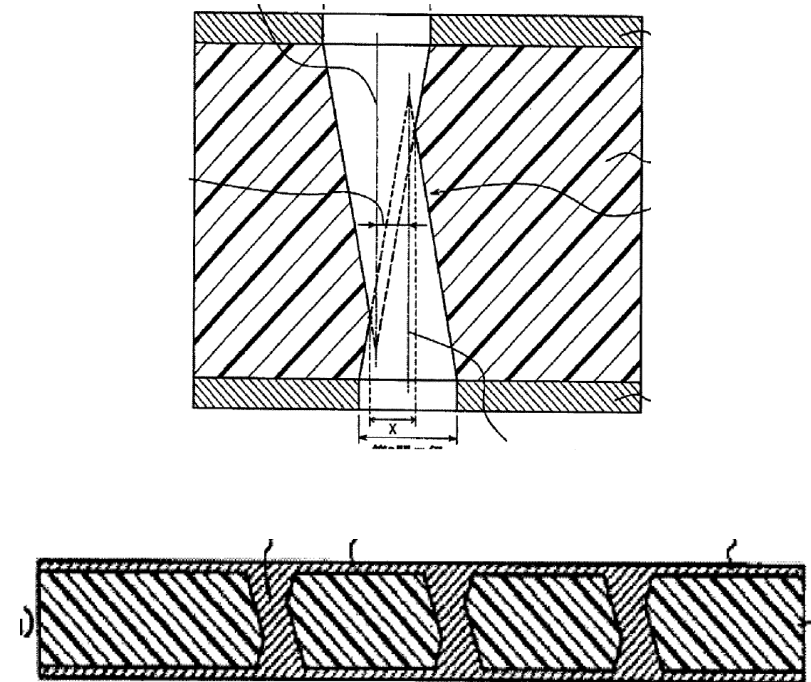
THROUGH-HOLE FILLING METHOD

Shinko JP 2004311919A (filed 2003)



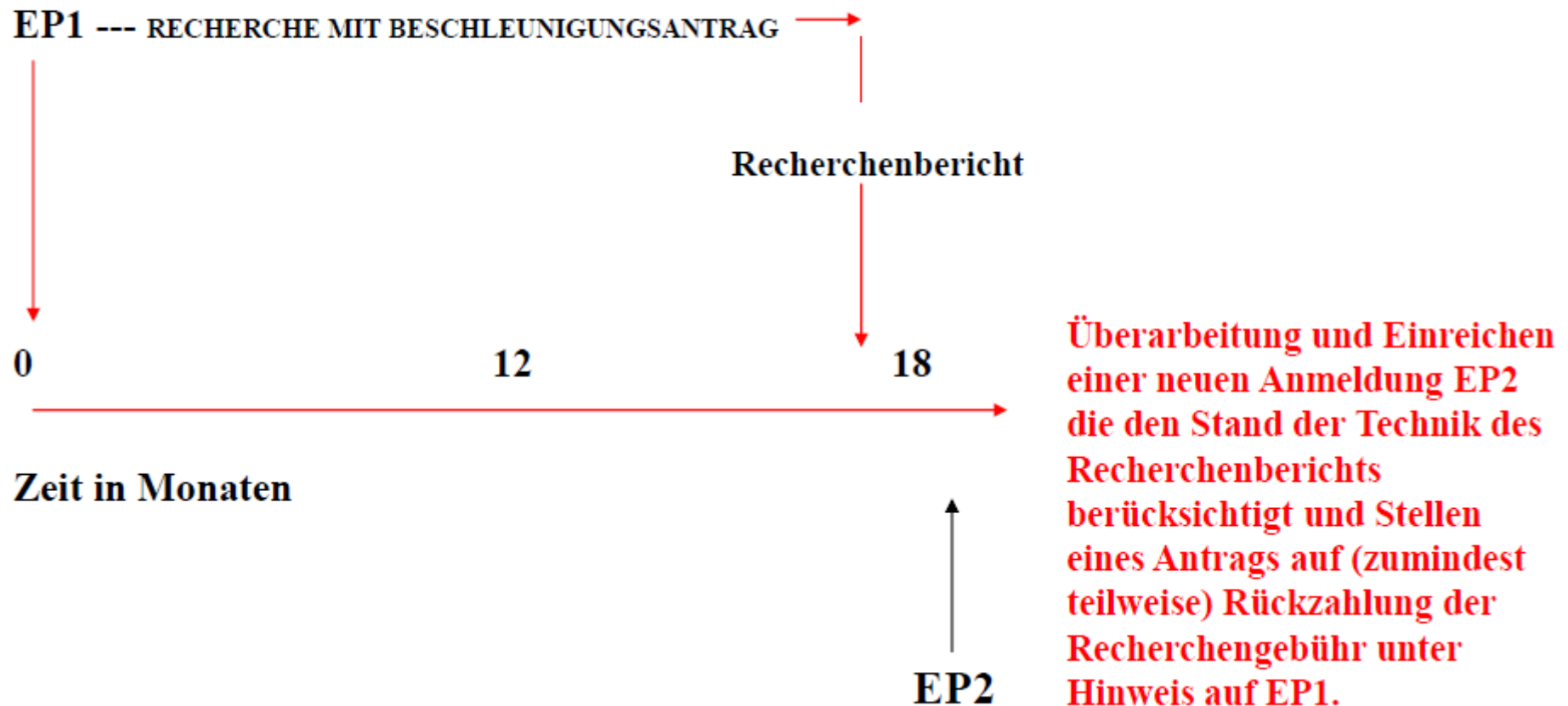
PRINTED WIRING BOARD AND A METHOD OF PRODUCTION THEREOF

Ibiden US 8324506B (filed 2006)



Fa. Baiersdorf

Zurücknahme der Anmeldung EP1
(damit sie nicht veröffentlicht wird);



- um Dritte zu hindern, eine Patent- oder Gebrauchsmusteranmeldung durchzuführen
- muss der Öffentlichkeit innerhalb eines angemessenen Zeitraums zugänglich sein (z.B. Printmedien, „schwarzes Brett“ in öffentlichen Einrichtungen, Internet, Folder (im öffentlich zugänglichen Empfangsbereich der Firma), im Zuge einer Fachtagung, etc.)
- sollte notariell beglaubigt werden

Vor- und Nachteile

- + Verfügbarkeit der Informationstiefe kann von IP-Manager gesteuert werden
- + schwer oder leicht auffindbar
- + kostengünstig
- nicht für Kerntechnologien geeignet
- kein Schutz vor Nachahmung
- die Konkurrenz wird eventuell zum Nachahmen angeregt
- Aufwand für rechtssicheren „Zeitstempel“

Patents, utility models and industrial designs:

- Commercialization of invention vs. Licensing vs. Sale of patent vs. Joint venture

Copyright and related rights:

- Should the creator join a collective management society? Licensing policy on package? Agreements between authors/creators and publishers, editors, broadcasters, performers, etc.?

Trademarks:

- Effective use in business strategy to differentiate products, increase brand loyalty, enhance reputation, target specific markets
- Franchising

Source: <http://www.wipo.int>, Cherine Rhamy: Integrating IP in the Business Plan and Strategy

Some general thoughts on IP exploitation

- IP audit: taking stock of all IP (how is it currently exploited?)
- Policy for subcontracting and commissioning of work: who owns the rights?
- Using IP to raise funds (including all IP assets in business plans for investors)
- IP valuation: important for licensing, during M&As, to report to shareholders and investors
- Cross-licensing: using IP as a negotiating tool to obtain licenses from other companies
- Strategic Alliances: (with other companies, with universities and research centers, etc)

Source: <http://www.wipo.int>, Cherine Rhamy: Integrating IP in the Business Plan and Strategy

Patent monitoring:

- To obtain technical, commercial and legal information
(-> Trend Scouting)
- Patent mapping: mapping the landscape of patents owned by own company and others

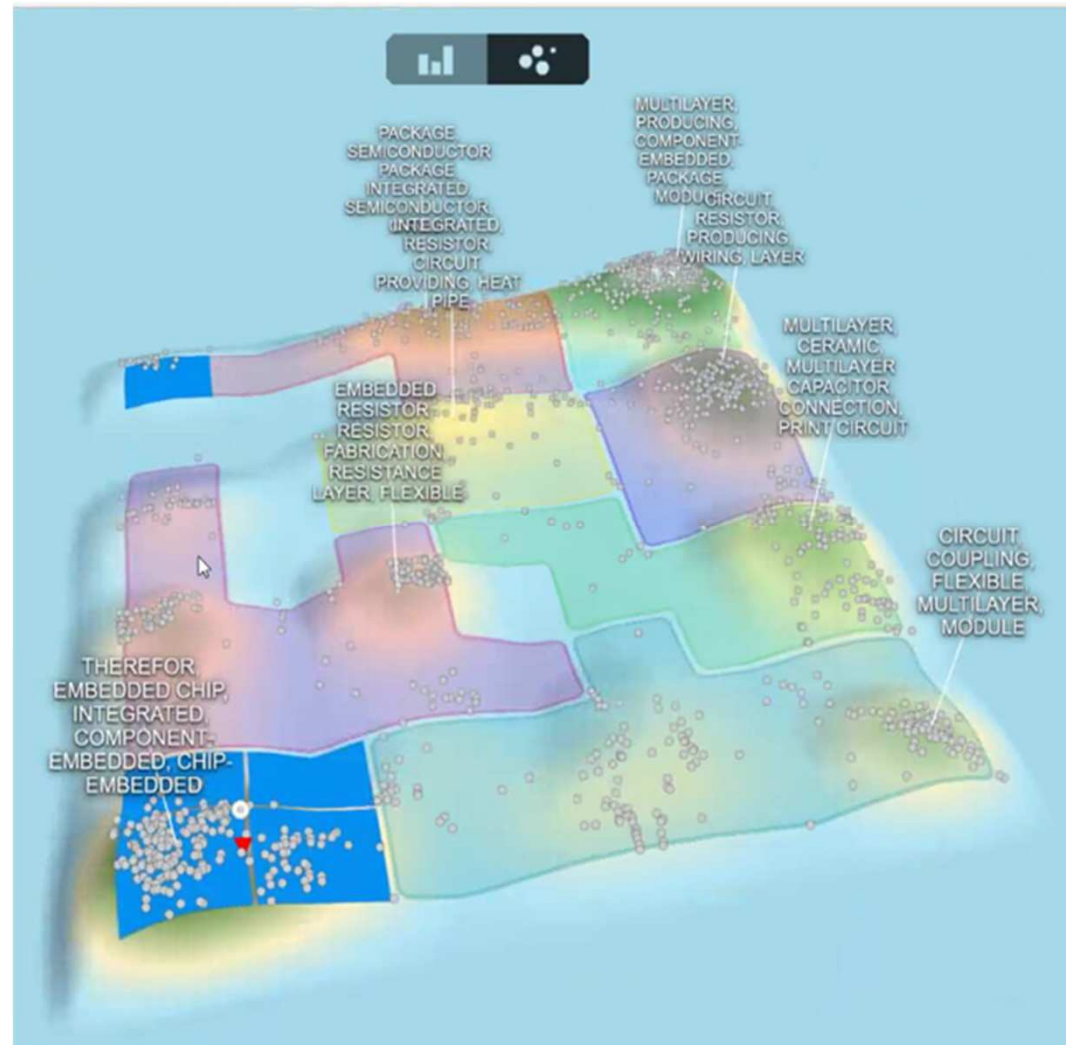
Trademark monitoring:

- Before registering a trademark
- To invalidate identical or confusingly similar marks

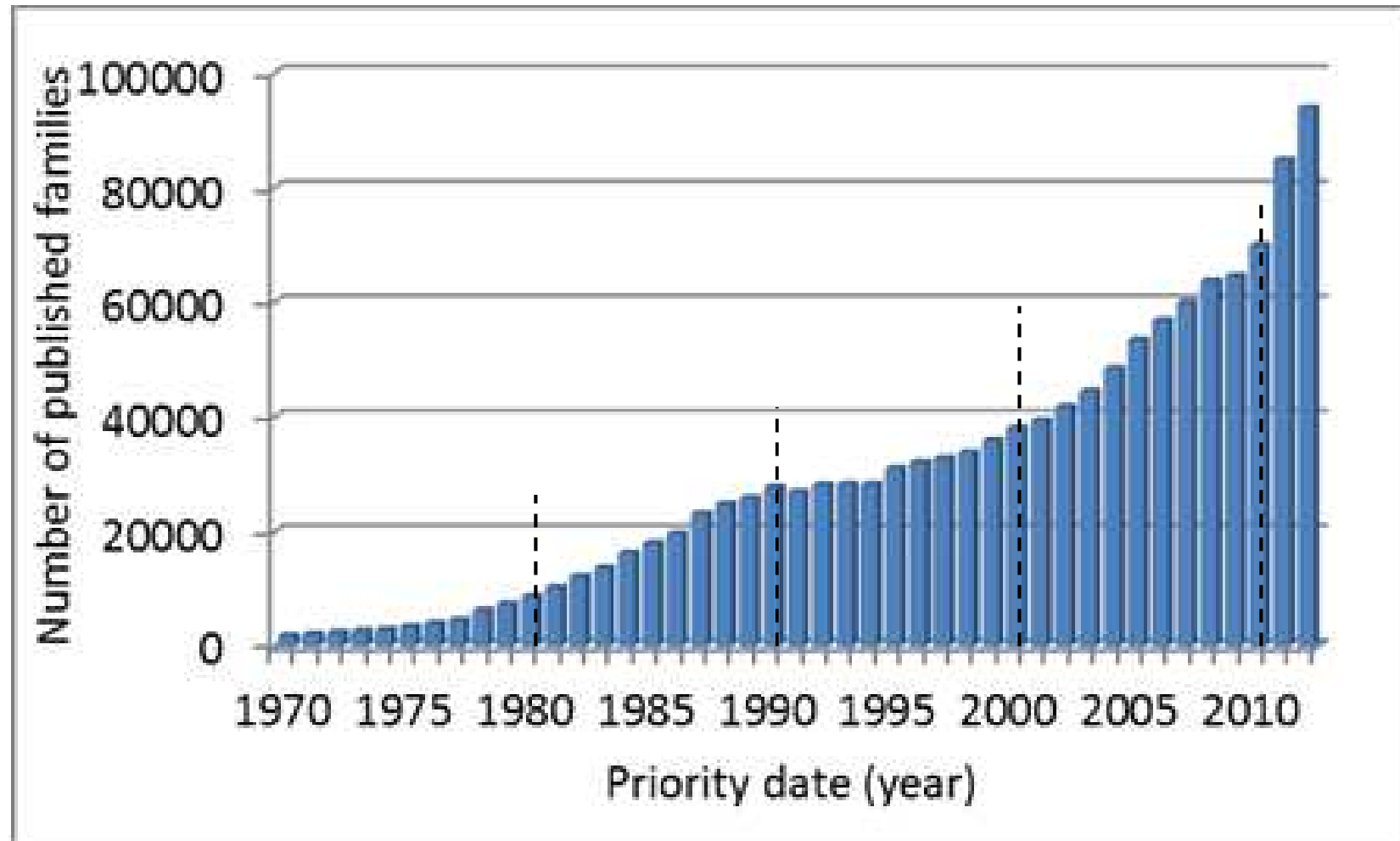
Source: <http://www.wipo.int>, Cherine Rhamy: Integrating IP in the Business Plan and Strategy

Deductions of IP-Strategy: Monitoring IP Monitoring

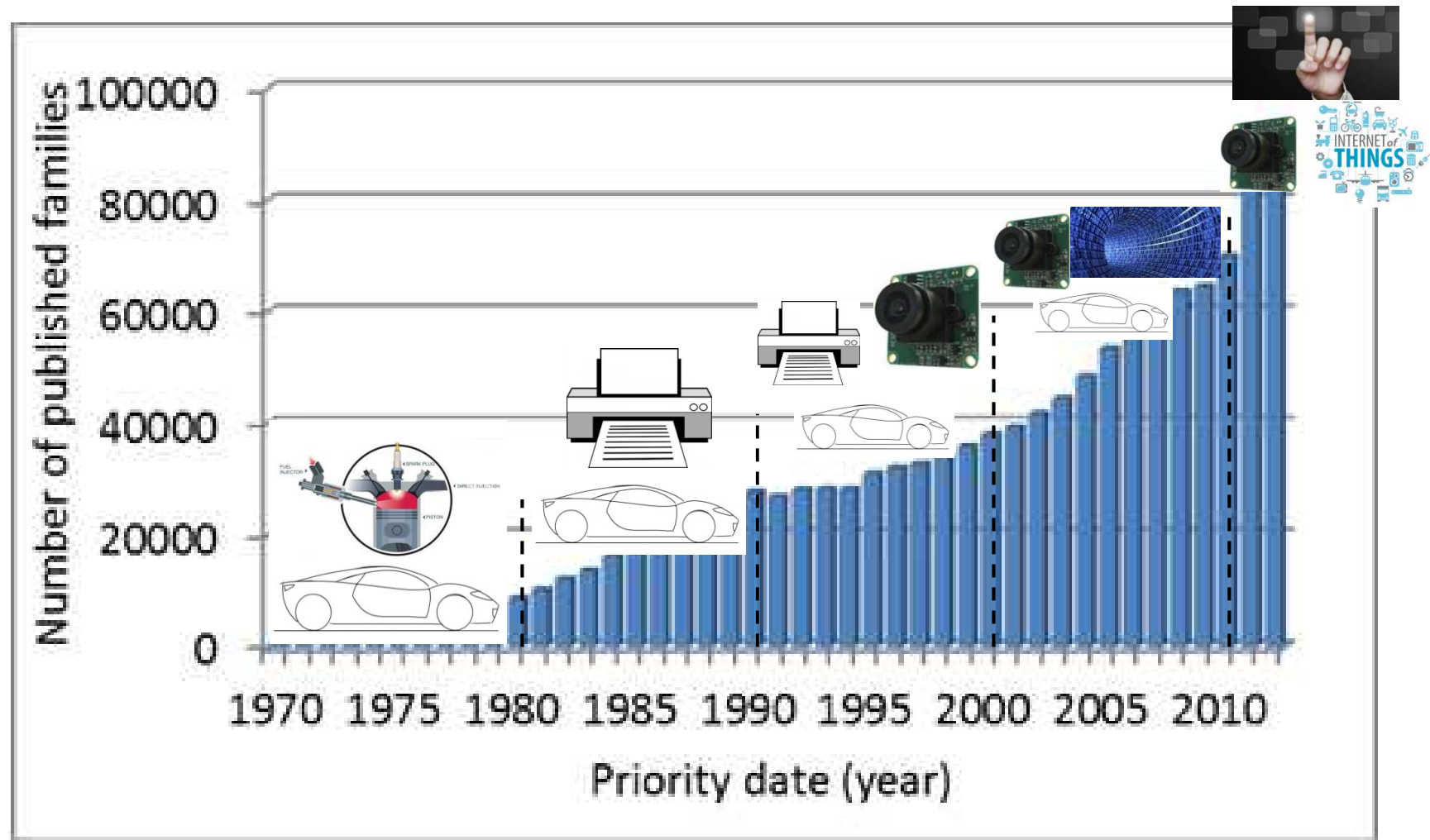
- Feststellung der Mitbewerber in den technologischen Gebieten
- Erkennen der F&E-Schwerpunkte des Mitbewerbs und damit möglicher Trends
- Überprüfung der Stärke der eigenen Technologien (Anmeldungen Dritter in diesem Bereich, Zitierungen,...)
- Frühzeitiges Erkennen unerwünschter Patente Dritter im Patentnetz
- Information über Rechtsstandsänderungen fremder Patente (Auswirkung auf FTO)
- IP-seitige Sicherstellung von positiven Projektabschlüssen
- Unterstützung beim Auffinden von Patentverletzungen (Indiz für externe Verletzungen)



Hystorical trend of sensor technologies applications extrapolated from the top cited IPCs



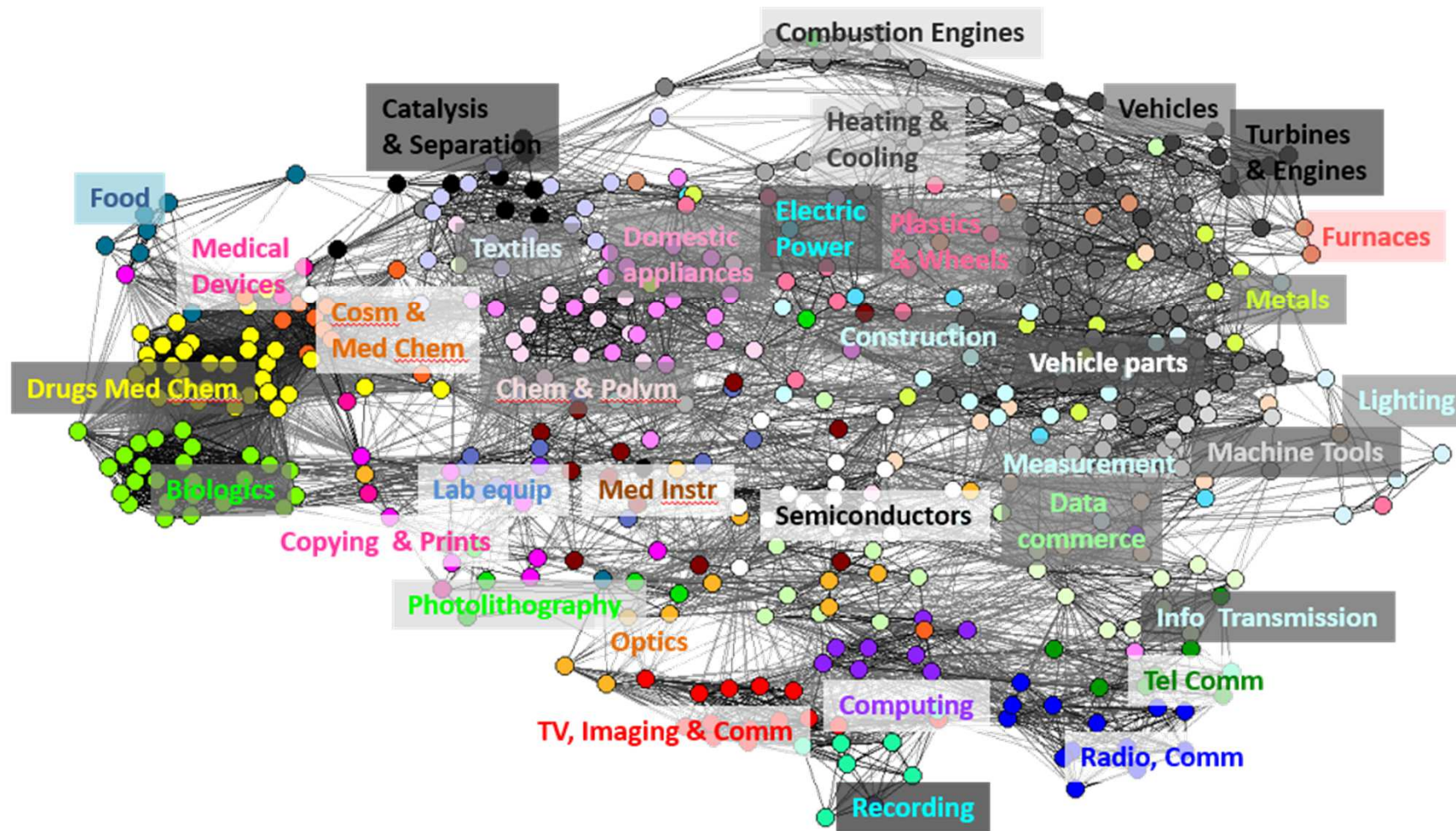
Historical trend of sensor technology applications extrapolated from the top cited IPCs



Deductions of IP-Strategy: Monitoring Example of a patent net

AT&S

e.g. for detecting relations between technologies due to citations



Deductions of IP-Strategy: Monitoring Patent-Monitoring

Composition of Search-Profile crucial!



US006293874B1

AT&S

(12) **United States Patent**
Armstrong

(10) **Patent No.:** **US 6,293,874 B1**

(45) **Date of Patent:** **Sep. 25, 2001**

(54) **USER-OPERATED AMUSEMENT APPARATUS FOR KICKING THE USER'S BUTTOCKS**

(76) **Inventor:** **Joe W. Armstrong**, 306 Kingston St., Lenoir, TN (US) 37771-2408

(*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) **Appl. No.:** **09/477,175**

(22) **Filed:** **Jan. 4, 2000**

(51) **Int. Cl.:** **A63H 37/00**

(52) **U.S. Cl.:** **472/51; 472/55**

(58) **Field of Search:** **472/51, 55, 137; 482/51, 72, 148**

(56) **References Cited**

U.S. PATENT DOCUMENTS

654,611	7/1900	De Meulin	
920,837	5/1909	De Meulin	
953,411	3/1910	De Meulin	
966,935	8/1910	Mamaux	
976,851	11/1910	De Meulin	
1,175,372	3/1916	Newcomb	
4,457,100	* 7/1984	Nightingale	446/333
5,785,601	* 7/1998	Kubesheski et al.	472/135

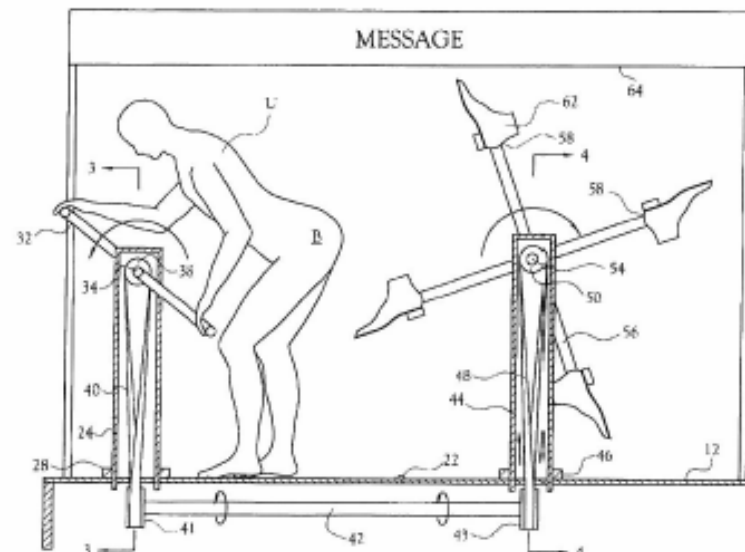
* cited by examiner

Primary Examiner—Joe H. Cheng
Assistant Examiner—Kim T. Nguyen
(74) *Attorney, Agent, or Firm*—Pills & Brittan, P.C.

(57) **ABSTRACT**

An amusement apparatus including a user-operated and controlled apparatus for self-infliction of repetitive blows to the user's buttocks by a plurality of elongated arms bearing flexible extensions that rotate under the user's control. The apparatus includes a platform foldable at a mid-section, having first post and second upstanding posts detachably mounted thereon. The first post is provided with a crank positioned at a height thereon which requires the user to bend forward toward the first post while grasping the crank with both hands, to prominently present his buttocks toward the second post. The second post is provided with a plurality of rotating arms detachably mounted thereon, with a central axis of the rotating arms positioned at a height generally level with the user's buttocks. The elongated arms are propelled by the user's movement of the crank, which is operatively connected by a drive train to the central axis of the rotating arms. As the user rotates the crank, the user's buttocks are paddled by flexible shoes located on each outboard end of the elongated arms to provide amusement to the user and viewers of the paddling. The amusement apparatus is foldable into a self-contained package for storage or shipping.

14 Claims, 7 Drawing Sheets



Enforcement also means defending

- Filing of oppositions and third party observations
- Behavior in case of infringements and litigations
- Proceeding against counterfeittings or piracy, legally invalid UMs,
...

TRIPS-Agreement defines minimal standards on national law

First step: Assess own patents!

**Knowledge of general conditions in targeted
countries is absolutely indispensable**

IP Enforcement

Continental Circuits vs. Intel

AT&S

2017: Continental Circuits filed lawsuit again Intel with only one patent-family

DocNo	Title	Filed	Date of grant	No. Of Claims	Kind of patent
US 6141870 A	Method for making electrical device	04.08.1997	07.11.2000	6	Process
US 6700069 B1	Circuit board or other multilayer electrical device made by forming teeth	20.10.2000	02.03.2004	18	Product
US 7501582 B2	Electrical device and method for making same	01.03.2004	10.03.2009	162	Process/ Product
US 8278560 B2	Electrical device with teeth joining layers and method for making the same	30.01.2009	02.10.2012	21	Product
US 8581105 B2	Electrical device with teeth joining layers and method for making the same	01.10.2012	12.11.2013	103	Process/ Product
US 9374912 B2	Electrical device with teeth joining layers and method for making the same	08.10.2013	21.06.2016	48	Process

358

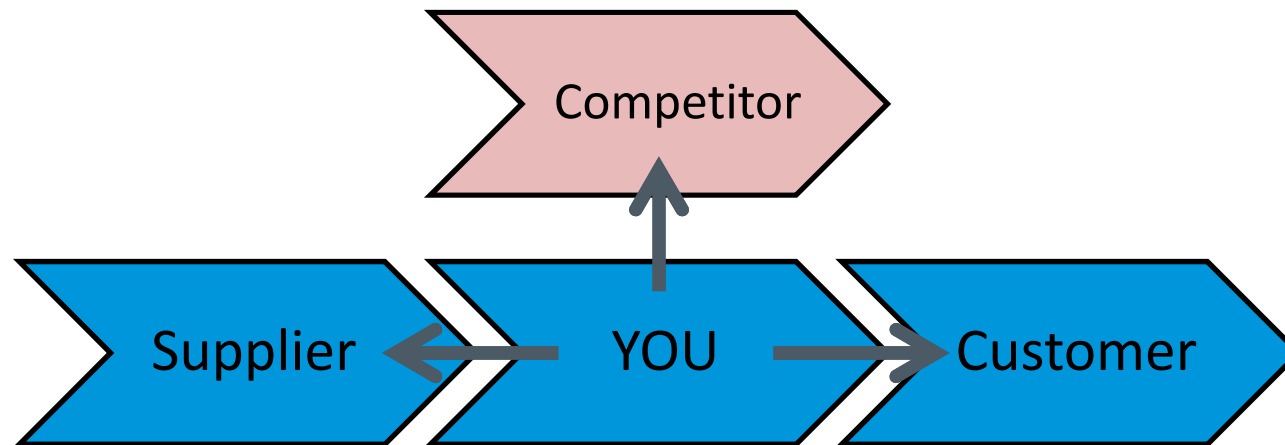
IP-Strategy

- Strategy Development
 - Development Process
 - Impact and functions of Patents, Trademarks
- Deductions of IP-Strategy
 - Acquisition
 - Exploitation
 - Monitoring
 - Enforcement
- **Strategic Creation of IP**
- IP-Strategy in practice

Strategic Creation of IP

Strategic IP: Holistic view needed

AT&S



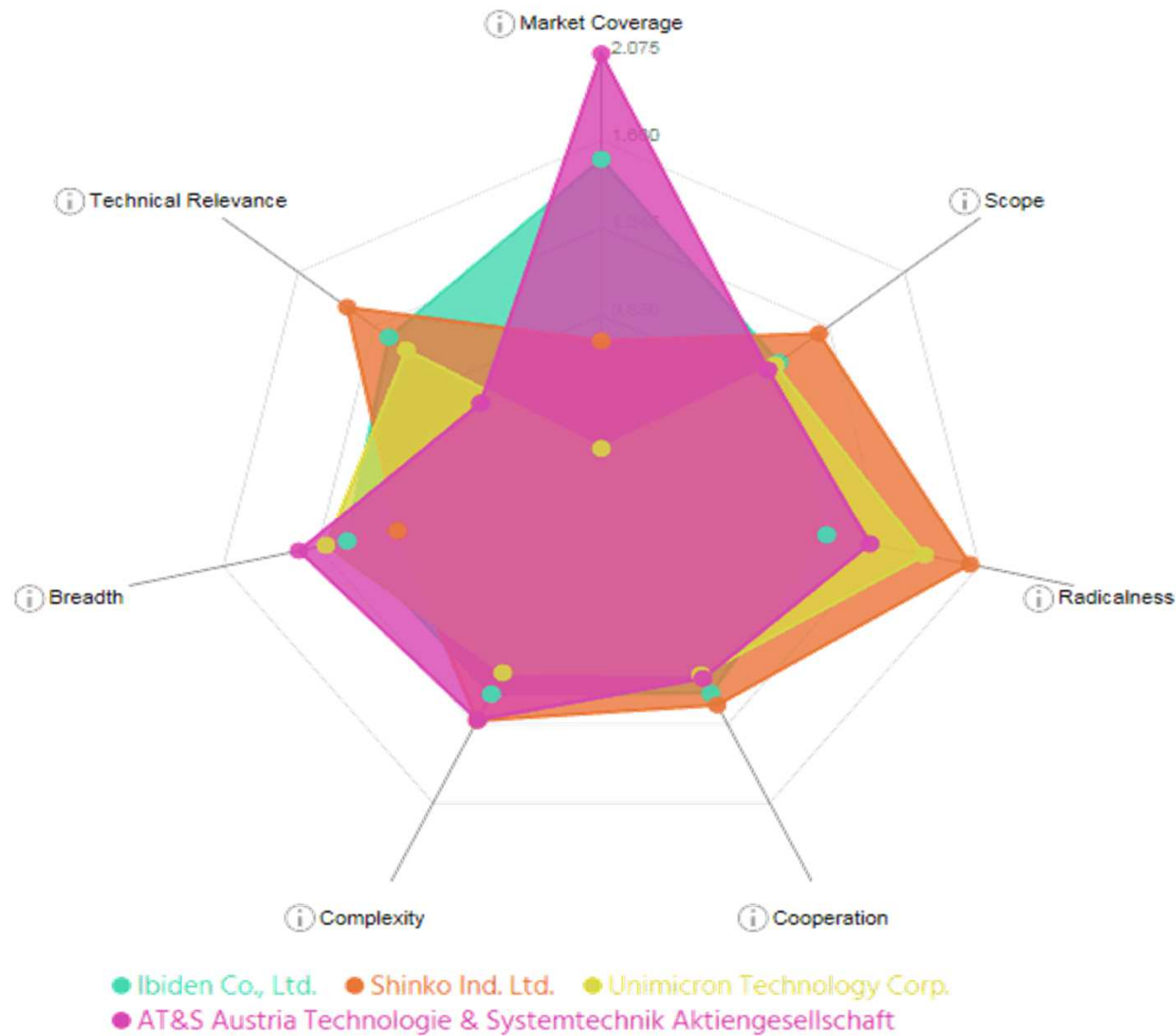
Examples

- Supplier: machine and material properties
- Customer: crucial features of product
- Competitor: find out and disturb his holy gardens
- Hide crucial patents
- File patents in pretence

Strategic Creation of IP

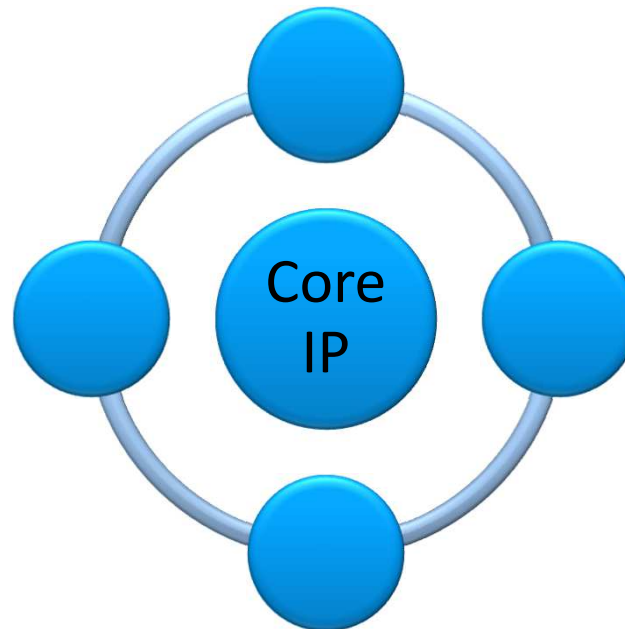
Patent Portfolio Analysis

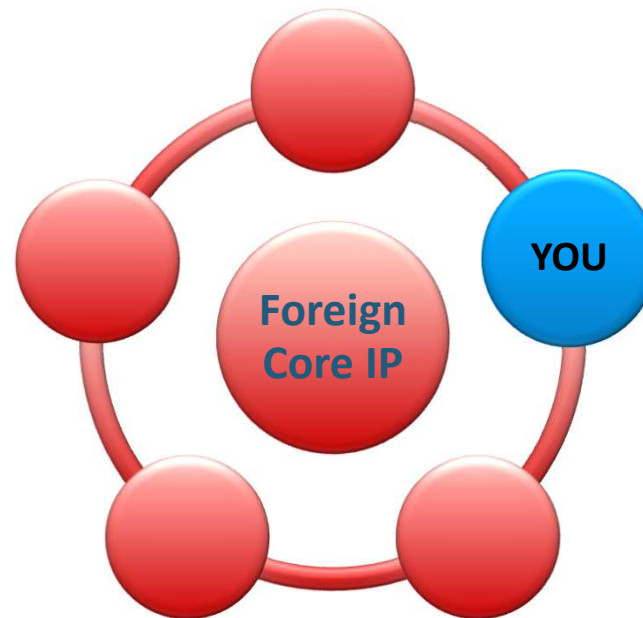
AT&S



IP – Determination of highly important areas

		Kunde POWER							
		size reduction (xyz)	improved heat dissipation	signal integrity	hermetic sealed package	3D stacking	hiding of electronics	integrated EMV shielding	additional assembly layer
Priority		9	10	7	4	7	3	5	4
Technische Lösungsansätze	ECP	36	20	35	12	28	9	10	20
	Multilayer embedded core	45	30	28	16	35	12	20	12
	Center Core	27	40	21	20	21	15	25	16
	exposed embedded component	9	10	7	4	7	3	5	4
	Parsec	18	50	14	8	14	6	15	8



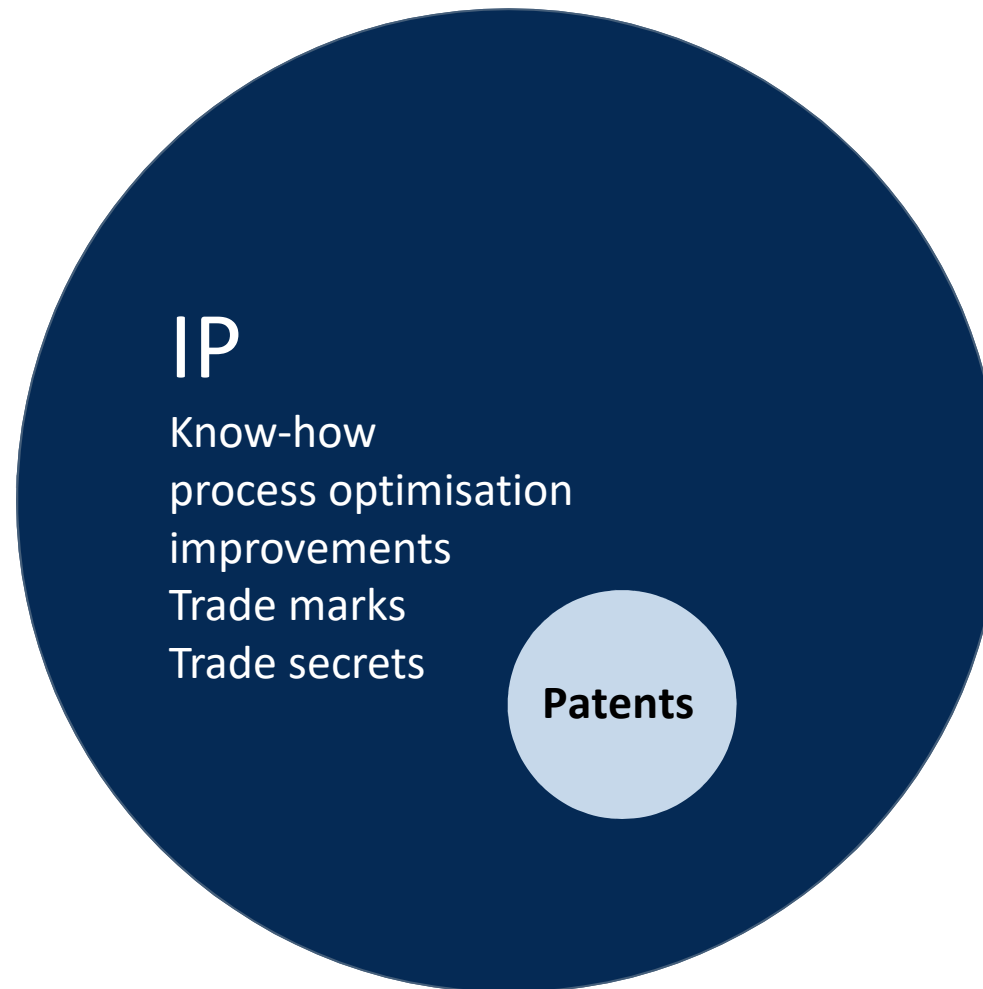


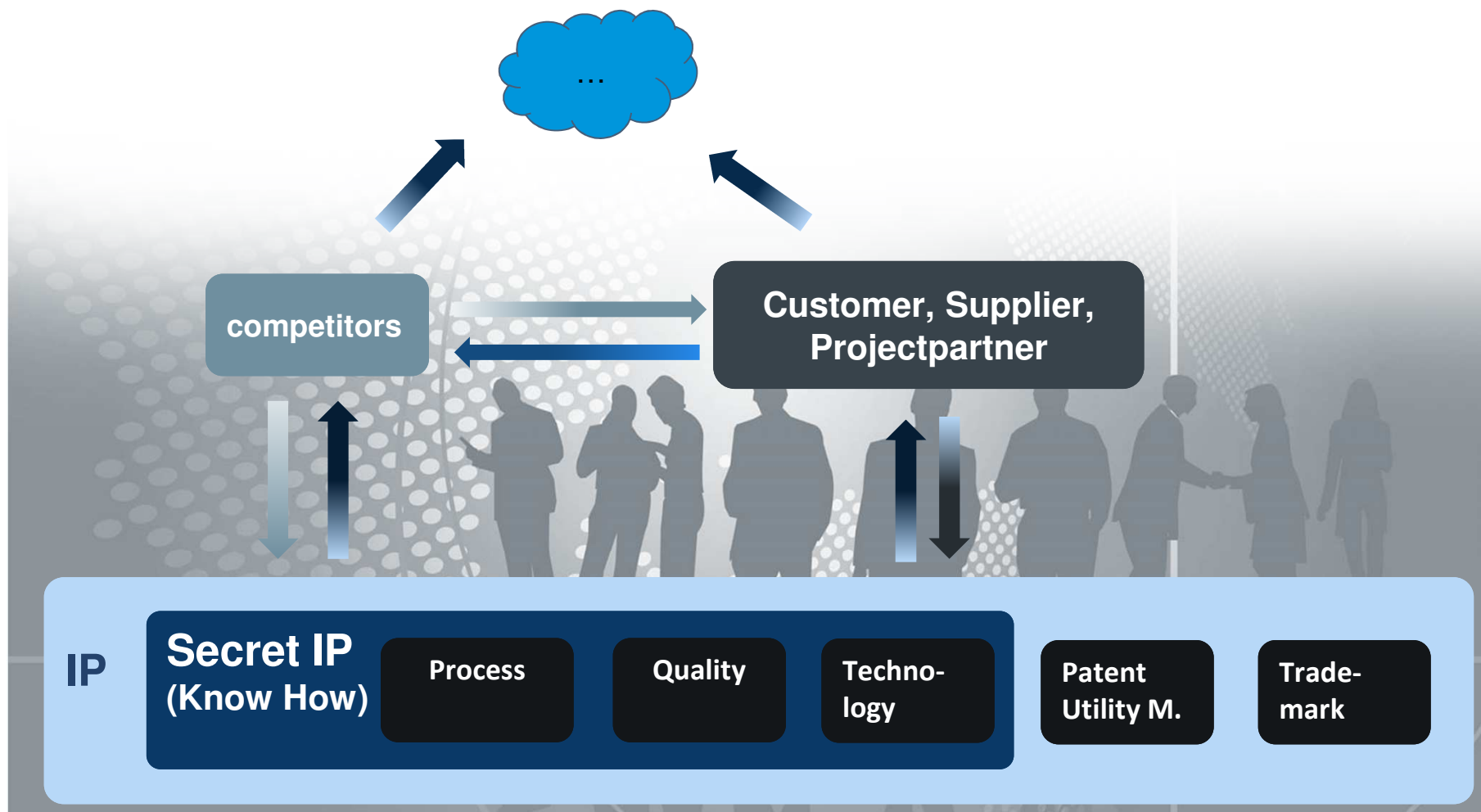
Not primer for fighting, but to raise your bargaining position!

Strategic Creation of IP

IP is more than patents

AT&S





IP-Strategy

- Strategy Development
 - Development Process
 - Impact and functions of Patents, Trademarks
- Deductions of IP-Strategy
 - Acquisition
 - Exploitation
 - Monitoring
 - Enforcement
- Strategic Creation of IP
- **IP-Strategy in practice**

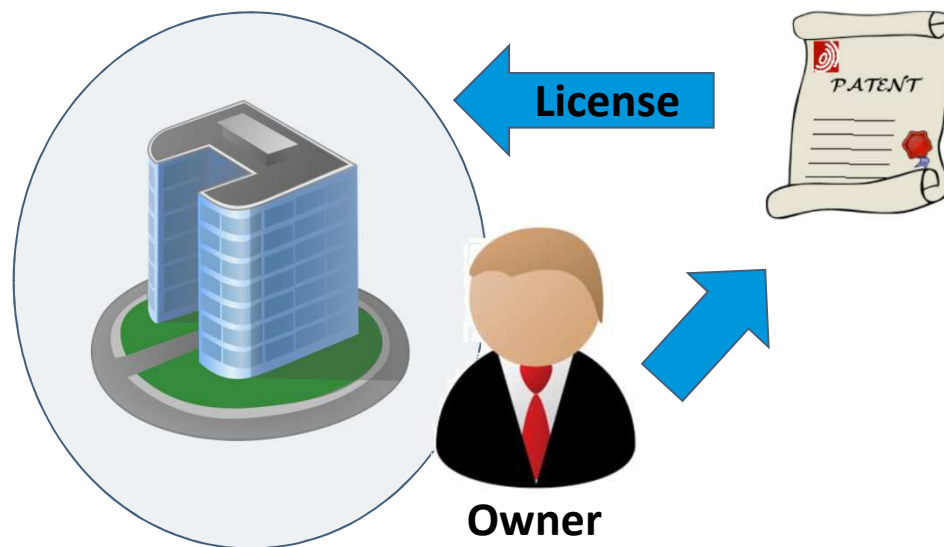
**Schindler
vs.
Bayer
Healthcare**

- Besetzung zukunftssträchtiger Schlüsseltechnologien durch Monopolrechte;
- Größtes Portfolio an durchsetzungsstarken Patenten im Aufzugs- und Fahrtreppenbau;
- Verletzungsfreier Einsatz der bestmöglichen Technologie;
- Erfolgreiche Vernichtung störender Fremdpatente;
- Positive Lizenzbilanz mit Wettbewerbern.

Freedom to operate	<ul style="list-style-type: none">■ Avoid infringement of competitor patents■ Market launch and developments without legal constraints■ No impact on customer supply after launch
Exclusivity	<ul style="list-style-type: none">■ Keep competitors at a distance■ Protection of own innovative knowhow (product / process)■ Enhancement of corporate identity and image to the customer
Licensing	<ul style="list-style-type: none">■ In-licensing of Third Party Intellectual Property■ Generate benefits from licensing to competitors■ (Cross-) licensing (with) from others

Quellen: Oliver Gassmann et al.: Patentmanagement, S. 321; IP-Strategy in the Global Enterprise BayerHealthcare, 2015

Patent should be owned by inventor and licensed to own company



→ If company goes bankruptcy or has to be sold, Patent is still the asset of the owner

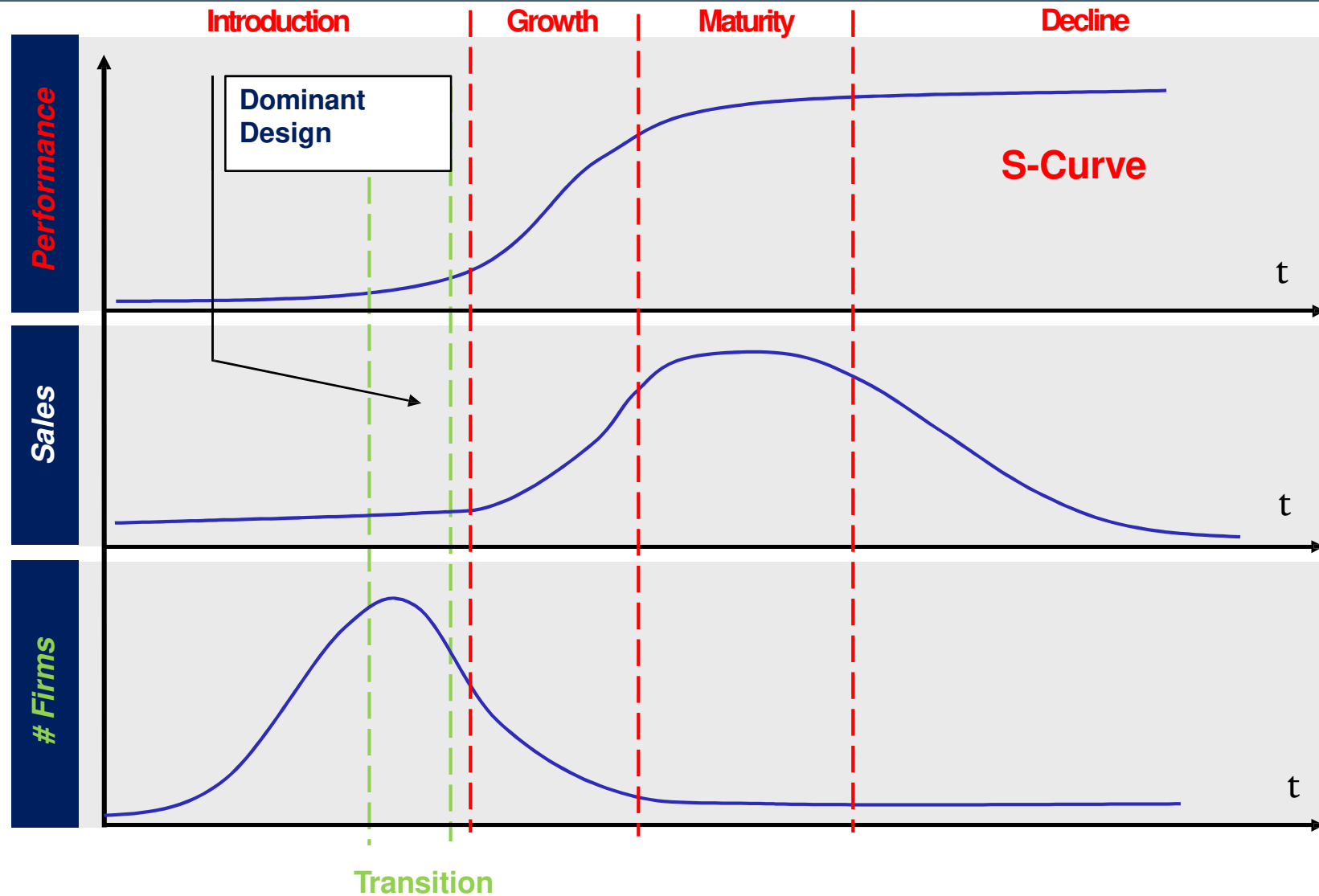
IP – Management

- **Implementing IP-Strategy**
- Tasks

IP Management: Implementing IP-Strategy

Technology & Market

AT&S



Source: Calderini; Mario (2006) Innovation, Technology and Market

- Defines what a product is supposed to look like and how it should operate
 - QWERTY defined this both for typists and typewriter producers
- Makes product requirements *implicit* in itself
 - Drastically reduces the number of performance requirements to be met
- By definition wins the allegiance of the marketplace
- Enforces / encourages standardization
 - Marketplace focused on investing in QWERTY equipment / skills
 - Shift from innovative approaches towards product design based on cost / scale



Source: Utterback, James M., et al . (2007) *Design inspired Innovation*

Two Opportunities filing an invention for a patent

1. Product patent:

protects each product with the same dimensional – physical features without taking into account the method of production and thus **includes all uses**.

2. Method / Process patent:

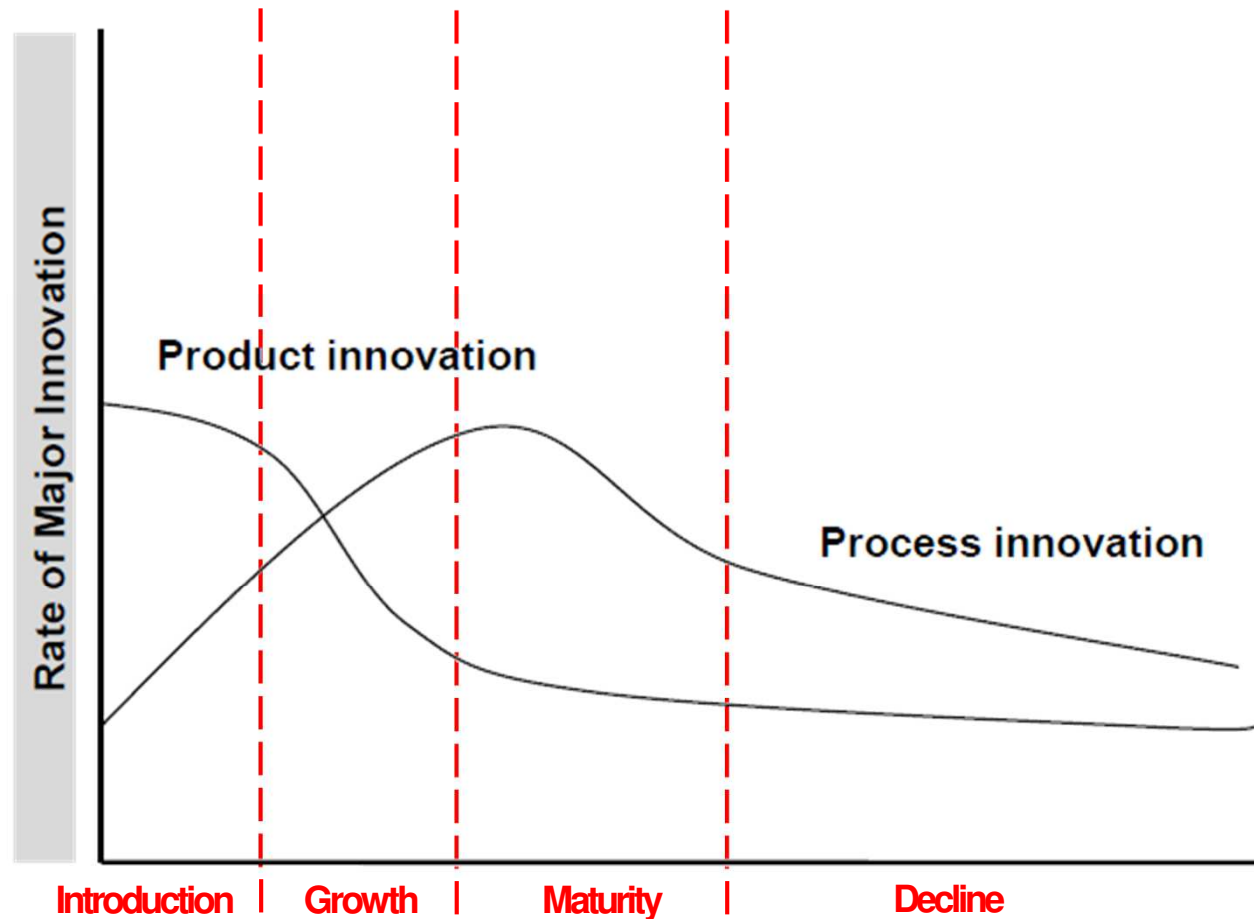
protects the sequence of procedures by means of which an object is processed.

A method patent **prohibits the use of the same method** and the objects produced directly by this method are also protected

IP Management: Implementing IP-Strategy

Product vs. Process Innovation

AT&S



- Emerging industries seek differentiation through product innovations
- Mature industries seek efficiency through process innovations

Source: Utterback, James M., *Mastering the Dynamics of Innovation*, p. 91

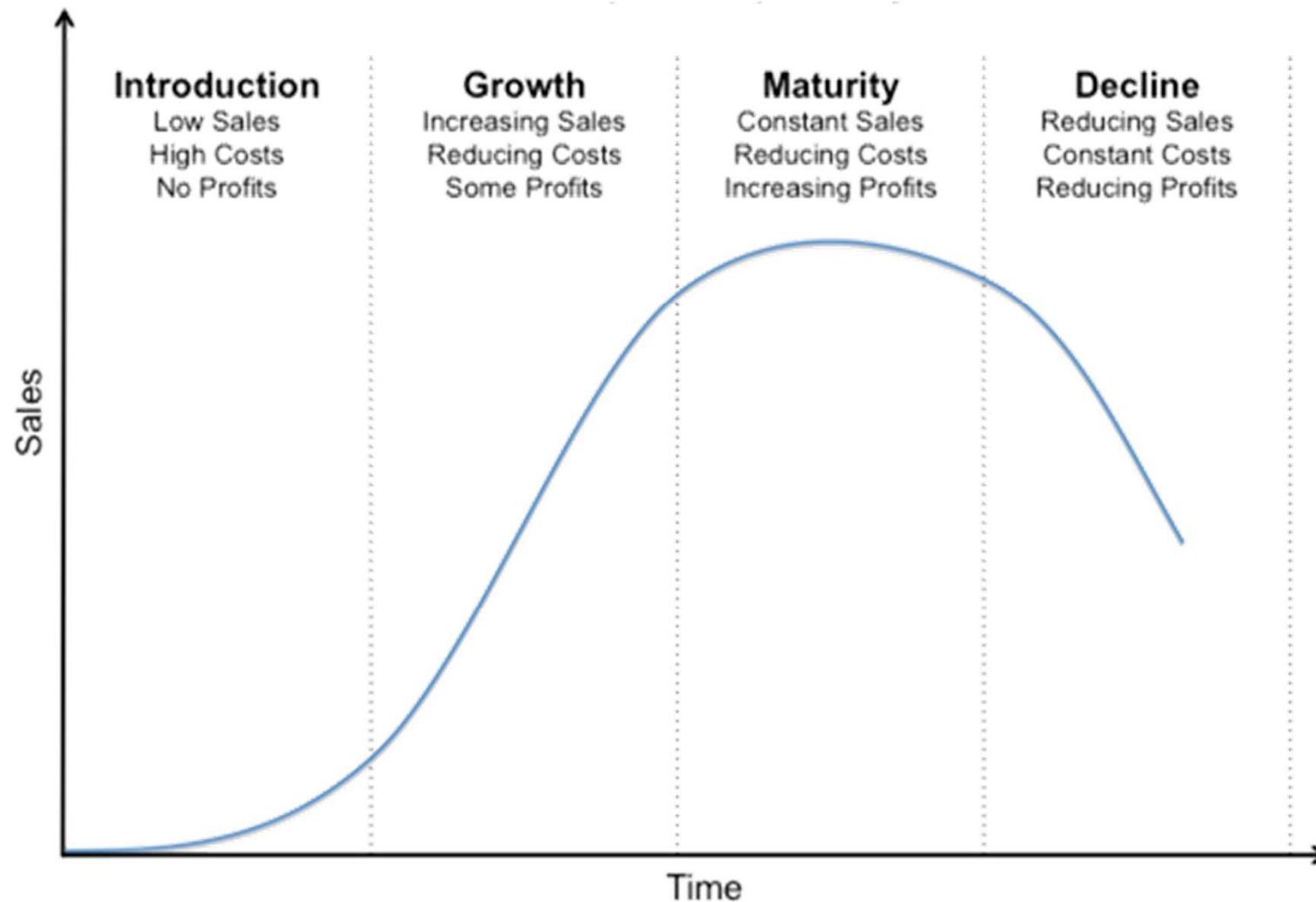
An automotive company has seen declining profits over the past decade although the company has constantly brought new successful products to market, some of which have also become dominant designs. In order to tackle this problem the management team decided to hire a consultancy firm to identify the reason for the declining profitability of the company. In an extensive benchmark study it was found that competitors were more effectively able to exclude third parties from the appropriation of dominant designs developed. This was derived to their ability to combine different types of IP throughout the different phases in which the dominant design emerges.

Evaluate which types of IP is most effective in the four phases of a product life cycle.

IP Management: Implementing IP-Strategy

Case Study: Product Life Cycle

AT&S



Source: <http://www.businesssetfree.com/small-business-product-life-cycle/>

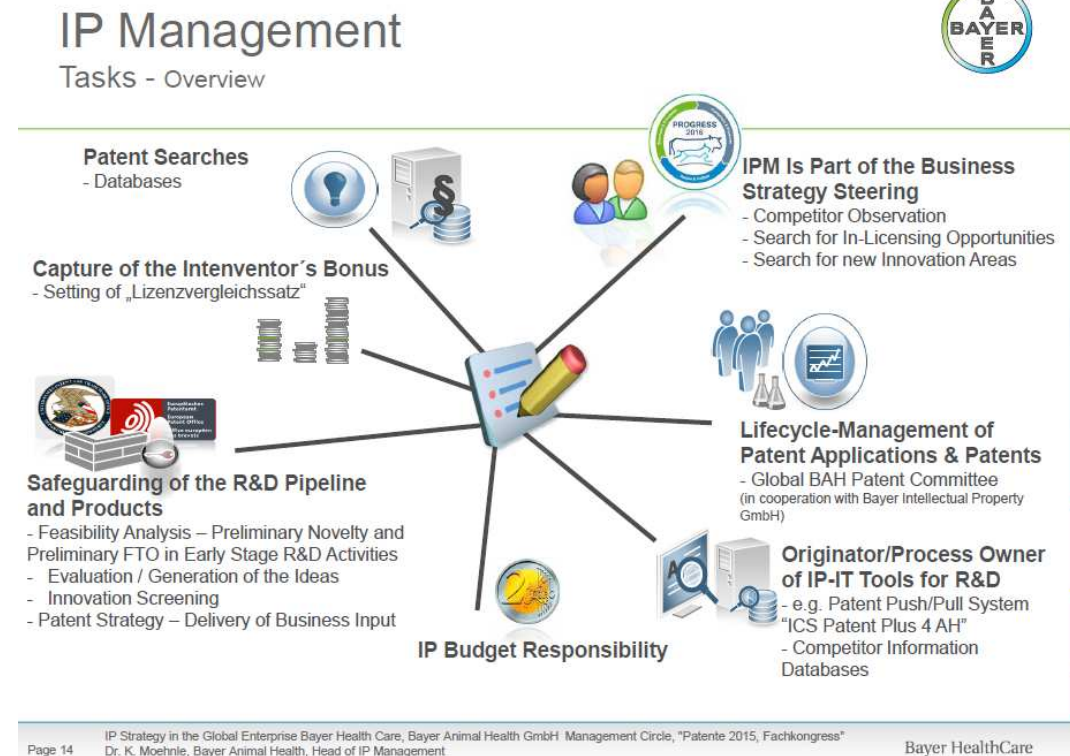
IP – Management

- Implementing IP-Strategy
- **Tasks**

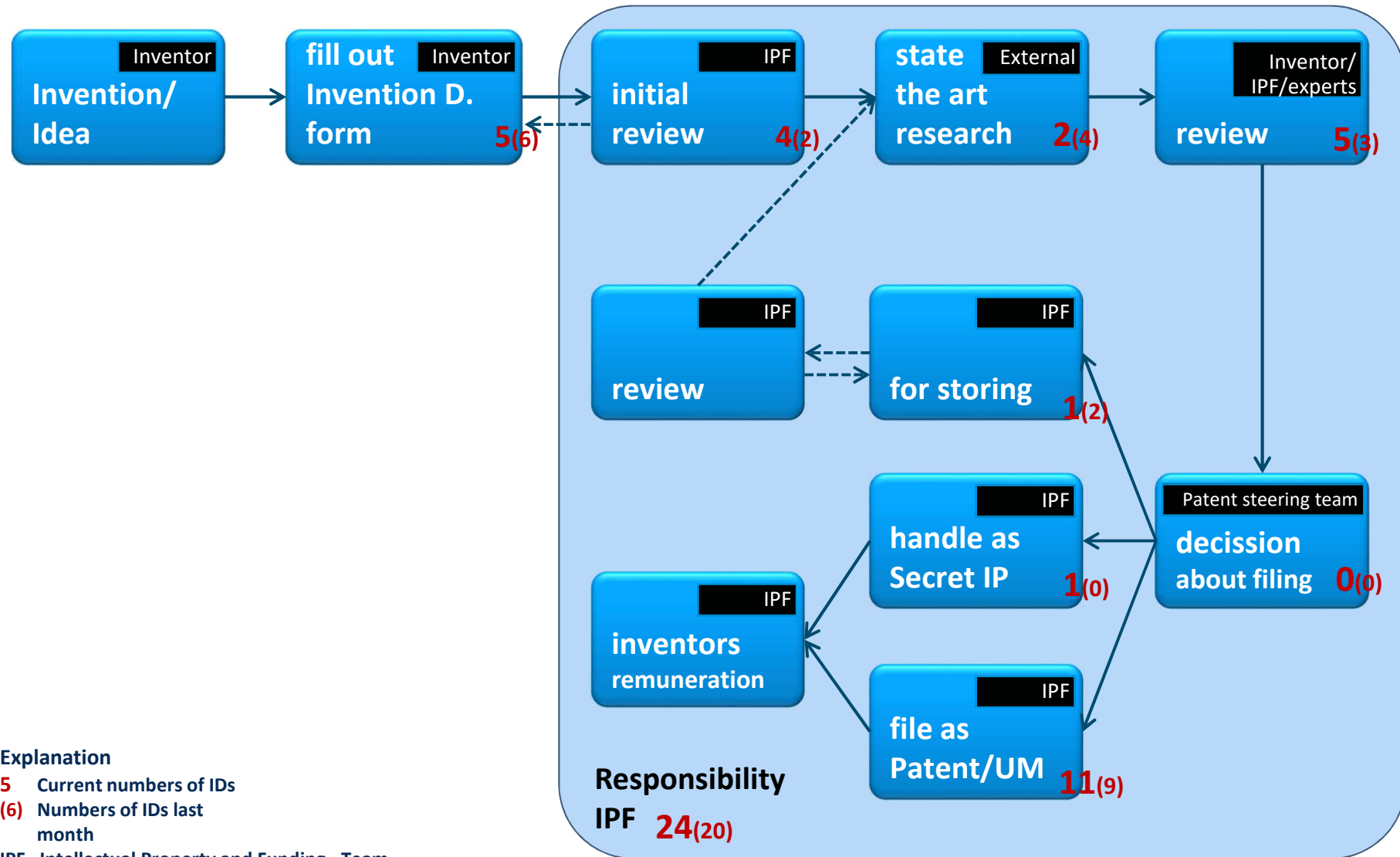
IP-Management is responsible for implementing the IP-Strategy

Tasks

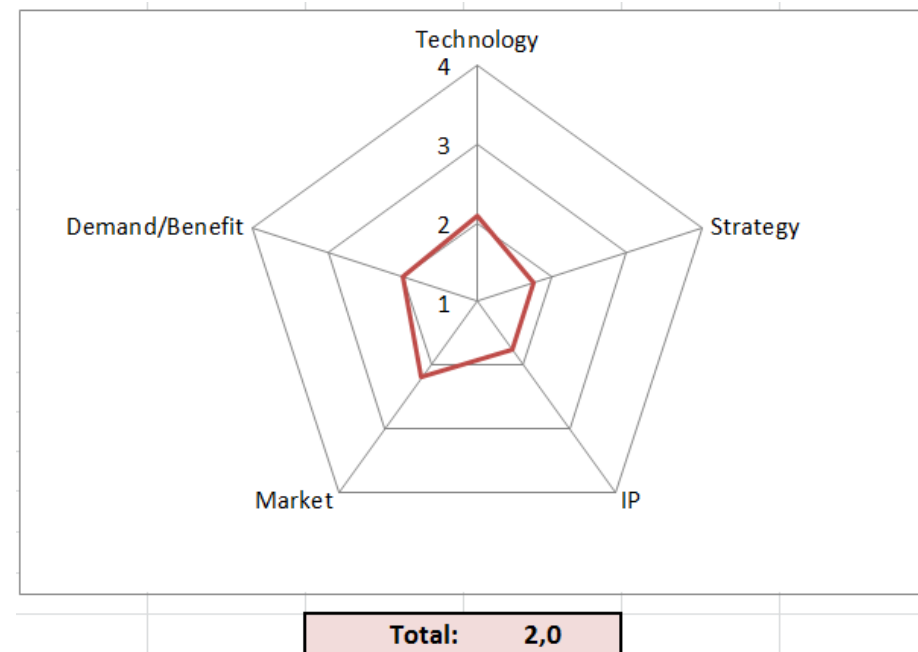
- Management of (patentable) ideas to abandoned patent
- Best possible securing of FTO
- Positioning and commercialization of patents
- Analysis of patent portfolios
- Patent monitoring
- (Contracting)
- Licensing
- Legal prosecution of patent infringements
- Responsibility for IP-Strategy
- Co-responsible for implementation of innovation strategy
- Sensitization und motivation of employees
- Provider of IP-Training
- Inventors Remuneration
- Process-owner of all IP-processes
- Responsibility for IP-Budget



Example: IP-Management of BAYER Healthcare

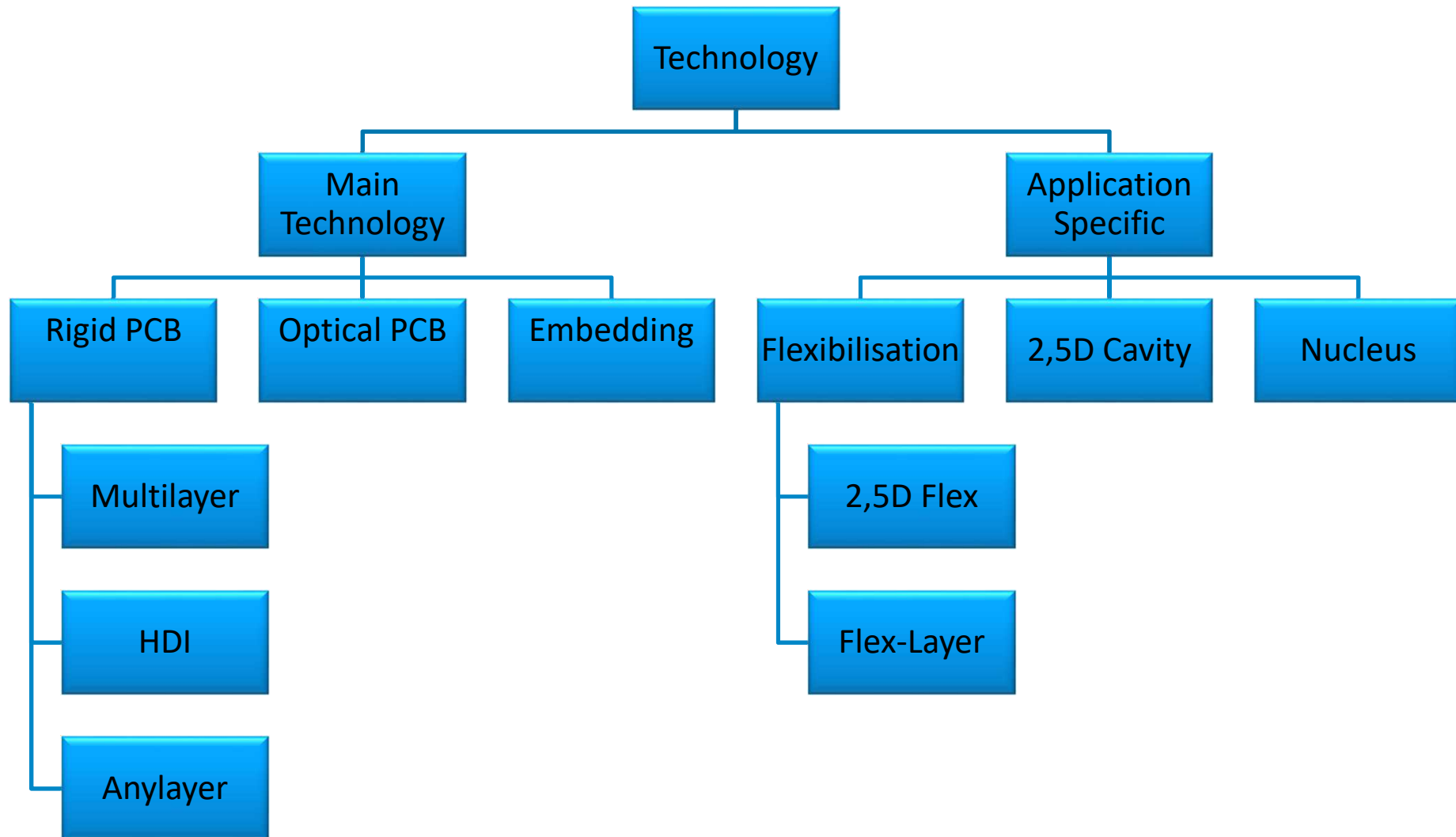


Beispiel: Ideenbewertung als Entscheidungsgrundlage

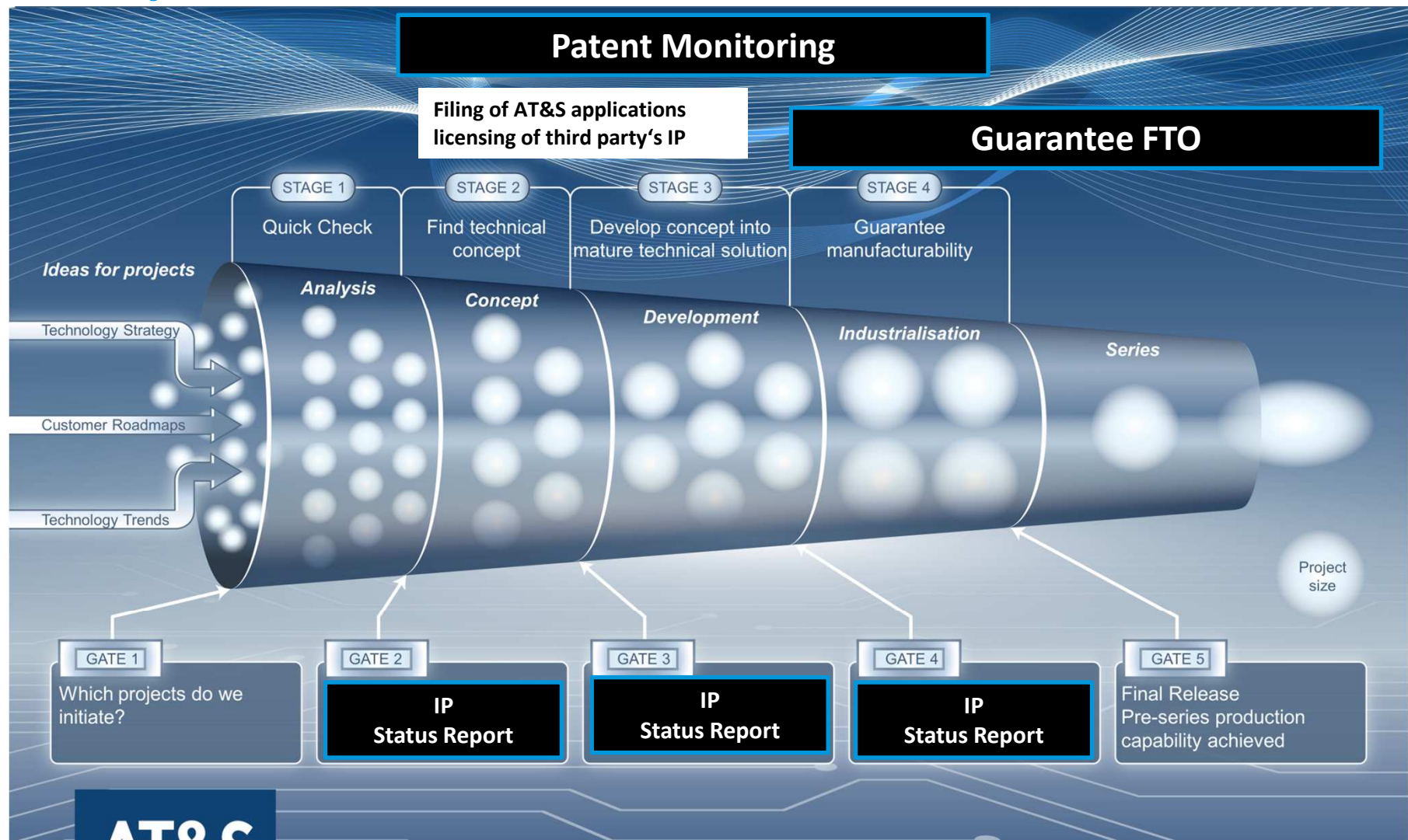


Entscheidung über

- Anmeldung aktiv: Technical Secret, Publikation, UM, Produkt-/ Verfahrenspatent
passiv: Sperrpatent, Vorratspatent
Verwerfung und Retournierung an Erfinder
- Länderstrategie
- Sprache der Prioritätsanmeldung



Example: IP-Monitoring in Stage Gate



IP – Management: Tasks

Automated Patent Rating Tools

AT&S

Example: IP Score (EPO)

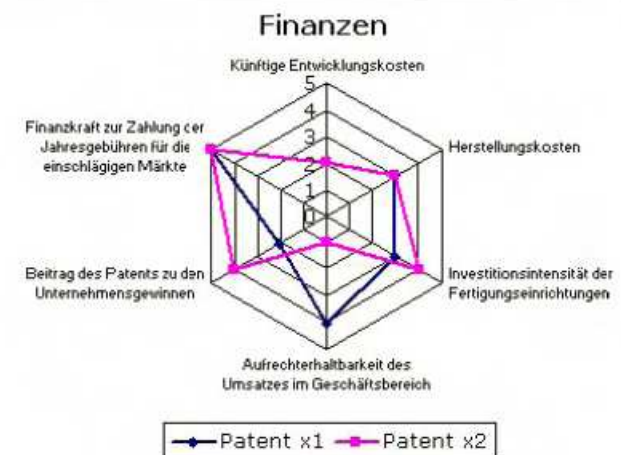
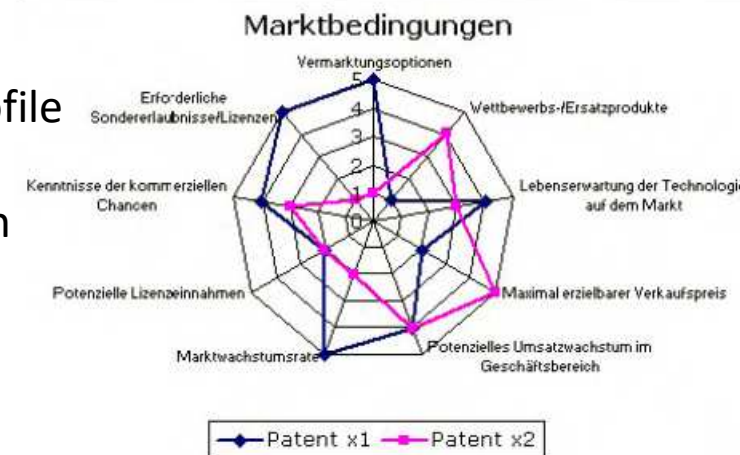
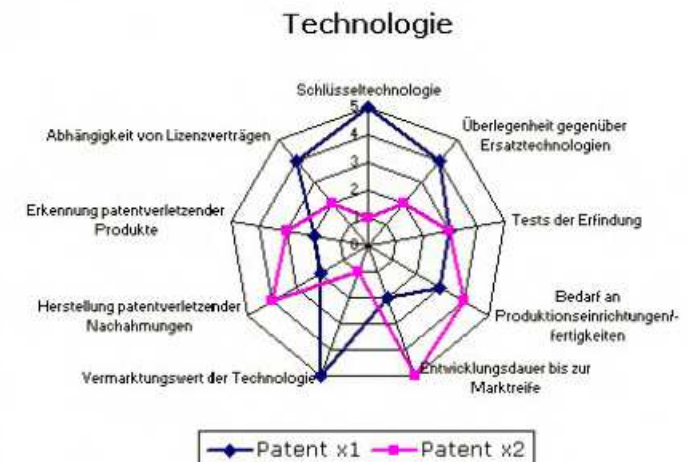
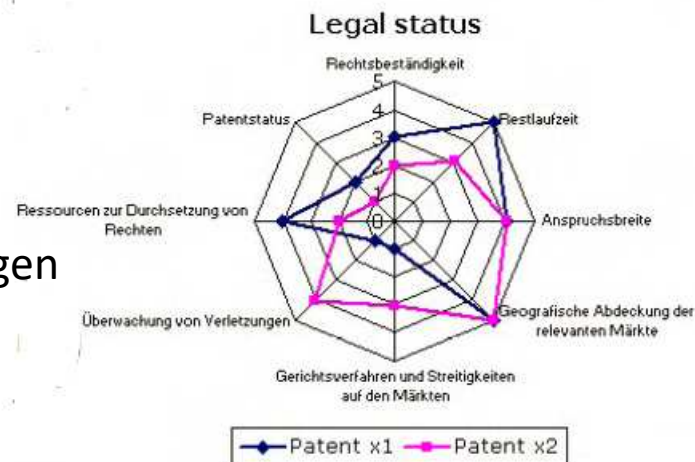
Radarprofil

Eingabe von

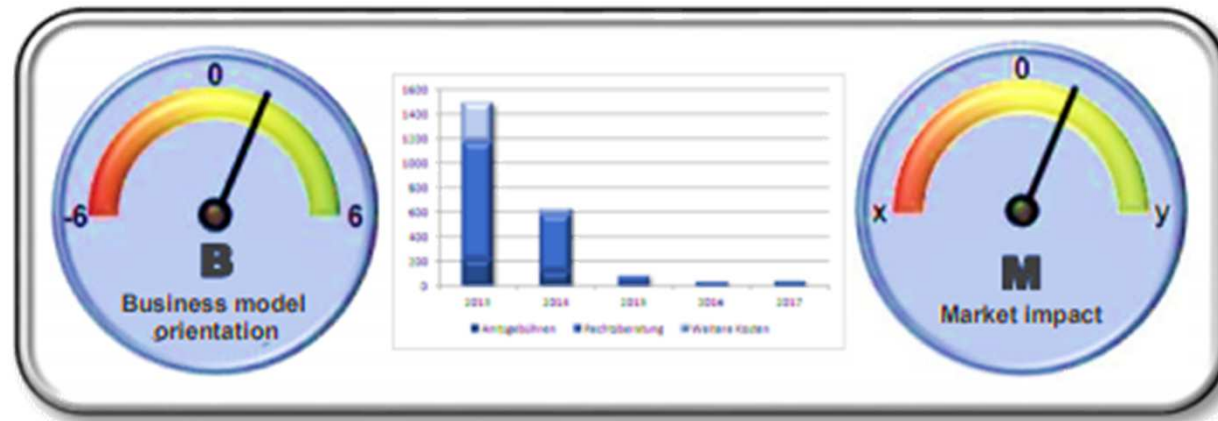
- Rechtsstand
- Technologie
- Marktbedingungen
- Finanzen
- Strategie

Ausgabedaten:

- Radarprofile
- Strategische Profile
- Kapitalwert
- Chancen/Risiken
- Diagnosen

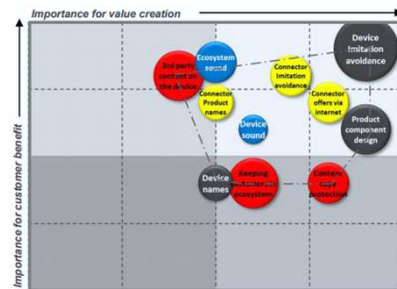


IP Portfolio Control

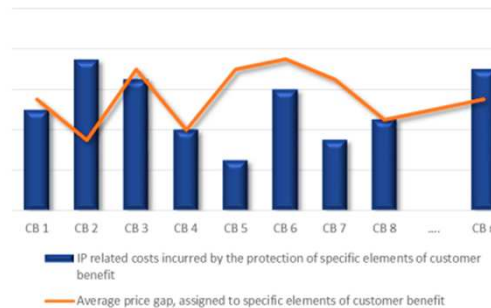


Controlling of

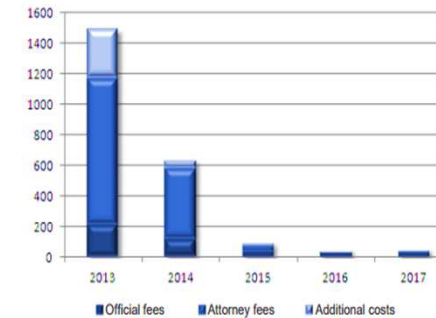
Business Model Orientation



Market impact



IP costs



Target Definition

Indicators

Required Information

Processes

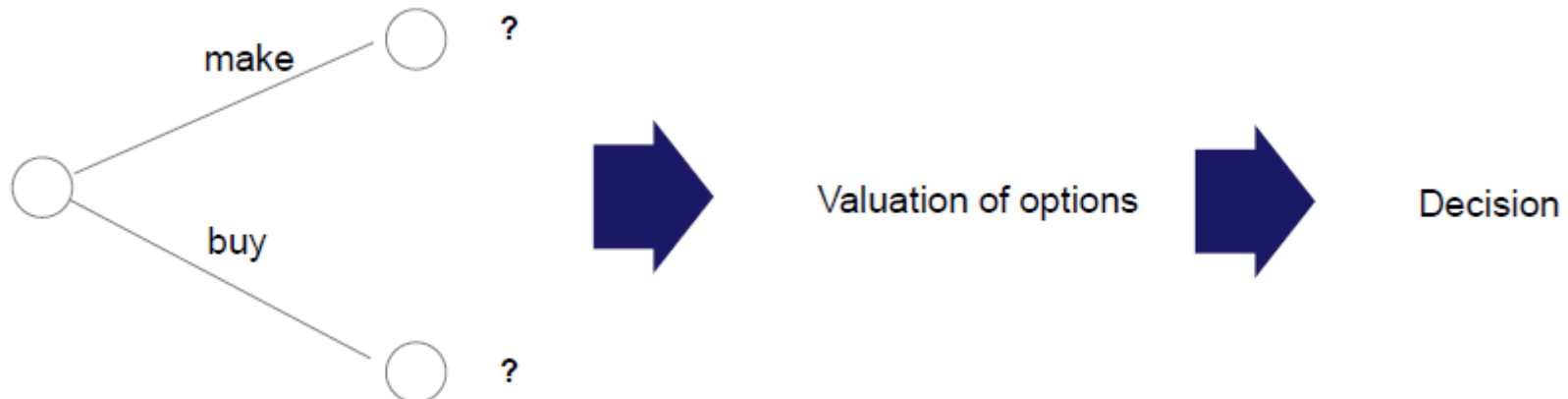
Patent Valuation

- Intangible Assets
- Value
- Valuation Process
- Valuation Methods
 - Cost approach
 - Market approach
 - Income approach
 - 25% Rule

Valuation supports decision finding

A central function of valuations is to derive decision values

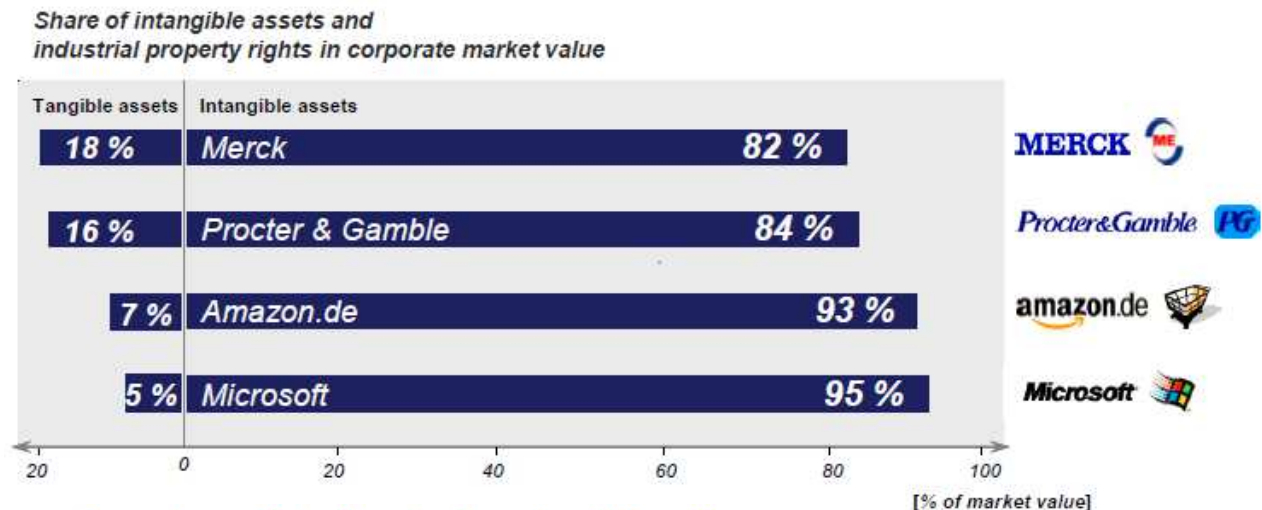
Valuation ↔ **Decision**



Motivationen für eine Bewertung

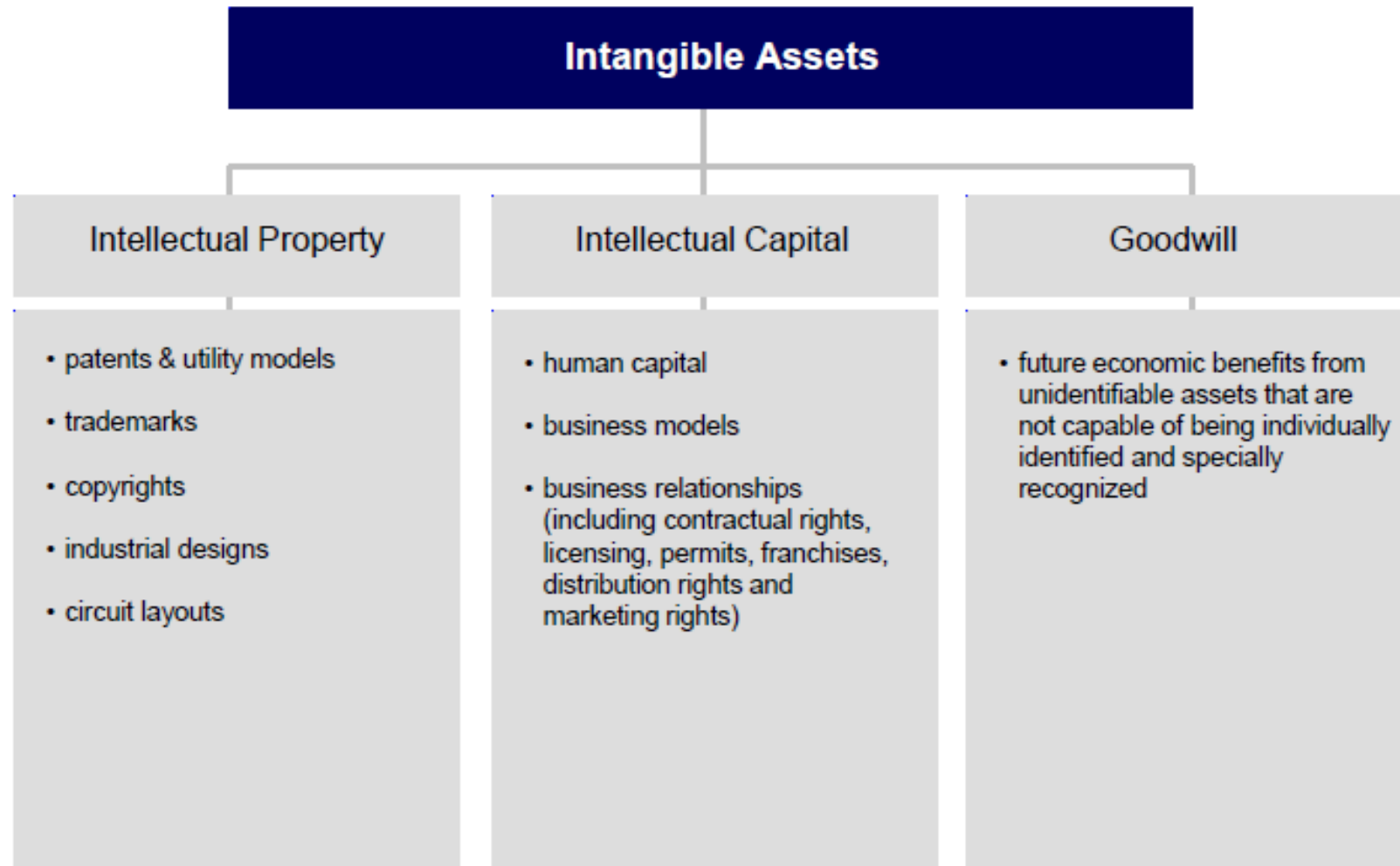
- Portfolio Clean-up: um festzustellen, ob sich Anmeldung oder Aufrechterhaltung eines Patents lohnt
- Make or buy-Entscheidungen von Technologien oder auch Unternehmen
- Cross-Licensing bzw. strategische Partnerschaften
- Ermittlung von Schadenshöhe im Falle einer Patentverletzung
- Erfindervergütung
- Unternehmensfinanzierung (immaterielle Wirtschaftsgüter stellen im Durchschnitt bereits rund 70% der Unternehmenswerte dar)

**Der ökonomische
Wert von IP ist
immer
zweckabhängig!**



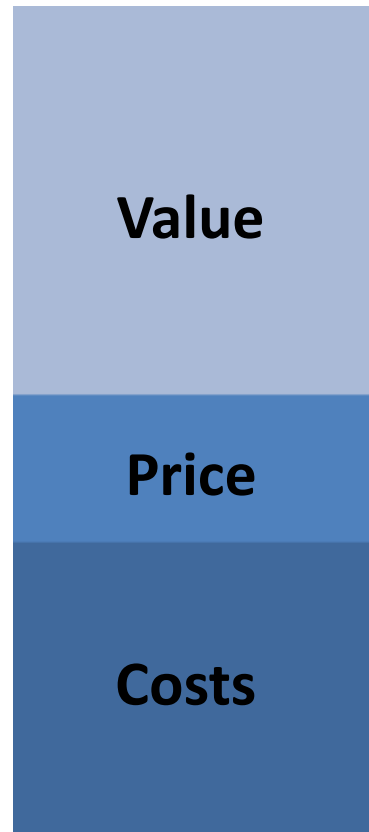
Source: Anson, W., les Nouvelles, September 1999, p. 133

Classification of Intangible Assets



Source: Les Nouvelles, 03/03, p. 33

Costs – Price – Value: A big difference



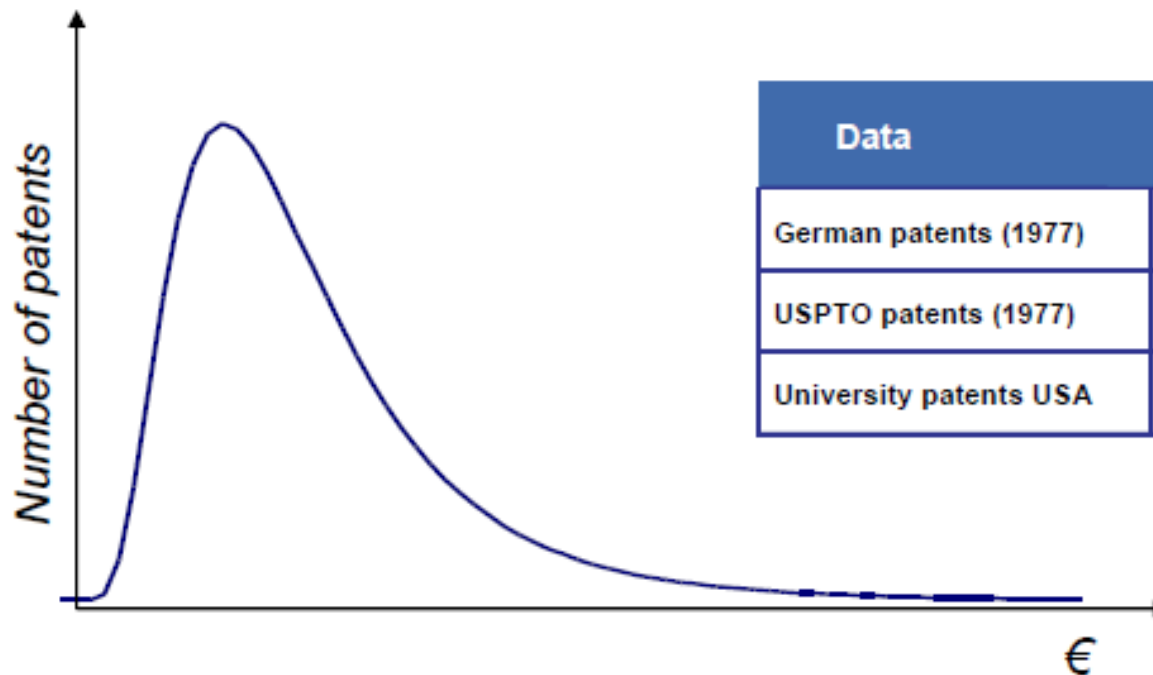
Willingness of customer to pay



Competition based: What charges the competitors

Total costs of production

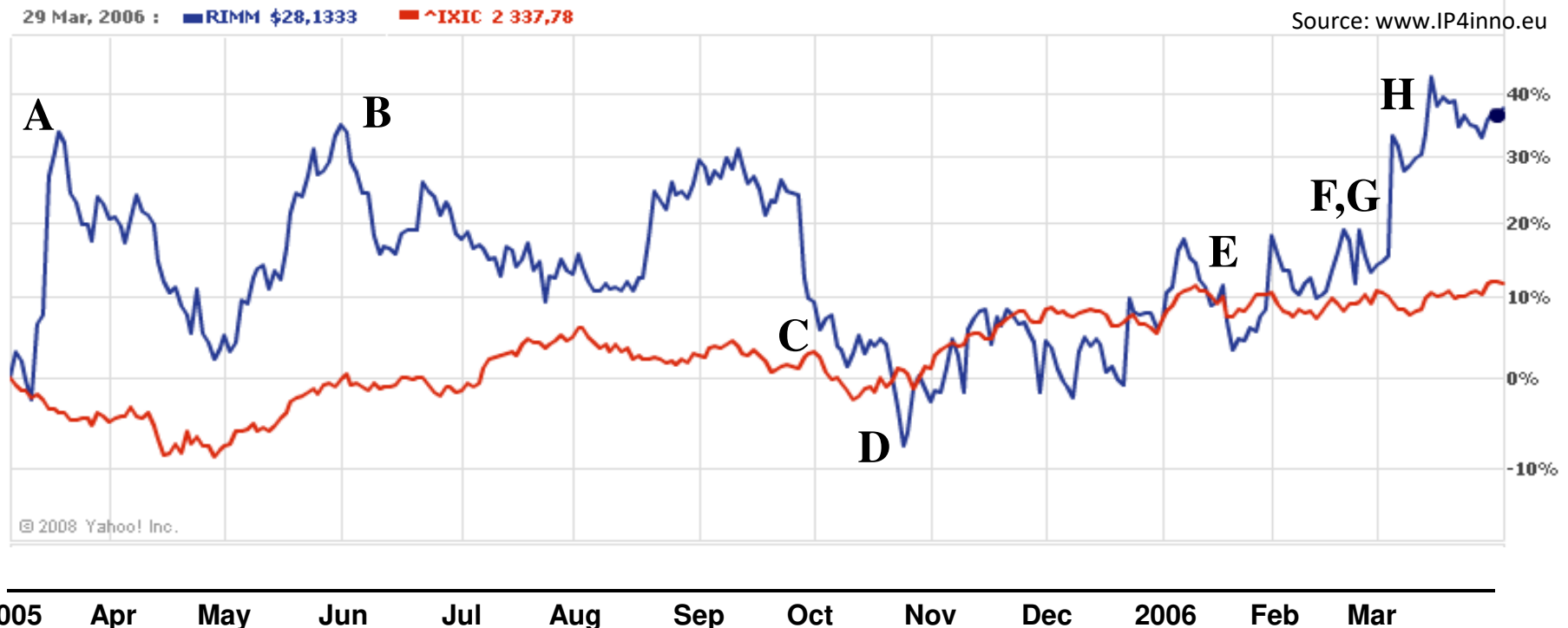
Patent Portfolio Value Distribution



Data	Number of patents	Value of TOP 10% patents
German patents (1977)	772	88%
USPTO patents (1977)	222	83%
University patents USA	411	92%

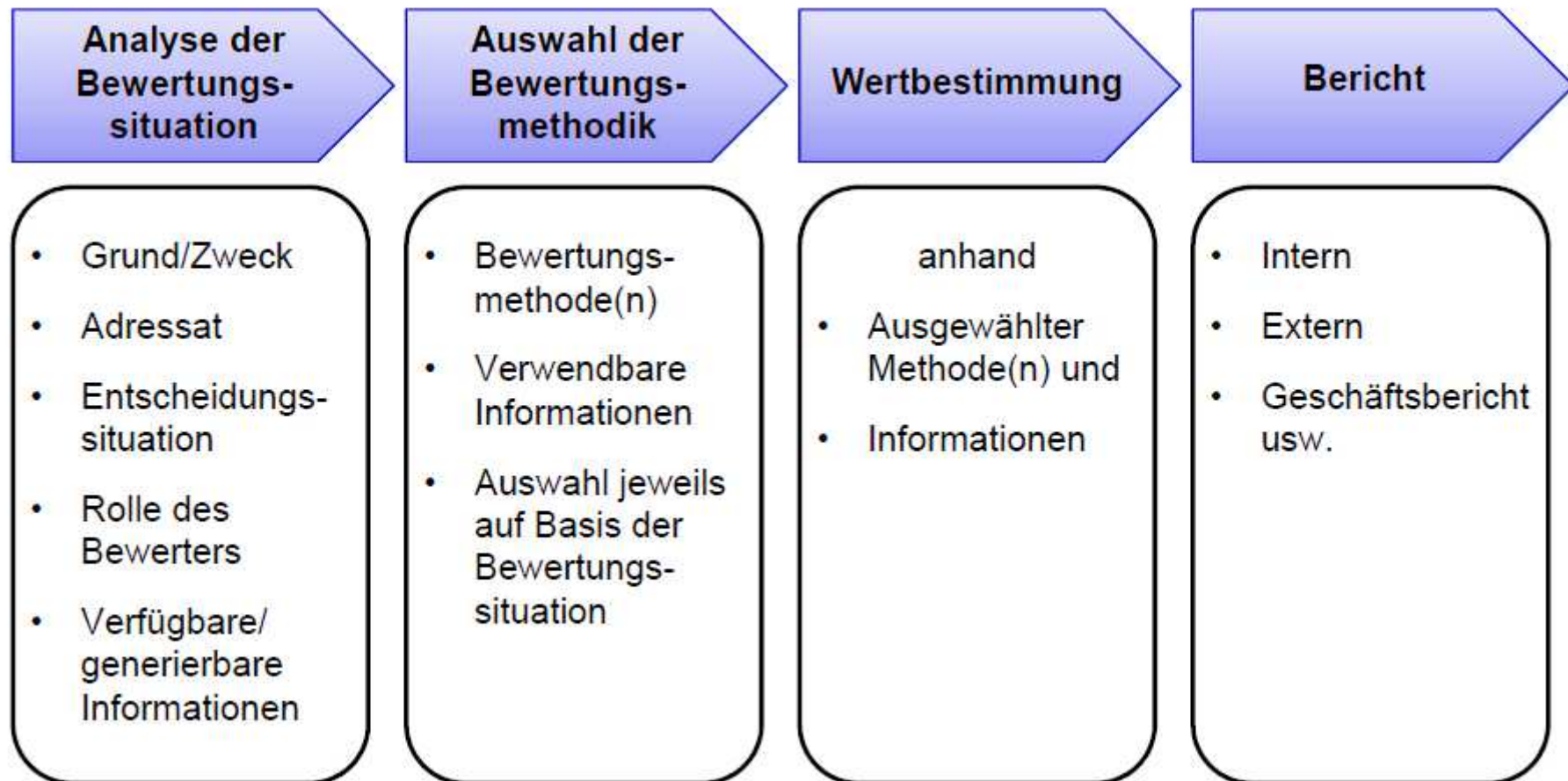
Source: Scherer, Harhoff, Kukies (2000) *Journal of Evolutionary Economics*

Example: RIM share value variation during a patent suit with NTP



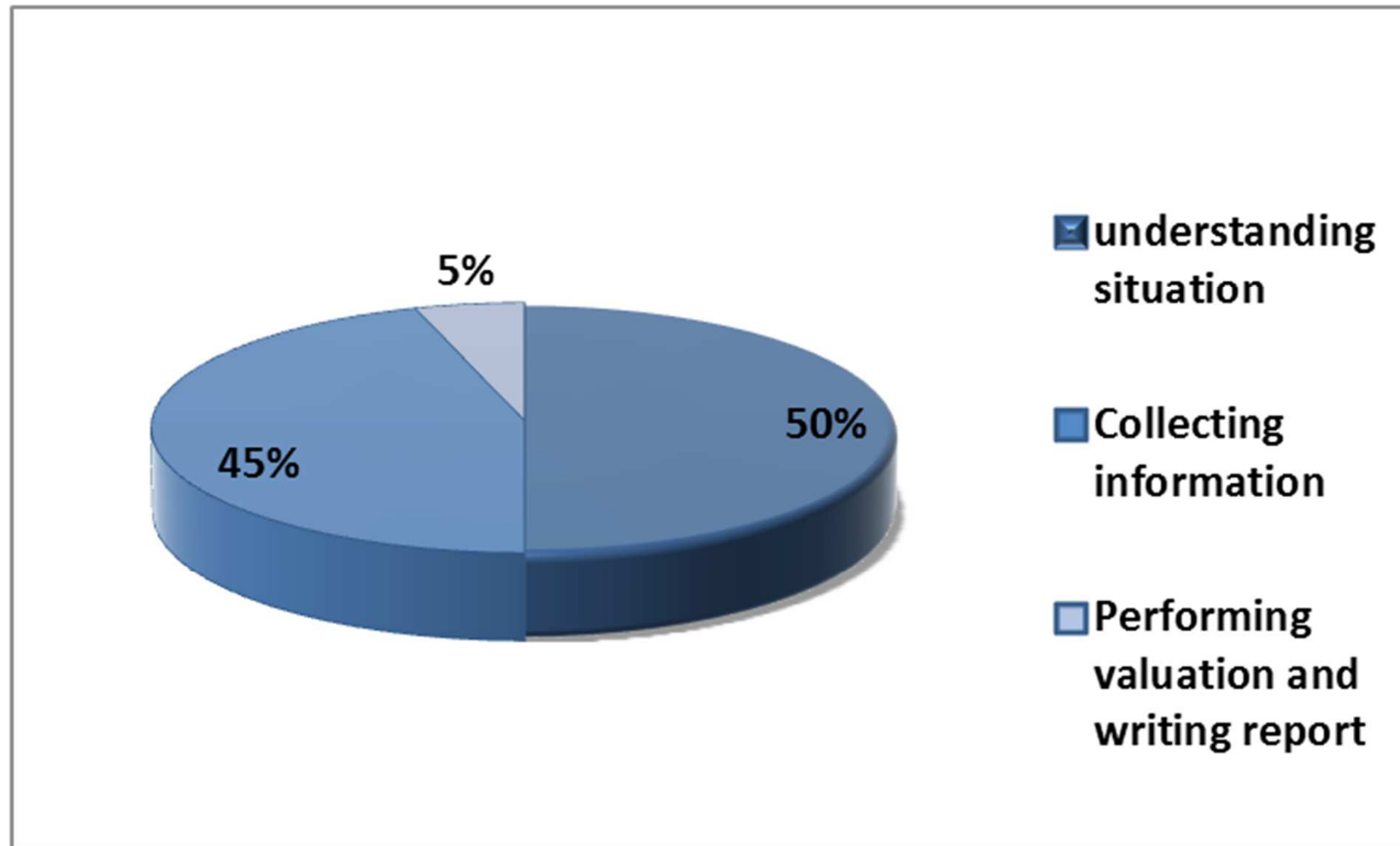
- A:** RIM agrees to pay \$450 million to settle the dispute
- B:** RIM and NTP fail to finalize a settlement, RIM says it will ask for court action
- C:** USPTO issues initial ruling rejecting all claims in the NTP patents, this stops the drop of RIM share value
- D:** U.S. appeals court refuses to reconsider its ruling.

- E:** Supreme Court Refuses to hear RIM appeal
- F:** USPTO issues final rejection of one of the five disputed patents owned by NTP
- G:** Judge defers BlackBerry injunction ruling
- H:** RIM decide to pay \$612.5 million to NTP to close the procedure



Quelle: www.wallinger.de

Distribution of time of a valuation

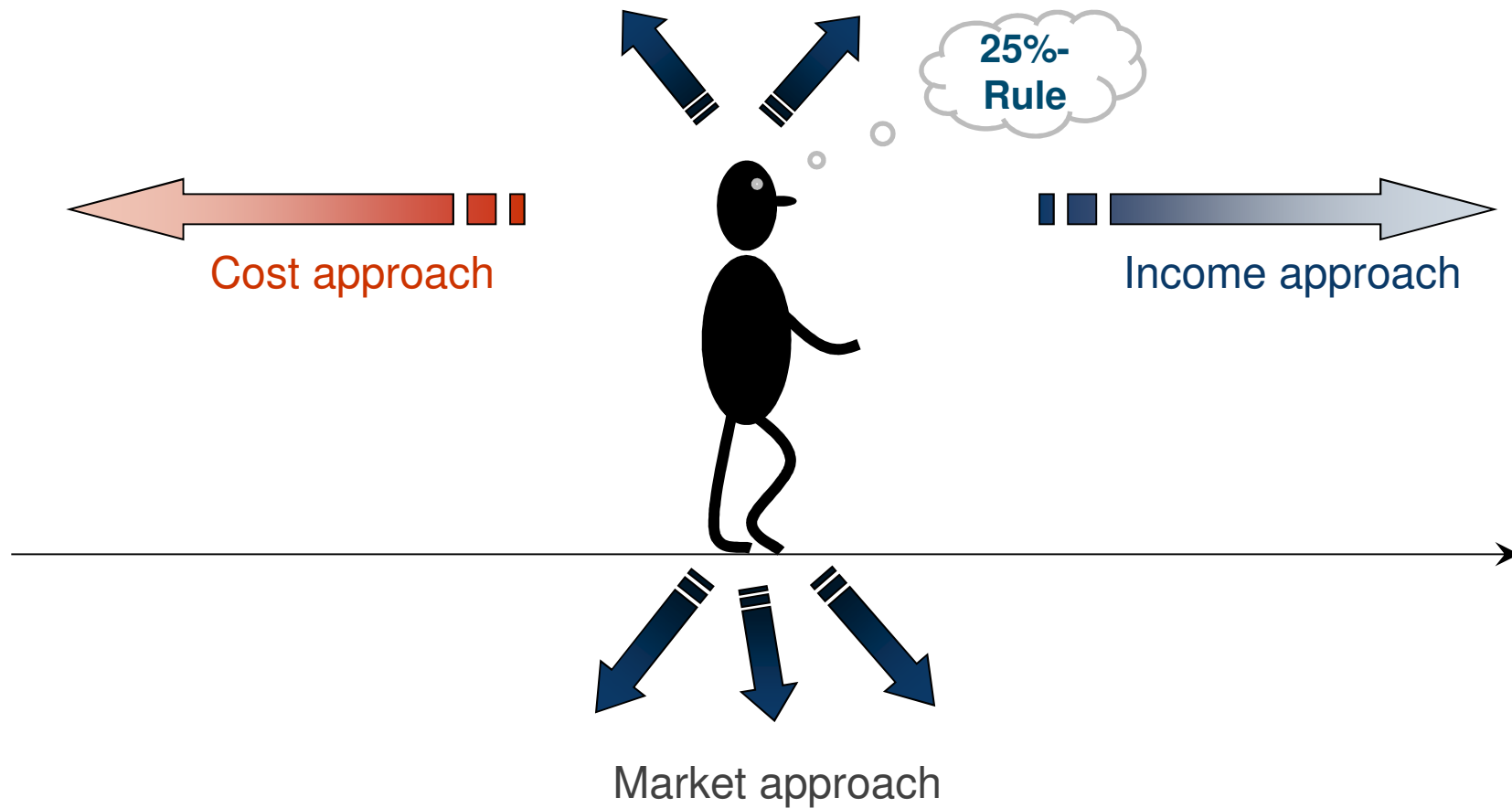


Patent Valuation: Valuation Methods

Patent Valuation

AT&S

Different types of approaches



Quelle: www.IP4inno.eu

Definition

The pricing of an asset is based on the cost of developing the technology asset. Main Question:

Cost considerations usually include

- R&D: salaries, materials & equipment
- IP protection
- Trials, testing and prototyping
- Marketing & advertising
- Cost of capital

When to Use the Cost Approach

- When the asset is at very early stage of development
- When IP is easy to “design-around”
- Bookkeeping (transfer of patents/ideas within entities of a company)

Quelle: www.IP4inno.eu

Method: Capitalization of Historical Costs

How much was spent to develop technology

Problems:

- R&D costs are difficult to count (Which personal costs? Over which period of time? Including failures?)
- How to take into account inflation
- Cost \neq potential value

Definition

- Value is based on the transactions of other purchasers & sellers in the marketplace
- Licensee/buyer is not willing to pay more than others have paid for similar IPRs
- Fair value of a patent = Price paid in comparable, “arm’s length” transactions

Comparison considerations

- Technology: technical features, stage of development
- Specific clauses, financial terms
- Background: economic conditions, position of the parties

When to Use the Market - Approach

- When you can find sufficient transaction information
- Similar transactions: IPR type, industry, market size

Quelle: www.IP4inno.eu

Where to Find Transaction Data

- Company web sites, Industry presentations
- Company annual reports
- Online databases www.Royaltysource.com, www.Windhover.com
- Securities filings: SEC (US), FSA (UK)
- Licensing specialists
- Licensing Executives Society (LES) www.lesi.org
- Royalty-rate journal: Licensing Economics Review
- Court records

Quelle: www.IP4inno.eu

Definition

$$\boxed{\text{Value of IP}} = \boxed{\text{future benefit}}$$

Fair Value of Patent = Present Value of the expected future income (cash flow) stream

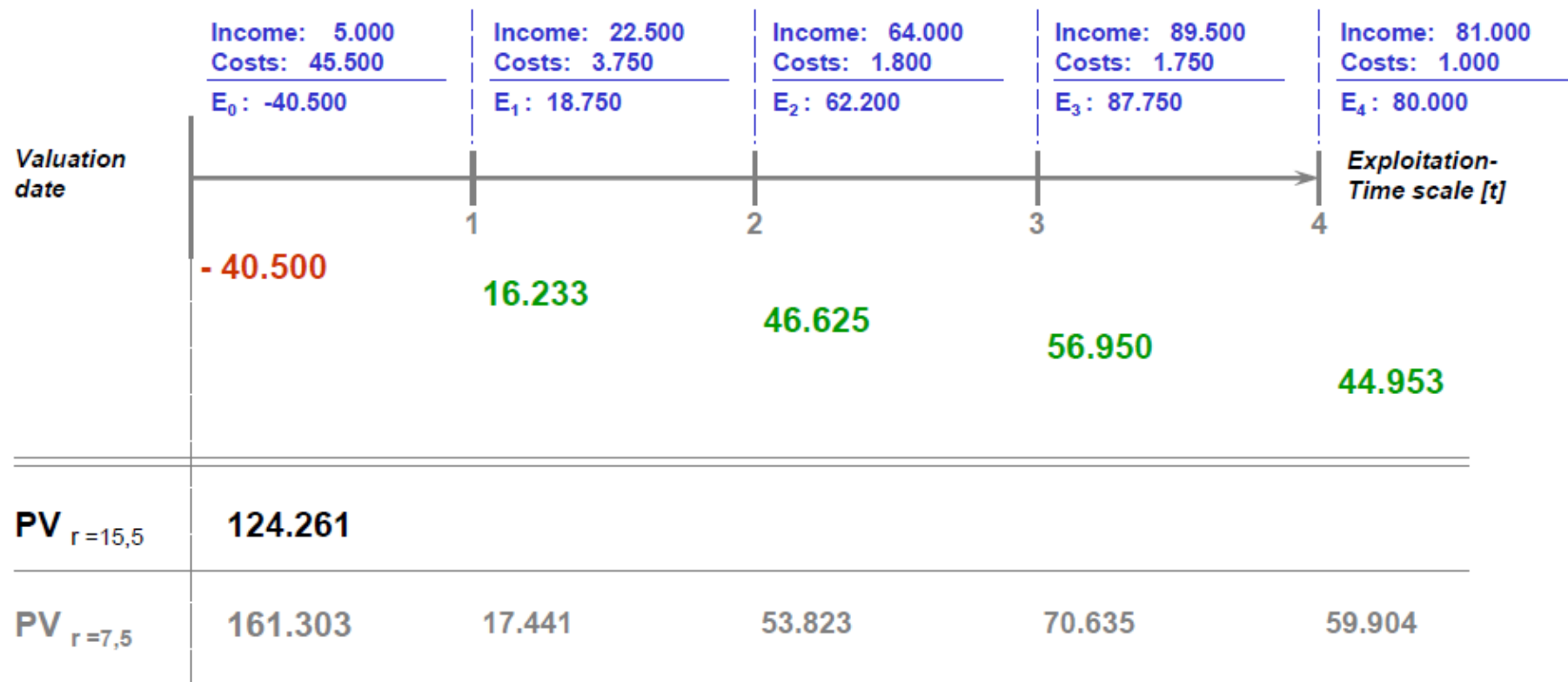
Three key parameters:

- Amount of the income stream
- Duration of the income stream
- Risk associated with the realization of the income

Quelle: www.IP4inno.eu

Patent Value $PV = \sum (E_t) \cdot (1+r)^{-t}$, Discount rate $r = i+z$

Risk free interest $[i] = 3,5\%$; risk premium $[z] = 12\% \Rightarrow r = 15,5$



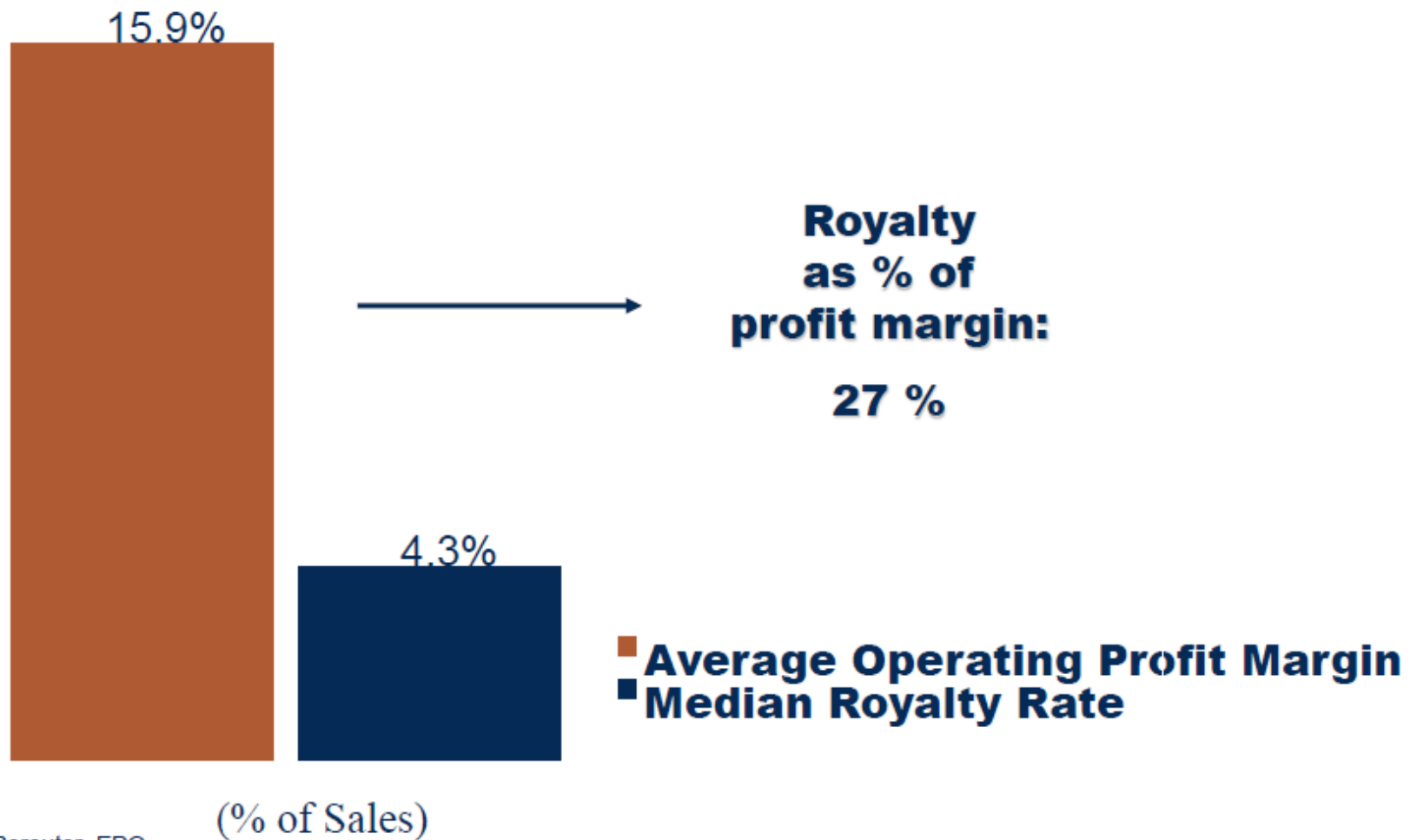
Patent Valuation: Valuation Methods

Overview Valuation Methods

Approach	Cost Approach	Market Approach	Income Approach
Comparative Approach	Generation of an analogue Benefit Potential	Comparison Transactions	Risk equivalent comparison Investment
Typical Procedures	<ul style="list-style-type: none"> • Replacement costs • Replacement value • Historical costs • Restoration costs • Costs avoided 	<ul style="list-style-type: none"> • Comparative transaction procedure • Price comparison procedure • Comparative profit procedure • Profit distribution procedure 	<ul style="list-style-type: none"> • Revenue value procedure • Discounted cash-flow-procedure Verfahren • Technology factor procedure • License savings procedure • Postulated income loss • Real option procedure

25% Rule

Exact value is depended from risks and contributions

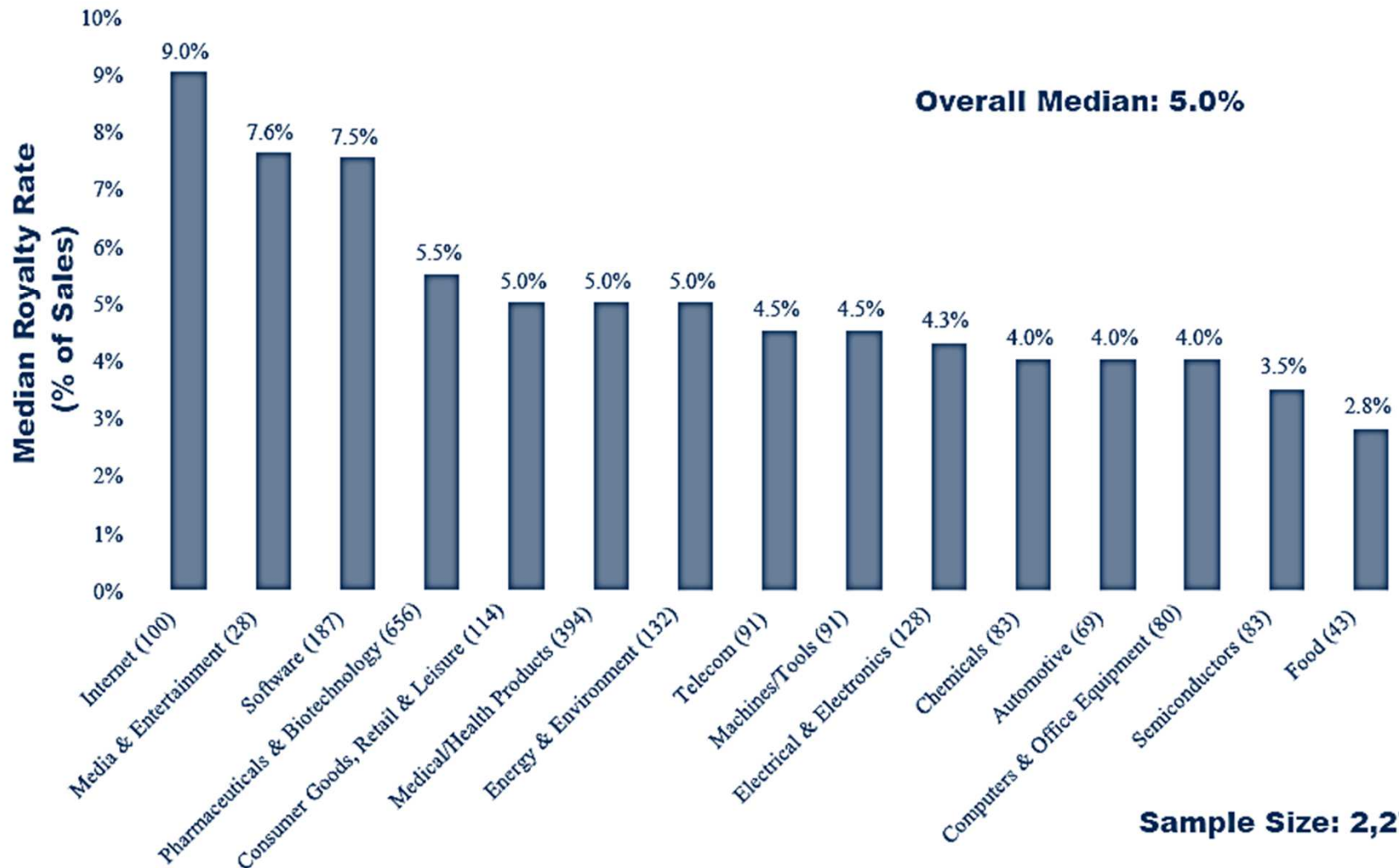


Quelle: Thomas Bereuter, EPO

Patent Valuation: Valuation Methods

Royalties depend on industry

AT&S



Quelle: Thomas Bereuter, EPO

Quelle: EPO

Priorisierung verschiedener Bewertungsverfahren hinsichtlich deren Eignung zur ordnungsgemäßen monetären Bewertung von Patenten

umfasst **keine konkreten Anweisungen** und Anleitungen zur Durchführung einer Patentbewertung

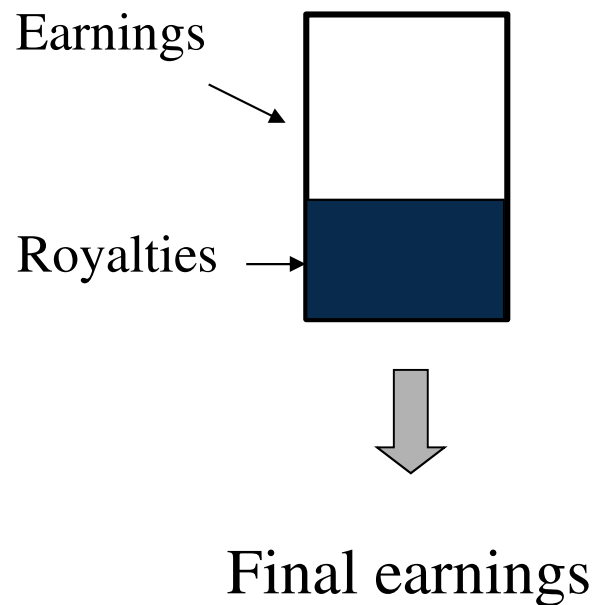
Definition von Grundlagen

- Bewertungsgegenstand und Bewertungsanlass
- Zugrunde gelegtes Verwertungsszenario
- Bewertungszeitpunkt

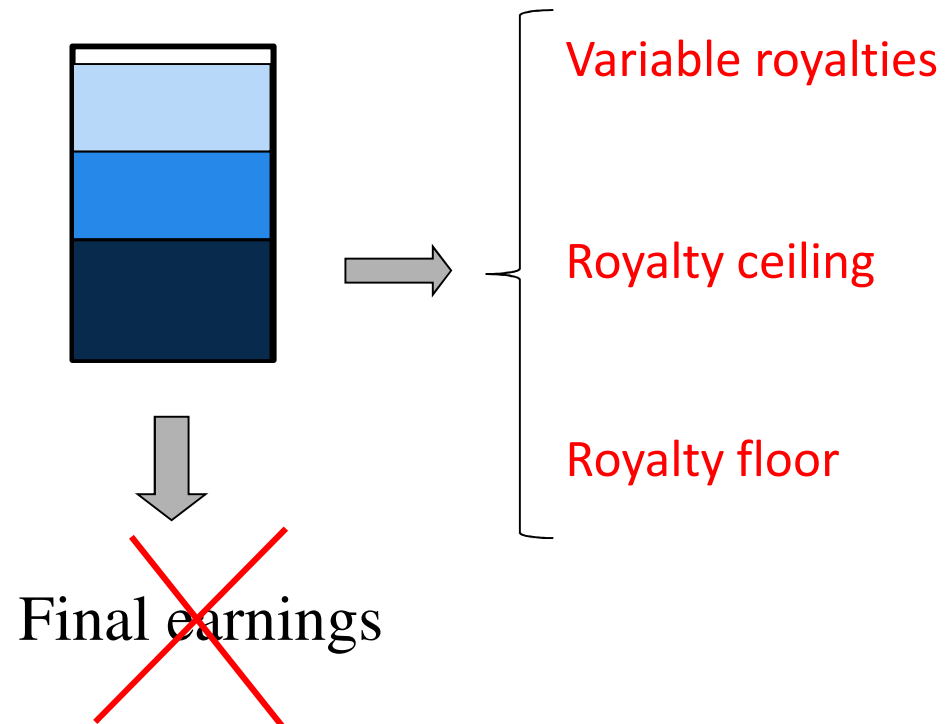
Spezifizierung von

- Relevanten Einflussfaktoren für die Bewertung
- Zahlungsströme zur Patentbewertung
- Sachgerechte Risikoberücksichtigung

Normal situation



Royalty Stacking



Perspectives on patents

- Different stakeholders – different perspectives
- Patent infringement
 - NPEs

Different stakeholders – different perspectives

Aus Sicht des Anmelders

Möglichst breite Claims, man versucht einen maximalen Schutzzumfang zu erzielen

Aus Sicht des Patentprüfers am Patentamt

Versucht mittels SdT Patentwürdigkeit abzusprechen

Sieht das große Ganze (schränkt sich nicht auf Klassen ein)

Aus Sicht des Richters im Verletzungsverfahren

Prüft auf Gemeinsamkeiten (Claims), Patentwürdigkeit hat keinen Einfluss, Rechtsbeständigkeit wird nicht infrage gestellt

Aus Sicht eines Nachahmers

versucht, Lücken in Claims aufzudecken (White Spots), um das Patent zu umgehen

Patentmonitoring wichtig!: Schadenersatz bei erteilten Patenten oder Gebrauchsmustern! Zwischen Offenlegung und Erteilung: angemessene Entschädigung

Beispiel: Sicht des Patentprüfers am Patentamt

Donald Duck als Stand der Technik



Im Jahre 1964 kenterte das mit 6.000 Schafen beladene Frachtschiff *Al-Kuwait* im Süßwasserhafen von Kuwait. Es bestand die Gefahr, dass die verwesenden Tierkadaver das Trinkwasser vergiften könnten. Das Schiff musste somit geborgen werden – es war nur unklar wie, da die herkömmlichen Hebemethoden nicht erfolgreich waren.

Die für den Schadensfall zuständige Versicherung beauftragte den dänischen Erfinder Karl Kroyer, der sich mit seinem Team an die Arbeit begab (International Starch Institute 2001). Einer seiner jungen Angestellten kam auf die Idee, in den gesunkenen Schiffskorpus Auftriebselemente in Form von aufschäumendem Polystyrol einzuleiten und damit das Schiff zu heben.

Der ursprünglichen Fassung der Patentanmeldung wurde vom Patentamt allerdings ein Donald Duck Comic von *Walt Disney* aus dem Jahre 1949 entgegengehalten, in dem sich Donald und seine drei Neffen Tick, Trick und Track in einer ähnlichen Situation befanden und eine gesunkene Yacht heben wollten. Sie füllten den Bootskörper mit Tischtennisbällen und brachten damit das Schiff an die Wasseroberfläche zurück.

Quelle: IGE

Beispiel: Sicht des Richters im Verletzungsverfahren

Fall „Epilady – Improver“:

Entscheidungen über Patentverletzung in einzelnen Ländern

Land	Patentverletzung:	Ja	Nein
Deutschland		X	
Niederlande			X
Vereinigtes Königreich			X
Italien		X	
Österreich			X
Belgien		X	
Frankreich			X
Hongkong			X
Schweiz	Patent		X
	UWG	X	

IP-Piraterie: € 590 Mrd. weltweit



Quelle: EU-Kommission; SWD(2015) 132 final

Steigende Anzahl an Patentverletzungsprozessen weltweit

USA

2014: 5.010 neue Patentverletzungsprozesse vor den Gerichten

Davon ca. 60% von Non Producing Entities (NPE) eingeleitet

CHINA

2013: 9.195 neue Patentverletzungsprozesse vor den Gerichten

2013: 697 neue administrative Patentverletzungsverfahren

Die meisten Patentverletzungsstreitigkeiten finden in China statt

dramatischer Anstieg bei Anmeldungen wird auch zu mehr gerichtlichen Streitigkeiten führen

DEUTSCHLAND

Ca. 1250 Streitfälle in Patent und Gebrauchsmustersachen in Deutschland pro Jahr

NPEs oder auch Patenttrolle halten Patente

- ohne die geschützten Produkte selbst herzustellen oder zu vermarkten
- um, sie gegen Unternehmen durchzusetzen, die diese Patente möglicherweise verletzen
- um Schadensersatz- und/oder Lizenzzahlungen zu fordern

Motivation:

Hohe Schadensersatzzahlungen aufgrund der amerikanischen Rechtssprechung

Aufgrund der Eigenheit, keine Produkte zu produzieren haben diese keine Angriffsfläche für einen Gegenschlag und es besteht auch kein Interesse an den sonst üblichen Kreuzlizenzierungen

NPEs haben die Mittel, Einzelpatente bei Großunternehmen durchzusetzen und können somit aber auch als Korrektive wirken!

Quelle: PATENTFREEDOM.COM, <https://www.patentfreedom.com/about-npes>

Perspectives on patents: Patent infringement Non Producing Entities (NPEs)

AT&S

Wie gehen NPEs vor

Auswahl besonders aussichtsreicher Fälle

- Primär ältere und damit wahrscheinlich rechtsbeständige Patente
- Produkte mit großen Stückzahlen oder
- Besonders negativer Auswirkung im Falle einer vorläufigen Vollstreckbarkeit

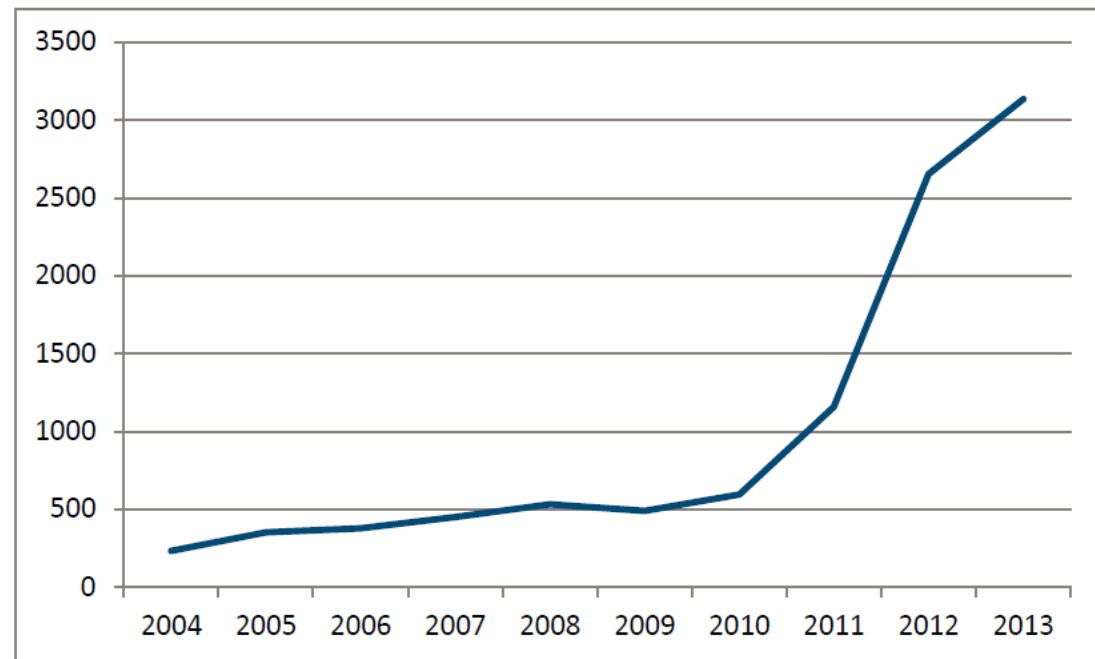
**NPEs werden auch in Europa
immer aktiver!**

Neuester Trend:

„Patent Privateering“ (Patent-
Freibeuterei): Unternehmen lagern
Patentrechtsabteilung und Patenttrolle
aus

Quelle: PATENTFREEDOM.COM,
<https://www.patentfreedom.com/about-npes>

Annual U.S. Patent Lawsuits Involving NPEs





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