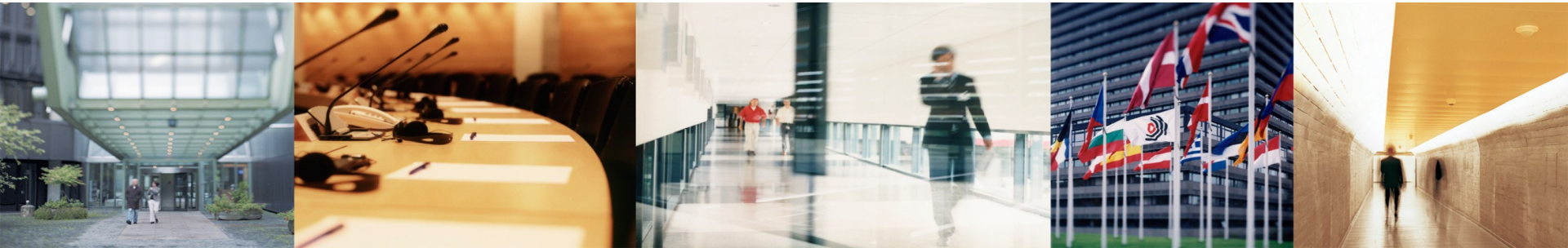
Europäisches Patentamt
European Patent Office
Office européen des brevets

Patents as a source of business information

Krakow, 29 February 2008

Johannes Schaaf 4.5.3



Patents as a source of business information

Why patent information?

Part 1 **Patent mapping**

- **Users**
- **Preparation**
- **Pitfalls and quality**

Part 2 **Patent valuation and portfolio management**

- **IPscore**

Summary

* All examples and data given in this presentation are for exercise purposes only to explain the functioning of the software. The information provided may neither be complete nor accurate.

Information as a basis for decision making?

Requirements

- **correct**
- **relevant**
- **timely**
- **complete and**
- **digestible**

Why patent information?

- **Standardised interfaces** to inventions from **every technical field**
- Often **exclusive** publication
- Detailed **disclosure** of invention and applications in industry
- Analyses of activity in **technological fields** (IPC, ECLA ...)
- Information on **exclusive rights** for determining freedom to operate

Patent information and Porter's 5 forces model

More than analysing well known competition

early detection of...

New entrants

Suppliers

- **supplier's forward integration**
- *own backward integration*
- *substitutes for suppliers products*

Competitors

- **freedom to operate and product clearance**
- ***Comparison of patent portfolios (eg Xlicensing)***
- *novelty search (appeal)*
- *competitor's R&D- patenting- and marketing strategy*

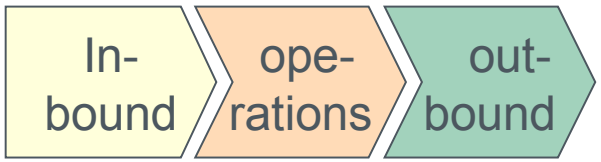
Customers

- **customer's backward integration**
- *own forward integration*
- *other uses for own technology*

Substitutes

- *technological advantages*
- *determination of switching costs*

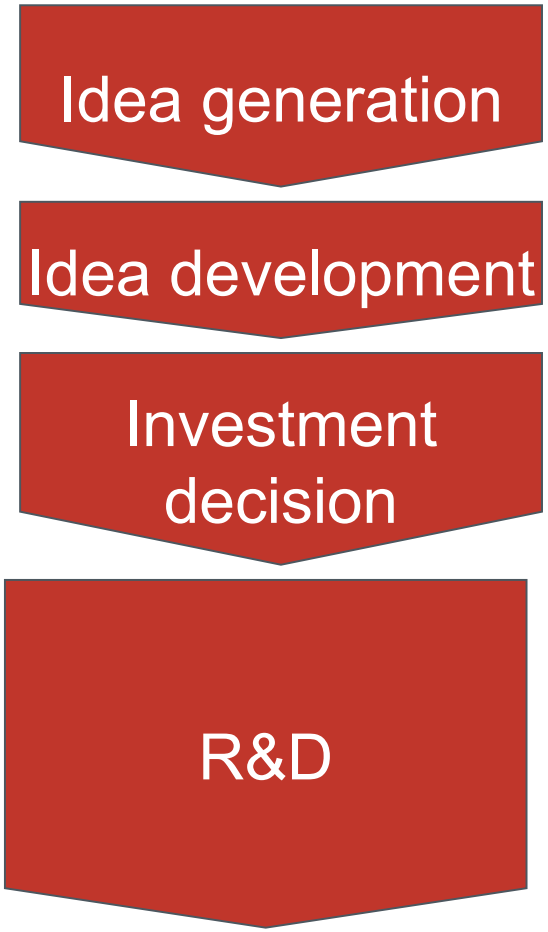
Value chain



Bold: Threats

Italic: Opportunities

Integration of patent information in product development process



Use patent information as inspiration and/or source of solutions

Prior art / novelty / freedom to operate

Decide on focus

Patent mapping

Continuous monitoring and early circumnavigation of alien patents

When inventions are made:
prior art / novelty / freedom to operate

Assessment of a small number of patents

Advanced Search

1. Database

Select the patent database in which you wish to search:

Database:	Worldwide

2. Search terms

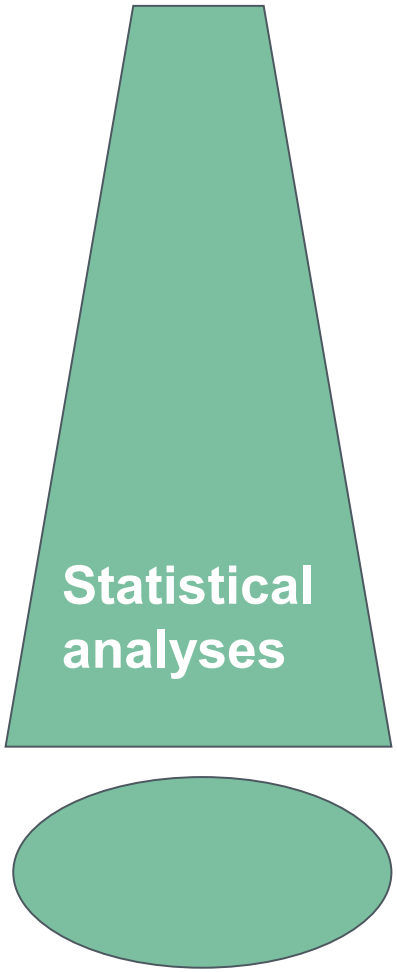
Enter keywords (english)

Keyword(s) in title:	plastic AND bicycle
Keyword(s) in title or abstract:	hair
Publication number:	WO03075629
Application number:	DE19971031696
Priority number:	WO1995US15925
Publication date:	yyyymmdd
Applicant:	Institut Pasteur
Inventor:	Smith
European Classification (ECLA):	F03G7/10
International Patent Classification (IPC):	H03M1/12

SEARCH CLEAR

strength: retrieval of single highly relevant documents

Uses of patent information



- Assessment of risks (legal status of patents): freedom to operate, product clearance
- Who's-who finder (supplier, customer...)
- Information on technological solutions:
  - new technology for own processes/products
  - new uses for own technology
- Identification of business opportunities (gaps)
- competition analysis (eg patenting and internationalisation strategy)
- Analysis of technological trends (by country, industry, etc)

Part 1: Analyses of large sets of patent data

Patent mapping

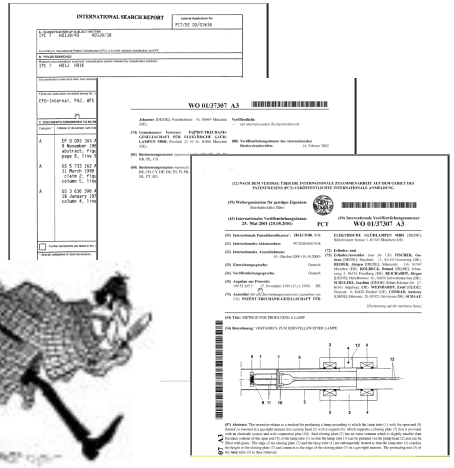
Visualisation of patent analyses to understand complex patent information easily

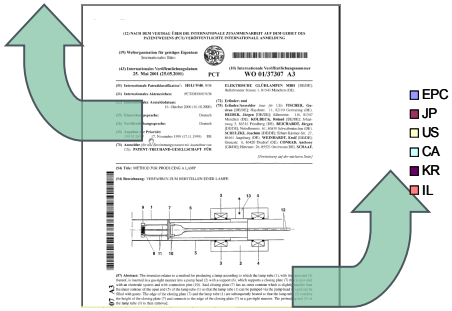
Users of patent maps

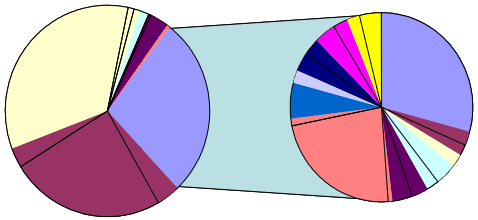
- **Management** (all functions)
- **Innovators** (R&D)
- **Investors** (Venture capitalists, promotional banks)
- **Influencers** (patent offices, policy makers)

Preparation of patent maps

Gather → Analyse → Visualise







Preparation of patent maps

Gather → Analyse → Visualise

1. Define goals
2. Choose database
3. Define query (dates, IPC, key words...)
4. Collect data and remove noise
5. Harmonize applicant names

espacenet

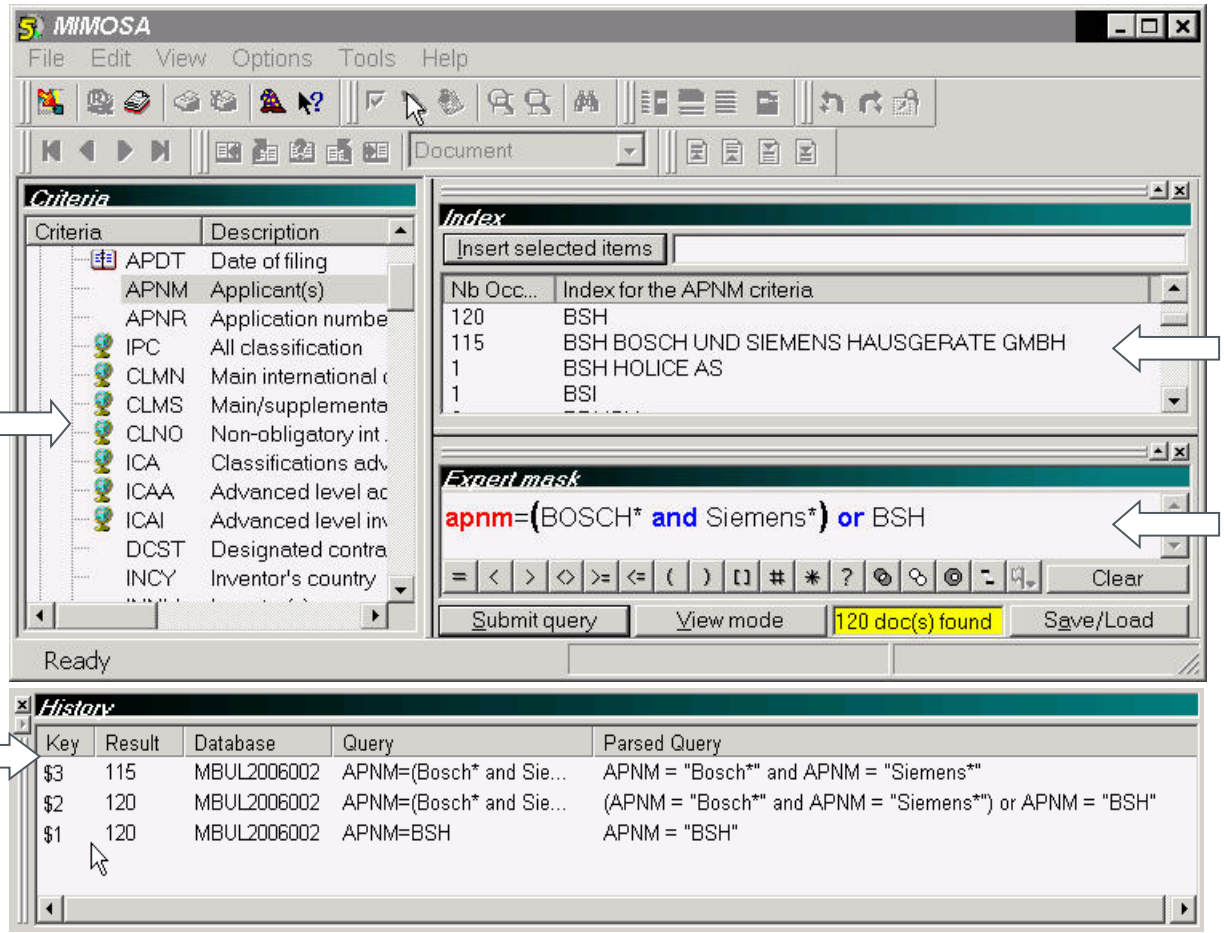
Japan Patent Office

MIMOSA

Commercial providers

USPTO

MIMOSA interface



available fields

index

query

history

➢preparation of patent maps

ESPACE ACCESS

Content: EP and WO documents
Searchable fields

AB	English abstract
AD	Application Date
AF	French Abstract
AN	Application number
DC	Correction date
DP	Publication date
DS	Designated states
EP	EP Publication number
ET	English title
FT	French title
GT	German title

IC	All classification
INV	Inventor
KI	Document kind
MC	Main classification
NO	WO-EuroPCT number
PA	Applicant
PD	Priority date
PR	Priority number
PRESENCE	Available data
WO	WO Publication number

➢preparation of patent maps

Preparation of patent maps

Gather → **Analyse** → Visualise

Bibliographic data: Statistical analysis of structured Information

(12) NACH DEM VERTRAG ÜBER DIE INTERNATIONALE ZUSAMMENARBEIT AUF DEM GEBIET DES PATENTWESENS (PCT) VERÖFFENTLICHTE INTERNATIONALE ANMELDUNG

(19) Weltorganisation für geistiges Eigentum
Internationales Büro

(43) Internationales Veröffentlichungsdatum
25. Mai 2001 (25.05.2001)

PCT

(10) Internationale Veröffentlichungsnummer
WO 01/37307 A3

(51) Internationale Patentklassifikation[7]: H01J 9/40, 9/38

(21) Internationales Aktenzeichen: PCT/DE00/03638

(22) Internationales Anmeldedatum:
16. Oktober 2000 (16.10.2000)

(25) Einreichungssprache: Deutsch

(26) Veröffentlichungssprache: Deutsch

(30) Angaben zur Priorität:
199 55 265.7 17. November 1999 (17.11.1999) DE

(71) Anmelder *(für alle Bestimmungsstaaten mit Ausnahme von US)*: PATENT-TREUHAND-GESELLSCHAFT FÜR ELEKTRISCHE GLÜHLAMPEN MBH [DE/DE]; Hellabrunner Strasse 1, 81543 München (DE).

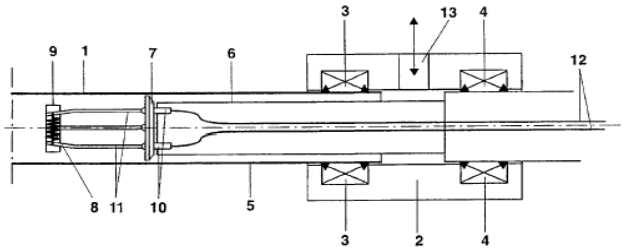
(72) Erfinder; und

(75) Erfinder/Anmelder *(nur für US)*: **FISCHER, Gudrun** [DE/DE]; Haydnstr. 11, 82110 Germering (DE). **HEIDER, Jürgen** [DE/DE]; Säbenerstr. 116, 81547 München (DE). **KOLBECK, Roland** [DE/DE]; Johannweg 5, 86316 Friedberg (DE). **REICHARDT, Jürgen** [DE/DE]; Nebelhornstr. 61, 86830 Schwabmünchen (DE). **SCHULZKI, Joachim** [DE/DE]; Erhart-Kästner-Str. 27, 86161 Augsburg (DE). **WEINHARDT, Erolf** [DE/DE]; Grenzstr. 6, 86420 Diedorf (DE). **CONRAD, Anthony** [GB/DE]; Hirtenstr. 2b, 85521 Ottobrunn (DE). **SCHAAF,**

[Fortsetzung auf der nächsten Seite]

(54) Title: METHOD FOR PRODUCING A LAMP

(54) Bezeichnung: VERFAHREN ZUM HERSTELLEN EINER LAMPE



(57) Abstract: The invention relates to a method for producing a lamp according to which the lamp tube (1), with the open end (5) thereof, is inserted in a gas-tight manner into a pump head (2) with a support (6), which supports a closing plate (7) that is provided with an electrode system and with connection pins (10). Said closing plate (7) has an outer contour which is slightly smaller than the inner contour of the open end (5) of the lamp tube (1) so that the lamp tube (1) can be pumped via the pump head (2) and can be filled with gases. The edge of the closing plate (7) and the lamp tube (1) are subsequently heated so that the lamp tube (1) matches the height of the closing plate (7) and connects to the edge of the closing plate (7) in a gas-tight manner. The protruding end (5) of the lamp tube (1) is then removed.

07 A3

Abstract description and claims: Text mining of unstructured information

➢preparation of patent maps

Preparation of patent maps

Gather | **Analyse** | Visualise

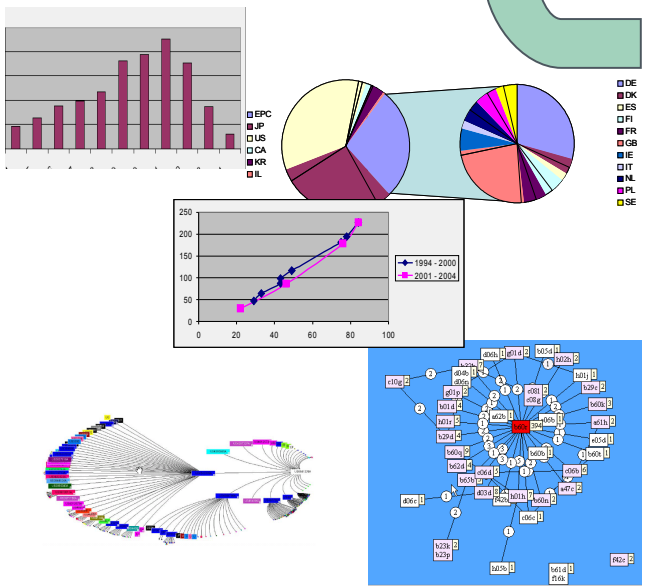
Steps

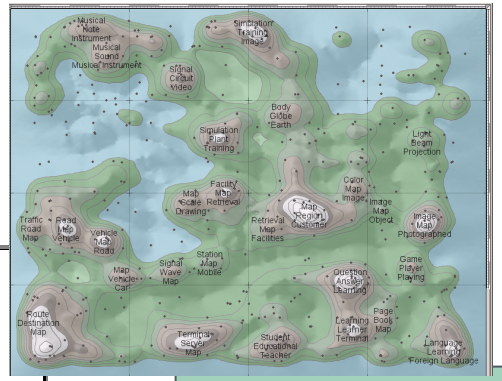
- Export data to spreadsheet
(full data set if possible)
- Define dimensions of analysis
(eg technologies, application)
- Add codified dimensions to documents
- Run statistical analysis
- Check results

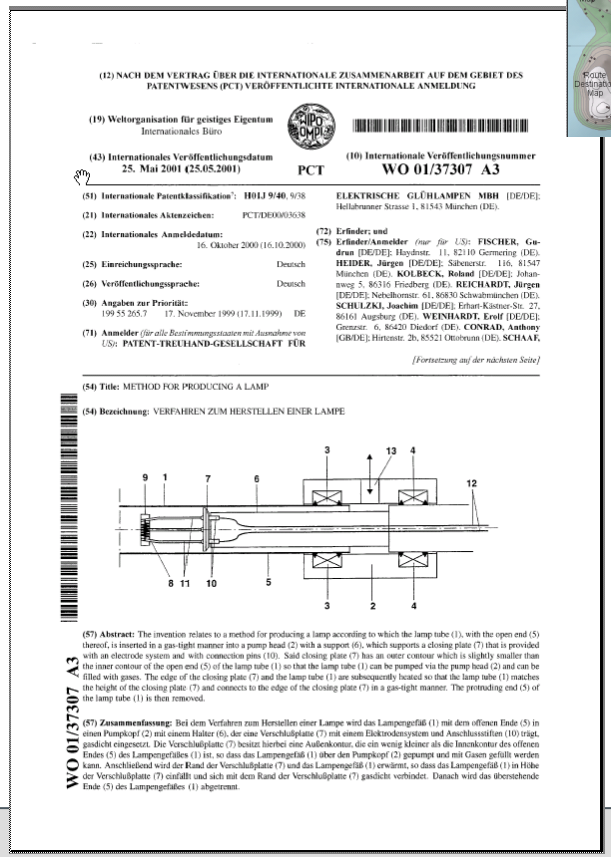
Preparation of patent maps

Gather → Analyse → Visualise

Bibliographic data: Statistical analysis of structured Information







(12) NACH DEM VERTRAG ÜBER DIE INTERNATIONALE ZUSAMMENARBEIT AUF DEM GEBIET DES PATENTWESENS (PCT) VERÖFFENTLICHTE INTERNATIONALE ANMELDUNG

(19) Weltorganisation für geistiges Eigentum
Internationales Büro

(43) Internationales Veröffentlichungsdatum
25. Mai 2001 (25.05.2001)

PCT

(10) Internationale Veröffentlichungsnummer
WO 01/37307 A3

(51) Internationale Patentklassifikation⁷: H01J 9/40, 9/38

(21) Internationales Aktenzeichen: PCT/DE00/03638

(22) Internationales Anmeldedatum:
16. Oktober 2000 (16.10.2000)

(25) Einreichungssprache: Deutsch

(26) Veröffentlichungssprache: Deutsch

(30) Angaben zur Priorität:
199 55 265.7 17. November 1999 (17.11.1999) DE

(71) Anmelder (für alle Bestimmungsstaaten mit Ausnahme von US): PATENT-TREUHAND-GESELLSCHAFT FÜR ELEKTRISCHE GLÜHLAMPEN MBH [DE/DE]; Hellabrunner Strasse 1, 81543 München (DE).

(72) Erfinder; und

(75) Erfinder/Anmelder (nur für US): FISCHER, Gudrun [DE/DE]; Haydnstr. 11, 82110 Germering (DE). HEIDER, Jürgen [DE/DE]; Silvenerstr. 116, 81547 München (DE). KOLBECK, Roland [DE/DE]; Johannweg 5, 86316 Friedberg (DE). REICHARDT, Jürgen [DE/DE]; Nebelhornstr. 61, 86830 Schwabmünchen (DE). SCHULZKI, Joachim [DE/DE]; Erhart-Kästner-Str. 27, 86161 Augsburg (DE). WEINHARDT, Ezolf [DE/DE]; Grenzstr. 6, 86420 Diedorf (DE). CONRAD, Anthony [GB/DE]; Hirtenstr. 2b, 85521 Ottobrunn (DE). SCHAAF,

[Fortsetzung auf der nächsten Seite]

(54) Title: METHOD FOR PRODUCING A LAMP

(54) Bezeichnung: VERFAHREN ZUM HERSTELLEN EINER LAMPE

WO 01/37307 A3

(57) Abstract: The invention relates to a method for producing a lamp according to which the lamp tube (1), with the open end (5) thereof, is inserted in a gas-tight manner into a pump head (2) with a support (6), which supports a closing plate (7) that is provided with an electrode system and with connection pins (10). Said closing plate (7) has an outer contour which is slightly smaller than the inner contour of the open end (5) of the lamp tube (1) so that the lamp tube (1) can be pumped via the pump head (2) and can be filled with gases. The edge of the closing plate (7) and the lamp tube (1) are subsequently heated so that the lamp tube (1) matches the height of the closing plate (7) and connects to the edge of the closing plate (7) in a gas-tight manner. The protruding end (5) of the lamp tube (1) is then removed.

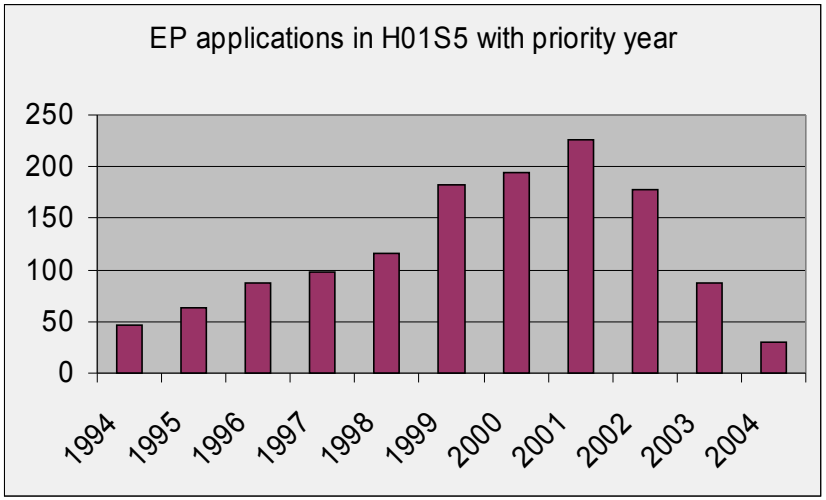
(57) Zusammenfassung: Bei dem Verfahren zum Herstellen einer Lampe wird das Lampengefäß (1) mit dem offenen Ende (5) in einen Pumpkopf (2) mit einem Halter (6), der eine Verschlußplatte (7) mit einem Elektrodensystem und Anschlußstiften (10) trägt, gasdicht eingesetzt. Die Verschlußplatte (7) besitzt hierbei eine Außenkontur, die ein wenig kleiner als die Innenkontur des offenen Endes (5) des Lampengefäßes (1) ist, so dass das Lampengefäß (1) über den Pumpkopf (2) gepumpt und mit Gasen gefüllt werden kann. Anschließend wird der Rand der Verschlußplatte (7) und das Lampengefäß (1) erwärmt, so dass das Lampengefäß (1) in Höhe der Verschlußplatte (7) einfällt und sich mit dem Rand der Verschlußplatte (7) gasdicht verbindet. Danach wird das überstehende Ende (5) des Lampengefäßes (1) abgetrennt.

Abstract description and claims: Text mining of unstructured information

Preparation of patent maps
Example: Laser diodes

Time series

Visualise



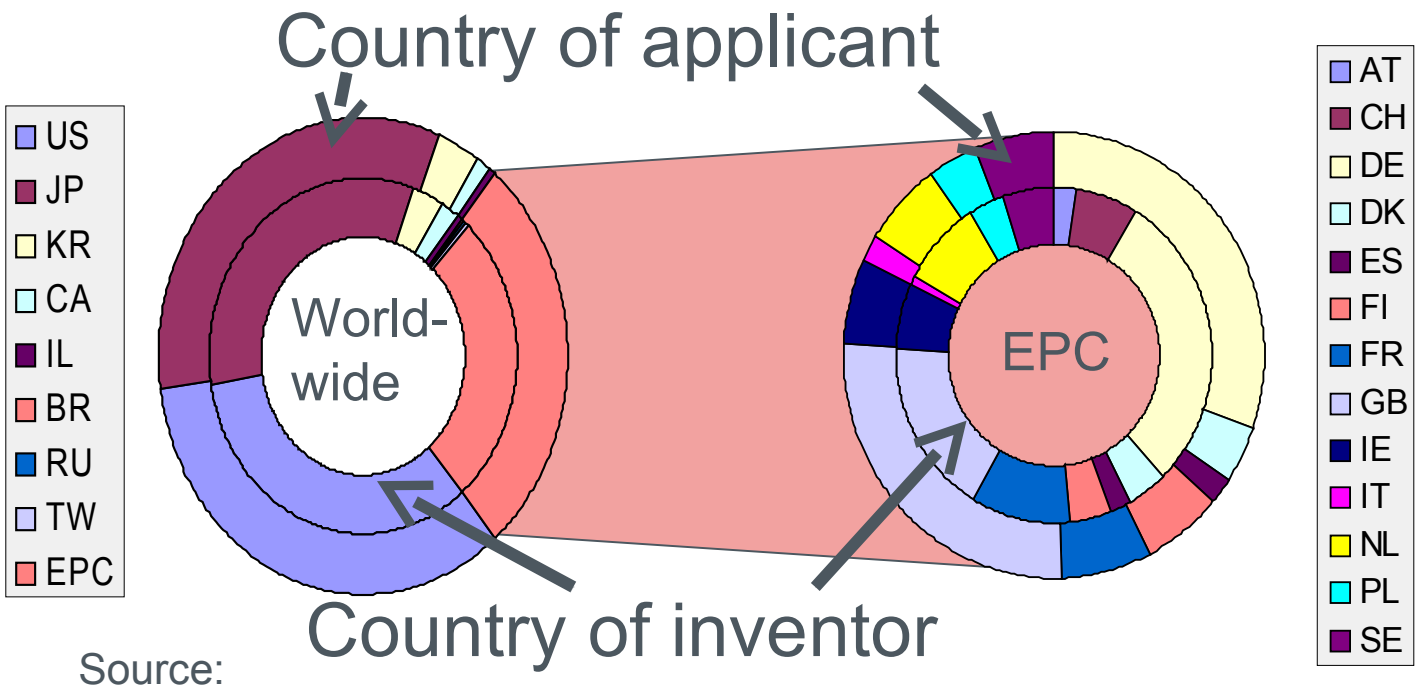
Source:
Bulletin Dec 1978- Dec 2005

Preparation of patent maps
Example: Laser diodes

Pies

Visualise

EP applications with priority year 2002

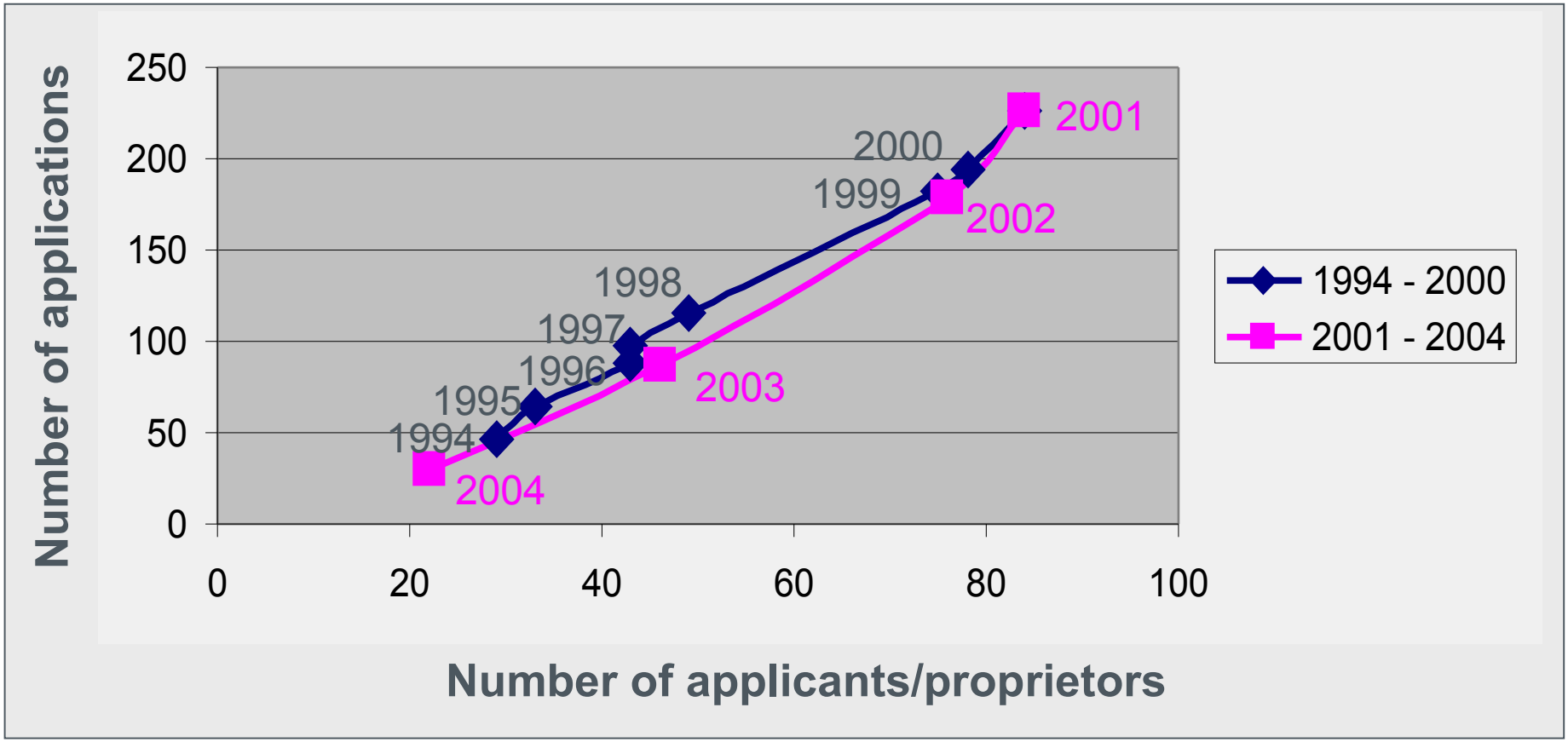


Source:
Bulletin Dec 1978 - Dec 2005

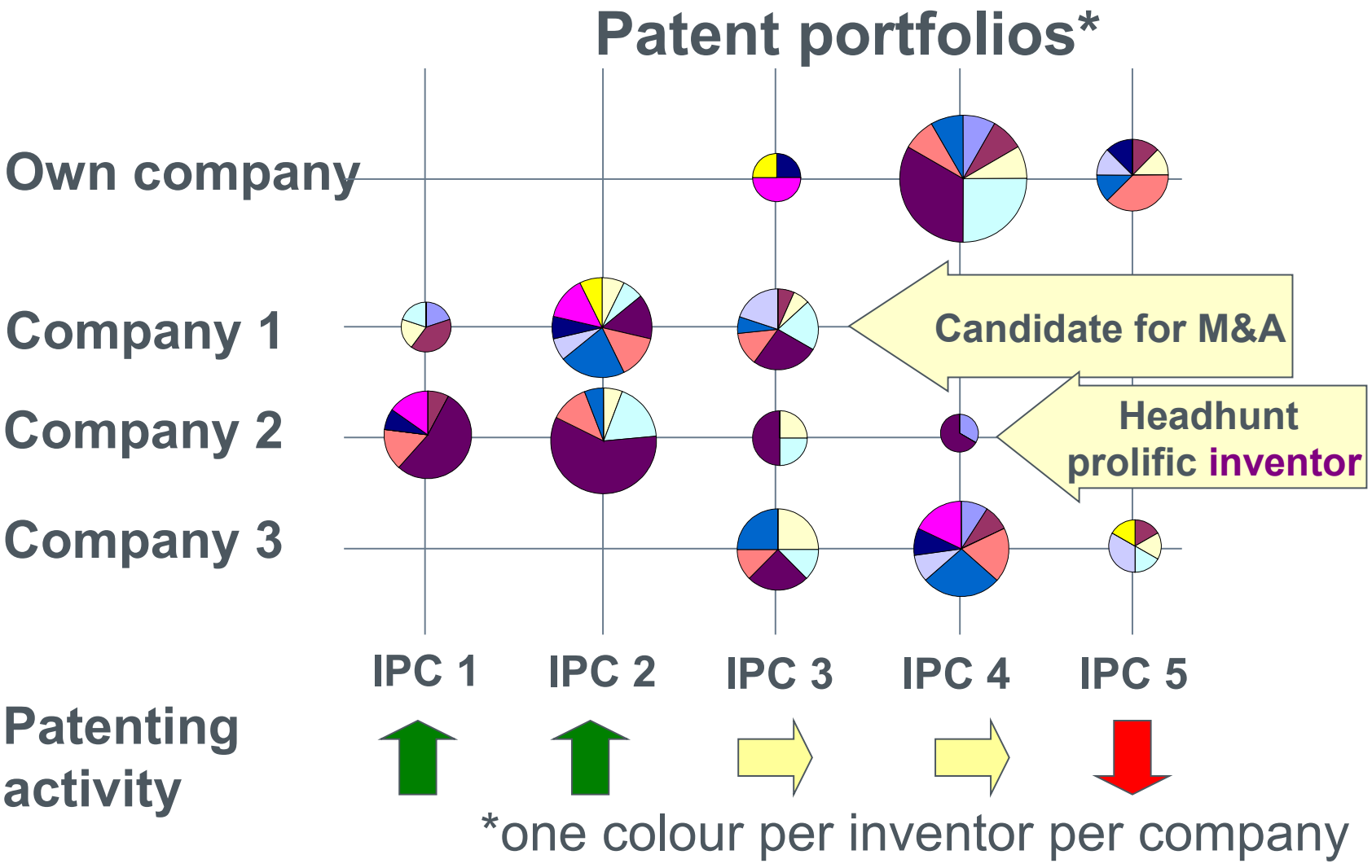
Preparation of patent maps
Example: Laser diodes

Graphs

Visualise



Preparation of patent maps



*one colour per inventor per company

Assessment of importance of invention

Problem

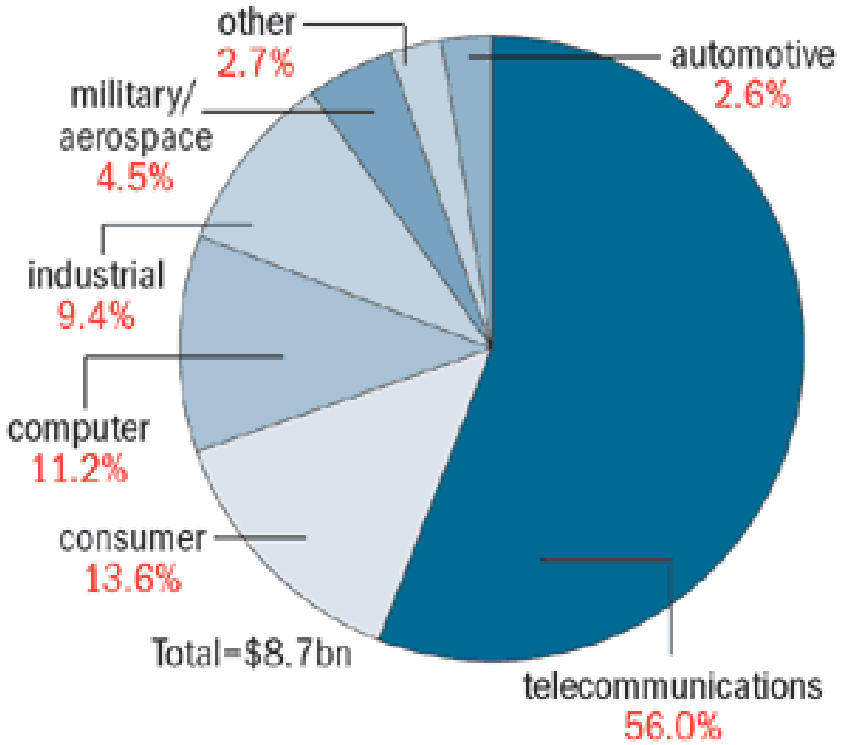
Pure counting of patents is often not appropriate without taking the **importance** of the invention into consideration.

Suggestions to assess importance

- Family size
- Triadic patents (US, JP and EP)
- Duration of patent in force
- Citation information

Comparison other sources of information

Market data (2005): Application



Forecast: Europe takes over 25 % of LD market

Source: http://optics.org/optics/Articles.do;jsessionid=17087E6DF8EF52C4B83FE3B5595BC5B7?type=ole&volume=7&issue=4&article=6&page=1&box_id=olemar1%5F94%2D02

Summary part 1

- Patent information is very helpful to support **decision making in business**
- **Patent maps** are excellent tools to assess **large sets of patent data**
- Many **different types** patent maps exist for various purposes and users
- Patent maps should be **complemented** with other data (market data)
- The **quality** is critical

Part 2
Patent Valuation and Patent Portfolio Management

External information

patents
technologies
markets

Internal information related to patenting

resources
- skills
- finance
- production

strategies (R&D, marketing...)

What „value“ really means

Value
Individual utility

1 soft drink = satisfy thirst (at home / in the desert)

Price
Exchange value

1 soft drink = 0,3 - 2 €

Cost

1 soft drink = 0,2 €

The value of a patent is the **future commercial utility** of the patented invention!

Value if exclusively used by patent owner	**Value as a collateral for a bank loan**
Value to licensees	**Value to a company blocked by the patent (Blackberry 600 M$)**

Methods for the valuation of patents

Quantitative (monetary)

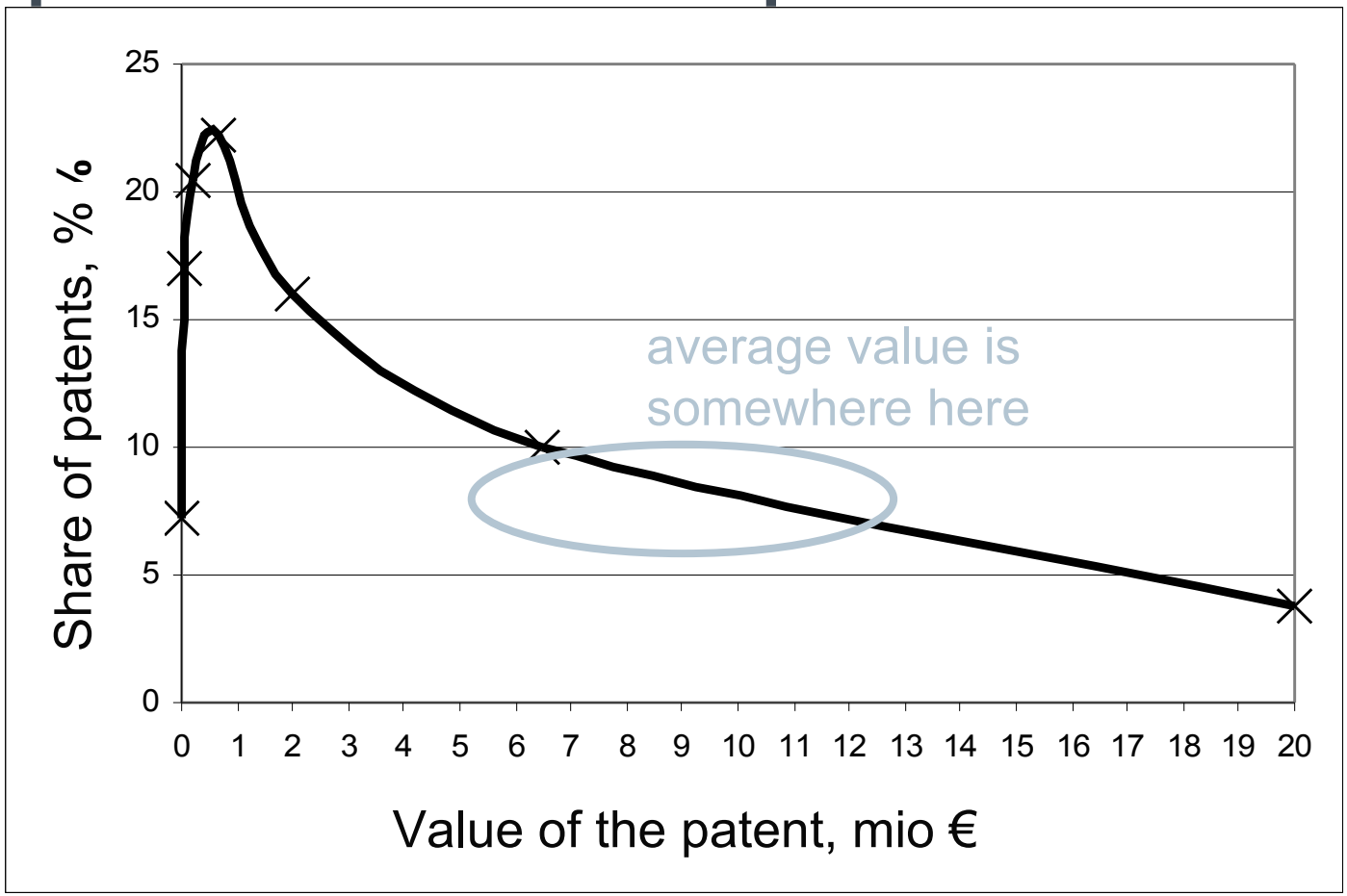
- net present value
- market value (licence analogy)
- cost
- real options
- computer-generated estimations
- legal-economic methods

„The patent is worth € 50.000“

Qualitative (multidimensional)

„The patent protects a technology of strategic importance for an attractive market, it can be enforced efficiently, but significant investment is still needed “

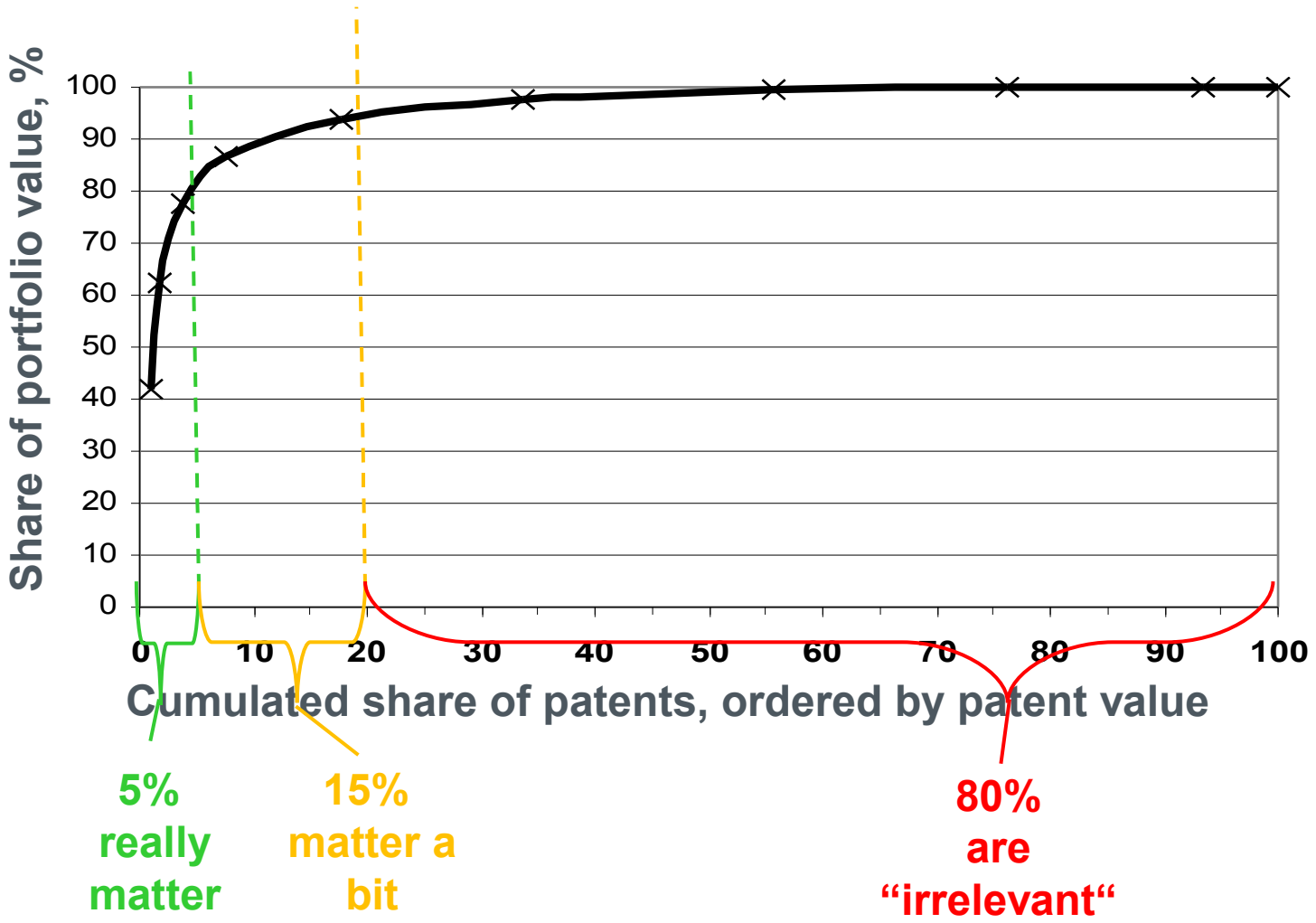
Empirical distribution of patent value



50% of (EP) patents are worth less than € 300k
(25% are worth less than € 100k)

Data for about 7000 EP-patents. Source: European research project ‚PATVAL'.

The value of EP-patents

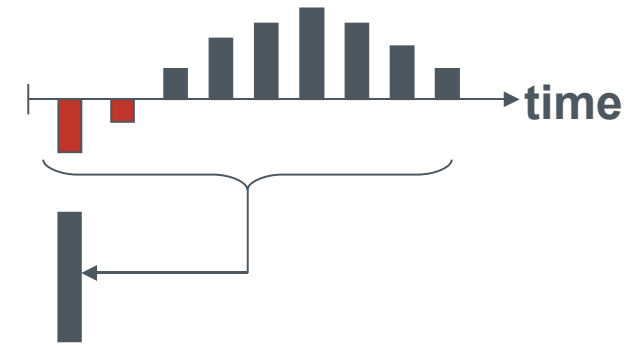


Data for about 7000 EP-patents. Source: European research project ‚PATVAL'.

Net present value method (NPV, DCF)

cash inflow
- cash outflow
- interest (hypothetical)

= present value



NPV = Σ(present values)

„Expected profit due to patent, after cost of capital“

Advantages

- Acccepted method for any managerial valuation
- Takes into account the specifics of a case
- Simple decision rule

Disadvantages

- Predictability of cash flows
- Identification of cash flows
- Only one scenario, no flexibility
- Indirect benefits difficult to account for

Market value (license analogy, relief from royalty)

Allocation base (share of product)
* Assessment base (e.g. turnover)
* Royalty rate (e.g. 3%)

= Value acc. to license analogy

Identification of comparable transactions

Adaption to the situation

Adaption to the license contract

Fair royalty rate

"Sales/license price estimated by comparison to similar patents"

Advantages

- Can be simple and fast
- Accepted
- Seems to be objective and true at first sight

Disadvantages

- Comparability of the transactions
- Low significance if an internal use is intended
- Non-experts cannot easily verify results

Cost

Historical cost	Replacement cost
Real cost incurred + inflation	Creation of an equivalent or identical patent/technology today

"R&D cost and cost of patenting that have been / would be incurred"

Advantages

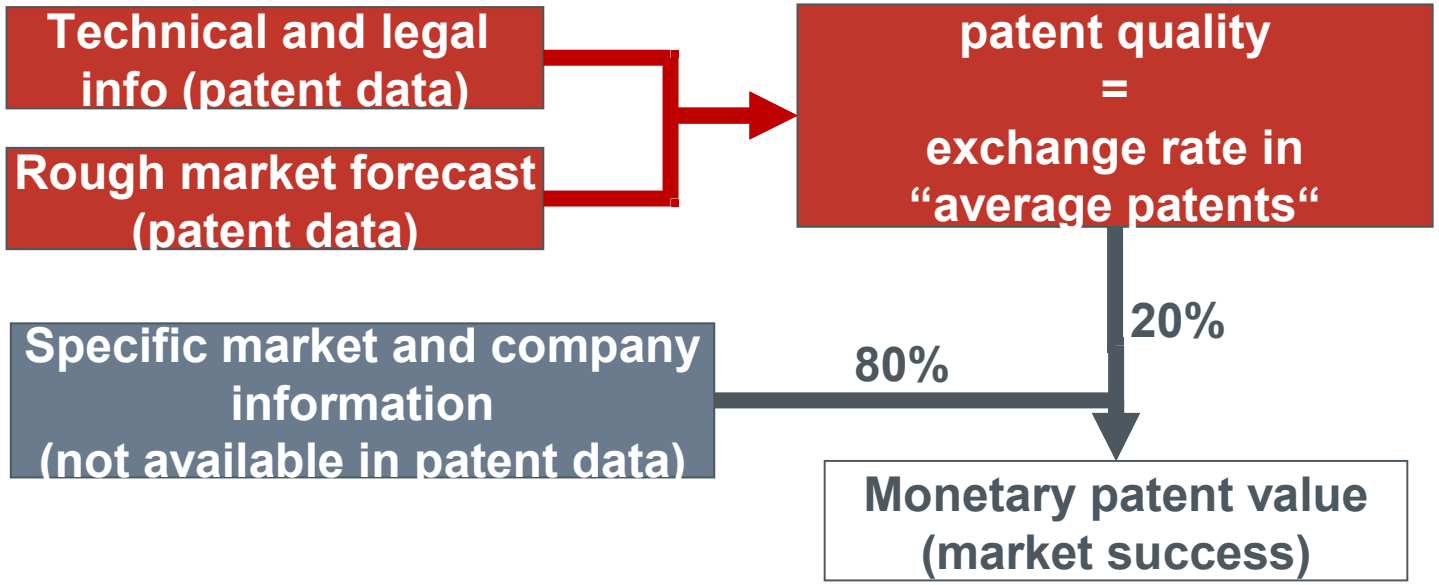
- Clear and objective valuation
- Common in accounting and tax law

Disadvantages

- Ignores profits
- Assignment of the costs
- Risk is not accounted for
- Overspending is rewarded

Not a basis for taking decisions

Computer-generated estimates of patent quality



Advantages

- Practical for large portfolios
- For patents of the competition
- Low cost
- Objective

Disadvantages

- Only a rough estimate
- Not a true economic valuation
- Young patents difficult to value

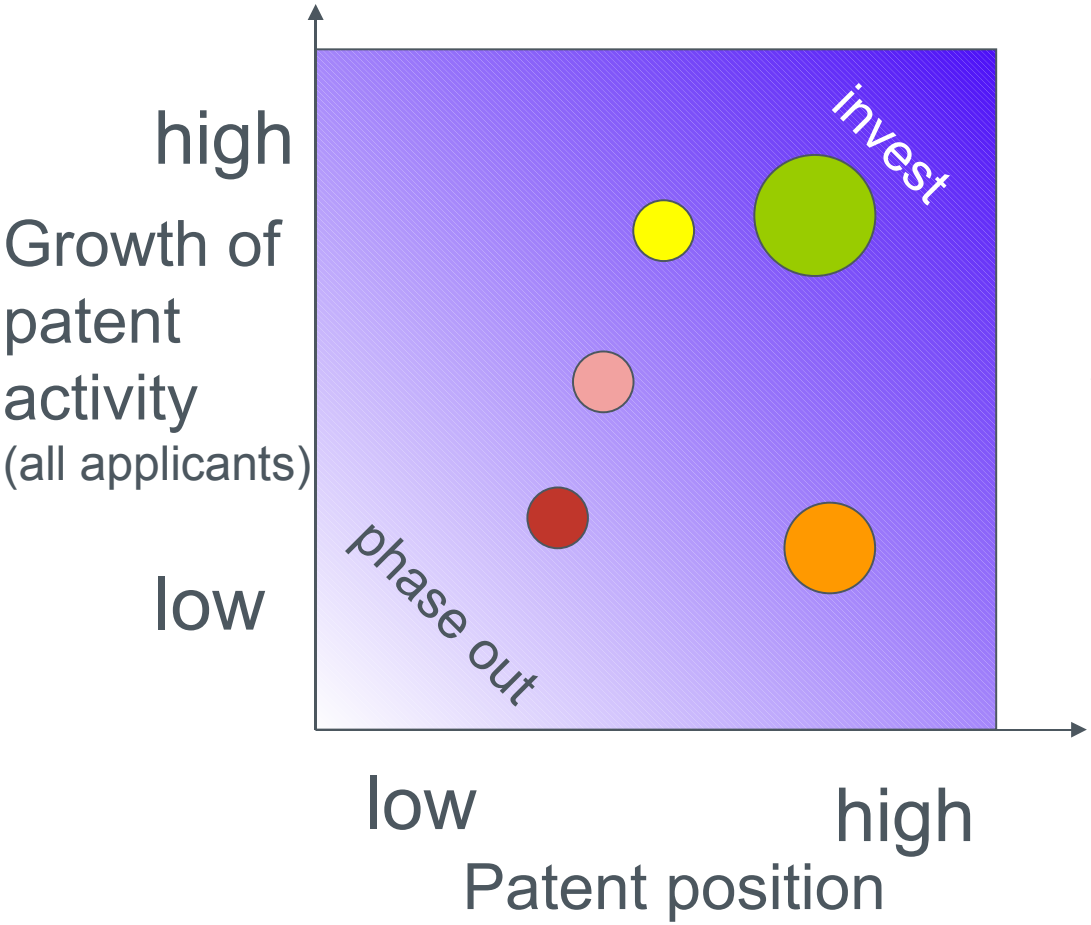
No reliable prediction of the monetary patent value, but measurement of patent quality („exchange rate") for company level analysis

IPscore 2.11

Implementation and further development

Envisaged	Excluded
➢ provision of tool ➢ improvement to tool ➢ promoting, marketing ➢ training ➢ help desk	consultancy on ➢ technology ➢ financing ➢ entrepreneurial decisions ➢ legal aspects

Patent portfolio management and patent information



Circles: different technologies
Seize: turnover with technology

Summary

- **Patent information** can be very helpful to support decision making in business
- **Patent mapping** helps to assess large sets of patent data
- The management of a company's **own patent portfolio** can be supported with **IPscore**

Thank you for your attention

D 4.5.3
Johannes Schaaf
jschaaf@epo.org