(Intellectual) property rights have a long history

„When some of the cooks would invent a delicious new dish, it shall be banned for anybody to use this invention but by the inventor himself“

Athenaios regarding the greek colony „Sybaris“ (~700 BC)

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1150</td>
<td>Guilds („Zünfte“) protect their particular craft</td>
</tr>
<tr>
<td>Vor ~1400</td>
<td>Sovereigns grant individual protection rights (monopolies)</td>
</tr>
<tr>
<td>1474</td>
<td>First patent law (in Venice, Italy)</td>
</tr>
<tr>
<td>1877</td>
<td>German patent law</td>
</tr>
<tr>
<td>1910</td>
<td>Dutch patent law (the last country in Europe to establish)</td>
</tr>
</tbody>
</table>

1) Athenaios: "Deipnosophistai", 300 a.d.
### Overview of property rights

<table>
<thead>
<tr>
<th>Patents</th>
<th>Utility patent</th>
<th>Design registration</th>
<th>Brands</th>
<th>Copyright</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inventions</td>
<td><strong>Usage model</strong> (no processes)</td>
<td>Design, usage</td>
<td>On goods and services</td>
<td>Artefacts of literature, art, software</td>
</tr>
<tr>
<td>Application</td>
<td>Application</td>
<td>Application</td>
<td>Application</td>
<td>Publication</td>
</tr>
<tr>
<td>Examination</td>
<td>No Examination / registration</td>
<td>No Examination / registration</td>
<td>Examination</td>
<td>No examination</td>
</tr>
<tr>
<td>20 years</td>
<td>10 years</td>
<td>Max. 25 years, payment after 6 years necessary</td>
<td>Renewable every 10 years</td>
<td>70 years after death of creator</td>
</tr>
</tbody>
</table>
Value of property rights

“Proportion of intangible assets (Intellectual Property) on the overall enterprise value¹ is over 50% in average”

<table>
<thead>
<tr>
<th>Company</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Merck</td>
<td>82%</td>
</tr>
<tr>
<td>Procter &amp; Gamble</td>
<td>84%</td>
</tr>
<tr>
<td>Amazon.com</td>
<td>93%</td>
</tr>
<tr>
<td>Microsoft</td>
<td>97%</td>
</tr>
</tbody>
</table>

¹Source: Maul / Menninger, DB, 2000, p.259; Enterprise value based on share price
Tangible vs intangible assets

Value of intangible assets is highly depending on the industry

- Healthcare (Pharma): Value = 500
- Beverages & Tobacco
- Publishing
- Business & Services: Value = 300
- Electronics
- Software
- Machinery
- Insurance
- Steel
- Electricity
- Wood & Paper
- Banking
- Automotive
- Real Estate: Value = 220

Intangibles
Tangibles
The patent

Goal of patent system:

Compromise between Protection of investment and knowledge and general interest to comprehensive usage („lettre patente“ (French) – „open letter“)

Prerequisites for patent eligibility:

- Novelty
- Ingeniosity („erfinderisch“)
- Commercially usable

„Diensterfindung“ – invention during work

- Strongly related to work
- Rights and duties of inventor:
  - Naming as inventor
  - Royalty payment (in Germany)
  - Support of employer during patenting

- Rights and duties of employer
  - Usage and exploitation
  - Duty to apply for patent

Example

Karl-Heinz Brandenburg

- Developed "MP3" Audio-compression as an employee of Fraunhofer IIS, Erlangen
- Receives license fees until today
- "It pays the rent"
**Key steps in the patent granting process**

- **Invention disclosure**
- **First patent filing**
- **Examiner's report**
- **Patent application other countries**
- **Publication**
- **Granting**

**Time:**
- Date of application: Approx. 8 months
- 12 months
- 18 months
- 2-3 years (GER)
- 4-5 years (EU)
- 2-4 years (China)
- 3-4 years (USA)
International patents – patent families

Regulated by
- European Patent Convention
- Patent Cooperation Treaty (PCT)
- 145 member states
- Excludes Argentina, Iran, Saudi-Arabia, Taiwan, Venezuela, …

Gives option to obtain patents in many countries while cost is limited to a single filing at the beginning

India has lax patent law for pharma

"Kamagra", Ajantha Pharmaceuticals is similar to Viagra

First Filing
- EU Patent
- Japanese Patent
- National Patent (D)

Subsequent Filings
- US Patent

Other countries

Within 12 months after first filing

Triadic Patent
Job description patent attorney

The patent attorney as broker, interpreter between law and engineering/science

Key data
- University degree in natural or engineering sciences
- 3-year additional training in patent law
- Personally accountable

Tasks
- Analyze technical information in order to extract and evaluate the novel, ingenious core and drive it to a patent grant.
- Brand protection and license agreements
- Carry out litigations
Until 2015, patents with a cumulated revenue of $130 Bn will expire

Examples for loss of protection

- Pfizer: Lipitor (revenue 2008: 12.8 Bn $)
- Pfizer: Viagra
- Sanovi-Aventis: Plavix
- Bristol-Meyers: Squibb
- Astra-Zeneca: Various
  (50% of total revenue until 2013)

Revenue decrease for the greater part expected after expiration

Lipitor: Cholesterol-lowering statin from Pfizer

Source: Accenture
Vulnerability of patents

Attacking patents

**Nullity suit**, due to
- Prior-art
- Missing inventive step
- Procedural errors

▶ **Withdrawal, limitation**

"Italian Torpedo"
Prophylactic nullity suit as a preemptive measure. While pending, infringement suits are suspended in the EU.

**Excessive duration at Italian courts** (also "Belgian Torpedo")

▶ **Blockade of infringement suits**

Withdrawal
2001: During the terrorist attack with Anthrax-poisoned letters Canada withdrawals patent on Ciprobay (Bayer AG), the sole fully effective antibiotic drug.

**State-of-the-art:**
All publicly accessible information
(including own publications)
Culture of Asian players, e.g. Samsung

Samsung & Patents
- Ranking top of the international list of companies for patent infringement law-suits
- Samsung was sued 38 times for patent infringement (2004-2008), in contrast to 5 law suits filed by Samsung
- Internal audits launched within Samsung to clarify current challenges
- Significant royalty payments by Samsung in recent years
  - Kodak $550 Mio.
  - …
### Benefits from patents

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prohibiting</td>
<td>Obstructing competitors to improve own market position</td>
</tr>
<tr>
<td>Protecting against imitation</td>
<td>Preventing the free use of own development results</td>
</tr>
<tr>
<td>Scaring off</td>
<td>Potential to counter-attack infringement suits (bargaining chips)</td>
</tr>
<tr>
<td>Licensing income (~250 billion $ each year)</td>
<td>Attractive portfolio necessary (for competition)</td>
</tr>
<tr>
<td>&quot;Currency&quot; for cross-licensing</td>
<td>Mutual granting of licenses gives both parties more freedom</td>
</tr>
<tr>
<td>Forcing workaround solutions</td>
<td>Having to work around patents creates disadvantages for competitors</td>
</tr>
<tr>
<td>Reputation</td>
<td>Patents are viewed as proof of innovative strength</td>
</tr>
</tbody>
</table>

Source: FAZ, 30.6.2006 – "Geld verdienen mit Patenten"
Patent strategy is portfolio strategy

Options for operation

- Comprehensive patent application (quantity)
- Strategic patent application (quality)
  - Key patents
  - Must-Use patents
  - Patents on standards FRAND
- Purchase of patent portfolios
  - AOL to Microsoft ($ 1Bn)
  - Motorola to Google ($ 12.5 Bn – 60% above market cap)
- Cross-Licence Agreements
- Defensive disclosure

Quality rating of a patent portfolio

- High-Potentials
- Technology Leader
- Losers
- Activists

Technological / innovative strength

- R&D patents

Impact on performance

Quelle: FAZ, 30.6.2006 – "Geld verdienen mit Patenten"
## Impact of patents on performance is documented

<table>
<thead>
<tr>
<th>Authors</th>
<th>Scope</th>
<th>Essential outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ernst (2001b)</td>
<td>50 companies (Machinery - D)</td>
<td>Patent applications lead to significant revenue increase with a delay of 2-3 years.</td>
</tr>
<tr>
<td>Ernst (1996)</td>
<td>50 companies (Machinery - D)</td>
<td>Companies with an active and systematic approach to patents are significantly more successful</td>
</tr>
<tr>
<td>Lerner (1994)</td>
<td>535 financing periods of 173 VC-financed companies (Biotech - US)</td>
<td>Patents with broad technological claims increase the evaluation value of companies.</td>
</tr>
</tbody>
</table>
Qualcomm – a success story founded on patents

Milestones
- Founded 1985 by 2 professors of the University of California
- Development of the CDMA technology
- Low share price performance until 1998 ($ 5 Bn)

Share price explodes
(to $ 132 Bn within 12 months)
Germany is the battlefield for patent wars

- Germany has injunction ("einstweilige Verfügungen").
- Seemingly infringing products are banned immediately.
- Proof of infringement is trialed later.
- Apple, Samsung, Motorola, Microsoft, Nokia have issued patent infringement litigations in the past years.
Patents in the news
Patent disputes – "The patent war"

Apple setzt Verbot von Samsung-Tablets durch

Im Streit mit Osram greift LG jetzt BMW und Audi an
Im Streit mit Osram hat der Elektronikkonzern LG ein Verkaufsverbot für Autos von BMW und Audi verlangt. Die Siemens-Tochter und die koreanischen Firmen LG und Samsung werfen sich gegenseitig vor, LED-Patente verletzt zu haben.

Infineon beendet Patentstreit mit GE-Tochter
Infineon und seine einstige Telekomsparte Lantiq haben sich in einem Patentstreit mit der GE-Tochter CIF Licensing geeinigt. Die Amerikaner nehmen im Streit um Festnetztechnik ihre Klage zurück, wie Infineon mitteilte.
Timeline of patent dispute

- 1972: Filing of patent by Fonar
- 1995: All major MRI vendors are sued
- Out-of-the court settlement with Siemens (one-time payment of $15M)
- Fonar (Owner Damadian) rejects $80M offer from GE
- GE sentenced to pay $128M

Patent: "Apparatus and Method for detecting cancer in tissue"
Patents under criticism

Affected Fields
- Software patents vs. Computer-implemented inventions
- Patents on live
- Patents on natural law
- Patents on business processes

Example patent EP 1651777:
"Verwendung eines Einzelnukleotid-Polymorphismus im codierten Bereich des Leptinrezeptor-Gens aus Schweinen zur Verbesserung der Fleischproduktion"

Discovery: Naturally occurring gene mutation, affecting (positively) the regulation of hunger in pigs.
► not eligible for patent-protection

Invention: Process to synthesize gen sequences to identify the aforementioned gene mutation in a natural population. Business success demonstrates subsequently through selective breeding ("XXL-pigs").
► patent granted

1Source: Maximilian Haedieke: “Patent und Piraten”; p124-130
**EU-Generalanwalt gegen Patentierung embryonaler Stammzellen**

Yves Bot, Generalanwalt beim Europäischen Gerichtshof, spricht sich gegen die Patentierbarkeit menschlicher Embryonen aus. Da sich der EuGH in den meisten Fällen der Meinung des EU-Generalanwalts anschließt, zeichnet sich für den deutschen Forscher Oliver Brüstle im Rechtsstreit mit Greenpeace eine Niederlage ab.

**Patent auf Brokkoli wird nicht widerrufen**


**Patentverbot für Stammzellenforschung**

Der Europäische Gerichtshof hat entschieden, dass Verfahren nicht patentiert werden dürfen, bei denen Embryonen zerstört werden. Denn die kommerzielle Nutzung des Körpers ist verboten.
Patents under criticism

Affected Fields
- Software patents vs. Computer-implemented inventions
- Patents on live
- Patents on natural law
- Patents on business processes

Mayo Collaborative Services vs. Prometheus Laboratories, Inc.
- U.S. Supreme Court tightens the standard for patent eligibility
- Where a claimed process makes use of a "law of nature", the claim must present a specific and demonstrably innovative application of that natural phenomenon
- Merely adapting a newly discovered physical principle to the context of patient treatment will, in many cases, be insufficient
- Will cast doubt on many patents
- Could lead to substantial litigation regarding the viability of life sciences companies' current patent portfolios
Waves of Cease-and-desist-letters (e.g. number plates in web-domains)

Patent trolls
- Business model „patent lawsuits“
- Patents from e.g. insolvent companies
- No own research and development
- No own use of patents
- $ 500 Bn damage (last 20 years)

Submarine patents
- (Unknown) patents on methods, that are actively build in standards.
- Goal: license fee generation

http://www.aeppelwoi-in-dd.de

Europäisches Patent "Strukturierungsprogramm für eine Datenverarbeitungsanlage unter Berücksichtigung geographischer Indizierung"

2003: Ca. 6.000 Abmahnungen wg. Verletzung dieses Patents i.H.v. 1.100€

Strittig ist die Benutzung von KFZ-Kennzeichen in Webdomains

Langwieriges Gerichtsverfahren zur Feststellung der Nichtigkeit notwendig

Abolish protection of intellectual property?

„Die Schaffung von künstlichem Mangel aus rein wirtschaftlichen Interessen erscheint uns unmoralisch, daher lehnen wir diese Verfahren ab“

*taken from the Program of the „Piratenpartei“*

„Die Bewahrung der Schöpfung ist eine gesamtgesellschaftliche Aufgabe, die vor den Gewinnbestrebungen einzelner Gen-Heuschrecken steht“

*Markus Söder, CSU*
Thank you for your attention