The Patent Asset Index™
IP Benchmarking and Reporting

ICIC 2010, 25 October 2010
PatentSight’s mission: The virtuous IP circle

Measurement of assets & capabilities

- decision-relevant
- accurate
- cost-effective

Efficient management

External recognition

Reporting

Enhanced resources
Management and external stakeholders need **quantitative, benchmarked** measures on IP and innovation strength.

**Requirements**

1. Clear link to value creation
2. Transparent and understandable methodology
3. Standardized indicators
4. Focus on crucial information

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Structure of this presentation

- Clear link to value creation
- Transparent and understandable methodology
- Standardized indicators
- Focus on crucial information
- Outlook
There is a strong link between patents and profitable innovation.

Important inventions → Strong patents → Profitable innovation

Technology strength measured by Patent Asset Index™
An innovation’s value is realized across global markets. IP strength needs to be benchmarked globally.

PatentSight coverage: 90% of world GDP

US: 25% of world GDP
Overview

- Clear link to value creation
- Transparent and understandable methodology
- Standardized indicators
- Focus on crucial information
- Outlook
The Patent Asset Index™ is based on the assessment of each individual patent family in a portfolio.

Technology Relevance™
Importance of the invention
Number of worldwide citations received from later patents, adjusted for age, patent office practices and technology field.

Market Coverage™
Extent of patent protection in global markets
Market size protected by valid patents and pending patent applications compared to US market size.

Competitive Impact™
Contribution to competitive advantage
Technology Relevance * Market Coverage

The same standardized Competitive Impact™ measure is used for all patents across all industries.

The Patent Asset Index™ is the overall Competitive Impact™ of a portfolio.

**Step 1:**
Competitive Impact™ of each patent family is calculated.

**Step 2:**
The Competitive Impact™ of all patent families is summed up.
The Patent Asset Index™ is comprehensive and precise.

<table>
<thead>
<tr>
<th>The Patent Asset Index™</th>
<th>Other Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Global</strong></td>
<td>Biased</td>
</tr>
<tr>
<td>Unbiased international comparisons</td>
<td></td>
</tr>
<tr>
<td>Entire active global patent portfolio</td>
<td>&lt;10%</td>
</tr>
<tr>
<td><strong>Accurate</strong></td>
<td>Neglected</td>
</tr>
<tr>
<td>Extend of protection of markets</td>
<td></td>
</tr>
<tr>
<td>Importance of each individual invention</td>
<td>Aggreg. level</td>
</tr>
<tr>
<td><strong>Transparent</strong></td>
<td>Metrics</td>
</tr>
<tr>
<td>Full disclosure in scientific publication. Understandable, theory-based indicators.</td>
<td>not disclosed</td>
</tr>
<tr>
<td><strong>Up-to-date</strong></td>
<td>3-5 years delay</td>
</tr>
<tr>
<td>Coverage from first date of public disclosure</td>
<td></td>
</tr>
</tbody>
</table>
The method was validated on the basis of 74,732 patents.

Group A (37,366 Patents)
Patents attacked by competitors which remained fully valid.

Group B (37,366 Patents)
Patents dropped by patent owners within 6 years from patent grant (maintenance fees not paid).

Harhoff et al. (2003): On average 11 times more valuable than other patents
Pakes (1986), Schankerman (1998): low patent value

Competitive Impact™ score of Group A (important patents) is much higher.

<table>
<thead>
<tr>
<th></th>
<th>Competitive Impact™</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av.</td>
<td>St. Dev.</td>
</tr>
<tr>
<td>Group A - attacked</td>
<td>7.8</td>
</tr>
<tr>
<td>Group B - dropped</td>
<td>0.7</td>
</tr>
</tbody>
</table>

Overview

- Clear link to value creation
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The Competitive Impact™ of patents can be aggregated to provide “the big picture”.

### Patent Asset Index™

**Overall Competitive Impact**

Equivalent number of average patents

<table>
<thead>
<tr>
<th>Company</th>
<th>Index Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>BASF incl. CIBA</td>
<td>45,000</td>
</tr>
<tr>
<td>Bayer incl. Pharma</td>
<td>30,000</td>
</tr>
<tr>
<td>DuPont</td>
<td>15,000</td>
</tr>
<tr>
<td>Dow Chemical incl. Rohm&amp;Haas</td>
<td>10,000</td>
</tr>
<tr>
<td>Sumitomo Chemical</td>
<td>5,000</td>
</tr>
<tr>
<td>Mitsubishi Chemical</td>
<td>3,000</td>
</tr>
<tr>
<td>DSM</td>
<td>2,000</td>
</tr>
<tr>
<td>Solvay</td>
<td>1,000</td>
</tr>
<tr>
<td>Syngenta</td>
<td>500</td>
</tr>
<tr>
<td>AkzoNobel</td>
<td>200</td>
</tr>
</tbody>
</table>


The Patent Asset Index™ enables the efficient visualization of technology-based competitive strategies.

![Diagram showing technology fields and strategic gaps](Diagram.png)
Overview

- Clear link to value creation
- Transparent and understandable methodology
- Standardized indicators
- Focus on crucial information

Outlook
The Patent Asset Index™ is a valuable indicator for executives.

“We are in complete support of this new method, which takes into account the quality and quantity of innovation and provides a result that not only allows the company to benchmark against its peers, but also provides an accurate, overall view of the impact and efficiency of an enterprise’s investment in innovation.”

Dr. William F. Banholzer
Executive Vice President and Chief Technology officer

Source: Press release by The Dow Chemical Company on October 12, 2009
The Patent Asset Index™ supports global IR communications.

Dow Chemical Company Investor’s Day 2009

**Patent Progress**

<table>
<thead>
<tr>
<th>Company</th>
<th>Average Technology Relevance</th>
<th>Intellectual Property</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dow</td>
<td>2.0</td>
<td>410</td>
</tr>
<tr>
<td>BASF</td>
<td>1.7</td>
<td>509</td>
</tr>
<tr>
<td>Syngenta</td>
<td>1.6</td>
<td>237</td>
</tr>
<tr>
<td>Bayer</td>
<td>1.5</td>
<td>322</td>
</tr>
<tr>
<td>DSM</td>
<td>1.4</td>
<td>466</td>
</tr>
<tr>
<td>DuPont</td>
<td>1.3</td>
<td>1,052</td>
</tr>
<tr>
<td>Solvay</td>
<td>1.2</td>
<td>499</td>
</tr>
<tr>
<td>AkzoNobel</td>
<td>1.1</td>
<td></td>
</tr>
<tr>
<td>Mitsubishi</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Sumitomo</td>
<td>0.9</td>
<td></td>
</tr>
</tbody>
</table>

Leading in quality... and improving in quantity
We create chemistry

Around 105,000 employees contribute to the success of the company, through their commitment, performance and with intelligent solutions.

Six examples demonstrate how we combine this success with advantages for our customers, shareholders, employees and the environment. In this way, we create value – for BASF and for society.

Ciba acquisition expands portfolio
Tinosorb enhances BASF’s range of UV protection filters – page 7

Number one in the Patent Asset Index
The insulating material Neopor is based on one of BASF’s strongest patent families – page 21

BASF the leader in Patent Asset Index

<table>
<thead>
<tr>
<th>Patent Asset Index (standardized, as of December 31, 2009)</th>
<th>An indicator of companies’ innovative strength</th>
</tr>
</thead>
<tbody>
<tr>
<td>BASF</td>
<td>100</td>
</tr>
<tr>
<td>Bayer</td>
<td>72</td>
</tr>
<tr>
<td>Du Pont</td>
<td>63</td>
</tr>
<tr>
<td>Dow Chemical</td>
<td>59</td>
</tr>
<tr>
<td>Evonik</td>
<td>31</td>
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</table>

Source: WHU Prof. Ernst
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Scientific expertise: selected publications

Ernst, H., Omland, N. (forthcoming)  
World Patent Information

**Patent Strategies and their Impact on Value Creation: A Contingency Approach**  

**Patent Portfolio Analysis as a Useful Tool for Identifying R&D and Business Opportunities**  

**Enhancing market-oriented R&D planning by integrated market and patent portfolios**  

**Patent Information for Strategic Technology Management**  

Ernst, H. (1997)  
**The Use of Patent Data for Technological Forecasting: The Diffusion of CNC-Technology in the Machine Tool Industry**  
Small Business Economics, Vol. 9, No. 4, pp. 361-381.

**Patenting Strategies in the German Mechanical Engineering Industry and their Relationship to Company Performance**  