

## Slide 28 (optional)

### Licensing income of US universities

Patents are an important means of protecting innovations, not only for companies and individual inventors, but for universities too.

This chart shows the total licensing income of US universities from 1991 to 2004 (no comparable data exists for Europe). Not all universities participated in the study, so the real figure is higher than the amount shown here.

In 2004, US universities received approximately USD 1 400 million in licence fees. By patenting their inventions, universities received additional funds, companies learned about new technologies when screening patents, and start-up companies could be founded to commercialise patented technologies.

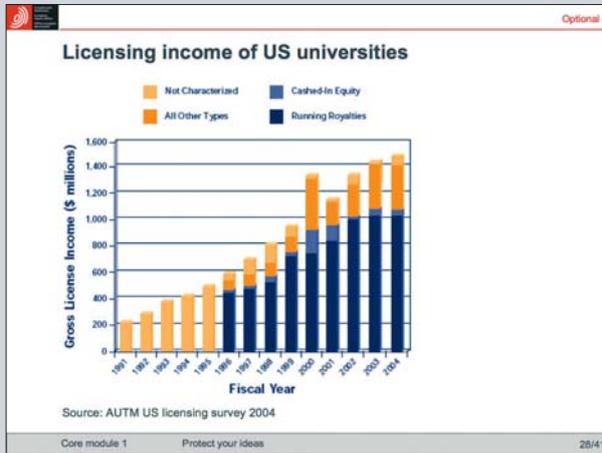
It is important to note that patenting an invention made at a university does not necessarily mean prohibiting other scientists from using the invention. Rather, it means that the university is free to choose who to charge for using the invention, and how much. For example, universities will often choose to let other universities use their inventions for free while charging companies a small licence fee. These licence fees can then be used to finance further research.

A frequent critique of university patenting is the fact that publicly-funded science, particularly projects funded by the National Institute of Health in US universities, has in some instances resulted in private ownership of associated intellectual property rights by pharmaceutical and biotech companies. This has been an unintended consequence of the US Bayh-Dole Act, arguably to the detriment of the public interest in the USA.

#### Supplementary data

According to a study by the Milken Institute, US universities earn an average of USD 27 825 in licensing income for every USD 1 million of research expenditures. For European universities the corresponding figure is USD 11 988. It must be assumed that this difference is not due to superior research in the US but to a more extensive and professional use of patents by universities in the US.

According to the US Department of Education, there were 3 million graduate students in 2004. Thus, licensing income was equivalent to USD 470 per graduate student.



On average US universities collect about 3% of their research budget from licensing royalties (compared with 1.1% in Europe).

## Slide 29 (optional)

### The value of European patents

This chart illustrates the results of a large-scale empirical study carried out in 2004. The chart shows the distribution of the private value of patents applied for at the European Patent Office (note the approximate logarithmic scale on the horizontal axis that reports the value). According to these estimates, about 50% of all patents are worth up to EUR 300 000, about 20% are worth between EUR 300 000 and EUR 1 million, and 3% are worth EUR 100 million or more.

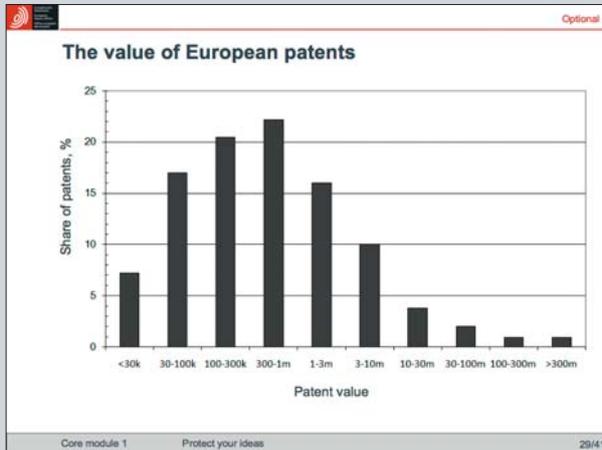
The distribution is skewed; many patents have a low value and very few patents have a high value. It is therefore not useful to consider the "average value" (approx. EUR 6 million according to this study) as the value of a "typical" patent. Rather, the "typical" patent value is EUR 300 000, the median of the distribution.

#### Background

A questionnaire was sent to the inventors of a random sample of patents applied for at the European Patent Office between 1993 and 1997. The questionnaire was returned by 9 600 inventors out of the 27 000 polled. In one of the questions, the inventors were asked, given all the information they had learned so far, to estimate the amount of money the patent owner could have sold the patent for to his strongest competitor on the day the patent was granted. Inventors responded by choosing one of the ten value categories shown here.

#### Data source

Ceccagnoli et al. (2005), Study on evaluating the knowledge economy – What are patents actually worth?; Final Report to the European Commission, Tender No. MARKT/2004/09/E; available online at: [http://ec.europa.eu/internal\\_market/indprop/docs/patent/studies/patentstudy-report\\_en.pdf](http://ec.europa.eu/internal_market/indprop/docs/patent/studies/patentstudy-report_en.pdf), p. 27.



The figures shown here represent the responses from a survey of more than 9 000 inventors of patents applied for at the European Patent Office in the 1990s. Inventors were asked in 2004, long after the patents had been applied for.

Average value: approximately EUR 6 million.

Median (50% worth less/more):

EUR 300 000 = **typical** value.

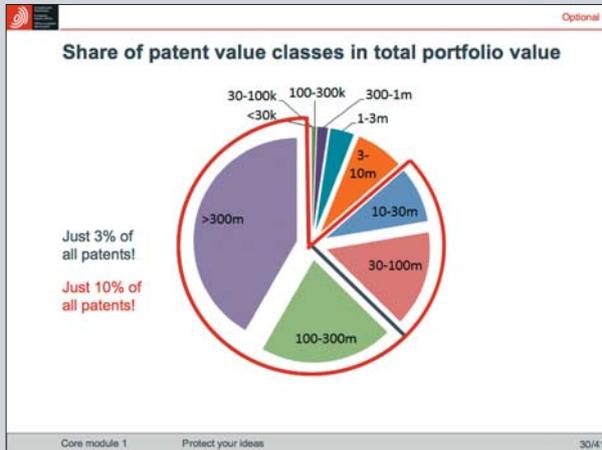
Source: Ceccagnoli et al., 2005.

## Slide 30 (optional)

### Share of patent classes in total portfolio value

This chart shows the same data set as the previous chart but it visualises the approximate share of each class of patents (value classes) in the total value of all patents investigated. This gives insights into the expected value distribution of a large portfolio of European patents.

It is immediately clear that all patents with a value of less than EUR 300 000 do not significantly contribute to the overall portfolio value. However, more than 50% of all patents pertain to this category of patents, with low relevance for overall value. More than 50% of the overall value of this large patent portfolio is derived from the 3% of high-value patents. More than 80% of the overall value is derived from less than 10% of all patents.



More than 50% of the overall value is derived from just 3% of all patents.

More than 80% of the overall value is derived from just 10% of all patents.

**Thus**, in large-scale patent portfolios, attention should be focused on the small number of high-value patents!

Source: Ceccagnoli et al., 2005.

## Slide 31 (optional)

### Patent management

In order to profit from the patent system, established companies and start-ups alike should draft a patent strategy for decisions in this area. This patent strategy should be dependent on the company's overall strategy.

It should reflect the company's main motivation for patenting: Is it to exclude competitors from making the same products? Is it to focus on research and development and license the technology to manufacturers? Or is it to achieve freedom to operate (to avoid being excluded from using essential technology)? Of course, many companies will pursue several goals simultaneously. However, knowing what the focus is, and why, will help in the decision-making processes of everyday business. The patent strategy should also include thoughts on whether these goals will be pursued in an offensive way (e.g. proactively searching for patent infringers and suing them), or in a defensive way (e.g. by publishing some inventions rather than patenting them). Finally, a company's business type, financial resources and business model will determine its international patent strategy (remember that patent rights are territorial in nature – there is no such thing as an international patent).

Patent information is an important topic in patent management. It is essential for staying abreast of science and technology (see slides 36 onwards). Furthermore, a company can only avoid infringing patents of other companies by actively searching for such patents. In today's complex technological (and patent) landscape, this is a difficult but essential task. Failing to discover patents that cover one's own products (in other words: infringing patents) can be very costly. Consider the famous RIM vs. NTP case in which the manufacturer RIM paid more than USD 600 million to patent-holding company NTP (see [http://en.wikipedia.org/wiki/NTP,\\_Inc.](http://en.wikipedia.org/wiki/NTP,_Inc.)).

Patent information also allows innovators to discover who the main players are in a certain technology field and what their individual patent position and strategy is. It is therefore an invaluable source of information for use in developing a sound technology strategy.

Because patents are an important tool and a significant source of value for many high-tech companies, they can be employed to convince investors to invest or banks to give credit. Venture capital firms investing in high-tech start-ups usually require a strong patent position as a prerequisite for considering investment.

Some patents turn out to be important competitive tools. Using the advice of patent professionals, such patents should be strengthened, for example by supporting them with further patents and other IP.

In most countries a patent will lapse if the owner does not pay the regular patent maintenance fees, so keeping track of the deadlines is an important task (often performed as a service by patent attorneys).

Not all patents are valuable. In fact, many patent applications that seemed worthwhile at the time of the invention turn out to be irrelevant later, or simply become outdated. If such patents or patent applications are found in a patent portfolio review, they could be withdrawn or allowed to expire in order to save money.

**Patent management**

- **Patent strategy**
  - Offensive/defensive
  - Internationalisation
  - Kind of exploitation: licensing or own use
- **Patent information**
  - Keep abreast of technology
  - Avoid infringing patents
  - Understand the competitive landscape
- **Communication**
  - Compile convincing evidence that your patents are valuable
  - Inform investors and banks, clients and prospective employees
- **Maintenance**
  - Pay renewal fees, observe deadlines
  - Strengthen important patents and get rid of ones with no value

Core module 1    Protect your ideas    31/41

Patent strategy should support a company's overall strategy.

### Offensive

e.g. actively searching for companies infringing the patents.

### Defensive

e.g. publishing instead of patenting.

### Internationalisation

Patents are territorial rights. In countries where the company is not active, licensing opportunities might still exist.

### Competitive landscape

Patent information holds detailed information on the technology of most competitors worldwide. If analysed correctly, it can give important insights into the industry in general and the strategy of competitors in particular.