

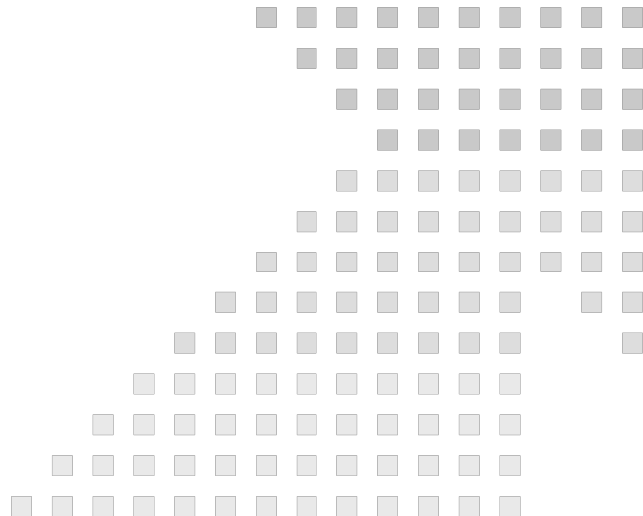


28th October 2010, Budapest

National Seminar on IP Asset Valuation for Technology Transfer

Patent valuation by consideration of research institutes' strategy

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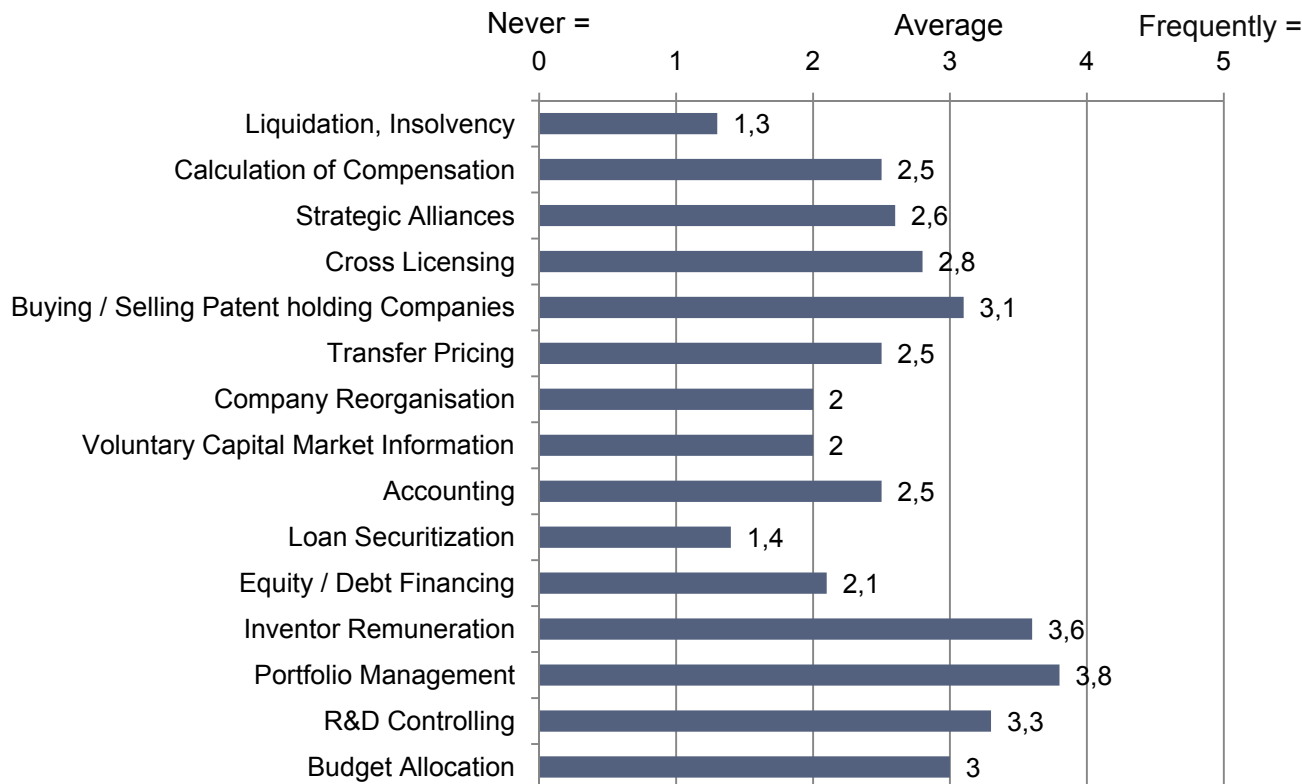


Typical challenges in valuating early stage technology patents:

- Identification of unreasonable value expectations by researchers
 - Estimation of further R&D-effort
 - Setting up the valuation scenario
 - Choice of an adequate valuation method
 - Estimation of patent related risks
 - Estimation of market risk
 - Etc...
- ➡ **Due to the fact that potential purchasers of the patents / technologies are companies it is favorable for research institutions to adopt valuation procedures that are common within companies.**



How often do the following valuation purposes arise in your company?

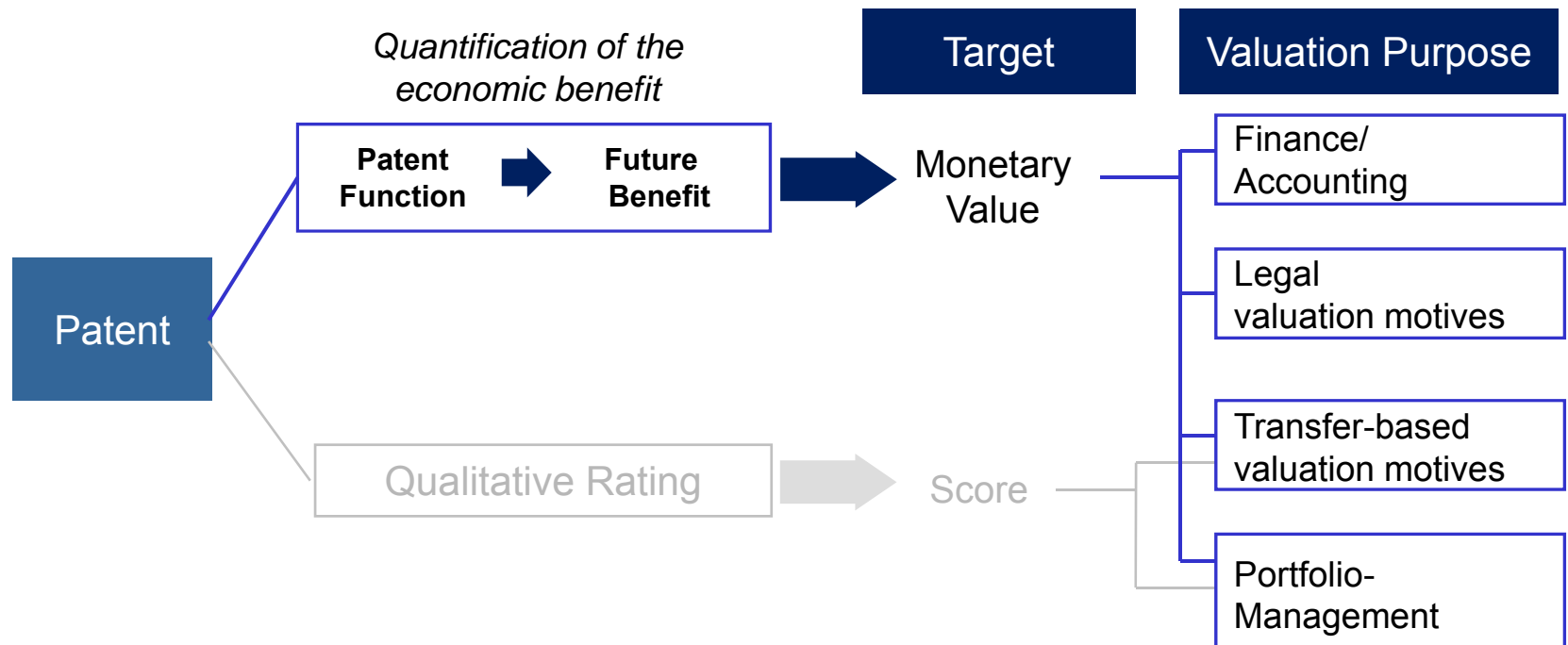


⇒ Most companies do have experience in valuing patents

Source: PricewaterhouseCoopers (2008): One Valuation fits all?



Patent Valuation – Overview



Valuation: Assignment of a Monetary (economic) Value to IP

Result: Monetary Value for the Patent

Intention:

- Company Valuation
- Patent Portfolio-Management
- Transfer: Patent sale, Licensing
- Legal Motives, e.g. Infringement
- Finance, Accounting, taxation



The value of a good can be defined as*:

Assets are carried at the **present discounted value of the future net cash inflows that the item is expected to generate** in the normal course of business.

**see: IASB-Framework 100 (d).*



Terms	Costs	≠	Value	≠	Price
Focus	Production		Preference		Negotiation
Explanation	Refers to the consumption of economic assets (tangible and intangible) in the production and sale of goods and/or services		<p>Values are structures based on normative expectations</p> <p>Significance of an asset for the satisfaction of a subjective need</p> <p>Value = Sum of future benefits, discounted to a net present value (NPV)</p>		Refers to the exchange value of an asset expressed in monetary terms



Objective Value

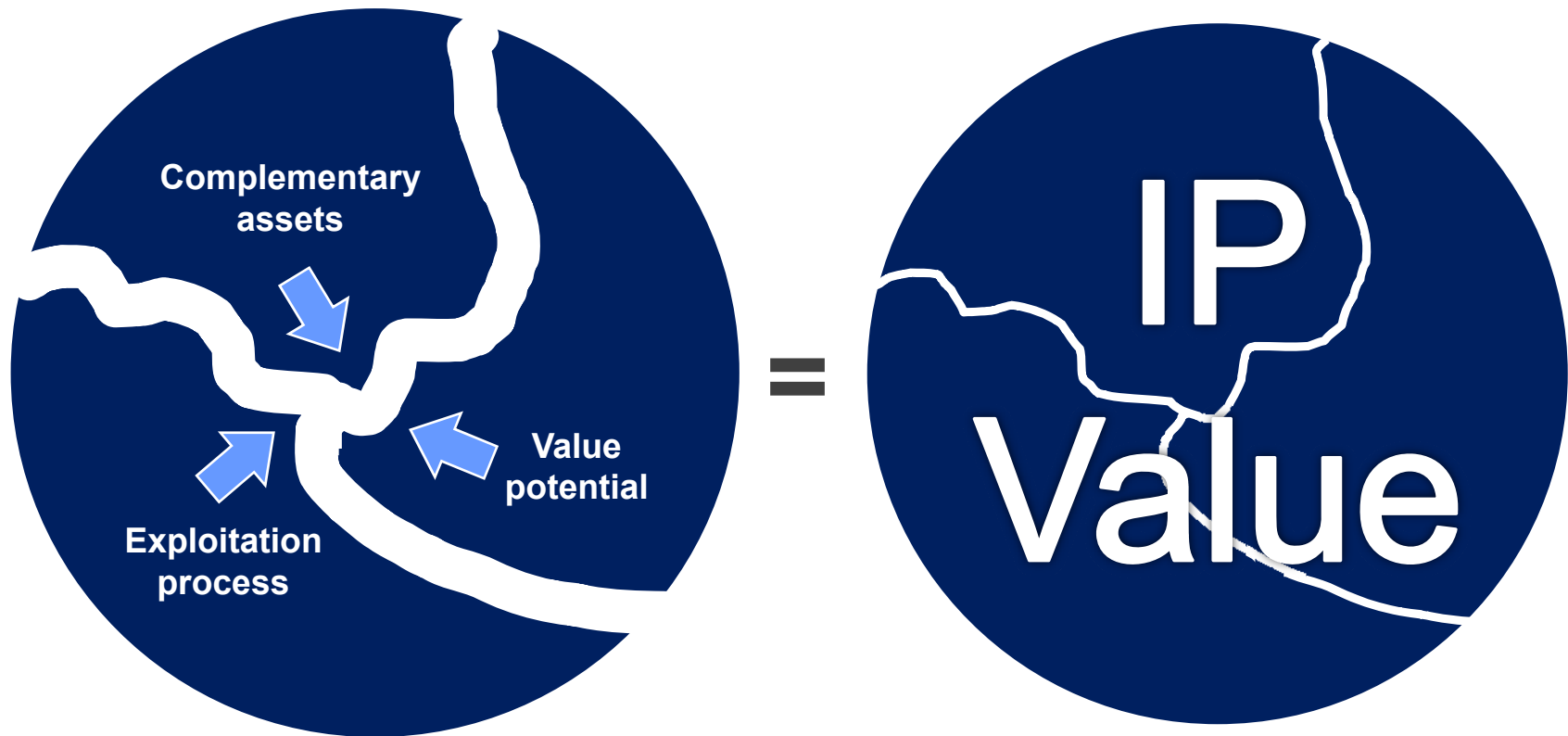
- Value as a attribute of a good
- No interpersonal differences of value
- ➔ ***empirically falsified***

Subjective Value

- Value based on the relationship between valuing subject and the good
- Dependent on the valuation environment and available options
- ➔ ***individual value based on the benefit for the fulfillment of demands***

Objectified Value

- Subjective Value not traceable and quantifiable for third parties
- Valuation based on objectives under consideration of available options of the valuator
- ➔ ***subject-related but comprehensible value***

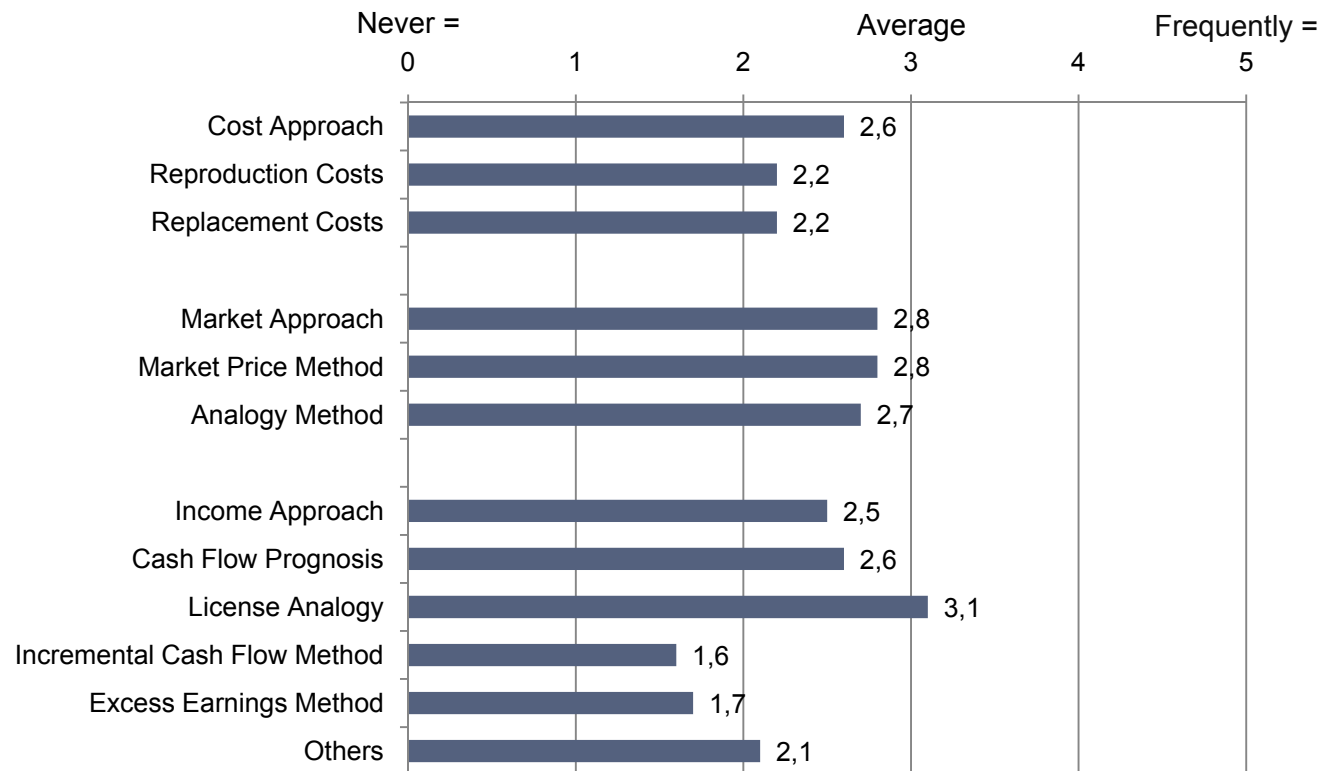


**The value determining factors are individual for distinct patent users.
Therefore patents can and will provide different values to different potential buyers.**

➔ Patent valuation should be conducted individually for each potential buyer considering his specific situation.



How often are monetary valuation approaches and methods applied in your company for the purpose of patent valuation?



⇒ Companies mostly apply methods based on the income approach for valuing patents

Source: PricewaterhouseCoopers (2008): One Valuation fits all?



In several European countries standardization committees are setting up norms for monetary patent valuation:

- **Deutsches Institut für Normung (DIN) – DIN 77100**
Publication planned in 2/2011
- **Österreichisches Normungsinstitut (ON) – ÖNORM A 6801**
- Further initiatives at
 - Association française de normalisation (AFNOR) and
 - NEderlandse Norm (NEN)

The German proposal for the creation of an European standard for monetary patent valuation was accepted by the European Committee for Standardization (CEN).

DEUTSCHE NORM		Entwurf	Juni 2010
DIN 77100		DIN	
ICS 03.140	Entwurf		Einsprüche bis 2010-10-07
Patentbewertung – Grundsätze der monetären Patentbewertung			
Patent valuation – General principles for monetary patent valuation			
Anwendungswarnvermerk			
Dieser Norm-Entwurf mit Erscheinungsdatum 2010-05-25 wird der Öffentlichkeit zur Prüfung und Stellungnahme vorgelegt.			
Weil die beabsichtigte Norm von der vorliegenden Fassung abweichen kann, ist die Anwendung dieses Entwurfes besonders zu vereinbaren.			
Stellungnahmen werden erbeten			
– vorzugsweise als Datei per E-Mail an nadl@din.de in Form einer Tabelle. Die Vorlage dieser Tabelle kann im Internet unter www.din.de/stellungnahme abgerufen werden;			
– oder in Papierform an den Normenausschuss Dienstleistungen (NADL) im DIN, 10772 Berlin (Hausanschrift: Burggrafenstr. 6, 10787 Berlin)			
Die Empfänger dieses Norm-Entwurfs werden gebeten, mit ihren Kommentaren jegliche relevante Patentrechte, die sie kennen, mitzuteilen und unterstützende Dokumentationen zur Verfügung zu stellen.			
Gesamtumfang 19 Seiten			
Normenausschuss Dienstleistungen (NADL) im DIN			



Depending on the valuation cause and the valuation scenario all approaches can be adequate.

Market and cost approaches should especially be considered as a corrective for valuations applying the income approach.



Incremental cashflow method

Preferred method

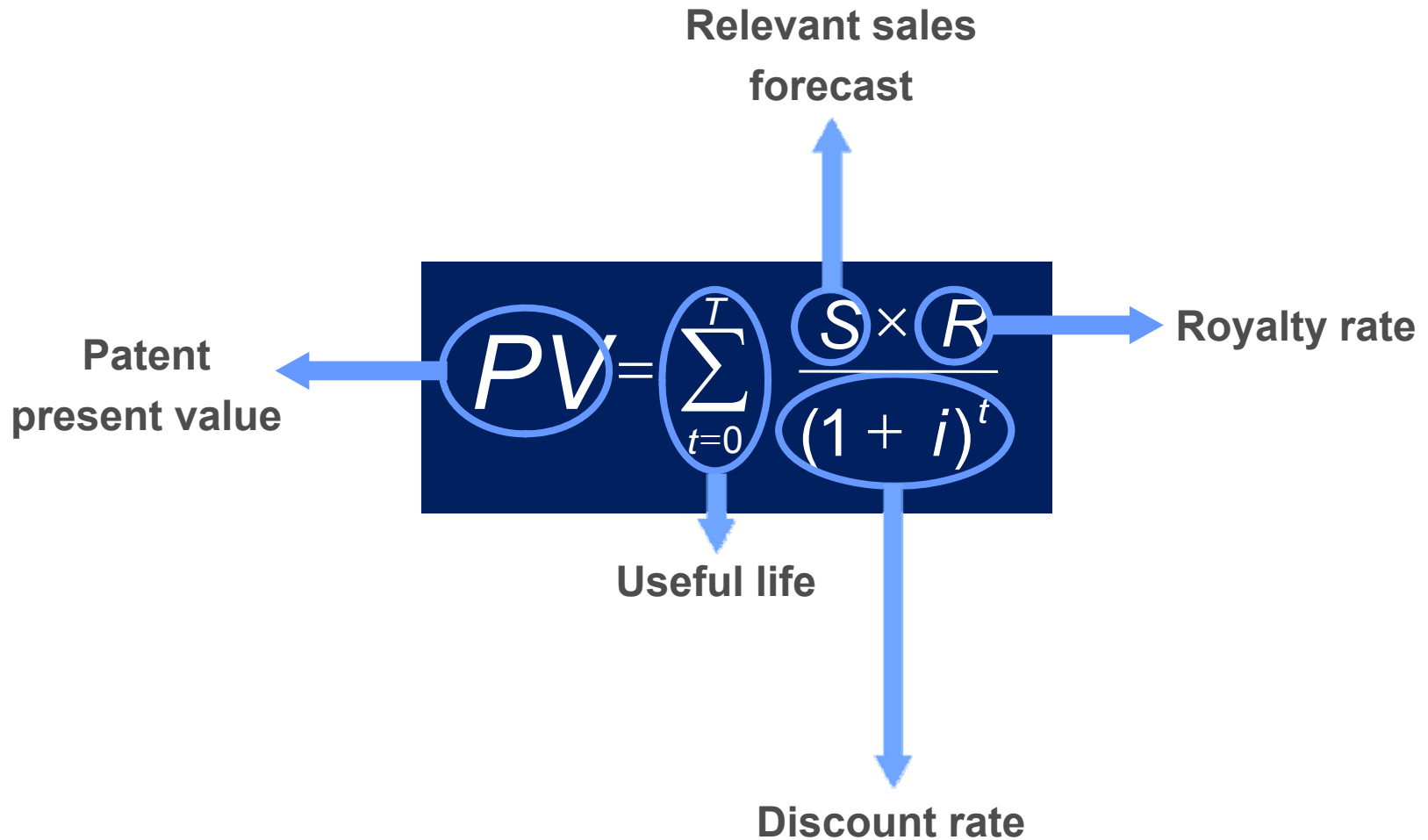
Isolation of patent related cash flows by comparison with comparable products:

- Identification of a patent related increased market share
- Identification of a patent related premium price
- Identification of patent related cost reductions

Relief from Royalty

Isolation of patent related cash flows by asking the question: How much would the patent owning company have to pay in royalties to a third party, if this party was the patent owner?

The license analogy method is especially applicable, if there is a non sufficient information basis for the application of the incremental cash flow method





Basic questions for setting up a valuation scenario:

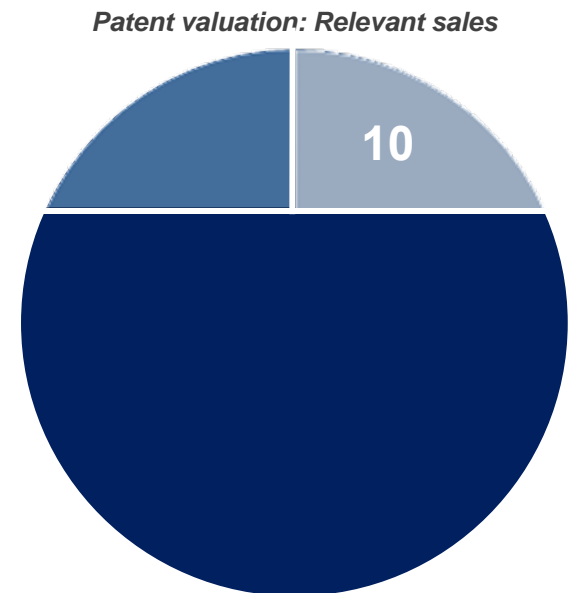
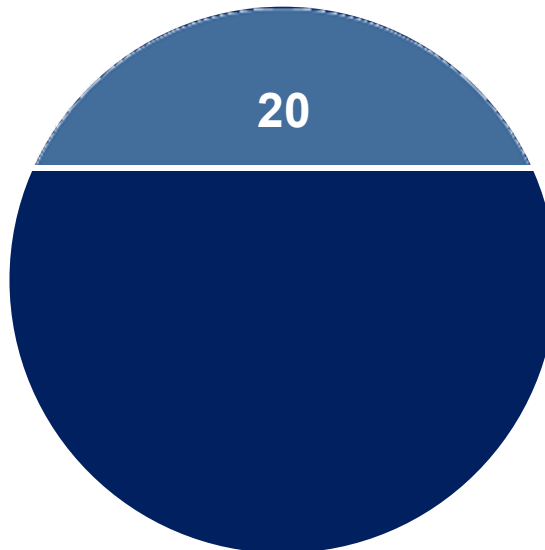
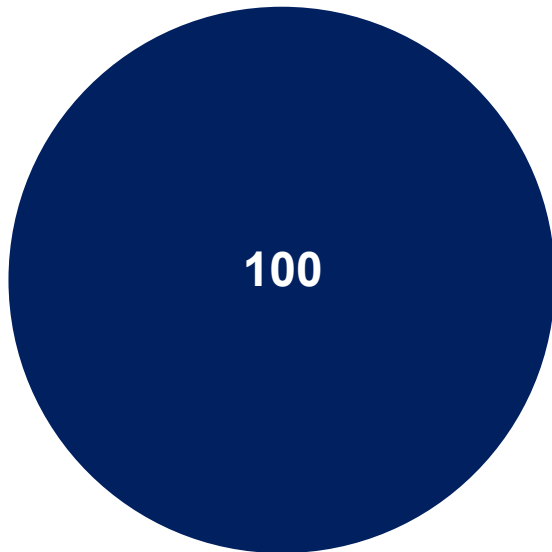
- **How will the potential buyer exploit the patents? E. g.:**
 - New product
 - New feature / attribute to existing products
 - Enhanced production process
 - Avoidance of purchase by a third party to protect the market share of an existing product
- **Which effect would the ownership of the patents provide to the potential buyer? E. g.:**
 - Technological leadership
 - Shortened time to market
 - Unique selling position
- **How will the potential buyer earn money from implementing the patent protected technology? E. g.:**
 - Product sales
 - Enabling new services
 - Access to further technologies by cross licensing



Product

Technical part

Patent protected technical part



Royalty rates are usually not applied to the total sales achieved by a product but to the share of sales that is attributable to the protected technical part.



Factors to consider (e. g.)

Maintenance

The maximum useful life is determined by the duration of maintenance of a patent. The average for this amounts to 8 years.

Duration of usage

The duration of usage of a patent is usually shorter than the duration of maintenance. On average patents are used for 3 to 5 years.

Product life cycle

If the duration of usage is not clear product life cycles can be used to receive an approximation.

Technology life cycle

If product life cycles do not seem appropriate technology life cycles can be used for the assessment of useful life.



- Royalty rates retrieved from databases / literature result from concrete licensing negotiations in the past.
- They can only be transferred to other valuation objects if a comparable transaction situation is given.
- IP-rights are unique. Therefore a comparable transaction situation could not be assumed.

⇒ **Royalty rates have to be modeled!**



Royalty rates can be modeled by using value factors such as:

<i>Portfolio related value factors</i>	<i>Technical value factors</i>	<i>Competition related value factors</i>
<ul style="list-style-type: none">• Coherence of the portfolio• Circumvention potential• Citations• Product- / process correlation• Etc...	<ul style="list-style-type: none">• Technology lifecycle• Technological competencies• Technological relevancy• Standard relevancy• Etc...	<ul style="list-style-type: none">• Coverage of protected attributes in technological competitors' portfolios• Intenseness of technological competition• Number of technological competitors• Etc...



Factors to consider (e. g.)

Status

Is the patent in force? In which countries is it in force? Have examination requests been filed in time? etc.

Ownership / contractual issues

Are there any contractual issues that restrict the intended usage? etc.

Patentability / invalidity

Has the patent been granted? If not, is the invention patentable? Is there any opposition filed? etc.

Freedom to operate

Does a third party hold a patent which is infringed by the technology described in the patent in question? Is the patent to be valued dependent on any third party's patent? etc.

Scope of claims

Does the patent really cover the product or process that it is meant to cover?

Detectability of infringement

Can infringement of the patent be detected?



$$PV = \sum_t \frac{E_t - C_t}{(1+i+z)^t}$$

$$E_t = S_t \cdot VA \cdot R_B \cdot \lambda_i \cdot \lambda_d$$

- PV: Patent value,
 - t: Time period until end of usage [T],
 - E: IP related income,
 - C: IP related spending
 - i: Risk free interest
 - z: Risk premium
 - S_t: Sales of related product/process as underlying
 - VA: Value-added factor of the protected aspect of the entire product, reference
 - R_B: Basic royalty rate
 - λ_i: Royalty increasing factors
 - λ_d: Royalty decreasing factors
- With λ_i × λ_d as the product of the single value influencing factors

Example Discounted Cash-Flow

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% ⇒ $r = 15,5$

	1	2	3	4	
Income: 5.000 Costs: 45.500	Income: 22.500 Costs: 3.750	Income: 64.000 Costs: 1.800	Income: 89.500 Costs: 1.750	Income: 81.000 Costs: 1.000	
E ₀ : -40.500	E ₁ : 18.750	E ₂ : 62.200	E ₃ : 87.750	E ₄ : 80.000	
-40.500	16.233	46.625	56.950	44.953	
PV_{r=15,5}	124.261				
PV_{r=7,5}	161.303	17.441	53.823	70.635	59.904

Technological market development	Valuation factor
Strongly emerging market	1.0 0.9
Emerging market	0.8 0.7
Stagnating market	0.6
Decreasing market	0.5 0.4
Strongly decreasing market	0.3 0.2

Number of competing patent applicants	Valuation factor
≤ 2	1.0 0.9
3 - 4	0.8 0.7
5 - 8	0.6
9 - 15	0.5 0.4
> 15	0.3 0.2



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