

value spread. An exact value figure will not be detectable until the moment of transaction (if there is one), in which the asset must be given a specific price tag.

This, in turn, means that the quality of a forecasting valuation technique can be detected by how well it is able to deal with and minimise future-related uncertainties and risks.

The reporting-forecasting dichotomy is so profound that it justifies and even necessitates a differentiation between these two fields. It applies to all valuation objects, tangible and intangible.

The work at hand is committed to dealing with forecasting intellectual property valuations.

### 1.3 General Framework Underlying the Value of any Asset

Next to universal value determinants of intellectual property and other intangible assets,<sup>27</sup> there are general principles underlying the formation of value of any asset, tangible and intangible. These factors are scarcity, utility and title.

#### 1.3.1 Scarcity

As a general rule, tradable assets are more valuable the more demanded or scarce they are respectively. If supply rises above demand, scarcity and prices decline.<sup>28</sup> Assets which are not scarce have no potential to attain noticeable value. Therefore, scarcity is a fundamental source of and *conditio sine qua non* for value.

Physical assets are either scarce *eo ipso* if there are merely a few or only one item in existence or can be made scarce by physically moving them from a place of abundance to a place of scarcity or by limiting production. Therefore, the scarcity of physical assets is a factual one. Exercise and control of this scarcity can be facilitated by allocating property rights.

<sup>27</sup> Cf. 2.1.1.3.

<sup>28</sup> *Paschke*, *Grundlagen der Volkswirtschaftslehre*, p. 36 et seq.

In contrast to this, intangible assets by their very nature cannot be made scarce through physical means; they are by definition free. Apart from secrecy, it is not until the law allocates intangibles to a specific proprietor or title holder by creating intellectual property rights that they can become scarce.<sup>29</sup>

### 1.3.2 Utility and Title

An asset which shows scarcity but is hardly useful at all will not be able to attain considerable value. Every asset has a certain degree of (positive or negative) utility for the proprietor or title holder, i.e. it serves a certain useful purpose to varying degrees, depending on proprietor, objectives and situation. For example, a brand can be used as a marketing means in order to increase sales yet the proprietor may decide to licence it out or create a franchising scheme instead or simultaneously. In every situation, the brand creates a different degree of positive utility effects, be it increased turnover, market penetration or bargaining power vis-à-vis suppliers or other. Hence, the more useful the respective IP right is, the more valuable it is at the same time. Therefore, it is essential for a thorough valuation to determine whether the proprietor is able to use and exploit the IP asset in question to its full potential.

This shows that the issue of utility is intertwined with the question of title: An IP right may be useful for one company, e.g. because it augments its patent portfolio with a technology needed to make a certain other patented technology work, but useless for another company the core competence of which lies in a completely different field of technology.

The issues of ownership and title have further important implications on value. The question whether one or several owners exist is crucial for both liability and other legal issues and financial questions such as distribution of earnings. A factual ownership implication may be that a bank may lend money against an IP right or portfolio owned by a well-known company but be reluctant with respect to unknown start-up companies.

Furthermore, exploitation of an IP asset presupposes correct title. Hence, the value of an IP right cannot be comprehensively assessed without looking at the contextual issue of title. For every IP right existing there is a title

<sup>29</sup> Cf. 2.1.1.3.7 – legal scarcity.

holder, be it a natural or a legal person. The concept of title comprises any legal rights construction, be it full ownership or merely the role as a licensee. No matter of which kind the title exactly is, title is another key element of intellectual property (and even of any property): It defines what the title holder is allowed to do and how he or she may exploit the respective IP right, be it through direct sale, licensing, securitisation or other. In short: The quality of title defines the freedom to operate with the respective asset.

### 1.3.3 Intermediate Findings

In the light of the fact that occupying oneself with the constitutive elements of value is essential for thorough understanding and proper application of valuation, scarcity, utility and title are the three elements the interplay between which directly influences the value potential of any asset, tangible and intangible.

Value results from an interplay between scarcity, utility and title, or, in short, value equals scarcity times utility times title.

It is essential to realise that this conceptual value definition must be differentiated from the practical case-by-case realisation of value, usually expressed in monetary terms. It is not until the respective asset is actually traded and therewith priced (in units of money or other consideration) that its value, which was until that moment a conceptual and estimated one, materialises and concretises. Scarcity, utility and title are thus reflected in the attained price.<sup>30</sup>

The quality of a valuation instrument shows, amongst others, in how well and comprehensive it is able to operationalise scarcity, utility and title of the respective asset.

## 1.4 Requirements a Forecasting Valuation Technique Must Meet

Objectives a desired valuation instrument should meet (and should not meet respectively) will be illuminated in the following. They will be used later to

<sup>30</sup> A more detailed discussion and a definition of brand value, which shall not be anticipated at this point, can be found at 2.2.2.1.

scrutinise both currently applied brand valuation tools and the Systematic Integrated Methodology introduced in this work.

Such requirements are dictated by the valuation method's cause and objective. Any future-related intellectual property (e)valuation tool should provide conceptual and methodical soundness, widespread acceptance and a manageable output.

### 1.4.1 Conceptual and Methodical Soundness

Conceptual and methodical soundness, i.e. a convincing and proper methodical framework, is a universal requirement to be met by all valuation techniques. In detail, this means that, for purposes of practical usability, they should possess a standardised repeatable (i.e. reliable) yet flexible *modus operandi* and be workable with economically justifiable effort.<sup>31</sup> In addition and with respect to future-related evaluation techniques in particular, comprehensiveness, context, transparency, reduction of asymmetry of information and of risk and provision of an appropriate degree of objectivity have also been selected as mandatory requirements.

#### 1.4.1.1 Comprehensiveness

As mentioned above, one of the main objectives of this work is the improvement of valuation quality by reduction of risk and of asymmetry of information. In consequence, it is desired to collect as much information about the asset under scrutiny as possible. Such *modus operandi* allows the valuation client to base his or her decisions on the best possible information groundwork.

For instance, the application of a comprehensive (e)valuation routine would probably have saved *Volkswagen* from wasting considerable sums of money as in the year 1998 it discovered the cost of poorly executed transactions since it had won a US \$ 790 million bidding war against *BMW* for the purchase of *Rolls-Royce Motors*, assuming it had secured the *ROLLS-ROYCE* and *BENTLEY* trade marks which in fact was not so.<sup>32</sup>

31 *Esch/Geus*, Ansätze zur Messung des Markenwerts, p. 1282.

32 *Liberman*, IP issues in mergers and acquisitions, p. 7 et seq.

With respect to brands, in particular (of which trade marks are part<sup>33</sup>), the valuation method needs to be applicable to all types of (registered and un-registered) trade marks, from simple word marks to three-dimensional signs, new forms like holograms and their combinations, as well as to single brands and brand portfolios.

#### 1.4.1.2 Context

Inclusion of contextual (and not merely financial) variables in the valuation process is essential with respect to intellectual property assets, since they are by their very nature highly contextual. This means that they are (unlike most tangible assets), in their utility, strength and value, relatively heavily dependent on the factual and legal contexts in which they stand.

For example, a pharmaceutical brand for pain remedies can only be expediently utilised if there are corresponding products or services. Hence, adequate plant and machinery, know-how, patents and other assets are of the essence without the operation of which the mere brand would be of no avail. This applies similarly with respect to patents. Therefore, the commercialisation of intellectual property assets cannot be properly carried out without the support of complementary intangible and tangible assets (this support is needed to varying degrees, depending on the commercialisation strategy).<sup>34</sup>

Furthermore, the abovementioned pharmaceutical brand could only be used to its full potential if it belongs to a pharmaceutical business operating in a compatible market, utilising the brand as a core business driver and as part of an overall brand and company strategy. It would be useless in the hands of, for instance, a biotechnology business producing antibodies for cancer treatment. The value of IP assets is consequently interrelated with nature and strategy of the proprietor.

#### 1.4.1.3 Transparency

As a general rule, quality and validity of the brand value output depend on a clear definition and categorisation of value influencing factors (i.e. the

33 For a detailed elaboration of the relationship between trade marks and brands cf. 2.1.2.

34 *Achleitner/Nathusius/Schraml*, Quantitative Valuation of Platform Technology Based Intangibles Companies, pp. 7 and 9.

input),<sup>35</sup> as well as on a high-quality valuation process. In addition, the better the valuation client is aware of how the end result comes about, the more he is able to verify it and trust in its quality. Not surprisingly, a German study showed that transparency was perceived as the second most important requirement to be met by brand valuation techniques.<sup>36</sup>

Even more importantly, transparent input and process yield all information necessary for the client to be able to integrate the valuation object into its greater context and the company strategy, which means he is able to properly evaluate the asset and to act accordingly.

From a scientific point of view, it is desirable to reach full transparency, as this would allow proper scrutiny and comparisons of the respective techniques. However, it should be acknowledged that this would be too much to demand from commercial valuation service providers, since they base their business models upon their valuation methods. All such service providers are keeping their methodologies secret to some degree (a so-called ‘black box’<sup>37</sup>). Hence, the question is whether this portion of secrecy is excessive or not.<sup>38</sup>

#### 1.4.1.4 Flexibility

Since intellectual property assets are highly contextual and therefore demand operationalisation of various value influencers apart from financial ones, it is important to realise that it is likely that such factors change over time, both in content and importance. Hence, a valuation methodology needs to be able to answer to and allow for changes.

For instance, an alteration of product quality may have positive long-term influence on brand value, e.g. in case of improvements which lead to increased sales after a certain time lag. Other – rare – examples such as the PERRIER disaster<sup>39</sup> demonstrate the possibility of immediate and long-term negative

35 *Bentele/Buchele/Hoepfner/Liebert*, *Markenwert und Markenwertermittlung*, p. 152.

36 *Günther/Kriegbaum-Kling*, *Schmalenbach Business Review* 2001, 263, 284. Transparency was ranked second, together with objectivity.

37 A black box is any device whose workings are not understood or accessible to the user or client. Black box calculation methods use predefined inputs and outputs whereas the process in between is unknown, cf. *Toh*, *Fuel Cell Controller*, p. 35.

38 The analysis in chapter three will go into this matter.

39 In 1990, millions of bottles of PERRIER mineral water had to be recalled in a number of countries such as the USA and Canada because their content was contaminated with the chemical benzene which is under suspicion to cause cancer. The damage to

influence on brand value in case of a sharp fall of product quality, especially in mass markets.

It follows that a valuation instrument cannot be comprehensive and yield realistic results without taking both short- and long-term changes into account.

Furthermore, it should enable the appraiser to include value determinants the importance of which has emerged over time and exclude those which have become comparatively unimportant.

#### 1.4.1.5 Reduction of Asymmetries of Information and Reduction of Risks

In the course of all future-related valuations, estimates have to be made on the basis of presently available data. As to intellectual property, in particular, the fact that market intransparency is considerably larger than with respect to tangible assets (however, even with respect to frequently traded tangible assets such as automobiles, full market transparency and symmetry of information is an illusion yet such markets provide enough information for all sides to be workable) results in distribution of information – if information is available at all – to be highly skewed. Hence, future-related IP valuation is characterised by considerable information asymmetries, which means the persons concerned do not nearly have the same amount and/or quality of information at their disposition.<sup>40</sup>

Such lack of quantity and/or quality of information results in low quality valuations, which negatively affects the negotiations or other situations in which the valuations are utilised. This lack also means increased risk, which results in overly high cost of capital.<sup>41</sup> It may even mean that negotiations cannot be finalised at all. Hence, the degree to which one is able to minimise

the brand was even worsened by rather inept public relations activities on the side of PERRIER. Ultimately, the company had to spend £84 million on product repositioning as well as £125 million when the drinks division was sold, cf. *Gream*, Trademark valuation: review in January 2004, p. 4.

40 *Reiche*, DStR 2000, 2056, 2056; *Kamp/Ricke*, BKR 2003, 527, 527.

41 Not only does the fact that intellectual property is (partially) off-balance sheet detrimentally affect the market liquidity of the respective company's stocks, thus increasing its cost of capital (*Hand/Lev*, Introduction and Overview, p. 11). Cost of capital is also overly increased each time a financier demands relatively high risk premia due to the fact that he or she lacks the information necessary to properly assess all risks involved.

given information asymmetries is decisive for quality and usability of both the respective valuation tool and the valuation end result.

The issue of information asymmetry is linked to risk reduction. As will be elaborated in more detail below,<sup>42</sup> investment in intangible assets is considerably riskier than investment in tangibles. This risk of total loss bears on, amongst others, the general nontradability<sup>43</sup> of intangibles and is comparatively rare with regard to tangible and financial assets. In addition, return on investment in intangibles, including intellectual property, has been proven to be highly skewed.<sup>44</sup> Since these issues are crucial value determinants, risk assessment must and risk reduction should be central characteristics of a proper valuation tool.

As nontradability results from substantial lack of information or asymmetry of information respectively, mitigating information asymmetry by systematically collecting and processing as much information about the asset under valuation as possible contributes substantially to lowering nontradability and thus the abovementioned risks and their implications (such as excess cost of capital).

#### 1.4.1.6 Reliability vs. Accuracy

A decisive factor in the course of intellectual property valuation which is at times being overlooked is the fact that it does not make sense to demand a higher degree of accuracy from IP valuation than from any other valuation, e.g. of real estate. Expressing the value of a patent or a brand in an exact Euro and Cent amount is only possible in a reporting (accounting and tax) context. Even a forecasting valuation of tangible assets traded in relatively transparent markets, such as cars or real estate, can by definition not be accurate. This is due to the fact that any future-oriented valuation is by its very nature an estimation. Hence, it cannot result in an exact value figure.<sup>45</sup> This does not mean that accuracy is, in general, no legitimate valuation objective. Rather, it is an expedient goal which is by definition impossible to

42 At 2.1.1.3.6.

43 Cf. 2.1.1.3.4.

44 *Scherer/Harhoff/Kukies*, 10 *Journal of Evolutionary Economics*, 175 (2000); *MP Marketing Partner AG*, Studie: Rentabilität von Marken oft fraglich – Unternehmen im Zugzwang.

45 Q.v. e.g. above at 1.2.