

## Book Review

**“Patent Management Protecting Intellectual Property and Innovation” by Oliver Gassmann, Martin A. Bader, Mark James Thompson, Springer 2021, ISBN 978-3-030-59008-6 (hardcover) € 82 ISBN 978-3-030-59009-3 (eBook) € 65**

Book reviews are normally written shortly after publication, in that sense this review comes late as the book was published in November 2020. There is, however, no bad timing for good news: there aren't that many books on patent management around, much less comprehensive and well-written books.

We have seen increased attention for patents. It started a few years ago with the fascination for patent trolls, followed by news about big money being paid for patents. The idea that the value of patented inventions could be converted into hard currency opened the eyes of the financial and IP world. Imaginative court cases in which well-known parties bombard each other with patents - think *Apple vs. Samsung* and *ASML vs. Nikon* – added to the increased interest in patent management. Where until recently intellectual property and especially patents seemed to be the domain of inscrutable technical fiddling, reserved for a select few, IP suddenly came to the fore as a new form of value creation.

How that value is being created and what it takes to bring an invention to a workable patent and then a value-added asset, was something that remained hidden for most. Even within IP departments, only a few people were able to do what it takes to transform technical knowledge and innovation into a company's valuable asset.

So the appearance of a book explaining the principles of patent management could not have come at a better time. That said, it must have been a Herculean task to write a book on patent management, as the practice area is wide and covers a lot of different subjects. One of the first major tasks of the authors must have been to overcome the bias that “patent management” is just about filing patent applications when, where, and at what costs and paying maintenance fees to keep the patents alive.

They did well, as can be expected from authors with a deep knowledge of intellectual property. The book starts with the link between innovation and IPR and mentions the challenges of open innovation and patenting. A tricky subject, because many outside the circle of IP intimates have great differences of opinions on the role of patents in innovation [1]. The question of whether innovation can exist without IP is certainly not undisputed. The authors weren't prepared to take this on. In one of the first paragraphs on innovation, they mention the economist Joseph Schumpeter. However, Schumpeter did not see patents as playing a key role in fostering innovation. He mentioned them only a couple of times, in passing, and never developed any scientific analysis of the patent system[2].

## **Chapter 1. Fundamentals of Intellectual Property Rights.**

The life cycle of patents can be divided into stages—from an invention, based on a technology process, through research and development, dissemination and market development, to commercialization. Different processes occur at each stage of the life cycle, providing various opportunities to employ instruments that promote innovation. The authors start this chapter by explaining the challenges for the management of innovation in terms of complexity, dynamics, and costs. Although the book concentrates on patents, the various IPRs are being mentioned in the first chapter of the book, as well as the different ways value can be extracted from intellectual property rights.

## **Chapter 2. Protection Strategies**

The chapter opens with a definition of “strategy”, a topic about which enough has been written on its own. Patent strategy, authors write, is about providing answers to a whole league of questions, one of which is for what inventions patents are being applied for (or maintained), what, if any, risk-taking appetite the company has to defend IP rights and which market area needs to be covered in applying for patents. It is always risky to begin a chapter with a definition of “patent strategies” because there are many topics covered in a patent strategy that is not mentioned in the definition. For example, there are sophisticated strategies where a patent holder tries to deceive his competitors or new entrants into the market by applying for patents for technical solutions that are opposed to the direction the company has chosen, just to mislead them. Authors mention what they call a “Guerrilla Strategy”, a strategy aimed at publishing inventions that are, for all intents and purposes, not suited for patenting and which publication nobody will read (appeared in hidden sources), so competition will not easily find it, but will finally end up as a novelty damaging publication[3].

Examples are given of situations that can make or break a successful patent strategy. The authors mention cases, to show why certain factors in a strategy, such as freedom-to-operate (FTO) that are lacking, can lead to a decline in sales or profits (they mention “*Siemens, pacemakers*”) or a “severe impairment of market capitalization”( “*Adobe vs. Macromedia*”). It is a pity that the reader isn’t taken into the details of those cases as this would certainly enlighten the reader of the importance of those strategic factors and what can happen if they fail to work as intended.

Talking about Siemens, this company would certainly be a good example of a timely change of focus in their IP strategy when market conditions change. Siemens made a strategic change from quantity-driven intellectual property to measuring quality improvement, caused by a changing intellectual property landscape[4].

The case of “*Endress+Hauser*”, a Swiss manufacturer of measurement instruments and automation solutions, experienced in enforcing their patents against infringement, shows, according to the authors, the need for clear support of corporate management. Although that is a sure precondition of a successful enforcement strategy, it remains unclear how that, in this particular case of the Swiss company, played out.

That is a missed opportunity [5], as examples often show how strategies transform from paper to reality and may take, during implementation, a different turn than initially envisaged. Let us not be too harsh as later on in the book extensive and interesting examples are provided of patent management e.g. of the case of *Julius Blum*, an Austrian kitchen and furniture fittings manufacturer (p. 39) and *ABB*, a global Swiss-based electrical engineering group (p. 161-165), the case of UBER to use patents for access to finance (p.102-105) and two examples from the crop and life sciences, the case of *Monsanto* (p. 148-149) and the life sciences company *Prionics* (p. 151-153) in computer science the case of *Microsoft* and *Eolas* (p. 178-181) and in mobile technology the case of *Apple vs. Samsung* (p. 174-176).

An interesting description of offensive and defensive strategies is given in §2.2 and § 2.3. Here the book does offer a real-time example of an offensive strategy, mentioning the case of *Geberit*, a leading company in sanitary products. The chapter ends with an overview of complementing strategies to patenting, referring to a 2018 UK IP) study by Athreye and Fassio[6] setting out when it is *not* a good idea to patent an invention (p. 42-43). Missing here - as a matter of fact throughout the book, except for a brief mentioning here and there, are *trade secrets*: sometimes it is more effective and advantageous to keep an invention secret.

### **Chapter 3. Evaluating and Valuing Patents**

Patents contribute to a company's results, revenue, stock performance, and reputation – they are one of the most important strategic assets for R&D-intensive firms. Patents have been highly influencing firms' value in different ways, being at the same time a sort of signalling device to consumers, competitors, venture capitalists, or other investors. They are recognized as a monetary asset as valuable as a bond or currency by world trade regulation[7].

Rightfully, the authors make a distinction between *evaluating* and *valuing* patents. The first - also called patent qualitative patent evaluation - refers to "the business logic and strategic impact of the patent", the second refers to "the monetary number assigned to the patent" (p. 51). A distinction in the book is made between "monivariate", "bivariate" and "trivariate" patent evaluation. Here, I must admit, it's easy to lose the thread. Rather than at first defining the difference between the three, the reader must dive into texts, spread over several pages (p. 52-60), figuring out what makes a patent evaluation a mono-, bi or trivariate and why this distinction is relevant at all.

From what I understand, monivariate is an evaluation-based approach based on both *subjective* (e.g. is it easy to circumvent the patent?) and *objective* criteria (e.g. how many times has the patent been cited by other applicants, for what countries is the patent granted or applied for? has the patent been subject to an invalidity attack?). In a bivariate approach, one does not look at either subjective or objective criteria but solely at the *risk exposure ratio* of one company versus another company, based on two variables: the number of patents and patent applications a company owns and its turnover, so numbers versus turnover or profit between two different companies. If those figures are (almost) equal for both companies, the (patent) risks and opportunities are equally shared between the two. If there is a disbalance in that ratio between numbers and turnover, that company may have a higher "exposure" towards the other. This approach is, according to the authors, used in assessing

(cross)licensing opportunities. The assumed advantage of that approach is that in the case of very large patent portfolios one does not need to look into information from the (cross) licensee or (cross) licensor to get a fair estimation of the value of a portfolio (sales can be figured out from market studies, the number of patents can be determined using public patent registers), facilitating negotiations about a licensing deal (or estimating litigation risks) between large patent portfolio owners.

Reading this, it reminded me of the patent struggles between ASML (of The Netherlands) and Nikon (of Japan). When ASML took over the market as the main manufacturer of semiconductor equipment, its patent portfolio (numbers) was lagging behind its market power (turnover) whereas with Nikon it was exactly the other way around (they lost market share but had a superior number of patents). In the “monovariate” evaluation approach one would be inclined to look into specific strong individual patents with which one party could attack the other, or vice versa, or analyzing the legal strength of one patent against the weakness of the other party, and so on. This is a recipe for patent litigation, as, in this approach, one tends to overestimate the own strength of patents and to underestimate the defensive chances of the other party. A “bivariate” evaluation approach of the patent positions of both parties would have given an opening for both parties to discuss (cross) licensing. As is often the case, the reality isn’t that black and white and other major factors may play a decisive role.

Finally, the book is rather short when it comes to describing what a trivariate approach to patent evaluation in practice means. The book calls these approaches “well-known”. However, the references to the authors (p. 91-92) are mostly in the German language, which makes it less accessible for those with no knowledge of the German language.

The authors are rather short-sighted when it comes to describing the “legal value” of the patent. In three lines, they refer to e.g. patentability and ease of identifying infringement and add that those are established “in cooperation with patent, market and technology experts”. What about legal experts?

An interesting case of patent evaluation is the *Schindler* case (p. 55). They use self-developed systems based on a uniform evaluation sheet using a point system, using market data, legal and technical aspects, which are being discussed regularly between the product managers, R&D, and the IP department.

## **Valuation**

In § 3.2 authors deal with the *value* of patents. A much sought-after subject especially, after high profile cases in the early 2000s about high prices being paid for patent portfolios. Rightfully, the book says that there are “no strategic recommendations for action can be derived directly from the valuation”, something that is very true but often being forgotten.

Eastman Kodak is mentioned as a case of patent *evaluation*. It is an interesting example but at the same time also a showcase of a failed *valuation*, although the latter is not mentioned in the book[8].

The book gives an example of an inventor who thinks his invention is worth quite a bit, he has put a lot of time and work into it, so potential buyers should reward that. The buyer, however, has a different perception of the value of the patent. This is what is called the *endowment effect*[9].

The book provides an interesting overview of 15 valuation methods, out of the more than 100 valuation methods that exist, divided into cost-, market- and income-oriented methods. More sophisticated methods, like the “Technology Factor method” (§ 12) developed by the consultancy Arthur D. Little and Dow Chemical or the “Profit Share” or “Real Option” method are among those described in the book.

#### **Chapter 4. Patent Commercialization**

Another “hot” topic is dealt with in Chapter 4, “Successful Practices in Commercializing Patents”. Companies or individual inventors may decide to turn their IP into a euro or dollar asset. The book makes a distinction between monetary and strategic motives to monetize. Depending on whether you would consider licensing of a patent (portfolio) as “monetizing”- which of course is questionable in case of a cross-license - no money changes hands – it is just one way of getting monetary value over a patent portfolio. The book covers (cross) licensing, sale, strategic alliance, spin-off and call back, joint venture access to finance litigation for value, and the last category the authors mention, “complex strategies”.

Each of those “monetizing” models is accompanied by a very illustrative example. For licensing they point to *Qualcomm* (p. 97), for cross-licensing they refer to Siemens and *Microsoft*, in the case of a sale, the example is *IPXI* (Intellectual Patent Exchange International) (p.98), for a strategic alliance, it is the deal between *Philips and IBM* (p. 99). A lesser-known one is the “spin-off”, many times used in cases where R&D takes a big bite out of a company's finances – like the development of a new drug. Explaining “spin off”, the book mentions (§ 4.5) the situation where bringing the development of innovation to the next level meets little interest in the company.

Another reason for a spin-off can be the need to adjust the necessary resources the development needs and progress requires additional fixed costs: in that case, a spin-off entity is much freer to follow technology approaches, independent from the parent company's internal restrictions. The development of a new drug is a good example.

Joint Ventures are also mentioned as a form of monetization where the example of *Bayer Innovation* is set out (p.101).

I do have more questions about the example the book gives about patenting of technology to get access to finance and the way *Uber* applied that. For sure, investors are faced with considerable uncertainty and therefore rely on patents as means to protect their investment or find investment opportunities. However, I have difficulty understanding the role of patents in getting access to finance in the authors' story of *Uber's* acquisition of *Otto*, a self-driving start-up of a former Google employee, infuriating Google's subsidiary *Waymo* who then sued

Otto for trade secrets infringement as a case of acquiring patents to get corporate finance (p. 103).

A much-contested way of commercialization IP, is what the book refers to as “Litigation for Value” (§ 4.8). It used to be called patent trolls, but the term was sweetened to “Non-Practicing Entities (NPEs)”, basically acquiring patents not to make products or deliver services, but to sue potential infringers to attract (some say: extort) money. The book separates the NPEs into either “Guarders” (*MPEG LA*), “Shielders” (*Intellectual Discovery*), “Funders” (*Patent Select*) and “Earners” (*Acacia Research, Intellectual Ventures*).

The last category of patent monetization is denoted by “complex strategies”. The authors illustrate this by giving the example of *BT Exact (British Telecom)*. Honestly, I re-read it a few times (p. 107) but I remain to have difficulty understanding what this category is other than an amalgam of previous categories they discussed.

### **Chapter 5. Organizing Patent Management**

This chapter gives a fairly exhaustive overview of all the do and don'ts of a patent department, how to arrange governance, how to involve upper management, the costs and benefits of a patent department, and how to “charge” other sections in the company for work done by the IP department and so on. As an example of a patent department reshuffle, they describe the *Infineon Technologies* spin-off of *Siemens* (p.119).

A more technical part of the book describes the Invention Generating Process (p. 123-129), how are inventions identified in the organization and how are employees stimulated to patent, of course in line with the corporate IP strategy. In a paragraph called “Culture Eats Strategy for Breakfast” it seems to allude to a little lightweight humor in patent management, but in fact, it relates to having the right culture in a company to foster innovation and establishing an inclusive and challenging environment, thinking outside the box (they call it the ANIMATE, the initials of Agile, Nurturing, Inspire, Motivate, Align Transparency and Empowerment (the thing I miss is *trust*, but that may be caused by my preoccupation with trust[10]).

### **Chapter 6. Patent Management by Industry**

A large part of the book (p. 143-190) is devoted to describing the challenges for patent management in 12 different industries and as well as in start-ups and SMEs, Pharma, Chemistry, Crop Science, Life Sciences, Consumer Goods, Machinery, Electronics, and Electrical Equipment, Automotive, Information and Communications Technology, Computer Science, Financial Services and Fintech, and Transport and Logistics.

Impressive is the way the authors have managed to clarify the specifics of patent management in very different corporate and market conditions by going into company-specific examples for each of the industry groups they cite.

I am not going through all the businesses they review, except for one we all know: the *Nespresso* coffee cups (under “consumer goods”). The great story of brilliant patent management and marketing strategy is completely in sync with the business, market, and legal goals of the company, *Nestlé*. Not only brought the company an innovative solution for coffee making, but their strategy was also nothing less than genial. Many may think “take a minute, weren’t they the guys that ultimately saw their main patent revoked in opposition before the EPO?” Anyone who thinks that, misses the point. The company was perfect in timing, the product was covered by a multitude of patents (applications at that stage) – the authors mention over 2,000[11] - while a massive marketing campaign was launched that stunned the world with its success. By the time Nespresso cups were ubiquitous among consumers worldwide and had robbed its competitors of market share, patent protection wasn’t that essential anymore, so losing the main patent in a years-long battle did not hurt Nespresso. I wouldn’t be surprised if the patent department already knew for years that the patent would ultimately not hold. The patents served their purpose: maintaining market exclusivity for a long enough time to allow superb marketing and a glamorous communication strategy to result in market dominance in this consumer goods sector.

## **Chapter 7. Patent Management in New Technology Environments**

In an attractively worded introduction, the authors describe the tension between a patent system that goes back centuries and discoveries in biotechnology, nanotechnology, artificial intelligence, and blockchain, which pose just as many challenges for an intellectual legal system built on the technology of the 20th century. The EPA tried to get a legal grip on biotechnology that extrapolated human genes from test tubes, and grappled with the question whether software's ones and zeros could be an "invention" worthy of protection or whether they are non-patentable “business methods”.

The authors describe the example of the CRISPR protein 9 enzyme (p. 199-202), apparently an obscure biological phenomenon, but typical of the achievements of biotechnology. The legal battles surrounding those new technologies also resulted in new challenges in patent management by the companies whose core business these inventions are.

In § 7.5 and § 7.6, the authors describe the formal and informal IP protection of AI-controlled business methods and how this reshapes existing patent strategies, discussing how the infamous *Alice Corporation vs. CLS Bank International* judgment by the US Supreme Court[12] plays a role in establishing “subject matter eligibility” for those new technologies.

## **Chapter 8. Useful Information for Practitioners**

Chapter 8 has become a bit of a repository of all kinds of subjects that belong to patent management but were more difficult to accommodate in the earlier chapters, it seems. From basic on how a patent (document) is structured (§ 8.2) to a description of the growth of IP worldwide (§ 8.1), notes on patent search (§ 8.5), patent classification (§ 8.4), patent document codes (§ 8.3) and which countries belong to the European Patent Organisation

(EPO) (§ 8.6) and two chapters on respectively the “Unitary Patent” (§ 8.7) and IP Tax Regimes (§ 8.8). The book ends with a Brief Comparison of Patent Legislation (§ 8.9) and The World Intellectual Property Day (§ 8.10), a glossary (p. 259), and an index (p. 261-264).

### **Summary**

An excellent book that anyone dealing with patent management can enjoy exploring, albeit that it is often quite heavy stuff and not suited for a weekend read. However, the thoroughness of the book is amazing and unique in its form and will provide the patent practitioner a vast amount of knowledge and insights for which we need to be grateful to the authors.

Let me close with what I miss in the book. It is possible that it does appear in the text, but I have not read it, nor have I been able to find it in the index of the book: an analysis of the significance of Patent Pools for patent management. A few things could certainly have been said about this subject, but perhaps that is something for the next edition of the book. A second point, as briefly mentioned earlier, concerns a less obvious subject, because, strictly, it is not a patent, namely a trade secret. If I'm not mistaken, trade secrets are increasingly seen as a valid alternative to patenting an innovation, so a discussion of this phenomenon should not have been left out, but given the breadth of the book, this is a minor point.

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