Schattdecor
Digital copy protection against plagiarism in furniture decors

By Alexander J. Wurzer & Roland Heeger

top design award 2015

Träger des Bayerischen Verdienstordens-
WALTER SCHATT

Center for International
Intellectual Property Studies | CEIPI
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CEIPI MASTER OF
**IP LAW AND
MANAGEMENT**

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Prof. Dr. Wurzer is Chairman of the DIN 77100 committee for patent valuation, and DIN 77006 for Quality in IP management. He is a member of the Board of Directors of "*Deutsches Institut für Erfindungswesen e.V.*" (D.I.E.), as well as the Board of Trustees of the Diesel Medal Awards. He is Fellow at the *Alta Scuola Politecnica* of Milan/Turin Politechnic. He is a member of the group of experts on "IP Valuation" of the European Commission and the Patent Law working group of the University of Düsseldorf, as well as the working group for Patent Valuation of the Licensing Executives Society (LES) and a member of the Advisory Board of the Innovation Manager Magazine of the F.A.Z. Institute.

Roland Heeger

Roland Heeger, born 1962, has an engineering degree from the University of Kaiserslautern with a specialization in mechanical engineering. His postgraduate career began as R&D manager at Hereaus Instruments GmbH, Hanau for Weathering and Lightfastness Testing Equipment, Surgical Lights and Laser Surgery. After Roland Heeger became part of Ingersoll Rand in 1995, he spent 2 years in Birmingham, UK as the European Product manager and 3 years in Brussels, Belgium as Vice President Operations for Security & Safety ESA division, reorganising the European manufacturing footprint.

Roland Heeger joined Schattdecor AG, Thansau in 2005. As CTO, he is responsible for the technological advancement in production processes, IT, R&D and development of digital printing. He has increased Schattdecor's footprint with multiple Greenfield plants, acquisitions and joint ventures in Russia, Brazil, China, USA and Malaysia. In addition, Roland Heeger serves as Member of the Board in Schattdecor Inc. USA, Schattdecor Sp. z o.o., Poland and Arcolor AG, Switzerland.

He also is a Member of the extended Board at Seeoner Kreis e.V., an association of entrepreneurs in the southeast of Bavaria, which is actively promoting the Rosenheim Technical University of Applied Sciences and the networking between the university and business.

PART I

Furniture decors

Schattdecor is a manufacturer of printed decor papers for kitchens, furniture, and laminate flooring from Bavaria, Germany. Employing some 2,550 members of staff, the company generates around EUR 750 m in sales. Decor printing is a special variant of gravure printing. The extremely lightfast printing ink is applied using printing cylinders in a rotary printing process. Lightfastness refers to the resistance of printing ink to UV light (artificial or sunlight). The printed decorative paper is then processed further by manufacturers of wood-based panels in order to create surface designs for furniture, flooring, and interiors, which can range from wood and stone replicas to fantasy decors.

Until just a few years ago, there was still a clear hierarchy according to which consumers classified the quality of furniture surfaces: 1) solid wood furniture, 2) furniture with a wafer-thin real wood veneer surface, and 3) furniture with a decorative film or foil finish, which was only acceptable from a price point of view. This ranking has changed fundamentally in recent years, and it is precisely the combination of esthetics, functionality, and price that enables the faster availability and trend-oriented replaceability of furniture, and has created a sustainable advantage for printed decors. There has been a worldwide decline in consumers choosing solid wood or veneer furniture. In the past ten years, the quality of so-called finish foils has increased so significantly that customers

have grown very fond of surface replicas. Only few consumers can still distinguish a replica from a veneer. What is more, esthetic criteria increasingly outperform the material of furniture when it comes to making a purchase decision. Solid wood is no longer a key criterion, while light weight, modularity, a

fashionable design, and functionality certainly are.

In principle, any type of wood can be used for manufacturing furniture. When choosing the right wood, however, it is important to bear in mind what type of furniture is to be built, since different pieces of furniture are exposed to different loads in everyday life. The most important properties of wood include resilience, hardness, weight, and structure. Softwood tends to be more sensitive than hardwood. "Natural" wood is rarely used in furniture manufacturing, the reasons for which are manifold, including high costs and wood's high sensitivity to warping, but also discoloration or cracks. What is more, there are vast differences in these changes between different types of wood. In addition to transverse and longitudinal cracks, tears, bluing or red rot, weeping resin pockets, loose knot cuts, traces of insect damage and processing defects such as boards with a cut bark, open glue joints, traces of milling or sawing, as well as visible cuts on parts and surfaces can occur.

Decor foils have been used across Europe since the early 1960s. They serve as an alternative surface material to a veneer when tempering chipboard, MDF, and hardboard in furniture making. There are various different qualities and patterns for decor foils, including faux wood and colored variants. Foil-coated furniture surfaces are relatively easy to clean and durable.
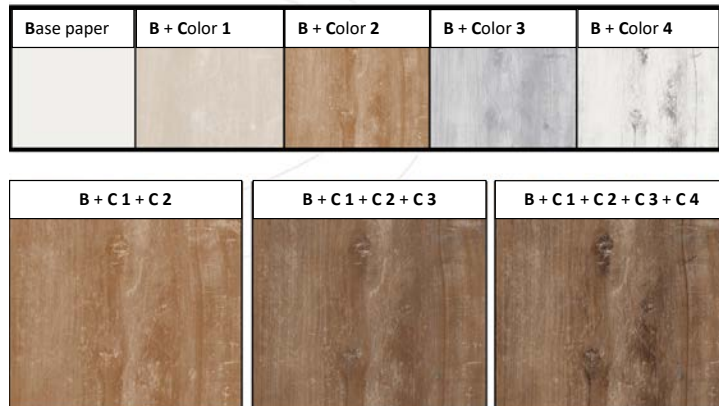

Figure: Color structure of a 4-color decor

Schattdecor from Thansau in Upper Bavaria has made a significant contribution to the global quality improvement of finish foils. When company founder Walter Schatt began to produce decor paper using a gravure printing process in 1985, he was competing against a large number of established manufacturers. But he had set himself a clear goal: to significantly improve the quality of decor papers. At the time, decor printing was still a fledgling industry in Europe and much more sophisticated decors entered the market from Japan. But Schatt's goal was to adapt the Japanese process to European conditions and bringing it to production maturity. This also included switching from the solvent-based ink system commonly used at the time to organic pigments. Sustainability was a priority right from the outset. However, it turned out that the new colors were completely metameric to each other. The phenomenon of metamerism refers to the ability of different pigment types to exhibit different reflection behaviors at varying light temperatures. Depending on the lighting, this can result in color shifts affecting customers' quality perception. To this day, Schattdecor only uses

Printing of furniture decors

The journey from being a newcomer to becoming today's global market leader is characterized by the perfectionism and farsightedness of the company founder. For example, Schatt acquired a printing press manufacturer in order to gain access to printing know-how on the engineering side of things, followed by founding an independent printing press company of his own to equip the company's production facilities worldwide. In addition, Schattdecor began to engrave and chrome-plate the printing cylinders in-house early on in order to be able to control the quality of the artwork itself. The treasure and a great deal of the company's know-how therefore resides in nearly 20-metre-high high-bay warehouses: more than 5,000 printing cylinders for different decors. If decors are not used for an extended period of time, the printing cylinders are stripped, copper plated again, and then engraved with a new decor.


Figure: High-bay warehouse for printing cylinders.

Another important step towards becoming the global market leader was internationalization. Schattdecor followed furniture manufacturers to different countries to produce for them locally. Meanwhile, there are plants in Poland, Italy, Russia, USA, Brazil, China, and Turkey. With identical equipment, paper, and ink worldwide, all plants can deliver the same quality regardless of where they are located.

Printing at a width of up to 2.70 meters and a maximum speed of 350 meters per minute, the gravure printing presses at Schattdecor are particularly impressive. Schattdecor's worldwide gravure printing operations produce around 1.5 billion square meters of decor paper a year.
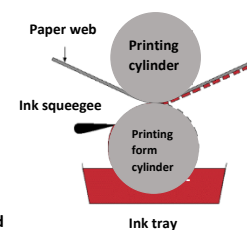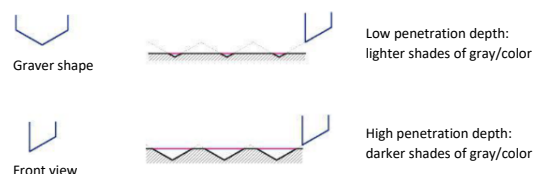

Gravure printing has a long tradition: Many of the best-known works of old masters were

copperplate engravings and thus the first harbingers of the gravure printing process in the 19th century. Gravure printing is a direct printing process. In contrast to letterpress printing, it is not the raised sections but the recessed sections that are printed. Engraving, lasers, or etching create so-called "cells" that are filled with ink. Excess ink is removed from the non-recessed parts with the help of a "doctor blade" (scraper) until the ink collects in the recessed sections only. The ink is then transferred to the paper under high pressure. Due to the complexity of producing printing plates and cylinders, gravure printing is mainly used for high-volume printing, including for banknotes, wallpaper, or furniture decors. Gravure printing products impress with their rich colors and high print quality.

Figure: Printing cylinders with decors from Schattdecor's engraving and electroplating department

However, there is an increasing demand for finish foils, because they meet customers' needs for a perfect, natural look and an even better feel. More than 300 million square meters of finish foils are currently being produced, and numbers are rising. In contrast to decor paper, foils are a finished product. The decor is printed onto a pre-impregnate, which is then coated to obtain the special surface finish. Such foils are not treated with the commonly used acid-curing lacquer system. The more modern process uses an electron beam hardening lacquer system. A defined stream of electrons is generated with an electron beam gun in a vacuum, and pass from the vacuum area through a thin layer of titanium foil to then hit the substrate and polymerize the lacquer.

Figure: Copper-plated steel cylinders being engraved with a laser for printing

Figure: Gravure printing machine

In contrast to conventional UV curing, the initial investment in this electron beam curing process is significantly higher, but the benefits eventually outweigh the disadvantages. The synchronized decor technology enables the natural-looking matt gloss effect in a single production step with a processing width of 2,70 meters.

This production technique combines traditional gravure printing with a coating process with electron beam curing. In this way, decors can be refined with a matt gloss finish. The final result can barely be told apart from a real wood veneer. In fact, real wood veneer customers regularly complain about color differences occurring in natural wood. This goes to show how much the eye has become accustomed to printed replica of wood nowadays.

The following technology- and material-specific focal points can be identified as drivers for the improvement and further development of the established process in decor printing. Technological challenges include the further reduction of downtimes for system-immanent color matching and makeready processes, energy-efficient and space-saving drying technology, improved winding technology, sheet tension control for sensitive printing substrates, optimized ease of operation of production systems, and improvements in process reliability. For the printing substrates used, there is optimization potential in terms of reduced grammages, improved printability and impregnability, lower color tolerances within single batches and between different batches, controllable and minimized dimensional stability under the influence of moisture, and improvement of the width profile and the ecological footprint. The further development of printing inks focuses on replacing casein with synthetic bonding agents, eliminating

metamerism, improving the shelf life of effect inks, using functional ink systems, and avoiding/minimizing emissions of VOCs (volatile organic compounds).

Figure: Digital printing system making Schattdecor the only company in the industry to be able to digitally print paper with a width of 2.25 meters at a speed of 163 meters per minute when it was installed in 2016.

Another new technology is digital printing. Schattdecor is the global market leader in gravure printing for decors, and it is precisely for this reason that the company invests a great deal of time and effort in digital printing. The aim is to use the possibilities of digital printing for decor printing and to create a real alternative to gravure printing. Strictly speaking, only the artwork is digital in digital printing. In contrast to other printing techniques, digital printing (which is also known as "non-impact printing" does not require a solid printing substrate. The printing process itself is mechanical. In decor printing, inkjet printing is used, where tiny drops of colored ink are sprayed onto the paper. Digital printing is ideal for smaller quantities and more flexible batches, since there is hardly any need for preparation.

The further development and increased efficiency of digital printing increasingly call into question the technological framework of industrial decor printing. While digital printing is already widely used for production in the pattern-making phase and for the manufacture of thin edge materials, a technological leap is also underway for the production of widths of up to 2.30 meters. Foreseeable advantages of the technology such as customized designs, minimal decor development

times, shorter delivery times, elimination of cylinder logistics, production of smaller batch sizes, and positive ecological effects increasingly serve as incentives. Two of the main challenges for a rapid technology change are the reproducibility/comparability of conventional and digital print outputs, and the reduction of ink costs in order to improve the comparative cost efficiency of digital technology for the production of larger production volumes.

Decor design

Furniture decors are used to make lifelong dreams and design wishes come true. As a result, designers of furniture decors must recognize and shape trends in people's style preferences in their living and work environments. An example of such a trend is urbanization. Around the globe, more and more people are moving to conurbations and surrounding areas. Cities have always been and continue to be a driver of trends, innovation, digitization, and connectivity, because they provide attractive education and job offers, efficient infrastructures, and diverse cultural options. This trend places high demands on modern surfaces at home and at work, and thus also on surface specialist and decor developer Schattdecor. People who prefer the urban lifestyle look for variety in all facets of life and, for reasons of time and convenience, increasingly prefer to buy online, including furniture.

New architectural models and pragmatic mobility, as well as modern forms of community and networking, create unconventional solutions for optimizing our living space. This also places high demands on decor developers: decors and concepts must reflect the trends of tomorrow and suit their environments in terms of function, usability, and design. The aim is to develop a customized turnkey solution for customers from the wood-based materials and furniture industry that meets future requirements. Schattdecor divides the environments we live and work in into three categories: **first place, second place, and third place**.
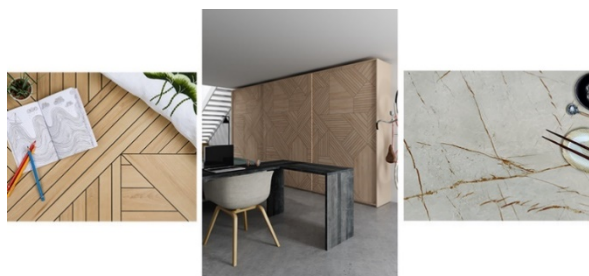

https://youtu.be/KqY0JgQANUk
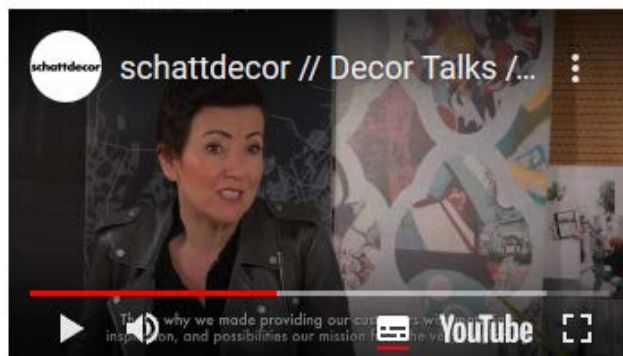
"**First place**" refers to our own homes. In this category, new creative solutions such as so-called "skinny houses" are required in cities in response to the housing shortage and steadily rising property prices. Skinny houses are a reduced-footprint alternative to traditional homes for urban life. The motto here is: less property, more time! Surface designs such as the "Pyramid" decor meet the requirements for light, warm wood tones and natural material colors. They define the warm, cozy style of the skinny house. Light colors also make narrow rooms look wider.

"**Second place**" refers to work, school, or training environments. In an ever-changing world of work, new possibilities for unconventional workspace designs arise. What is more, urban commercial spaces are scarce and expensive. An efficient alternative: co-working spaces. They provide temporary, creative, and complex workspace for projects, meetings, workshops, or events, thus creating new networking opportunities and offering greater flexibility. Since co-working spaces tend to boast very homely and creative designs, there is usually no shortage of accessories and individual pieces of furniture. Materials with a cozier look and feel tend to be used for work and lounge areas.

Plants add a sense of comfort, and light, Scandinavian-looking wood tones such as the "Frost Pine" decor, combined with technical features such as integrated charging and socket systems, meet the requirements for functionality and design.

The term "**third place**" describes places of encounter or hospitality. These include urban public spaces, but also airports, train stations, educational environments, shops, restaurants, and bars. Here too, aspects such as time and comfort play an important role.

Especially city dwellers, who have to travel long distances to the nearest furniture store and find transport without a car rather cumbersome, increasingly make use of online furniture offers. To cater to critical online buyers looking to compare the available options "in the flesh", there is a growing trend towards pop-up stores in urban areas. Furniture configurations enable customized solutions. For an appealing overall impression, a range of well-defined combination options is required. Decors such as "Canyon Malibu Chestnut" with its refined, modern look and discreet, rustic elements can be beautifully combined with other wood and plain decors, or with other materials. Inspirational images,

visualizations, and a sophisticated modular system are crucial in e-commerce!

Thus, Schattdecor develops a separate trend book for each season and about 150 new decors per season, taking an in-depth look at recent developments in the areas of living, design, materials, and color. Whether a decor becomes an economic success only becomes apparent about 1.5 to two years after its development. Schattdecor regularly manages to place successful decors in global markets, and its intensive trend analysis and trend work enables the company to influence and set trends. Some of these decors are copied quickly, especially in China, so that counterfeit versions of Schattdecor's decors are often available on the Chinese market even before the company has launched them itself.

Figure: Schattdecor trend book: "Urban Styles – Places of Tomorrow"

PART II

Product piracy and design protection

In contrast to art, furniture has been mass-produced since the end of the 19th century. In addition to price and function, design is the most important purchase criterion for furniture and interior design. Designs are created as purely intangible goods on a computer nowadays. First drafts can be reproduced any number of times, which is why the protection of intellectual property through patents, design rights, and trademark rights is extremely important in this industry. Counterfeit furniture is a million-dollar business worldwide. However, the question of what protection can actually be applied in this industry is yet to be clarified.

For copyright law, it is important that "personal, intellectual creations" are produced, i.e. works in which the focus is on artistic expression and creative design elements rather than on commercial gain. In order for artistic work to be protected by copyright, a certain level of originality must be achieved, which, according to the law, presupposes a design which is well above average. Regular artisan products, whether clothes, consumer goods, or furniture, do not usually meet this requirement, even if they have not been manufactured according to the rules of artisanship. This is where design protection should come into play.

In the "Birthday Train" case (Az. I ZR 143/12), the German Federal Court of Justice defined the lower limit for the required level of creativity. According to the Court, the required level of creativity is achieved if the work in question, in the opinion of circles receptive to art and reasonably familiar with art appreciation, is worthy of being called an artistic achievement. Very few furniture items are granted copyright protection. Among them are lamps by Wilhelm Wagenfeld, and chairs by Ludwig Mies van der Rohe, Marcel Breuer, as well as Thonet. Furniture items are hardly ever granted art status, except for items which are awarded design prizes, for example. In the general opinion of the courts, furniture items are commodities.

Through registered design rights, designs can be protected against imitation and unauthorized use. Design law complements trademark and copyright law by protecting designs and traditional artesian products. In order for a design to be registered in Germany, it must have a "unique character" and be different from other designs in this respect. According to German design law, designs are two-dimensional or three-dimensional manifestations of industrially manufactured or handmade objects. This applies in particular to fashion and furniture designs. But especially with wood decors, the requirement of a "unique character" poses a problem for the entire industry as it requires designs to be different from the previously known designs. Designing furniture decors is generally about creating a "natural" look that gives

consumers the impression of a natural rather than an artificial, man-made design. Wood decors are therefore replica of natural products and thus not recognizable as man-made designs. As a result, Schattdecor's core product often lacks the basic requirements for design protection.

Figure: Sonoma Oak decor

As, for example, the continuous printing capability on the printing cylinders without any recognizable seams must be ensured by an appropriate design, design patents or design rights can also be used for wood decor designs. However, enforcing these rights can be problematic, because even small changes in the reproduction of the original decor can render the IP protection invalid and mean that the "idea" behind the decor cannot be protected. What is more, it is difficult to trace back the origins of a design and prove that it is a copy.

Watermark as copy protection

For Schattdecor, the primary concern when it comes to IP is the reliable identification of copies and their removal from the market by means of enforceable legal remedies. In addition to having its own printing and supply capabilities around the world, Schattdecor's competitive advantage is essentially based on its design capabilities for decors and the ability to identify, influence, and shape trends in interior design. Modern scanning, copying, and printing technologies increasingly facilitate the immediate imitation of a decor, and thus of Schattdecor's creative output, while at the same time minimizing the risk and effort involved in detecting such infringements. From Schattdecor's perspective, the use of IP must lead to the systematic, cost-

effective, and rapid removal of imitations from the market.

Originally, watermarks were incorporated in paper by using different paper weights in order to selectively change the light permeability of the product. As early as the 13th century, paper was marked by incorporating a thicker wire in the shape of a letter in the sieve in Bologna, Italy. When held up against the light, the visual marks of the paper mill would become visible in the paper. In other words, it is necessary to use a certain procedure (i.e. holding the paper up against the light) in order to make the watermark visible. A similar logic applies to digital watermarks. A certain, usually software-based procedure

is also required in order to recognize the digital watermark. Digital watermarks can include media files such as images, audio, or video files containing additional information, which cannot be separated from the actual media information. This technical marking is imperceptible to the human senses. There are different methods of interlacing watermark information with the content to be marked for different carrier media. Such digital watermarks can be used to prove the authenticity of a material and ensure its traceability.

Since 2012, Schattdecor has been working on countermeasures for preventing decor theft. Considerable reputational damage and financial losses amounting to several millions throughout the industry are motivation enough to find an IP-based solution. Schattdecor has been working on a watermark concept for wood decors for four years. At Interzum 2019, the leading global trade fair for interior design and furniture production in Cologne, the individual watermark, which is invisible to both customers and plagiarists, was presented. The solution was developed in cooperation with the watermark experts of FiliGrade and surface specialist Surteco. With Schattdecor and Surteco, two heavyweights in the industry have joined forces to tackle the rampant plagiarism problem.


Figure: Introduction of digital copy protection as an industry solution

Ultimately, the phenomenon of plagiarism cannot be suppressed in its entirety, but the goal of the development work was to be able to provide evidence in court and to track down plagiarism cost-effectively. For Surteco and Schattdecor, the aim is to develop an industry-wide solution for digital watermarks as copy protection in decors. The logic of plagiarists is simple: they only focus on winning designs. While large and reputable decor printers invest heavily in research and development to provide their customers with trend-, success-, and market-oriented decors every year, plagiarists only copy a decor once it has caught on in the market. All creative decor producers in the industry are affected by the same plagiarism problem and therefore benefit from a uniform, industry-wide copy protection policy to an equal extent. Product pirates are thus confronted with a uniform industry solution, which makes it more difficult to focus on plagiarizing individual successful designs.

https://youtu.be/dGNbHvScSCs
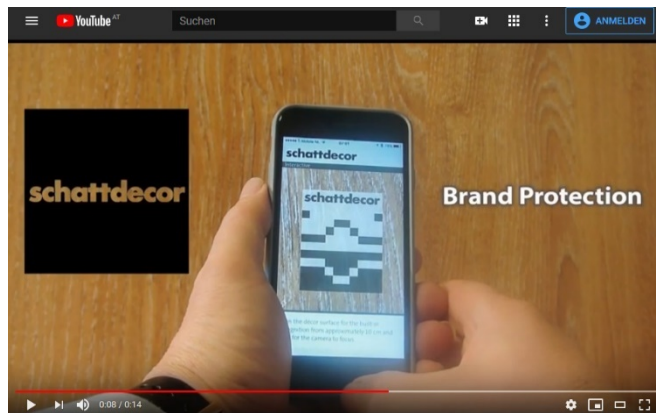
The watermark is not visible to the naked eye, but can be captured with a standard mobile phone camera and analyzed with the "Godecor" app available from Apple's App Store or Google Play. Schattdecor alone already has over 200 copy-protected decors in use worldwide. From a technology point of view, embedding the watermark means that the highest resolution and consistency are required to reach the gravure point in the decor so that the logo remains invisible to the eye.
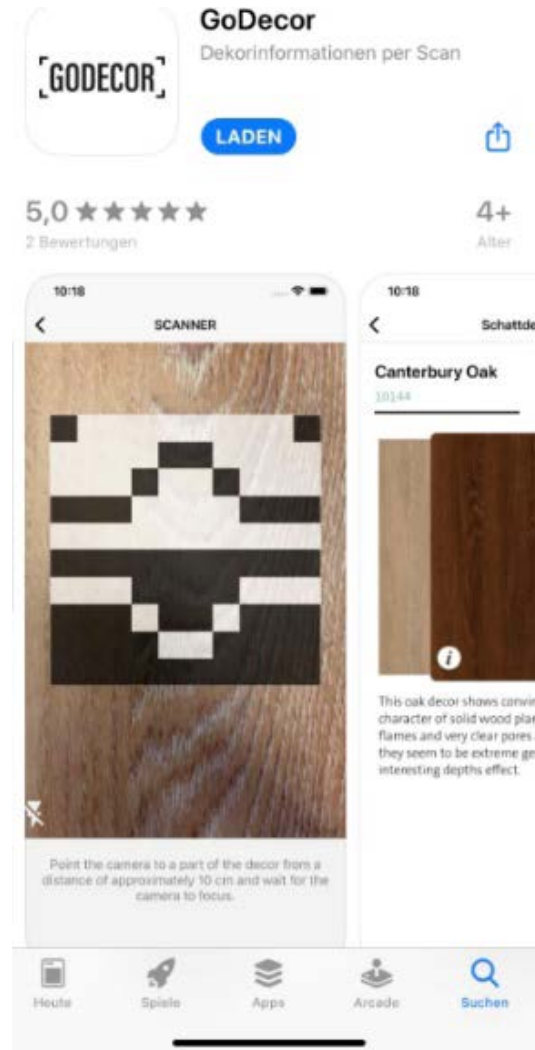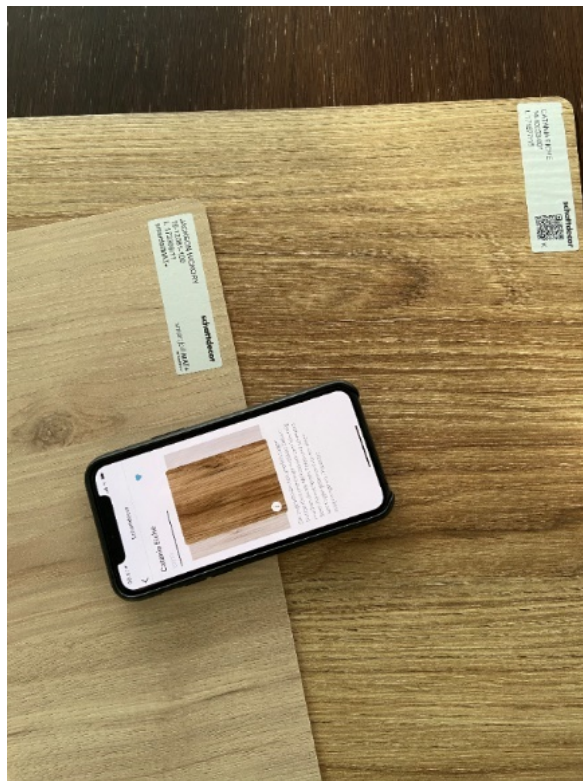
The logo is evenly interwoven with the material and about the size of the palm of a hand. In "scan mode", the mobile phone camera can be pointed at any part of the decor at a distance of about 10-15 cm and automatically obtains all available information about the decor from the homepage of the respective manufacturer. The watermark itself consists of several codes similar to a QR code, and is protected by both a design right and a trademark. The watermark is so secure that it can even be visualized by a mobile phone camera in reproductions. If the watermark is modified to such an extent that trademark protection would no longer apply, then the

change in the wood decor becomes visible to the naked eye.

The actual interweaving of the brand logo with the wood decor is achieved by minimal color value deviations which are invisible to the human eye, but can be detected by the mobile phone camera in conjunction with the analysis software in the app. Such a procedure requires great precision in print quality. Since reproduction by scanning and printing is only possible at the expense of quality, and the original color value deviations are known and stored in the app, illegally produced copies are easily identified. This procedure is also described in a patent application.

technique used, different decor types such as wood, stone, and fantasy, and different materials for reproducing the watermark. It is also crucial to take into account continuous reproduction when positioning the logos. Such detailed aspects related to the application of the technology were deliberately omitted from the patent application in order to prevent their publication and to deprive counterfeiters and plagiarists of any basis for imitation. At the same time, licenses for the entire IP, technology, and know-how package are sold within the industry to provide industry-wide copy protection using the Schattdecor brand.
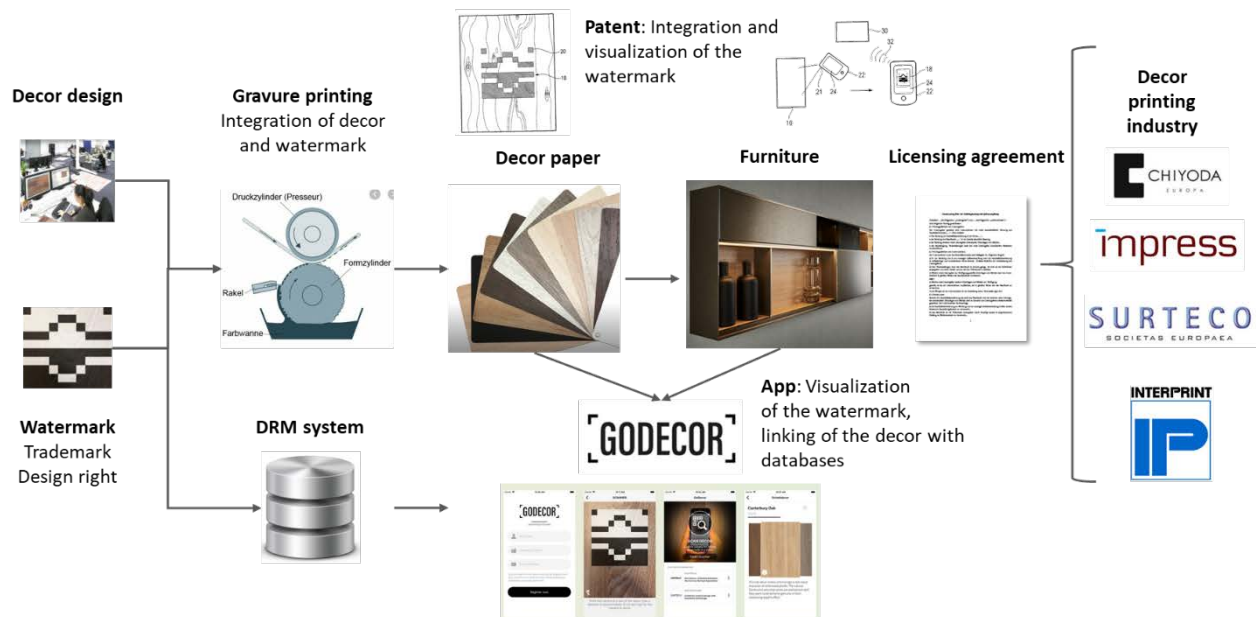

Figure: Overall representation of Schattdecor's digital copy protection

In addition, Schattdecor knows how to apply the process, including the exact size, placement, and nature of the logo in the product, which enables the company to facilitate a smooth recognition of the watermark taking into account the peculiarities of the printing

The Digital Right Management System is of central importance for the overall solution. In analogy to purely digital media, intellectual property must be protected, but unlike many digital media solutions, the solution devel-

oped by Schattdecor offers additional customer benefits. With digital media such as songs, e-books, and PDF data, DRM protection ensures that the respective file can only be viewed for 30 days or played once, for example in an online video store. In principle, DRM protection can be added to any digital file, allowing the author of the file to decide which rights should be granted. These include rights to view, edit, borrow, share, copy, or use the files in any other way.

For Schattdecor, the DRM system primarily serves as a proof of identification along the value chain of its decors, from printing to the finished furniture item supplied to the consumer. In addition to mere copy protection, many other business models based on the digital watermark are conceivable, including assistance in selecting care products for surfaces.

PART III
Summary and benefits for Schattdecor

With its core creative output, Schattdecor fails to meet the usual requirements for IP protection. The actual creative effort involved in designing furniture decors is difficult to protect as intellectual property. Worldwide enforcement is difficult and time-consuming, while plagiarists benefit from significantly reduced investment costs. Schattdecor not only has to develop and market its designs, but it also has to shoulder costly investments in print preparation, especially in the production of the printing cylinders. Ultimately, only a comparatively low number of decors out of 150 become a global success every year. All plagiarists have to do is scan and reprint the successful decor in order to exploit market potentials quickly, cost-effectively and relatively easily. This is particularly damaging to Schattdecor's reputation, as cheaper and non-lightfast colors are used, and the purchased furniture can change color drastically after just a few weeks in the domestic environment.

Schattdecor has developed an IP-based copy protection solution that enables an effective and efficient global enforcement against illegal reproduction. As described above, it is not enough to simply protect the company's creative output. Instead, Schattdecor had to undergo an IP design process to create a system – the watermark, the printing process, and the app – which simultaneously enables IP protection for the purpose of enforcing the company's legal rights in its core business. In addition, an industry solution based on a license agreement was created in order to enable a uniform response to illegal imitators.

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What is the MIPLM?

The 21st century marks a new era as our economies increasingly rely on knowledge-based production processes and services. Consequently, the institutions responsible for education and research in the field of intellectual property law in Europe must provide appropriate training for staff from the respective professional environments to acquire or reinforce their ability to initiate, control, protect, exploit and increase the value of intangible assets. The knowledge-based economy integrates research and development activities, innovation, industrialization and the marketing of products and services including intangible assets and completely revolutionizes enterprise management. It creates new professions specialized in dealing with intangible assets: this branch of law attracts consultants and intellectual property experts from among managers, jurists and lawyers. Indeed, every innovation process generated by new economic activities assumes the intervention of the law, the installation of tools and structures for developing or planning in order to control the intangible assets and to optimize their valorization. It has therefore been the duty of CEIPI, University of Strasbourg, as a leading center for Intellectual Property Studies in Europe, to propose a master program on "IP Law and Management" (MIPLM) since 2005, which complements the existing training course for engineers, scientists and lawyers. This "European" master program features a continuous training scheme aimed at experts in the field of intellectual property. It provides a genuine education program based on an investigation carried out in large enterprises in Europe. The teaching staff comprises academics and experts from various countries, renowned for their work and competence in dealing with the impact of intellectual property on the policy of enterprises.

M. Yann Basire
Director General of CEIPI

Intellectual property has become a crucial factor and driving force in the knowledge-based economy. The economic development and the competitiveness of companies increasingly depend on the generation and exploitation of knowledge. Intellectual property can convert investment in corporate knowledge creation into economic benefits. Thus IP-based appropriation strategies form the basis for creating wealth and competitive advantages for companies from their R&D and innovation activities. The development and implementation of sustainable strategies for IP exploitation require a concerted integration of the disciplines involved in order to achieve an interdisciplinary perspective on IP. In a knowledge-based economy, companies can only achieve a competitive edge by combining the economic, legal and technological sciences. IP management within such a holistic approach provides optimized appropriation strategies and thus essentially contributes to the creation of wealth within a company. Accordingly, IP management needs skilled managers who can combine the economics of intangible assets in an intellectualized environment with multidisciplinary knowledge in order to maximize the benefits of IP. A new type of competencies, skills and underlying knowledge enters the arena of management and management education. The increasing impact of intellectualized wealth creation by investment in knowledge, R&D and innovation followed by its exploitation and IP-based appropriation calls for seminal new education concepts. The CEIPI program "Master of IP Law and Management" offers such a new type of management education. It follows an intrinsically multidisciplinary approach to meet the challenges and requirements of the knowledge-based economy. This master program combines legal, economic and management sciences and includes lectures from leading scholars in the field of IP law and management. Its ultimate objective is to qualify experienced IP professionals for acting as practically-skilled IP managers with a sound knowledge of the principles of wealth creation in our knowledge-based economy.

Alexander J. Wurzer
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Director of the Steinbeis Transfer Institute Intellectual Property Management

Concepts of the Studies Intellectual property and economics in the present context are two disciplines that exist in parallel.

Experts are found in each discipline, but with a lack of mutual understanding and training. Both "worlds" are nowadays bridged by experts, called IP managers, who link both disciplines through knowledge and experience. The CEIPI studies pursue a holistic approach and engage experts for the developing market of an IP economy. They are experts for basic economic management processes with specific assets. Management is understood in the broad sense of an overall company management and accordingly divided into six general functions:

- 1. Strategy
- 2. Decision
- 3. Implementation
- 4. Organization
- 5. Leadership
- 6. Business Development
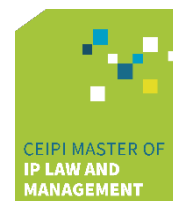
On the basis of this differentiation skills should be allocated to management functions, and relevant knowledge to the functions and skills. The teaching concept focuses on both areas, skills and knowledge, as relevant to business with intellectual property.

Skills can be allocated to the specific management functions as relevant to the practical work within IP management. The skills are thus determined by the daily challenges and tasks an IP manager encounters.

For example, the "Decision" function includes skills such as "valuation and portfolio analysis techniques", and "Organization" as a function requires skills to manage IP exploitation and licensing including economic aspects as well as contractual design and international trade regulations with IP assets.

Special knowledge of economy and law is required in order to implement and deploy these skills in business. This includes knowledge of economic basics such as function of markets and internal and external influence factors. Additional management knowledge is also included such as value-added and value-chain concepts.

The legal knowledge includes contractual and competition law, and special attention will be paid to European and international IP and trade law, e. g. litigation, licensing, dispute resolution. Following this concept, IP law and management can be combined in clusters formed of specific skills and knowledge defined within each management function.

The lectures have a high international standard; the lecturers possess a high reputation and long experience in the teaching subject with academic and practical backgrounds.

The top-level experts come from the fields of law, economics and technology. The experts and the students work closely together during the seminar periods. Exchange of experience and, as a consequence, networking are common follow-ups.
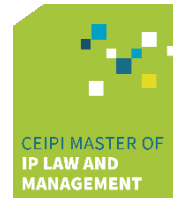
Participants & their Benefits
This European master's program was designed especially for European patent attorneys, lawyers and other experienced IP professionals.

Its ultimate objective is to qualify experienced IP professionals to act as IP managers with the practical skills and knowledge to deal with the new challenges of wealth creation and profit generation. Participants acquire first and foremost a new understanding of how intellectual property works in business models and are conveyed the necessary skills to achieve the systematic alignment of IP management and business objectives.

The course provides an international networking platform for IP managers and in addition enables participants to build long-lasting relationships and to further develop relevant topics within the field of IP management. Being part of this international alumni network also offers new job opportunities and publication possibilities.

Past lecturers and academics

Prof. Jacques de Werra,
University of Geneva

Prof. Estelle Derclaye,
University of Nottingham

Prof. Christoph Geiger,
University of Strasbourg

Prof. Jonathan Griffiths,
School of Law, Queen Mary,
University of London

Dr. Henning Grosse Ruse-Kahn,
Faculty of Law, University of
Cambridge

Prof. Christian Ohly,
University of Bayreuth

Prof. Christian Osterrith,
University of Constance

Prof. Yann, Ménière,
CERNA, École des mines de
Paris

Prof. Cees Mulder
University of Maastricht

Prof. Julien Penin,
University of Strasbourg, BETA

Prof. Nicolas Petit
University of Liege

Prof. Alexander Peukert,
Goethe University,
Frankfurt/Main

Prof. Jens Schovsbo,
University of Copenhagen

Prof. Martin Senftleben
University of Amsterdam

Prof. Bruno van Pottelsberghe,
Solvay Business School

Prof. Guido Westkamp,
Queen Mary University London

Prof. Alexander Wurzer,
Steinbeis University Berlin

Prof. Estelle Derclaye,
University of Nottingham

Prof. Ulf Petrusson,
Göteborg University

Past lecturers and speakers, practitioners and institutions

Arian Duijvestijn,
SVP BG Lighting Philips

Kees Schüller,
Nestlé S.A.

Thierry Sueur,
Air Liquide

Heinz Polsterer,
T-Mobile International

Dr. Fabirama Niang,
Total Group

Philipp Hammans,
Jenoptik AG

Dr. Lorenz Kaiser,
Fraunhofer-Gesellschaft

Leo Longauer,
UBS AG

Nikolaus Thum,
European Patent Office

Bojan Pretnar
World Intellectual Property
Organization

Romain Girtanner
Watson, Farley & Williams

Peter Bittner,
Peter Bittner & Partner

Prof. Didier Intès,
Cabinet Beau de Loménie, Paris

Malte Köllner,
Köllner & Partner Patentanwälte

Dr. Dorit Weikert,
KPMG

Keith Bergelt,
Open Innovention Network

Selected companies

3M Europe S.A.

ABB Corporate Research Center

ABB Motors and Generators

AGC France SAS

Agfa Graphics

Air Liquide

Airbus Defence and Space

Akzo Nobel NV

BASF Construction Chemicals

Boehringer Ingelheim Pharma

British Telecom

Clyde Bergemann Power Group

Danisco/Dupont

DSM Nederland

Fresenius Medical Care

Groupe Danone

Jenoptik

Kenwood

Nestec Ltd

Novartis AG

Philips

Pilkington

PSA Peugeot Citroen

Rittal

Sanofi/Aventis

SAP SE

Schluberger Etude&Production

ST-Ericsson

Tarkett GDL

Total S.A.

UBS AG

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