Industry Case Study Series on IP-Management

Felix Schoeller Group
Digitization in the industrial process chain for paper

By Alexander J. Wurzer, Gerhard Hochstein & Michael Kloskowski

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AUTHORS

Prof. Dr. Alexander J. Wurzer

Dr. Wurzer is Adjunct Professor for IP Management at the Center for International Intellectual Property Studies (Centre d'Etudes Internationales de la Propriété Industrielle, CEIPI) at the University of Strasbourg, where he has been Director of Studies for the Master's degree in Intellectual Property Law and Management (MIPLM) since 2007. Prof. Dr. Wurzer is Director of the Steinbeis Transfer Institute for Intellectual Property Management at Steinbeis University Berlin. He is Managing Partner at WURZER & KOLLEGEN GmbH, a consulting firm specializing in strategic IP management. Prof. Dr. Wurzer is Chairman of DIN committees DIN 77006 for quality in IP management and DIN 77100 for patent valuation. He is a member of the Board of Directors of "Deutsches Institut für Erfindungswesen e.V." (DIE), Spokesman of the Board of Trustees awarding the Diesel Medal, and Fellow at the Alta Scuola Politecnica at Milan/Turin Polytechnic. He was also a jury member for the 2018 German Innovation Award of the German Design Council and is a member of the group of experts of the European Commission.

Gerhard Hochstein

Gerhard Hochstein is serving the Felix Schoeller Group since 2016 as CTO and Managing Director of the Schoeller Technocell Gmbh & Co. KG, being responsible for R&D, Business Development, IP-Management, Engineering and other supporting functions. Before, he worked as Consultant for Innovation Management and many years in the printing industry in technical management functions.

Dr. Michael Kloskowski

In 2014 Dr. Kloskowski started working at Schoeller Technocell GmbH & Co. KG as R&D Manager and is responsible for the IP Management since 2019. Before, he worked for the foundry supplier ASK Chemicals GmbH as head of R&D foundry coatings and OpEx for coating and additive production. He studied at the WWU Münster and worked for Prof. B. Krebs during his PhD thesis.

PART I

About Felix Schoeller Group

Depicting the world and capturing moments for eternity in pictures are ancient human dreams. Generations of tinkerers, inventors, technicians, and chemists have dedicated their life's work to this twofold challenge consisting in using light to capture an image and fixing it permanently. The optics required for that were already described in ancient times by Aristotle and his camera obscura and correctly interpreted by Leonardo da Vinci, which led to the construction of portable viewing boxes as early as in the 17th century. In the 18th century, it was known that various chemicals discolored when exposed to sunlight; especially the darkening of silver salts was investigated in this respect. The first half of the 19th century saw the development of the first viable photographic methods. By the 1830s, photographic methods using light-sensitive specialty papers were underway. In subsequent years, progress was made due to numerous inventions – both mechanical and optical – and in the development of photosensitive silver salts permitting exposure times of just a few seconds. In the second half of the 19th century, photography began to become commercially viable. Felix Hermann Maria Schoeller (1855-1907) was not just the son of a papermaker but had the entrepreneurial vision to recognize the need for photographic paper coated with silver salts. With photography evolving, a completely new market, i.e. the one for photographic base papers, emerged towards the end of the 19th century. In 1895, Felix H.M. Schoeller acquired a paper mill near Osnabrück, Germany, and founded the Felix Schoeller Jr. paper mill to make photographic papers. Among his first customers was the Belgian photo company Gevaert Photo-Producte N.V., which was among the big global players of the photo industry until the 1960s, when it merged with Agfa to form Agfa-Gevaert.

As early as in 1912, the Felix Schoeller Paper Company was founded in the USA. The company continued to develop as a family business for several generations and grew rapidly after WW2. By 1962, Schoeller had already reached a 60 percent share of the international export market for photographic products. In 1986, the world's most efficient machine for producing photographic base papers was built in Osnabrück, and in 1989, sales reached approximately EUR 250 million. After Germany's reunification in 1990, the company expanded into Eastern

Europe. At the same time, however, it became apparent that there would be a fundamental shift in technology from analog to digital photography and, in the medium term, the photographic paper market would see a dramatic change. Compared with the amortization periods of investments in traditional production equipment such as papermaking machines, the technological change brought about by the digitization of photography happened at breakneck speed. Digital photography was introduced in the 1990s in the field of commercial image production. In 2006, it became abundantly clear at Photokina, the world's leading trade fair for the photography, video, and imaging industries, that the era of film-based cameras was over. Digital cameras accounted for over 90 percent of worldwide camera sales – a development Schoeller needed to react to.

The company's diversification efforts in the specialty papers sector had already begun in the early 1990s, including the development and production of papers for high-quality, photo-like digital prints, initially intended particularly for inkjet printing. The company had already analyzed various possible market segments for specialty papers to drive diversification and thus minimize its reliance on photography. A catalog of requirements was defined for the new strategic business segment. The idea was to produce specialty papers in order to use the company's existing know-how and allow it to become top dog in its new market in no time. A strategic analysis pointed at the potential of decor papers for the wood-based materials industry. In 1993, Schoeller acquired Technocell AG and turned Technocell Dekor, a manufacturer of high-quality decor papers, into a wholly owned subsidiary of the Felix Schoeller Group. The decor papers segment at Schoeller has since seen a steady growth. In 2017, decor paper sales accounted for 246,000 metric tons and two thirds of Schoeller Group's total sales.

The company's production sites include the headquarter in Osnabrück as well as further German locations in Bavaria, Baden-Württemberg, and Saxony. International production sites are located at Pulaski and Anaheim (USA), Drummondville (Canada), Penza (Russia), Longyou and Shexian (China).

Decor paper

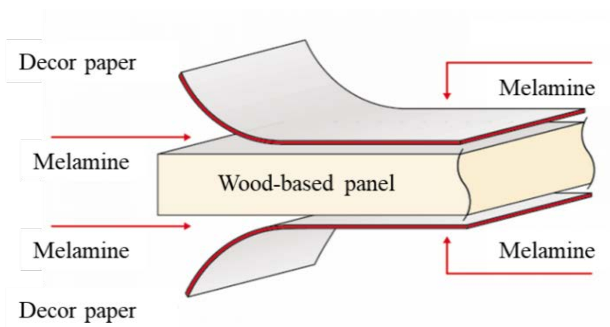
Together with its competitors Ahlstrom-Munksjö (Helsinki, Finland) and Malta Decor (Poznan, Poland), Technocell Dekor is one of three dominant players in the European decor paper market. Decor papers are specialty papers used as finishing materials for the surfaces of wood-based materials and are predominantly used in the furniture and interior design industries. Decor paper surfaces can be found in kitchen worktops, furniture, doors, wall panels and laminate flooring, for instance. The main characteristic of such decor panels is their visually appealing surface design. The decor papers used are typically impregnated with curable aminoplast resins (urea or melamine resin) and come in a wide range of colors and printing designs. They are applied to a carrier plate, usually a chipboard or HDF/MDF panel.

Wood-based panels do not contain knot holes or malformations, have uniform properties throughout, and can be produced in bulk. In addition, wood-based panels are cheaper than solid wood as they can be processed on an industrial scale.

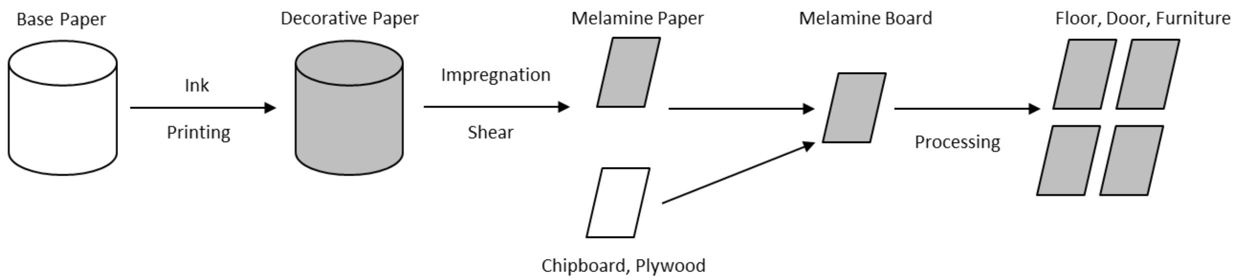
The sawdust and wood shavings required for particleboards like chipboards, MDF/HDF production are waste products from the wood industry or made of fresh wood from thinning. The panels are produced by compressing the components with glue, which lends them a fine-grained and undirected structure. For the production of wood fiberboard, the wood is shredded even more than with chipboard. Two different methods can be used for the further processing of the boards. Especially soft fiberboard, which is used for sound and thermal insulation for interiors or as roof formwork, is made in a wet process without adhesives. Soft fiberboard panels not only provide good protection against the cold in the winter, but also against summer heat. So-called MDF (Medium-Density Fiberboard) panels, which are predominantly used in furniture construction and for interior fittings, are manufactured using a dry process with adhesives.

The application of the print pattern is usually done by gravure printing. This printing technique has the advantage of being able to print large quantities of paper at high machine speed, especially when producing commercially available print patterns. Of the printing techniques that meet the requirements for flexibility and quality, the inkjet printing process (ink-jet printing) is becoming increasingly important.

Decor papers are used to adapt the design of these panels. The trends for wood-based panel designs are increasingly short-lived. The decors of floor panels today have typically a collection cycle of three years. In the furniture industry, wood design cycles in Europe, North America, and Asia could be even shorter. The wood decor industry is approaching collection cycles similar to those in the fashion industry.



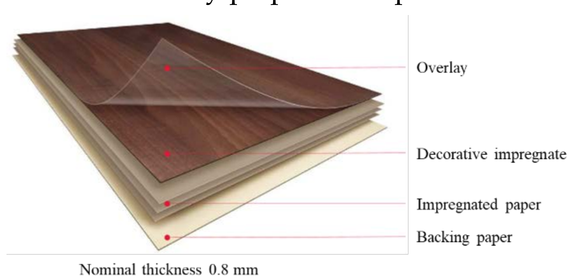
Driven by this, the average order size for printed or colored decor paper is decreasing. This development requires that the production times and batches of certain decor papers become ever shorter or smaller, which highlights the importance for Technocell to find profitable ways of producing small batches.



The process for producing a coated decor panel is illustrated in the principle sketch. The most important features of decor base papers are their absorption capacity for melamine resin and their excellent printability. In the impregnation machine, the paper is only exposed to the resin for a few seconds. Within this brief period of time, the base paper must be able to rapidly absorb the adhesive and do so as evenly as possible. The process requires a paper with a high, stable, and continuous absorption capacity. This absorption capacity limits the speed of the paper impregnation process.

Among other products, Technocell produces papers for CPL (Continuous Pressed Laminates) and HPL (High Pressure Laminates). Decorative laminates consist of different cellulose fiber sheets, which are for instance impregnated with thermosetting resins. They are joined using the method described below. The top layer usually consists of an overlay impregnated with melamine resin, decor paper, and sometimes a barrier layer. The core of a laminate consists of kraft papers impregnated with phenolic resin. The heat and pressure applied causes the resins to flow and subsequently cure. The cross-linking of the resins, supported by the cellulose fibers of the papers, results in a high-density material with a sealed surface.

The term CPL already provides indications of the manufacturing process. CPLs are produced in continuous double-belt presses with a pressure of up to 70 bar and at temperatures of up to 170°C. Depending on the laminate thickness and the press zone length, the feed rate varies between 8 and 15 m/min. HPLs are produced in multi-level batch-type presses with a pressure of up to 90 bar and temperatures above 120°C. The multi-level presses consist of 10 to 20 levels, accommodating approx. 8 laminate panels of up to 0.8 mm thick each. Depending on the press feed rate and the maximum temperature, the complete pressing cycle including recooling takes approx. 60 minutes. This manufacturing method permits the production of compact panels and surfaces with clearly palpable deep structures.



Industry 4.0 in the paper industry

The paper industry is a highly capital and energy-intensive industry. At the same time, it is a highly concentrated sector with an average company size well in excess of that in manufacturing. On the whole, the sector has been characterized by significant job cuts for decades, with the skills profile of the workforce shifting at the same time. The number of skilled workers in the paper industry is constantly on the up, and the importance of know-how as a competitive advantage is also seeing a dramatic increase. Key industry topics include energy costs, the costs and availability of raw materials, demographic change and demand for skilled labor, innovation and investment, as well as the development of new business segments. In terms of paper imports by world regions, the member states of the European Union are well ahead of the rest of the world. However, these imports are decreasing, while all other world regions have upped their share of world paper imports in recent years. The greatest importers of paper products are Eastern Europe as well as the Middle East.

Germany has by far the largest paper industry in Europe. What is typical of this industry are its high foreign sales, which, at more than 50%, are significantly above those of the manufacturing sector (about 45%). The turnover per employee in the paper industry is over EUR 400,000 compared to the industry average of approx. EUR 300,000, which illustrates the high capital intensity of the industry and the high procurement costs for cellulose, wood, recycled paper, energy, etc.

In 2017, the German paper industry achieved a 3.2 percent increase in turnover to almost EUR 15 billion. The approx. 180 companies sold approximately 23 million tons of paper and cardboard, which represents an increase of 1.4 percent. Products are becoming more high-quality, more expensive and require more know-how. The market segment of technical specialty papers like those of Felix Schoeller Group even managed to achieve a 4.4 percent growth.

Specialty papers ("paper and cardboard for technical and special purposes") account for approx. 7% of total paper production. This core group comprises numerous paper types such as decor paper, electrical insulating paper, labelling paper, filter paper, photo paper, cardboard for car bodies, carbonless paper, silicone paper, and thermal paper. Apart from large corporations such as Ahlstrom, Kanzan, and Mitsubishi HiTec Paper, this segment also includes specialized family-owned companies such as Papierfabrik Koehler and Schoeller Technocell.

One of the key success factors of the paper industry is its extremely high productivity. New technologies have led to leaps in productivity in recent decades, which, in turn, have led to overcapacity. Paper machines have become ever faster, wider, and more efficient. At the same time, they have become ever more expensive. A cutting-edge paper machine typically runs 8,300 hours per year at a speed of 2,200 meters/min. and costs between EUR 100 and

500 million. To remain competitive, however, industry players cannot just rely on productivity. Flexibility is also crucial. Great flexibility means being able to adapt quickly to a changing framework and new market conditions. This applies to fluctuations on the raw material markets as well as to changes in buying industries, and requires greatest possible flexibility in the machine pool as well as flexible, knowledge-oriented workforces.

Digitization is affecting the paper industry and therefore Schoeller Technocell with a range of trends. On the one hand, paper is increasingly losing its significance as a vehicle for conveying information as a result of digitization. Consequently, paper consumption in the newspaper, journal, office communications, and photo industries is generally decreasing. On the other hand, digital technologies are leading to a significant efficiency increase in production and to greater product customization. Furthermore, crude oil-based packaging is being replaced by fiber-based packaging as well as a continuous increase in recycling rates due to the use of high technology. Industry 4.0 approaches such as condition monitoring and predictive maintenance offer huge productivity advantages, especially with the capital-intensive use of large machines, which are in continuous operation. In addition, more individual and customer-specific requirements can be met by using the Industrial Internet of Things.

Digitization is therefore a significant and important milestone on Felix Schoeller Group's journey into the future. A separate Digital Unit has been established, which pursues three main priorities: the development of digital business models along the value chain and the development of digital services for current products and markets, the digitization of internal business processes and procedures, and the digitization of production to increase performance and reduce costs in line with Industry 4.0.

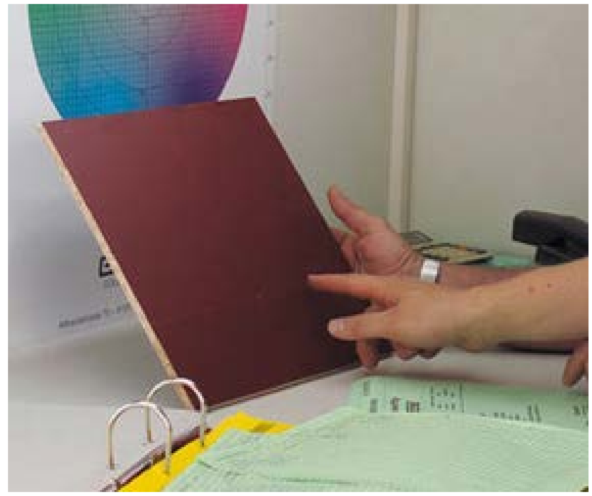
Advantages can especially be achieved in cooperation with the customers of Technocell Dekor. Examples include:

-> <u>Reducing downtimes in decor printing by 27%</u>

Customers repeatedly experienced paper tear inside the printing machine, which led to idle times of 30-60 minutes. This resulted in a downtime of 15% with individual production runs. Analyses showed that certain paper types were particularly affected by this problem. By analyzing the influencing factors and performing a digital comparison of test methods and parameters among the project partners, customer processes could be optimized by adapting the specifications of Technocell Dekor products.

-> <u>50% time savings for testing and approval through digitalization</u>

For quality approval, Technocell Dekor used to produce series and duplicates for each production run, which were sent to the customer by post for final acceptance. This process entailed a great deal of manual and coordination work, and several days would go by before approval and the start of production. By developing a shared test procedure, measuring color values, and exchanging digital data, and defining shared objective specifications, the duration of the new digital approval process could be reduced to a few hours.

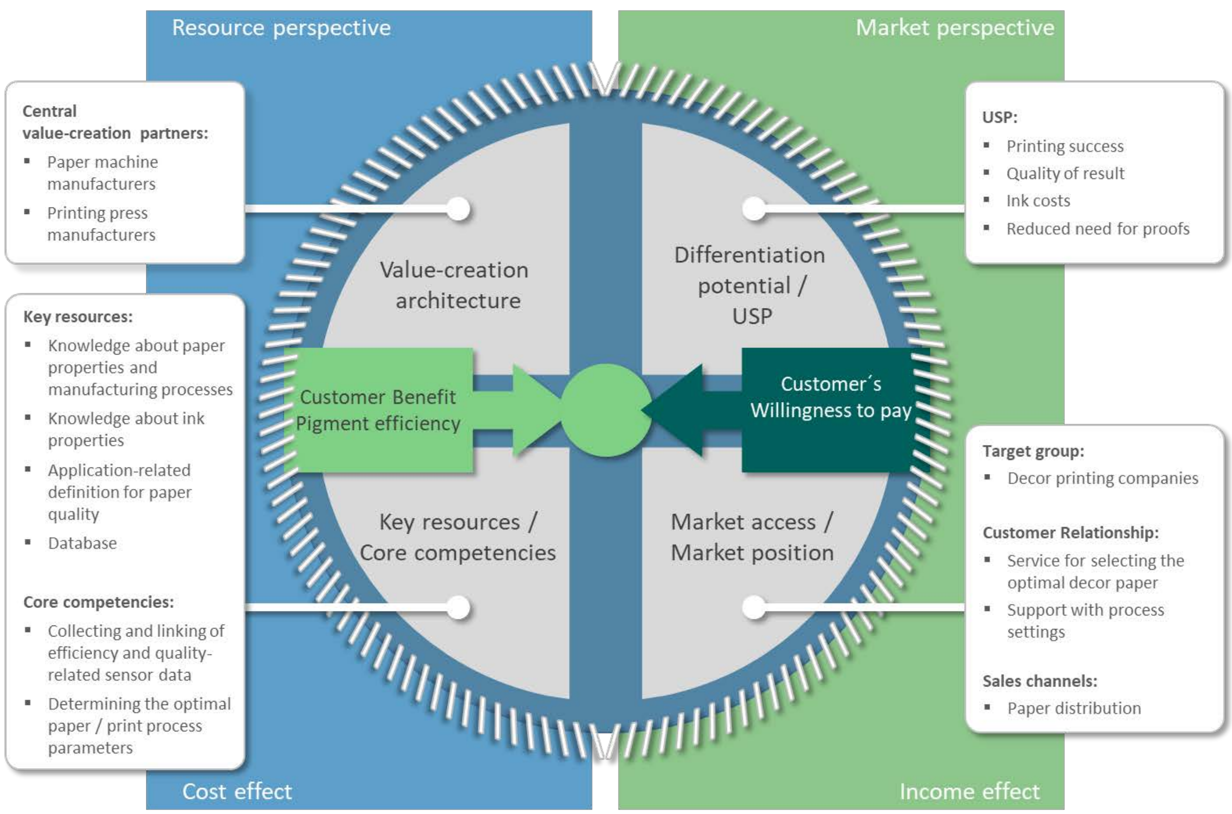


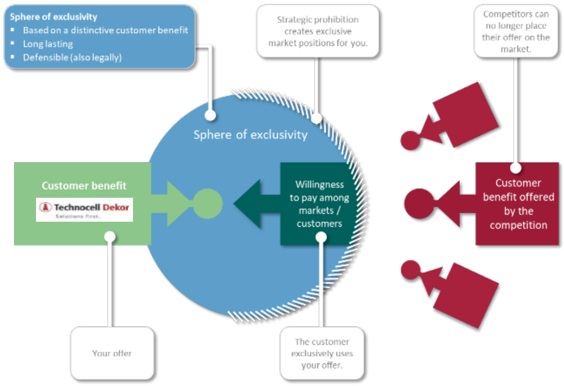
PART II

Designing and protecting digital business models using IP design

A business model describes the specific way in which a company seeks to be successful in the market, e.g. by means of innovation. The key elements are as follows: the value creation architecture and the key resources on the cost side, and the customer benefit leveraging the customer's willingness to pay as well as the ability to maintain this value proposition in the long term on the revenue side.

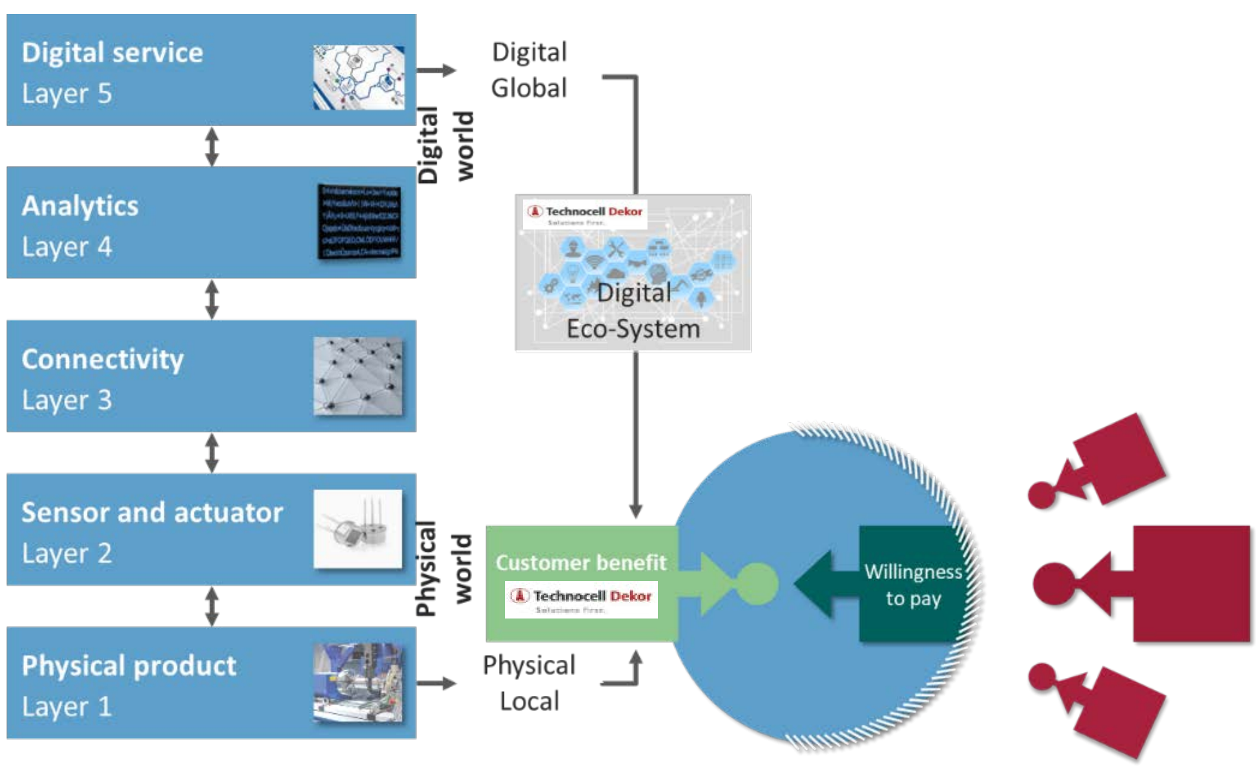
The starting point for the business model analysis for designing an IP strategy is Technocell Dekor's competitive differentiation. In competitive differentiation, USPs deemed relevant by the customer are positioned against the competition in such a way that a specific customer benefit is as unique and incomparable as possible in the customer's eyes. Ideally, Technocell Dekor must manage to prevent the competition from offering similar customer benefits related to customer-relevant features, allowing it to leverage the customer's willingness to pay. The fundamental principle of IP strategy in competitive differentiation also relies on exclusivity positions which customers willing to pay for the corresponding benefits perceive as relevant to their decision-making, and which can be defended and enforced against the competition.





Digital business models adapt this basic model by adding the use of digital technologies. The use of digital technologies in digital business models can be visualized as layers above the physical level. The image below shows these different layers. Similar to the reference model for the network communication of computers, the Open System Interconnection Model (OSI Model) of the International Organization for Standardization (ISO), the system boundaries of the layers gradually increase in size and culminate in a digital eco-system.

When developing an IP strategy for protecting digital business models, it is purposeful to look at the mechanisms of and interactions between the various layers of Industry 4.0 approaches. The bottom layer represents the physical product, e.g. specialty paper, which is produced in the manufacturer's processing plant and processed further in the customer's processing plant. The layer above includes the sensors and actuators making the plant or device electronically interoperable with the virtual world. In the case of Technocell Dekor, this could include data readings as outlined above, which are relevant for customer processes. The next layer consists of networking capabilities, and therefore the possibility of collecting, transferring, and storing data, and controlling the plant or device remotely. These data as well as data from other sources can sub-



sequently be analyzed, and the insights gained can be used in providing products and services such as optimized process control. In addition, further partners can be included, which is also referred to as a digital eco-system.

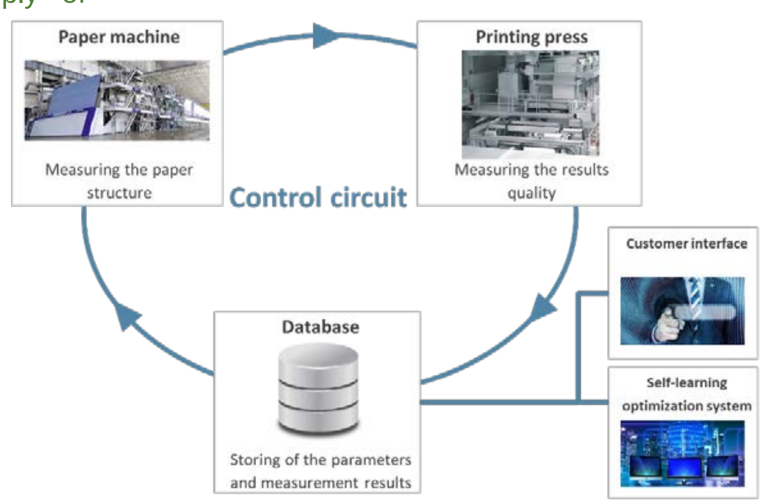
Generic IP strategy for processing industries: value chain monopoly

Industrial production can be defined by the ability to manufacture identical reproducible goods using industrial production methods. The key feature of this definition of the industry term is identical reproducibility based on clear technical specifications. As a rule, this involves the consumption of materials and resources. An industrial value chain is defined by all stages of the manufacturing process, including all upstream and downstream activities. It is therefore the operational complement to networks and cooperations working together in an organized manner beyond mere supplier relationships. Ideally, an industrial value chain can be broken down into four stages:

1. Primary commodity and material-related activities
2. Upstream services and supply of components
3. Production activity; creation of the final product or service
4. Downstream services

The value chain is a mechanism allowing manufacturers, processors, dealers, etc. to contribute value added towards a final product without being bound to a specific place or time frame while the product is being processed by the respective value chain member. Each company in the industrial value chain initially acts individually and independently, but the companies share common goals as all of them are dependent on the success of the final product with the customer. The better the quality of the final product, the greater the integration within the industrial value chain. In the food, steel, cotton, or paper industries, for example, the quality that can be achieved at each individual stage of value creation depends to a significant extent on the quality of the product supplied by the previous value creation stage. Performance increases along the value chain require an increasing integration and linking of production and processing steps. This usually requires detailed information about process and material properties from different processing steps.

The generic IP structure of the value chain monopoly is based on this fundamental characteristic of industrial value chains. The different value creation stages require precise information from the other stages to optimize their respective processes. If fur-



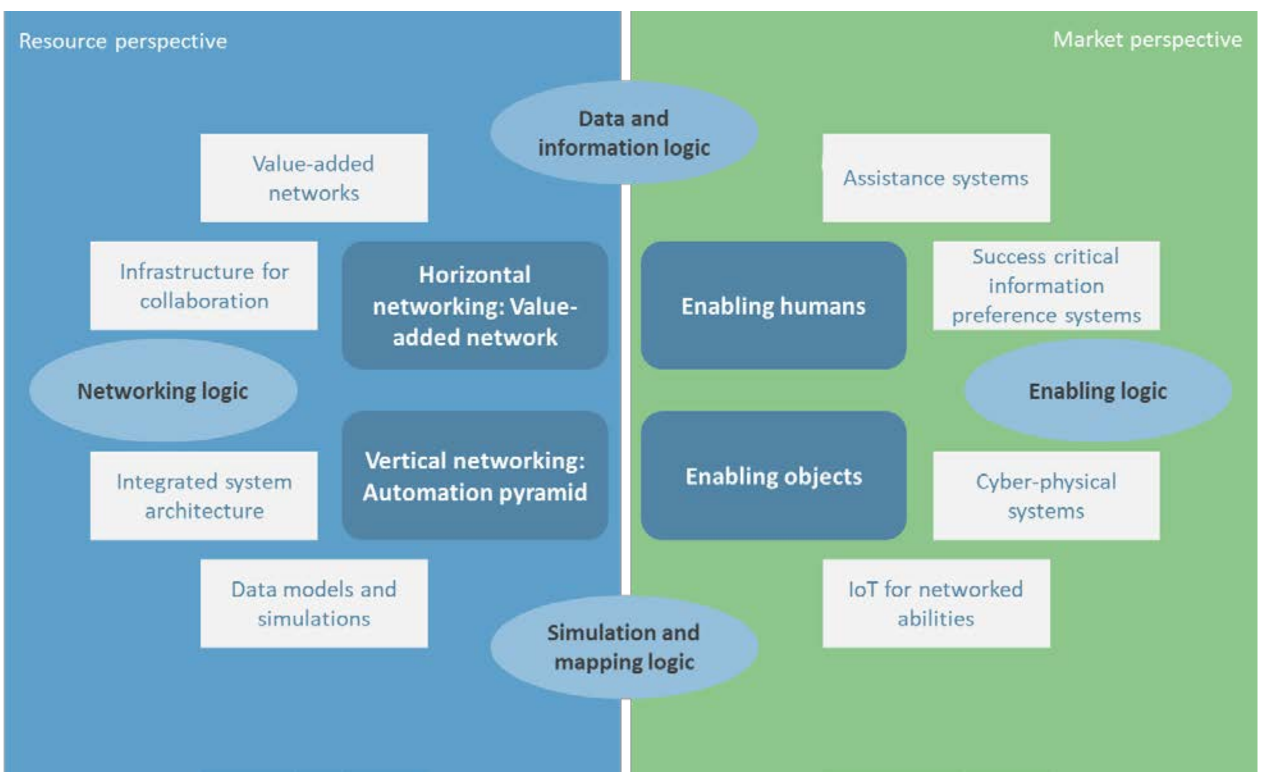
ther partners such as insurers, service companies, and complementary partners come into play, we also speak of an eco-system. If, for example, the various value-added partners exchange digital data in order to optimize process parameters and use these optimizations to improve their own products, this leads to a control circuit which also permits the use of AI technologies.

Optimization of digital business models and use of IP

When it comes to protecting digital business models by means of IP, most notably through patents, it is important to understand how the use of digital technologies affects the business model and how the technologies are implemented in each specific case. The figure below shows the potential applications of digital technologies along the resource and market perspectives of business models. The application of the four digital logics

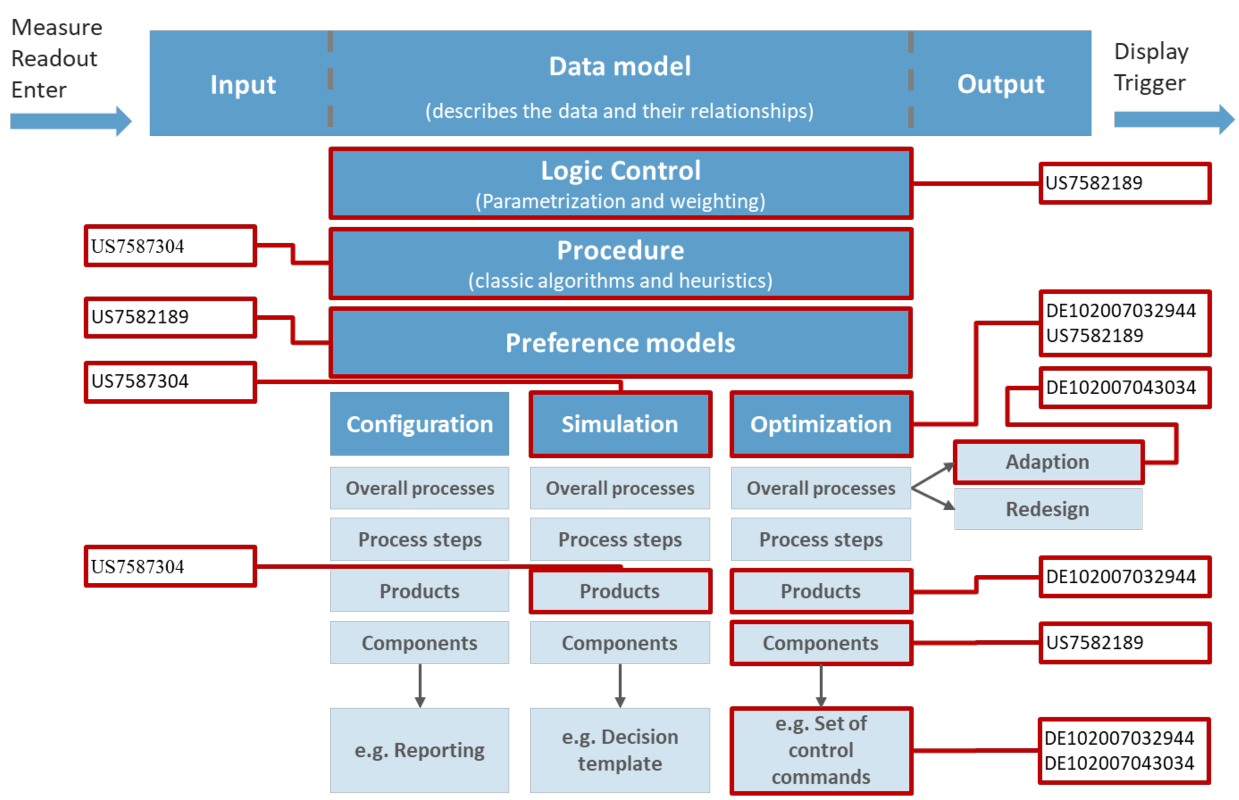
- networking logic,
- enabling logic,
- data and information logic, as well as
- simulation and mapping logic,

leads to cost reduction potentials as well as earnings potentials on the market side. These logics are linked to technological approaches such as the Industrial Internet of Things or cyber-physical systems. What is decisive for the patent position to be used in a specific case is the economic effect achieved by the use of the technology in the business model. If the technology in question has a cost effect, such as time reduction or energy savings, then a resource-oriented IP approach will be chosen and an attempt will be made to create a so-called VRIN (valuable, rare, imperfect imitable, non-



substitutable) resource by means of prohibition rights. If, on the other hand, the technology in question has a revenue effect, such as increased flexibility or the creation of new decors, then a market-oriented IP approach will be chosen in order to try to influence Porter's typical market forces (competitive rivalry, negotiation power of customers, negotiation power of suppliers, threat of new entrants, threat of substitutes, impact of complementors) by means of superior patent positions.

This systematic approach leads to a taxonomy of applicable digital patents. This taxonomy is based on empirical learnings from the protection of digital business models. The structure is highly abstracted and extensive, and must be adapted to the implemented technologies in line with the digital logics applied. The figure below shows the patent types that can be used for the development of business models and the analyses of eco-systems of Schoeller Technocell Dekor. Patent types refer to typical elements of business models whose technical implementation is described in the patent literature.



PART III

Summary: Success factors and benefits for Schoeller Technocell Dekor

The strategic focus of the Felix Schoeller Group is clearly on continued growth, both by strategic means and through acquisitions. Financial independence as a family business as well as a strong presence in all important growth markets and economic regions worldwide also continue to be important. Especially with Technocell Dekor, Schoeller relies on customer-oriented solutions and the development of digital business segments. The systematic use of IP design as a management tool helps companies to evaluate and develop their business model options in all their digital complexity. Especially the combination of well-established, consistent thinking in terms of customer benefits with digital potentials and their protectable technological implementations helps companies to identify and protect viable future-proof strategies. The tool-based IP design methodology supports the strategic goal of operational excellence, including the digitization of internal processes. In particular, it promotes individual creative contributions of employees, thus increasing their motivation and commitment. Especially the increasing reliance on expertise within the industry is therefore becoming a sustainable competitive advantage for Technocell Dekor.

Contact
Alexander Wurzer
alexander.wurzer@ceipi.edu

What is the MIPLM?

CEIPI MASTER OF IP LAW AND MANAGEMENT

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
Director of Studies, CEIPI | Adjunct Professor
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.

CEIPI MASTER OF IP LAW AND MANAGEMENT

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

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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

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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
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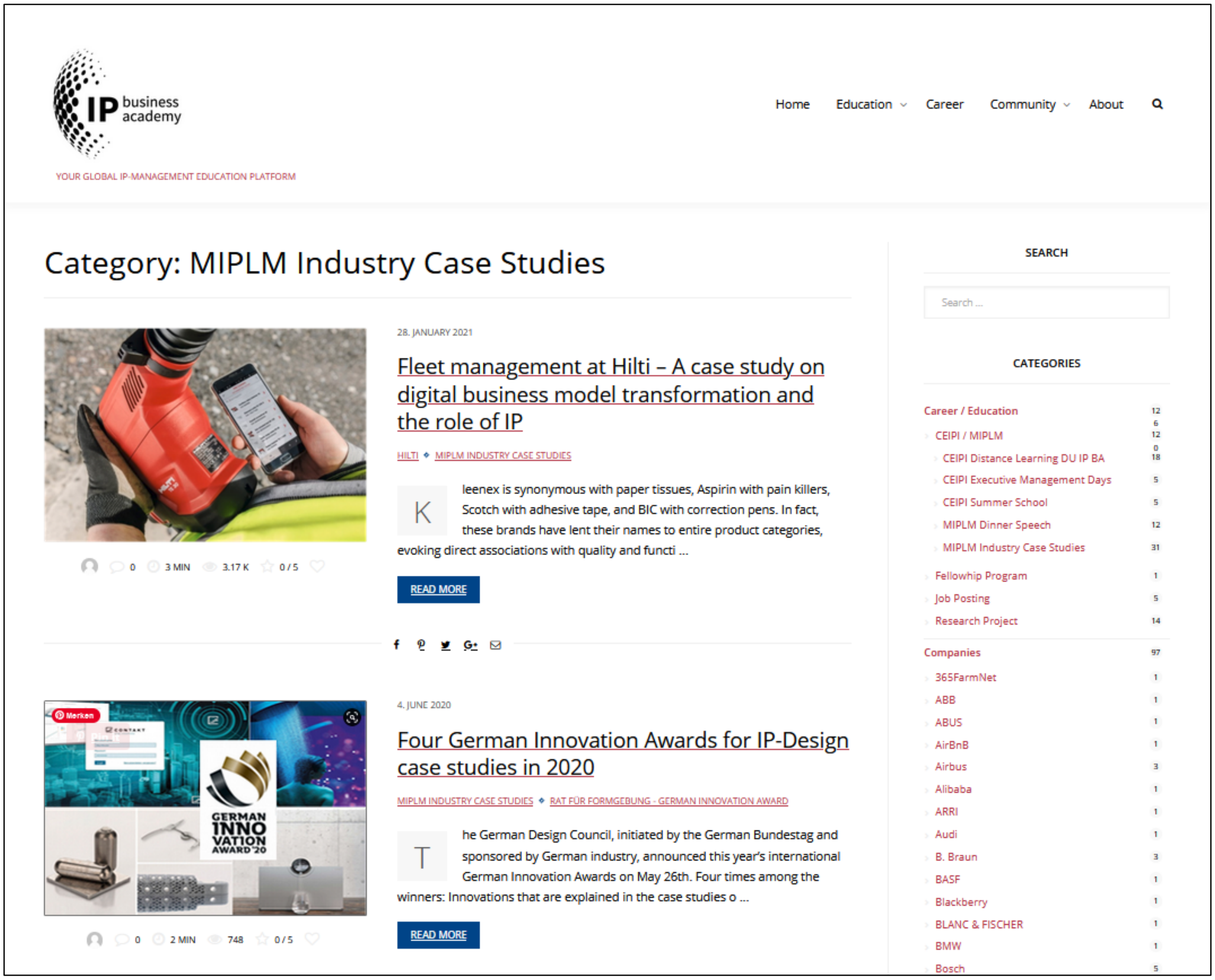

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