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Standards Academy Synopsis: IPRs and Standardisation

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Module Objectives

After completing this module, you should be able to:

1. To know the various forms of IPRs
2. To understand the tensions between patents and standards
3. To know the different forms of IPR policies of SDOs
4. To comprehend the possible role of patent pools

About The Author

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Knut Blind studied economics, political science, and psychology at Freiburg University. During his studies, he spent one year at Brock University (Canada), where he was awarded a BA. Finally, he earned his Diploma in Economics and later his doctoral degree at Freiburg University. Between 1996 and 2010, he joined the Fraunhofer Institute for Systems and Innovation Research, Karlsruhe, Germany, as a senior researcher and, at last, as head of the Competence Center “Regulation and Innovation”. In April 2006, Knut Blind was appointed Professor of Innovation Economics at the Faculty of Economics and Management at the Berlin University of Technology. Between 2008 and 2016, he also held the endowed chair of standardisation at the Rotterdam School of Management of Erasmus University. From April 2010 to September 2019, he was linked to the Fraunhofer Institute of Open Communication Systems in Berlin. Since October 2019, he has been head of the business unit “Innovation and Regulation” at the Fraunhofer Institute for Systems and Innovation Research. In 2012, he initiated both the Berlin Innovation Panel and the German Standardisation Panel followed by a pilot of a European Standardisation Panel launched in 2023. Besides numerous articles on patents, he published several contributions on standardisation and further innovation aspects in refereed journals.

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1 Introduction

Standardisation, a critical process in technology and product development, is influenced by various factors such as customer requirements, regulation and policy, and notably, research and innovation (Blind et al. 2024). Innovations often lead to new standards that improve product compatibility, safety, and efficiency. However, the pathway from innovation to standardisation conducted within Standard Development Organisations (SDOs) is complicated by the presence of intellectual property rights (IPRs).

IPRs are designed to protect the investments of creators by giving them exclusive rights to their inventions, which can include everything from new technologies to business processes. While IPRs incentivise innovation, they can also create barriers to the widespread adoption of new technologies, especially when such technologies become part of formal standards released by SDOs. Participants in standardisation processes are active in obtaining IPRs, such as patents, copyrights, and trademarks. This ownership can restrict how new innovations are integrated into devices and utilised in the broader market, particularly when the relevant technologies are embedded in formal standards.

Understanding the interplay between IPRs and standards is crucial. It involves navigating between protecting the rights of inventors and ensuring that emerging technologies can be freely accessed and implemented. This balance is vital for fostering an environment where innovation can thrive and be effectively integrated into standards that propel industry forward and deliver benefits to consumers. Thus, stakeholders in standardisation need to maintain a keen awareness of IPRs to facilitate a smoother transition of innovations from conception to standardised applications.

2 IPRs and its different forms

Laws for the protection of intellectual property (IP) are ubiquitous, established in nearly every country across the globe. These laws are crafted with multiple objectives in mind. Primarily, they recognise and safeguard the moral and economic rights of creators, ensuring that individuals and organisations receive recognition and financial benefit from their inventions and creations. This legal protection not only rewards creativity, but also serves as a significant incentive for investments in research and innovation.

Furthermore, IP laws play a pivotal role in promoting research, creativity, and innovation, along with encouraging the dissemination and practical application of inventive solutions. By providing a framework where new ideas can be protected and monetised, these laws help in fueling the engine of cultural and technological advancement. Creators can secure patents, copyrights, trademarks, and more, each tailored to different types of intellectual creations, from artistic works to industrial inventions.

Additionally, the ability to trade these IPRs contributes to economic growth and sustainable development. By allowing their transfer and licensing, countries create a dynamic market for IPRs that can be bought, sold, or licensed. This not only aids the creators in profiting from their intellectual labor but also enhances the accessibility of innovative technologies and creative materials across different sectors and borders.

In essence, IP laws are foundational to fostering an environment that respects the intellectual efforts of individuals and organisations while simultaneously driving forward economic and cultural prosperity on a global scale.

Owning IPRs, such as patents or copyrights, confers specific legal entitlements to the holder. Primarily, IPRs provide their owners with the exclusive right to prevent others from using the protected creation or innovation without permission. This exclusionary power is a fundamental aspect of intellectual property protection, serving to uphold and reward the efforts of creators and innovators.

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When one owns an IPR, several strategic options become available:

1. Personal Use: The owner can choose to utilise the technology or innovation exclusively within their own operations.
2. Licensing: The owner may allow others to use the protected technology or innovation in exchange for monetary compensation or other benefits. This is typically done through licensing agreements, which can be tailored to specific needs and conditions, including royalties, lump-sum payments, or even granting usage rights at no cost.
3. Sale: Ownership of an IPR can also be transferred completely to another party, often for a negotiated price.

It is important to note that the rights granted by IPRs are not indefinite. For example, patents generally last for 20 years from the filing date, while copyrights extend for at least 50 years after the death of the creator. These time limits are designed to balance the interests of creators and the public, eventually allowing innovations to enter the public domain.

Moreover, holding an IPR does not inherently grant the right to use the innovation, particularly in complex fields where multiple patents may interact. For instance, employing a patented invention in a new product could inadvertently infringe on earlier patents. In such cases, it may be necessary to secure licenses from the holders of these pre-existing patents to legally use the innovation.

3 Ways in which IPRs can be relevant to standards and standardisation

Thus, while IPRs provide significant control and numerous options for monetising intellectual creations, they also require careful management to navigate potential legal complexities and maximise their benefits.

Standards, as formalised text documents, inherently raise questions regarding copyright. These documents serve as agreed-upon guidelines or specifications intended to ensure reliability, safety, and interoperability of products and services. The copyright of these texts typically belongs to the SDOs that create and publish them, granting them control over how the standards are reproduced, distributed, and used.

In addition to the textual content, standards are often associated with recognisable names and symbols that facilitate their identification and adoption, such as GSM, Wi-Fi, Bluetooth, and CD. While the SDOs may hold the copyright for the standard documents themselves, the ownership of these associated trademarks can vary. For instance, the GSM logo is owned by the GSM Association (GSMA), and the trademark for "Wi-Fi" is held by the Wi-Fi Alliance. These trademarks are crucial for maintaining the identity and integrity of the standards in the market.

Implementing these standards into products or services, however, often extends beyond the use of names and logos. It frequently requires the incorporation of specific IPRs that may be protected by patents or copyrights. For example, a standard might necessitate the use of patented inventions or mandatory software code that is critical for compliance but protected under copyright laws.

This intersection of standards and IPRs necessitates careful navigation to avoid infringement. Companies looking to implement these standards must often obtain licenses for the use of necessary patented technologies or copyrighted material. This process ensures that the IPRs of the creators or owners are respected, while allowing for the broader utilisation of the standard in various products and services.

Standards are essential formalised text documents that establish agreed-upon guidelines or specifications to ensure reliability, safety, and interoperability of products and services. The ownership of the copyright of these standards typically lies with the SDOs that create and publish them. This gives the SDOs authority over how the standards are reproduced, distributed, and used, ensuring that the integrity of the standards is maintained.

Beyond the text, standards often include recognisable names and symbols like GSM, Wi-Fi, Bluetooth, and CD, which help in their identification and widespread adoption. While SDOs usually hold the copyright for the standard

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documents, the ownership of associated trademarks can differ (see above).

However, the implementation of these standards into products or services often requires more than just using the names and logos. It usually involves the integration of specific IPRs, like patents or copyrights. For instance, compliance with a standard might necessitate the use of patented technologies or essential software code that is copyrighted.

Navigating the intersection of standards and intellectual property is crucial to avoid infringing on rights. Companies aiming to implement these standards typically need to secure licenses for the use of necessary patented technologies or copyrighted materials. This licensing process is vital to respect the IPRs of the holders while facilitating the broader application of the standard across various products and services. This careful balance helps promote innovation while ensuring that existing rights are not violated.

4 Tensions between patents and standards

The patent system and the standardisation system are both institutional frameworks designed to serve the public benefit, yet they operate based on different principles that can lead to inherent tensions. This is particularly evident in the case of standard-essential patents (SEPs).

Patents are intended to spur research and innovation by granting inventors temporary exclusive rights to their technological innovations. This exclusivity allows inventors to potentially recoup their investment and profit from their creativity, thereby encouraging ongoing innovation. In contrast, standards aim to foster innovation on a broader scale by ensuring that technical solutions are accessible to all interested parties. Standards seek to eliminate undue barriers to entry, promoting widespread adoption and interoperability of technologies.

SEPs embody a unique intersection of these two systems. By definition, an SEP covers technology that is essential for meeting a particular standard; without using the technology protected by the SEP, it is impossible to manufacture a product that adheres to the standard. This creates a scenario where the patent holder has considerable leverage, as any implementer wishing to produce a standard-compliant product must obtain permission to use the SEP, typically through a licensing agreement.

In scenarios not governed by standards, a producer might choose to avoid using a patented technology either by not incorporating a particular feature or by 'inventing around'—developing an alternative technology that achieves similar results without infringing on the patent. However, when it comes to SEPs, these workarounds are in general not viable. Compliance with the standard necessitates the use of SEPs, giving the patent holder a particularly strong position. This can lead to potential issues such as the 'hold-up' problem, where the SEP holder might demand unreasonably high royalties or impose restrictive licensing terms.

Given the potential for conflict between the patent system and standardisation, especially in the context of SEPs, there is a critical need for thoughtful considerations and policies. Regulators and policymakers must balance the rights and incentives provided to patent holders with the broader goal of promoting technological standardisation and accessibility. This often involves ensuring that SEPs are licensed on Fair, Reasonable, and Non-Discriminatory (FRAND) terms, which aim to prevent SEP holders from taking undue advantage of their position while still compensating them fairly for their innovations.

In conclusion, while both the patent and standardisation systems aim to benefit the public and foster innovation, the integration of these systems through SEPs requires specific rules to resolve tensions and ensure that the advantages of both systems are realised without disadvantaging any party involved.

However, it is crucial to recognise that a potential SEP does not equate to a factual SEP. When such disclosures are made, the final content of the standard is not yet finalised, and it is possible that the technology covered by the declared patent might not be included in the standard at all. Additionally, the scope of the patent may also be subject to change due to modifications during the patent application process. Therefore, a patent's essentiality only

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becomes clear once the patent is granted, if it is granted at all.

In 2017, the European Commission highlighted the need to increase transparency regarding SEPs and expressed a desire for more readily available information on the factual essentiality of patents to better inform market players. The proposed regulation of SEP published in 2023 aims at clarifying the landscape of SEPs and assisting in the determination of a patent's essentiality to a standard.

5 IPR policies at SDOs

Ensuring that an organisation respects the commitments it has made to an SDO regarding the licensing of essential patents, or other related obligations such as disclosure, can be complex. SDOs typically require that parties commit to licensing their potentially essential patents under fair, reasonable, and non-discriminatory (FRAND) terms. However, SDOs generally do not take on the role of enforcing these commitments themselves.

Instead, the responsibility to enforce licensing commitments or to address violations of other obligations related to standards and IPRs, such as disclosure obligations, often falls to the parties involved. If parties themselves cannot successfully negotiate and conclude licensing agreements, the matter may escalate to legal proceedings.

In such cases, national courts are the authoritative bodies that have the jurisdiction to resolve these IPR disputes. They can determine whether a party has fulfilled its commitments as per the agreements made under the auspices of the SDO. The courts can also impose penalties, require compliance, or offer other forms of legal redress to ensure that the obligations related to standards and IPRs are respected. This legal oversight plays a crucial role in maintaining the integrity and effectiveness of standard implementation across various industries. When disputes regarding SEPs escalate to the point where parties seek legal resolution, three main bodies of law come into play: patent law, private law, and competition/antitrust law.

6 IPRs, standards, and the legal system

Patent law is crucial because it grants patent holders the exclusive right to prevent others from making, using, selling, or importing their patented invention without permission. In the context of SEPs, patent law helps ensure that the patent holder's innovations are protected, while also managing the licensing under terms that should ideally be fair, reasonable, and non-discriminatory (FRAND).

Private law covers contracts and the relationships between companies and other entities. It is relevant in SEP disputes because the licensing agreements that govern the use of SEPs are contractual. Private law helps resolve disputes arising from these agreements, such as breaches of contract or disagreements over contractual terms.

Finally, competition or antitrust law is is particularly important in the context of SEPs because these patents can confer significant market power to their holders. Competition law places restrictions on how parties, especially those in a dominant market position, conduct themselves. It aims to prevent abuse of market power that could lead to anti-competitive practices affecting the broader market.

Several landmark court cases highlight the complexities and the interplay of these laws in SEP disputes, e.g. Microsoft vs. Motorola (2013) or Huawei vs. ZTE (2015).

These cases exemplify how courts across different jurisdictions address the intricate balance between protecting IPRs, ensuring fair competition, and maintaining healthy market dynamics. Each case contributes to the evolving landscape of legal precedents concerning the management and enforcement of SEPs.

The landscape of patents essential to standards has undergone significant changes in recent years, both in terms of volume and ownership. As technology advances and standards grow increasingly integral to a variety of markets, the number of patents deemed essential to these standards has surged. Additionally, there has been a noticeable increase in the diversity of patent owners.

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One of the notable trends in this evolving landscape is the active trading of essential patents. This includes acquisitions by entities whose strategies emphasise patent assertion or engaging in litigation. Such activities often involve accusing other companies of patent infringement and pursuing legal battles over patent rights. This approach can have a profound impact on the dynamics within various industries, particularly as standards become more crucial across different market sectors.

The relevance of standards is expanding across a wide array of markets, bringing together parties with vastly different business cultures and expectations. This diversity can lead to increased complexities in negotiations, licensing agreements, and compliance with standard-related patents. Moreover, the markets involved typically have substantial commercial interests and are characterised by vigorous market dynamics.

For instance, the mobile phone and smartphone market illustrates these shifts vividly. Nokia, once a dominant leader in the mobile phone industry, experienced a significant decline in market share and eventually exited the market. Meanwhile, other companies like Blackberry, Samsung, and Apple entered the market and achieved considerable success. These changes not only reflect the competitive nature of the market but also underscore the strategic importance of standard essential patents in maintaining and enhancing market position.

This dynamic environment necessitates careful navigation by all parties involved, from the creators of standards and patent holders to the end-users of these technologies. As the stakes continue to rise with the growing importance of standards, the management of essential patents remains a critical factor in the success and innovation within diverse markets. Finally, the expanding relevance of standards touches a broad spectrum of markets, bringing together stakeholders with vastly different business cultures and expectations. This diversity can complicate negotiations, licensing agreements, and compliance with patents related to standards. The markets involved are not only large but also characterised by intense dynamics and substantial commercial interests.

7 Patent pools

Patent pools, which are agreements between multiple patent holders to license their patents as a package, have garnered the attention of regulatory authorities due to the potential for these pools to occupy dominant market positions. While holding a dominant position is not illegal under competition or antitrust laws, abusing this position is prohibited. The concern is that a group of standard essential patent (SEP) owners within a pool could potentially engage in anti-competitive practices.

Despite these concerns, patent pools are generally viewed favorably by competition and antitrust regulators because they can offer several pro-competitive benefits. These include reducing transaction costs, avoiding costly infringement litigation, and promoting a more efficient dissemination of technology. These factors can enhance overall market innovation and provide clearer paths for the adoption of new technologies.

However, the assessment of whether a patent pool is anti-competitive or not heavily depends on its specific design and operation. There are crucial conditions that typically need to be met to ensure that a patent pool operates within legal competitive boundaries:

1. The pool should only include complementary patents, which are patents that cover different aspects of a technology and are necessary for the production of a particular product. This is to prevent the bundling of substitute patents, which could otherwise stifle competition and innovation.
2. It is important that implementers (those who wish to use the patents to produce products or services) have the option to negotiate licenses with individual patent owners in addition to, or instead of, licensing through the pool. This ensures that implementers are not forced into accepting terms that may be unfavorable or unsuitable for their specific needs, thus preserving competition.

The careful design and regulation of patent pools are essential to balance the potential benefits against the risks of anti-competitive practices. By adhering to these conditions, patent pools can contribute positively to the technological and economic landscape while respecting the principles of fair competition.

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8 Public interest and policy initiatives

The relationship between patents and standards has significant public interest implications. While it can drive investment in research and innovation, it may also impede standard development, create market entry barriers, and generate friction. Globally, policymakers and regulators are actively engaged through research, public consultations, policy papers, draft regulations, and enforcement of competition law in this area.

Whereas in the 1990s, market access was the priority be ensuring that SEP licenses are available, concerns regarding possible abuse in terms of excessive licensing fees raised since 2000, also driven by the increasing sales of SEPs where the buyers did not deem itself bound to FRAND commitments. Then, SEP have been perceived as a topic for competition policy. Since 2020, the broad use of standards by the Internet of Things, vertical industries, Industry 4.0, increased interest in improving transparency on SEP ownership and factual essentiality to avoid possible frictions in the markets and biased licensing conditions. Recently, the relation between (FRAND-based) standards and open source gained further attention, but not led to policy initiatives. Furthermore, SEPs are meanwhile also discussed related to technological sovereignty

Finally, the proposal for the regulation of SEPs published in 2023 represents a first attempt to increase transparency, e.g. by setting up a competence center being responsible for establishing and maintaining an SEP register, but also performing essentiality checks, determining aggregate royalty determination process and organising a dispute resolution mechanism.

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