**Kompensationsarbeit-Seminar aus BIS (4117- Dr. Rony G.Flatscher)**

Property and Information Technology by Jersey Otabor Izedonwmen

The seminar paper deals with the development of the concept of ownership driven by technological progress, changing business models and legal changes. The work examines legal developments in the USA, Europe and internationally. Future developments are also examined.

1. Introduction

The introduction describes the new changes in ownership thinking that have come to the fore as a result of technological progress, for example. The traditional concept of owning physical things is slowly being replaced by new concepts of owning intangible goods (software, licenses). The introduction explains the concept of software-as-a-service (SaaS) models, which allow users to subscribe to software on a monthly or annual basis instead of purchasing it. In the introduction, four questions are mentioned which will be answered in the course of the work. “1. How have legal frameworks adapt to changes in IT ownership?” “2. What are the economic implications of different IT ownership models?”

“3. How do technological advancements influence IT ownership? “

“4. What are the future trends in IT ownership “(Izedonwmen, 2024) ?

1. Legal Framework of Ownership

The first section of the second chapter examines the European legal regulations. Article 345 of the TFEU allows each EU state to freely determine its laws on property in its own territory, however, they must not violate European Union guidelines. Data protection guidelines (GDPR) are also important in this context, as personal data is also a type of property that must be protected. In the USA, property rights, especially in the context of information technology are enshrined in the constitution and a blend of federal and state laws. “The Fifth Amendment to the United States Constitution provides the bedrock for property rights, stating the private property cannot be taken for public use without just compensation” (Izedonwmen,2024). This protection applies for all forms of property. At the international level, property rights in information technology are governed by various agreements and treaties from organizations. Examples for such organizations are the World Intellectual Property Organization (WIPO) and the World Trade Organization (WTO). “These institutions strive to create a balanced and predictable global intellectual property system, ensuring that ownership rights are respected across borders. This is followed by a list of various treaties and agreements, such as the Berne Convention or the Madrid System. The overview of intellectual property law covers three central areas: Copyright, Patent Law and Trademark Law. Copyright law grants creators’ exclusive rights to their original works, encourages creativity and innovation, and is governed both nationally and internationally by laws such as the US Copyright Act of 1976 and the Berne Convention. Software is also covered by copyright law, which is reinforced by the Digital Millennium Copyright Act (DMCA). Patent law protects inventions and encourages technological innovation through temporary monopolies, with regulations such as the US Patent Act and the Patent Cooperation Treaty (PCT). Finally, trademark law protects the identity of brands through exclusive rights to distinctive signs, as regulated by the Lanham Act and the Madrid system. Challenges exist in digital distribution, international harmonization and technological developments.

1. Ownership of Software and Technology

Software licenses are essential components of intellectual property rights and regulate the use, distribution and modification of software. There are two main categories: proprietary (commercial) and open source licenses. Proprietary licenses restrict the modification and distribution of the software and require an end user license agreement (EULA). Examples: Microsoft Windows, Adobe Photoshop. Open source licenses grant more freedom, but have conditions such as the publication of modifications under the same license (e.g. GNU General Public License). IT leasing allows companies to use IT equipment and software without having to buy it, offering flexibility and access to the latest technology. There are two main types: Operating leases (short-term, less than the useful life) and finance leases (long-term, over the useful life).

The concept of ownership has changed; digital goods are often acquired through licenses instead of purchases, which leads to limited user rights. Consumer rights for digital products are often limited by restrictive license agreements, which can lead to dissatisfaction. Efforts are being made to strengthen consumer protection in the digital sector, for example through the EU Digital Content Directive.

Digital piracy involves the unauthorized use, reproduction and distribution of digital content and causes considerable economic losses. The effects affect creators, consumers and the economy as a whole, including lower revenues and incentives for innovation. Innovative approaches such as blockchain technology and subscription-based business models can help to reduce piracy and promote legal consumption.

1. Case Studies and Examples

In information technology and software development, there are often complex legal disputes over intellectual property, particularly in connection with software licenses, patents and copyrights. This section highlights significant legal disputes.

The legal dispute between Oracle and Google concerns the use of Java APIs in the Android operating system. Oracle, which acquired Sun Microsystems in 2010, filed a lawsuit against Google for copyright infringement. The core issue was whether APIs can be protected by copyright. Google argued that APIs were functional elements for interoperability and therefore not protected by copyright; moreover, their use was fair use.

In 2012, a court ruled in favor of Google, but in 2014 an appeals court reversed this decision. Finally, in 2021, the US Supreme Court ruled in favor of Google that the use of Java APIs was fair use. This decision promotes innovation and compatibility in the software industry by encouraging the reuse of software interfaces. The legal dispute between the SCO Group and IBM illustrates the complexity of copyrights in the software industry, particularly with regard to open source software. SCO, which had acquired the rights to UNIX, sued IBM in 2003 because IBM had allegedly incorporated proprietary UNIX code into the open source operating system Linux. SCO alleged breaches of contract and copyright. Clarification of the ownership rights to UNIX was central. The court ruled in favor of IBM in 2007, finding that SCO did not have sufficient evidence to support its claims. SCO appealed, but ran into financial difficulties and went bankrupt in 2010. The case had a significant impact on the open source community and confirmed the legal validity of open source licenses.

The case of Vernor v. Autodesk, Inc. deals with the difference between owning and licensing software. Timothy Vernor, an eBay seller, bought used copies of Autodesk AutoCAD software and resold them. Autodesk, which prohibits resale through its license agreement, demanded that eBay remove Vernor's listings. Vernor argued that the First Sale Doctrine, which allows the resale of lawfully purchased copies, applied to him. Autodesk, on the other hand, argued that Vernor was only a licensee and not an owner of the software and therefore the license terms prohibiting resale would apply. The district court initially ruled in Vernor's favor, but the court of appeals reversed that decision and held that the transaction was a license and not a sale. This clarified that many software transactions are licenses and limited consumers' rights to resell software. This has far-reaching implications for consumer rights and the market for used software.

The Sony BMG CD copy protection scandal of 2005 shows the risks of DRM technologies and their impact on consumers. Sony BMG used DRM software called XCP on millions of CDs, which installed itself on users' computers without their knowledge. This software not only restricted the copying of the CDs, but also created security vulnerabilities by acting as a "rootkit" and thereby facilitating malware. This led to significant consumer rights and privacy concerns.

The public outcry and legal action led to Sony BMG settling several class action lawsuits, paying compensation to affected users and providing tools to uninstall the DRM software. The US Federal Trade Commission (FTC) also intervened and reached a settlement that forced Sony BMG to stop using the problematic DRM software and inform consumers about the risks and solutions.

The scandal had far-reaching consequences for consumers and the digital content industry, raising awareness of the dangers of DRM and strengthening consumer rights. It led many companies to rethink their DRM strategies and set important legal precedents regarding unauthorized software installation and consumer rights.

1. Future Perspectives

This sub-chapter looks at the future of IT ownership in the private and business sectors, with technological advances, changing consumer preferences and new business models playing a central role. The section on personal software and hardware emphasizes the increasing integration of devices and the shift to subscription and cloud-based services, which raises questions about ownership rights and data protection. Artificial intelligence and augmented reality are key technologies that are bringing about significant changes, while sustainability and ethical issues are becoming increasingly important. In the business sector, the text shows that IT ownership is increasingly being replaced by service-based models such as IaaS, PaaS and SaaS. Cloud computing plays a central role here, offering flexibility and cost efficiency. Companies need to develop new capabilities to manage these changes, with security and compliance being of paramount importance. In addition, edge computing and blockchain are highlighted as key trends that will influence the future of IT ownership in organizations.

1. Conclusion

The digital landscape is changing the understanding of IT ownership. Traditional ownership is increasingly being replaced by flexible models such as licenses, subscriptions and cloud services, which has legal and economic implications. Legal frameworks are slowly adapting, but enforcement challenges remain as digital products can be easily copied. Subscription-based models and cloud services offer economic benefits such as cost savings and flexibility, but also raise questions about long-term costs and power relationships. New technologies such as AI, IoT and blockchain continue to change IT ownership, offering new opportunities but also posing new challenges for regulation and enforcement. Legal and economic frameworks need to evolve to protect the interests of all stakeholders and promote innovation. Businesses and consumers need to understand the implications of different ownership models and act accordingly. Future research should focus on new legal approaches, economic impacts and the influence of new technologies to promote a fair, secure and innovative digital environment.

HTML 5: Concepts, Architectures, Nutshell, Examples, Outlook by Stefan Loidolt

1. Introduction

The seminar paper is structured into four main parts:

1. The Introduction to HTML which defines HTML and its purpose and states the history development including creators and a timeline up to the current status.
2. Details on the development of HTML 5. Describes innovations and improvements introduced by HTML 5 and explains the Living Standard. Covers the semantics, structure, integration of web APIs and browser compatibility and assesses the current relevance of HTML 5.
3. Provides and explains short Nutshell examples presenting innovations in HTML 5.
4. Gives an Outlook on the future of HTML and discusses upcoming developments.
5. Introduction to HTML

HTML (Hyper Text Markup Language) is the main language for creating websites and web applications. Developed by Tim Berners-Lee in 1993, it structures and formats content such as text, images and media on websites. The World Wide Web Consortium (W3C), founded by Berners-Lee in 1994, oversees web standards, including HTML, HTTP, CSS and XML, to ensure the accessibility and usability of the web.

An alternative group, the Web Hypertext Application Technology Working Group (WHATWG), was founded in 2004 by major browser companies to accelerate the development of web technologies and focus on HTML specifications. Berners-Lee's early project "Enquire" evolved into the World Wide Web and used HTTP, URI and HTML. The first website, launched in 1990, led to the emergence of browsers such as Mosaic and Netscape, which popularized web usage.

The W3C and the WHATWG both contribute to the development of HTML, with the W3C publishing stable standards and the WHATWG maintaining a continuously updated "Living Standard" for HTML. HTML has evolved through several versions, with major milestones such as HTML 4.0 and HTML 5 reflecting ongoing improvements and user requirements.

1. HTML 5

HTML 5 is the latest version of HTML and replaces earlier versions such as HTML 4.01 and XHTML. It brings new functions that are indispensable for modern web applications and standardizes long-used functions. HTML 5 is cross-platform and only requires a modern web browser.

With the "Living Standard", the WHATWG has embarked on a new development path in which the specification is continuously developed and coordinated with browser manufacturers. This dynamic approach means that elements can be added or removed to meet current requirements. In 2011, the WHATWG renamed the specification from HTML 5 to HTML to emphasize this dynamic approach. The W3C, on the other hand, publishes snapshots of the current status.

The basic structure of an HTML document consists of three parts:

1. \*\*Doctype declaration:\*\* Gives the browser information about the document type.

2. \*\*Header:\*\* Contains title and metadata.

3. \*\*Document body:\*\* Contains the content to be displayed, such as text, graphics or links. HTML 5 also introduces many new semantic elements, such as <article>, <section>, <nav>, <header>, <footer>, <aside>, and <main>. These help to structure the code more clearly and comprehensibly. Graphic elements such as <canvas> and <svg> enable the display and creation of graphics directly in the browser. Multimedia elements such as <audio> and <video> allow the embedding of media content without external plugins.

HTML 5 also supports various web APIs such as geolocation, drag-and-drop, web storage, web workers and server-sent events, which facilitate the creation of interactive and dynamic web applications.

Thanks to its broad support by all major modern web browsers, HTML 5 is the current standard for structuring and displaying web content.

1. Nutshell Examples

This chapter presents and explains short examples of important HTML 5 elements and illustrates their implementation.

1 \*\*Navigation bar example\*\*: It shows how to create a navigation bar using the `<nav>` element, with links to different sections of the web page. Each link corresponds to a section that is created with IDs, making the links functional.

2\*\*Canvas example\*\*: It shows how to create pixel-based graphics using the `<canvas>` element. JavaScript is used to draw graphics, including a rectangle, line and text within the canvas area.

3 \*\*SVG example\*\*: This example uses the `<svg>` element to create scalable vector graphics. Similar graphics to the canvas example are created, including a rectangle, line and text, allowing a comparison of the clarity of the code between canvas and SVG.

4. \*\*Video file example\*\*: It shows the use of the `<video>` element to display a video with specified dimensions and controls such as play, pause and volume. The source of the video file is specified and an alternative text is displayed if the browser cannot display the video.

5. Geolocation API example: This example illustrates the use of the Geolocation API to determine and display the user's current location. A button triggers a JavaScript function that checks for browser support, retrieves the location, and displays the latitude and longitude in a paragraph element.

Each example is explained step-by-step to illustrate the implementation and functionality of these HTML 5 functions.

1. Summary and Future Outlook of HTML 5

HTML 5 has revolutionized web development through the seamless integration of multimedia, improved semantic elements for easier structuring of web content, advanced form techniques for more user-friendly interaction, and the ability to create dynamic graphics and animations without external plugins. In addition, it supports offline functionalities and ensures a consistent user experience across different devices, making HTML 5 an indispensable standard for modern, interactive and accessible web content.