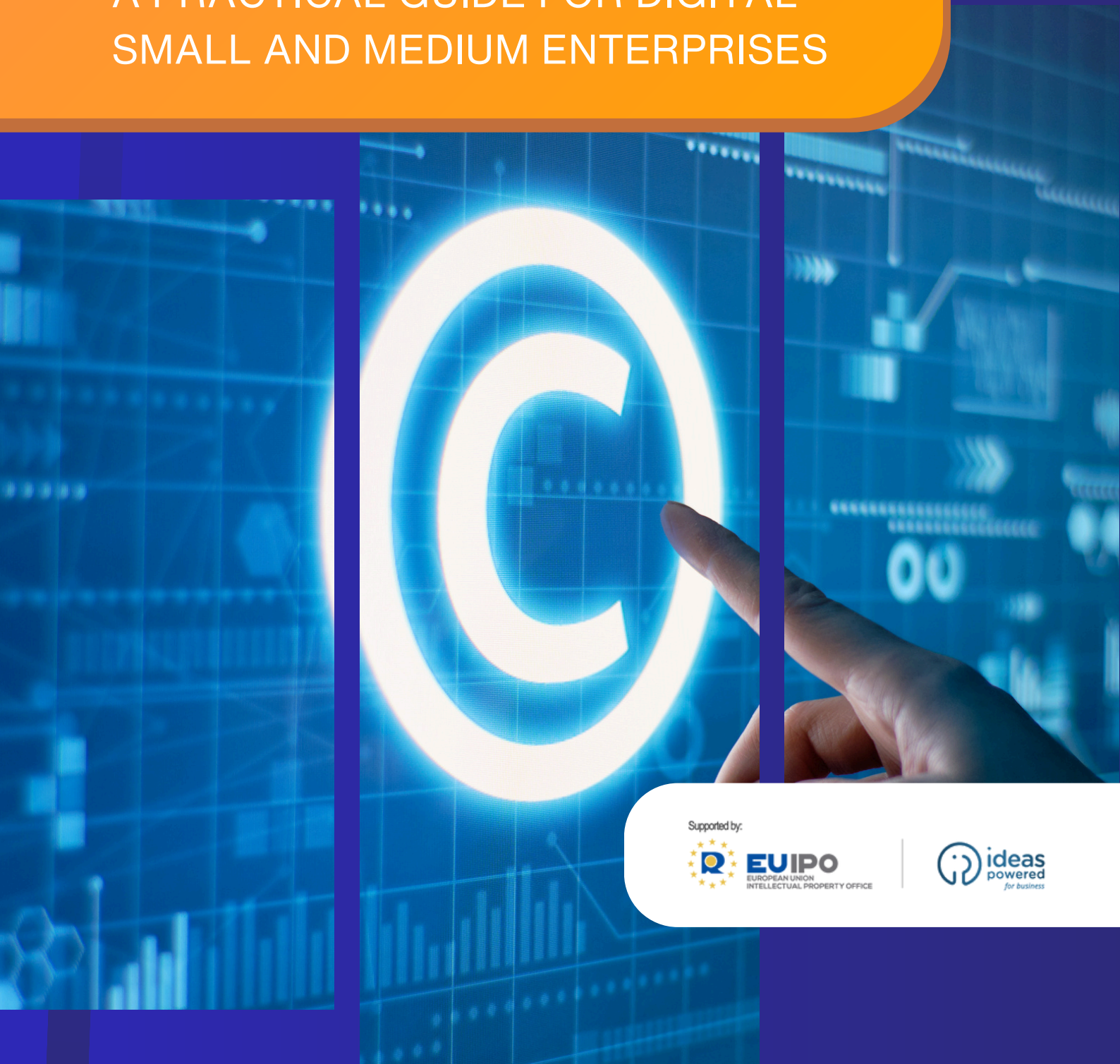
iPowerSMEs

European DIGITAL SME Alliance

THE COMPETITIVE ADVANTAGE OF INTELLECTUAL PROPERTY:

A PRACTICAL GUIDE FOR DIGITAL SMALL AND MEDIUM ENTERPRISES



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1. INTRODUCTION TO INTELLECTUAL PROPERTY AND WHY IT MATTERS IN THE DIGITAL ECONOMY

In today's globalized and fiercely competitive market, intangible assets hold the potential to grant small and medium-sized enterprises (SMEs) a distinct competitive edge, especially in the digital sector. Digital SMEs, including software developers, website creators, and other tech innovators, often possess intellectual property (IP) that can significantly enhance their market position. However, the widespread lack of knowledge among these businesses about the benefits of securing registration for different types of IP rights has often hindered them from fully leveraging this potential.

According to the **2022 Intellectual Property SME scoreboard**[1] published by the European Union Intellectual Property Office (EUIPO), SMEs represent more than 99 % of enterprises operating in the EU non-financial business sector, but only 10 % of SMEs owns a registered IP right. This statistic highlights the lack of awareness among small companies about the value and profit potential linked to their intangible assets.

EUIPO's study identifies various barriers preventing SMEs from registering their IP rights, with a primary obstacle being the disbelief among these businesses in the additional benefits that IP rights registration can provide. This scepticism often stems from a lack of knowledge on how to effectively capitalize on IP assets, compounded by the rapid pace of technological change and the complexity of IP law.

Given the positive correlation between IP ownership and economic performance, it is imperative to provide adequate support to digital SMEs in protecting their innovations. Understanding intellectual property is often perceived as a daunting legal concept, especially for those in the fast-evolving digital sector. However, **grasping the fundamentals of IP is not only feasible, but also essential to thrive in today's competitive business environment**.

Learning how to safeguard intangible assets through IP rights is essential for digital SMEs as it helps protect innovations that form the backbone of their competitive edge. These businesses often develop unique software, algorithms, website designs, and other digital products that differentiate them from competitors. By securing patents, copyrights, and trademarks, digital SMEs can safeguard their creative output, ensuring that competitors cannot easily replicate or exploit these innovations. This protection not only preserves market shares but also upholds the business's ability to capitalize on its unique offerings.

Moreover, a robust IP strategy facilitates the establishment of strong brand recognition, which is vital for digital SMEs. Trademarks and service marks protect the brand identity, fostering customer loyalty and trust. A recognizable and protected brand differentiates an SME in a crowded digital marketplace, contributing to sustained business growth. Additionally, by leveraging IP rights, SMEs can explore various monetization avenues such as licensing agreements, selling IP rights, or entering joint ventures, creating additional

revenue streams that support financial stability and expansion.

Attracting investment is another critical benefit of an effective IP strategy. Investors are more likely to fund businesses with well-defined and protected IP portfolios because these assets represent significant value and reduce risks associated with investment. A comprehensive IP strategy can enhance the valuation of a digital SME, making it more appealing to potential investors. Furthermore, having registered IP rights enables SMEs to expand their market presence internationally, safeguarding their innovations across multiple jurisdictions and supporting global growth.

Legal enforcement of IP rights also becomes more feasible with a well-maintained IP portfolio. In the event of disputes, digital SMEs have a solid legal foundation to defend their interests and take action against unauthorized use of their IP. This deterrence is crucial in minimizing the risk of infringement and reducing potential litigation costs. Additionally, a strong IP position provides SMEs with leverage in negotiations with larger companies and partners, enhancing their strategic position in a competitive industry.

Lastly, an effective IP strategy fosters a culture of innovation within digital SMEs. Knowing that their creations are protected encourages innovators to continuously develop new and improved products or services.

The guide is structured to provide a clear and logical flow of information, starting with an overview of IP rights relevant to different intangible assets of digital SMEs.

The initial sections will cover “Intellectual property rights for digital products,” providing an in-depth look at the protections applicable to apps and websites, such as copyrights, trademarks, and designs. Following that, the guide delves into how software can be protected through various IP legal tools such as copyrights, patents, and trade secrets. This section will help digital SMEs understand the nuances of each type of protection and how to effectively implement them.

The section on “The impact of artificial intelligence” examines how artificial intelligence is reshaping IP management and the provides some key considerations for SMEs in an AI-driven world, as well as a series of recommendations for businesses dealing with artificial intelligence outputs.

Next, “Intellectual property exploitation and software licensing” focuses on strategic methods to exploit IP through various licensing models, exploring how to monetize and expand the reach of software innovations. Additionally, open software licensing models are described, offering insights into how users may have access to software technologies.

The chapter “Leveraging intellectual property in funding opportunities” outlines how a robust IP portfolio can significantly enhance business valuations and help attract investors, offering practical examples and case studies to leverage on IP assets effectively for funding rounds.

An IP checklist is provided for each phase of the business lifecycle—before and after the product launch. This practical tool ensures comprehensive IP protection at every stage, helping businesses maintain their competitive edge.

Finally, the guide concludes with key takeaways and actionable advice to help digital SMEs apply their newfound IP knowledge and strategies.

2. INTELLECTUAL PROPERTY RIGHTS FOR DIGITAL PRODUCTS

2.1 WHICH INTELLECTUAL PROPERTY RIGHTS TO PROTECT APPS AND WEBSITES?

Different intellectual property rights can safeguard various aspects of **mobile applications, web applications and websites**, with the availability of such protection being dependent on the relevant features and the jurisdiction where protection is sought. Some IP rights can be relied upon without incurring registration costs, while others require registration to be enforceable.

In general, when a developer identifies a specific market as crucial to their commercial strategy, intellectual property protection typically involves a dual approach. Firstly, it is advisable to consider **registering the most relevant IP rights** (e.g., trademarks, designs, patents) in that jurisdiction. Secondly, the owner may also rely on **unregistered IP rights** (e.g., copyright and trade secrets).

Building up a portfolio of both registered and unregistered IP rights can be instrumental in defending against imitative competition. This strategy offers flexibility, enabling the owner to seek protection for innovation through one IP right if another is successfully challenged by a third party.

There are various IP rights which can protect different aspects of Apps and Websites of digital SMEs. The following table shows a brief overview of these rights and their nature, along with recommendations:

INTELLECTUAL PROPERTY ESSENTIALS TOOLBOX

INTELLECTUAL ASSET	*TYPE OF IP RIGHT(S)*	*REQUIRES REGISTRATION*	*RECOMMENDED ACTION*
Novel and non-obvious functionalities or technical solutions within an App or Website	Patent / Trade secret	**Patent:** Yes **Trade secret:** No	• Explore eligibility of patent protection for any methodology and process developed; • Keep new processes or methodologies secret; • If not patentable, such assets might be protected by trade secrets.

App / website logo or name	Trademark	Preferable	▪ If the App or Website has a unique name, logo, or other distinctive branding elements, consider registering them as trademarks. Trademarks prevent others from using similar marks in a way that could cause confusion among consumers; ▪ Align trademark and domain name strategies to reinforce protection.
Software	Copyright / Patent	**Copyright:** No **Patent:** Yes	▪ In the EU, registration is not required as a prerequisite of copyright protection; ▪ However, it is advisable to register copyrighted works with a national copyright office to establish proof of authorship (see the section below for more details); ▪ Ensure that future materials, accessible by the public, are marked with appropriate copyright symbols and applicable licenses when open-source software has been used; ▪ Verify patentability; ▪ Ensure that agreements are in place to allow all partners to control IP rights if needed.
Know-how (e.g. software development, how data is stored)	Trade Secrets	No	▪ Turn know-how into trade secrets by providing evidence of its unique value providing sufficient protection to keep it secret; ▪ Ensure information sharing within business partners is secure and use Non-Disclosure Agreements (NDAs) when sharing confidential information.
Graphic User Interface (GUI)	Design rights	Preferable	▪ GUI can be the object of design registrations at EU or national level; ▪ Registration is important if the aesthetic of the App /Website is paramount for recognition by consumers; ▪ Registered designs may help fight pirated Apps when they use a different trademark but have a same “look and feel”.
Website	Domain name Design rights	Yes	▪ Align trademark and domain name strategies to reinforce protection; ▪ The contents of the domain name are protected by copyright; ▪ The “look and feel” of a website can be protected by design rights.

2.1.1 IP RIGHTS NOT REQUIRING REGISTRATION

Protection of the identified intangible assets concerning Apps and Websites doesn't always necessitate formal registration to be enforceable. This can be also ensured through the following legal tools without registration:

- Trade secrets
- Copyright

Maintaining secrecy and confidentiality about the developed results is crucial to explore the possibility of patenting inventions. Where an invention does not fulfill the requirements of patentability, **trade secrets** become a pivotal tool for companies to protect their know-how and business knowledge. The same can be said for companies that, even though developing patentable inventions, prefer not to make them public, or for start-ups that do not have the financial resources to recur to patent registrations. Trade secrets can protect any confidential business information that provides a competitive edge, including undisclosed aspects of technological solutions. The information must not be public, must have commercial value, and the owner must take reasonable steps to keep it secret.

If the patenting route should not be viable, the EU Directive 2016/943[2] has established that **valuable information on technology or any other developed know-how can be protected as a Trade Secret** if the following requirements are met:

- the information is not known either by the public at large or by the experts of the sector;
- the information has commercial value;
- the owner has taken steps to keep the information secret (i.e. signing non-disclosure agreements with anyone having access to it and implementing technological security measures for limiting access to such valuable information).

Copyright law serves to safeguard the content of websites and applications, encompassing text, images, videos, and other multimedia elements. Protection under copyright automatically arises upon the creation of an original work, with registration not being a prerequisite for its validity. However, it is advisable to register copyrighted works with a national copyright office to establish proof of authorship. It should be mentioned that in the US registration at the US Copyright Office is necessary to enforce the exclusive rights of copyright through litigation[3].

The EU Copyright Directive, enacted in 2019, endeavours to modernize copyright regulations within the EU to confront the challenges presented by the digital landscape. It furnishes website owners with a more robust framework to protect their online content and ensures equitable compensation for its use. Within the directive, website owners hold exclusive rights to authorize or prohibit the utilization of their copyrighted works. In cases

where third parties utilize copyrighted content without authorization, website owners can pursue legal recourse, including injunctive relief and financial damages. Nevertheless, Copyright Law also encompasses specific exceptions, such as the right to quote from copyrighted material, permitting third-party usage of copyrighted content under certain conditions.

With respect to copyrighted material, SMEs should always ensure that materials are marked with appropriate copyright symbols. For example, an SME creating a new software application should include the copyright symbol (©) along with the company name and the year of creation in the application's footer or about section. This would appear as '© [Company Name] [Year].' Additionally, if the application contains any specific components, such as images or text, that are separately copyrighted, those components should be individually marked with the copyright symbol and the applicable copyright owner's name and year of creation.

INTELLECTUAL PROPERTY ESSENTIALS TOOLBOX

Useful tool: Intellectual Property Rights for Mobile Applications

Mobile applications have become an indispensable part of daily life in the digital world. The mobile app economy has grown exponentially, driven by a vast community of software developers. For a more in-depth analysis on applicable Intellectual Property Rights for mobile apps the following WIPO guide can be consulted: https://www.wipo.int/mobile-apps/en/index.html

2.1.2 REGISTERED INTELLECTUAL PROPERTY RIGHTS

To select the best IP protection for your digital product, the following considerations should be made.

First of all, **trademark registration** allows for the protection of:

- The name of the application or website (without graphic elements);
- The logo containing verbal elements (i.e. letters/words plus graphic component);
- The figurative logo (without verbal component).

There are many unregistered trademarks used in the market. For instance, many small companies work under the official company name and do not register it as a trademark. However, the registration of a trademark offers numerous advantages to the owner compared to competitors.

Registration provides more effective protection for the commercial value of a brand. Registering a trademark allows the owner to leverage investments made to establish their

product or service in the market. In this way, the owner acquires a monopoly on the use of

a specific mark for specific products or services, preventing third parties from appropriating or using identical or similar marks in the same market segment and taking action against trademark registration of applications that conflict with their own rights.

Trademark registration enables the owner to defend against competing signs on the market that could confuse consumers or damage the owner's reputation. Indeed, ownership of a registered trademark constitutes grounds for pursuing infringement actions, relying solely on the title and arguing about the violation of their rights. Therefore, trademark registration provides the owner with more straightforward protection against third parties.

Moreover, a registered trademark has inherent commercial value that can be exploited by the owner, who may license the trademark or assign it entirely to other parties. Finally, registered trademarks can be used to access financing, as explained in the subsequent sections.

Therefore, the failure to register a trademark leaves the owner more exposed to competitors' activities and entails greater risks for the business.

INTELLECTUAL PROPERTY ESSENTIALS TOOLBOX

Trademark search

When you have an idea of the sign that you'd like to register, you should first check whether it's available. You need to be sure that no one else has a right to the same sign or a similar one that could be in conflict with yours. EUIPO developed a free search tool called TMView that contains information on trademark applications and registrations from all EU national IP offices, the EUIPO and also many IP offices from outside the EU. Access TMView here: https://www.tmdn.org/tmview/#/tmview

Patents represent the certification of the novelty and industrial applicability of an invention, it is the instrument that the law provides for the protection of a technological innovation, and which may grant to the inventor a period of exclusive exploitation (for up to twenty years). Several commentators (Blind et al, 2006), starting from empirical evidence from Germany, have stressed that the most important motive for patenting was not protection from imitation but securing European markets: defensive registrations against competitors (securing own technological flexibility); securing national markets; improvement of technological image and hindering competitors from technological development. On the basis of such considerations, digital SMEs shall consider the long-term benefits of patent protection, which outweigh the high costs for obtaining a patent.

An **industrial design** is a type of intellectual property right that protects the ornamental or aesthetic aspects of a product, including presentations, graphic symbols, and typographic

characters. If the requirements are met, **registering a design can protect various aspects of an App**, such as:

- the typographic characters used in it;
- the appearance of icons;
- the graphic user interface (GUI);
- the appearance or screens of the app or website.

In the European Union, these rights can be registered or unregistered. Registered designs are protected for up to 25 years, offering exclusive rights to the design holder. This exclusivity allows the owner to use the design and prevent others from using similar or identical designs without permission, ensuring robust protection against infringement.

In contrast, unregistered designs are only protected for 3 years and typically cover direct copies of the design, not variations or similar designs. The protection is less comprehensive, and enforcing these rights can be more challenging, as it often requires proof of direct copying.

GUIs are an essential part of app development, and their unique designs can be the distinguishing factor that sets an app apart from its competitors. By registering their GUI designs as industrial designs, app developers can safeguard their investment in creating unique and innovative GUIs. Registration provides exclusive rights to the design owner and allows them to prevent others from generating profits from a similar design without permission. Such kind of IP right is crucial to avoid a successful product being copied by competitors: counterfeit products often do not bear the trademark, but copy its shape and appearance. This is also true for mobile apps and websites, whose “look and feel” is very often protected by companies by means of registered designs in order to avoid that a confusingly similar app or website are created by counterfeiters in order to confuse users.

While some jurisdictions automatically protect GUI designs under copyright law, industrial design registration offers specific and targeted protection that these laws may not. It is always advisable to consult with an IP attorney to determine the best strategy for protecting GUI designs.

2.2 WHICH INTELLECTUAL PROPERTY RIGHTS TO PROTECT SOFTWARE?

The need to protect software only became apparent in the 1980s. Initially, software producers were predominantly associated with hardware manufacturers. At that time, only a handful of high-tech companies sold programs alongside their personal computers. Protection was primarily secured through contractual agreements upon the sale of the computer or through technical measures aimed at preventing unauthorized program copying. As the software market began to detach from the hardware market, and independent companies emerged for computer program development, the necessity

arose to furnish them with distinct legal protections.

In legal terms, software is often defined as a set of instructions arranged sequentially and

expressed in a language understandable to humans commonly referred to as **source code**. These instructions are then translated by a program called a **compiler** into binary language, which consists of a sequence of 0s and 1s. This binary code is only comprehensible by the computer and is known as **machine language** or **object code**. The hardware interprets this binary representation as a series of electrical impulses, allowing it to execute specific operations.

Currently, software programs can be protected by a range of intellectual property rights. Four primary types of IP rights are pertinent for the protection of software: **copyrights, trade secrets, trademarks and patents**. As detailed in the table below, each of such rights offers a distinct legal protection: copyrights, trade secrets and patents safeguard the technology itself, while trademarks safeguard the names or logos used to differentiate products in the market.

INTELLECTUAL PROPERTY ESSENTIALS TOOLBOX

Software protection options

The sections below will focus on the three intellectual property rights that specifically safeguard the software's technology itself. For trademarks, the same principles outlined in the previous chapter on Website and Apps remain applicable.

IP right	Description	Need for registration
Copyright	Applies to software that fulfills the requirements of originality required by EU Copyright law and reinforced by ECJ Case law C-683/17[1], and is distinct from pre-existing programs. Protects the expression of ideas in the software, such as source code and user interface.	No, copyright arises automatically upon the creation of the work in many jurisdictions, including the European Union and the United States. However, registration can offer additional legal benefits.
Trade Secrets	Protects confidential business information that provides a competitive edge, including undisclosed software aspects. The information must not be public, have commercial value, and be subject to reasonable secrecy measures.	NO
Trademarks	Protects names, logos, and symbols used in commerce to identify the source of software or services.	Preferable but not strictly necessary. Unregistered trademarks may receive protection under common law in some jurisdictions, but registered trademarks provide clearer and more enforceable rights.
Patent	Protects software that demonstrates a "further technical effect." Computer programs as such are not patentable under Art. 52(2)(c) of the European Patent Convention.	YES

2.2.1 COPYRIGHT PROTECTION

The first legislation to classify software as a work protected by copyright was enacted in the United States in 1980. The European Community later aligned with this approach through Directive 1991/250/EC, now amended by EU Directive 2009/24. Today, copyright protection for software is internationally acknowledged through various conventions[4].

To qualify for copyright protection, it is therefore recommended that the software meets the requirement of originality[5] Copyright protection automatically arises upon the creation of software, granting two types of rights: moral and economic. Moral rights, inherent to the creator, are inalienable, while economic rights, which encompass the right to publish, distribute, and commercialize the software, can be transferred. In some jurisdictions, if the software is created by an employee within the scope of employment, economic rights may belong to the employer or commissioning party.

It's essential to note that copyright law protects the expression of ideas, not the ideas themselves. In the context of software, this translates to the protection of source code and object code, but not their functionality. Therefore, while others may create software with similar functions, they must do so without copying the specific source and object code to avoid copyright infringement.

For a developer, it is often not difficult to modify a source code just enough to exclude copying it, while still achieving the same function. For this reason, software houses tend not to disclose the source codes of their programs. However, this caution is not always sufficient. The risk is that of "reverse engineering".

As for apps and websites, digital SMEs should ensure that their software is properly documented and marked with copyright notices to the software's source code, user interfaces, documentation, and any other relevant materials. The notice should include the copyright symbol (©), the year of creation, and the name of the copyright owner.

Registering copyright with relevant national authorities (for example with collecting societies) provides a paternity proof and facilitates enforcement actions in case of copyright infringement. As mentioned above, in the US it is necessary to register a software at the US Copyright Office to bring a lawsuit for infringement.

2.2.2 PATENT PROTECTION

In some cases, digital SMEs may seek patent protection for innovative software inventions, such as novel algorithms, methods, or architectures. Computer programs as such are excluded from patentability under Art. 52(2)(c)[6] of the European Patent Convention. To qualify for patentability, a computer program must demonstrate a "further technical effect" when executed on a computer.

A "further technical effect" is a technical effect going beyond the "normal" physical interactions between the program (software) and the computer (hardware) on which it is

run. In cases where the software, understood as a new technical solution, is capable of solving a technical problem in an inventive manner (i.e., in a non-obvious way compared to the prior art), it is eligible for patent protection under Article 52 of the Munich Convention. According to the European Patent Office's guidelines, examples of further technical effects which confer technical character to a computer program are the control of a technical process or of the internal functioning of the computer itself or its interfaces (see G-II, 3.6.1[7]).

Furthermore, a **computer-implemented invention (CII)** is one which involves the use of a computer, computer network or other programmable apparatus, where one or more features are realized wholly or partly by means of a computer program[8].

Patents grant exclusive rights to the inventor to prevent others from making, using, or selling the patented invention. The protection afforded by a patent is more stringent than that provided by copyright. A patent enables the safeguarding of the invention in any form it is replicated, whether literally or through equivalents.

In the light of the above, there is hence a fundamental difference between software protection under copyright and patent law:

- Copyright safeguards software as if it were a literary work, focusing on its expression in written form. Consequently, the replication of a program performing a similar function but utilizing different coding does not constitute a violation of copyright.
- In contrast, patents provide protection for software as a method, emphasizing the sequence of operations performed, whether articulated logically or algorithmically.

On the other hand, copyright protection arises automatically upon the creation of the work, whereas patent protection requires registration, with the related costs and uncertainty of success that may deter SMEs from seeking patent protection. Furthermore, the duration of protection provided by copyright is longer than that of a patent (70 years from the death of the author instead of 20 years from the patent application).

2.2.3 TRADE SECRET PROTECTION

Digital SMEs can protect certain aspects of their software, such as algorithms, formulas, and proprietary techniques, as trade secrets.

Legally speaking, a trade secret is defined as **any piece of information or knowledge that is not known either by the public or by experts in the sector in question, has commercial value, and reasonable measures have been taken to maintain its secrecy**.

As mentioned above, to maintain trade secret protection, SMEs should implement appropriate security measures, such as restricted access to sensitive information, non-disclosure agreements (NDAs) with employees and partners, and encryption of confidential data. The same considerations regarding trade secret protection for Web apps and Websites apply – mutatis mutandis – to software.

3. THE IMPACT OF ARTIFICIAL INTELLIGENCE

The past few years have witnessed a significant surge in artificial intelligence (AI) development, transforming industries and business practices.

The adoption of AI systems comes with a multitude of benefits for small businesses, including (but not limited to) enhancing product design, optimizing operations, personalizing customer experiences, and improving decision-making processes.

For example, SMEs engaged in retail and e-commerce can leverage AI to personalize offers and recommendations for their customer base. Companies operating in customer support have the option to utilize AI-based chatbots to interact with customers 24/7 through virtual assistants. Additionally, AI can assist businesses in forecasting sales and market trends, optimizing production and maintenance operations, with real-time performance feedback.

Nevertheless, according to research conducted by Osnabrueck University of Applied Sciences[9] a significant gap has been observed between the size of companies in the adoption of AI in their processes. That indicates, on the one hand, that SMEs perceive substantially more challenges in AI implementation than larger enterprises, and, on the other hand, underscores the complexity and individuality inherent in AI applications. When considering the challenges, the most common implementation barriers for SMEs are knowledge, costs, and low maturity level in digitalization.

To prevent the delay compared to large companies resulting in SMEs being excluded from innovative markets, it is crucial to understand how AI interacts with existing intellectual property laws as AI technologies become more integral to SMEs' business operations.

Indeed, AI's capability to create, design, and innovate presents unique challenges and opportunities for the traditional understanding and application of IP rights. This is especially true considering the recent rise of the so-called 'Generative AI' (GenAI) and

'General Purpose AI' (GPAI, or 'Foundation Models'). Unlike traditional AI, which analyses existing data, GenAI models can create new content based on patterns they've learned. GPAI models rely on a broad set of unlabelled data for training and can fulfil different tasks with minimal fine-tuning. For this reason, they often serve as infrastructure for downstream developers, enabling them to create various services for end users.

3.1 LEGAL AND POLICY FRAMEWORKS FOR ARTIFICIAL INTELLIGENCE OUTPUTS PROTECTION

The rapid advancement of AI technologies has prompted regulatory bodies, especially in the European Union (EU), to develop new frameworks and guidelines to address the ethical, legal, and societal implications of AI, including its intersection with intellectual property rights.

This includes discussions on whether new forms of IP rights are needed or whether existing laws simply need to be interpreted or modified to better cover AI-generated outputs.

Here are some of the main legislative and policy frameworks and initiatives that have been influencing the landscape:

- The European Commission's Intellectual Property Action Plan (EC, 2020b) addresses the need for tailored IP policies that cater to the digital age, including considerations on how AI impacts IP rights;
- The European Strategy for Data (EC, 2020a), aimed at creating a single European data space, addresses data governance and includes aspects related to IP rights over data sets, which are crucial for AI development.
- The European Patent Office (EPO) Guidelines (EPO, 2023) are periodically updated and provide clarity on how computer-implemented inventions, which can encompass AI technologies, may be considered for patent protection under existing European patent law.

INTELLECTUAL PROPERTY ESSENTIALS TOOLBOX

Focus on the European Artificial Intelligence Act

Of particular relevance is the European Artificial Intelligence Act (AI Act), adopted in January 2024. Its cornerstone is a classification system that assesses the level of risk posed by AI technologies to health, safety, or fundamental rights: 'unacceptable' risks (social scoring systems, manipulative AI, etc.) are prohibited; 'high-risk' AI systems (non-banned biometrics, critical infrastructure, education and VET, etc.) constitute the main focus of the regulation; 'limited-risk' AI systems (chatbots and deepfakes) are subject to lighter transparency obligations; 'minimal' risks (e.g. AI-enabled video games and spam filters) are unregulated.

The Act does not affect end-users, the majority of obligations fall on AI providers (i.e. developers), and some of them are foreseen also for AI deployers – i.e. users deploying AI systems in a professional capacity.

Providers of both high-risk AI systems and GPAI models are subject, among other things, to governance, transparency, and technical documentation provisions. In foreseeing the need to disclose the use of copyright works used in AI training, the AI Act does give 'repeated, express attention' to protecting IP, including trade secrets of AI system providers subject to transparency and technical documentation disclosure requirements (Hervey, 2023[10]). Moreover, special attention is given to GenAI providers, who must 'train, and where applicable, design and develop the foundation model in such a way as to ensure adequate safeguards' against unlawful content (AIA, Article 28b(4)(b)). This could be interpreted as including infringements of third-party IPRs protected as 'fundamental rights' under Union law. However, the Act does not expressly deal with IP of third parties: data governance obligations are concerned with 'the accuracy and completeness of training data, the removal of bias, and the protection of personal data,' rather than the protection of third parties' IPRs (Hervey, 2023).

3.2 INTELLECTUAL PPROPERTY PROTECTION AND AUTHORSHIP OF ARTIFICIAL INTELLIGENCE OUTPUTS

It is thus clear that the IP protection of AI outputs is still a subject of ongoing debate and legal development. The European Union and its Member States are still exploring how to adapt existing IP frameworks to address the challenges posed by AI outputs.

For this reason, there is a current tendency to distinguish between "AI-assisted" and "AI-generated" outputs (See WIPO, 2020[11]; EC, 2020c[12]). The former refers to the 'generation of an output by AI without any human intervention' (WIPO, 2020, p. 4). The latter can be defined as 'outputs, applications or productions generated by or with the assistance of AI systems, tools or techniques' (EC, 2020c, p. 27).

The current European IP systems are generally suitable and sufficiently flexible to deal with the challenges posed by AI-assisted outputs. Indeed, since they involve human intervention or direction, they also do not radically differ from computer-aided works (See WIPO, 2020; EC, 2020c). However, it is yet to be seen how AI-generated outputs will be included in European regulations. Therefore, in the current state of things, it is safe to assume that human intervention is fundamental in ensuring IP protection for innovation created with the help of AI tools.

Here are some key considerations and examples specific to the various European IP systems:

- **Copyright**: Any work worth copyright protection in the EU needs to be the original creation of a human author, reflecting the author's personality and creative choices. AI-assisted works can fall within the scope of EU copyright law because they allow – at least in principle – human creative choices in the design, selection, or arrangement of the content to be 'expressed' in the final output (Hugenholtz & Quintais, 2021, p. 23[13]). Indeed, the similarity to computer-implemented works (See WIPO, 2020; EC, 2020c) is based on various cases, such as the Painer case (CJEU 1 December 2011, C-145/10, Painer), where the Court of Justice of the European Union (CJEU) clarified that it is 'possible to create works of authorship with the aid of a machine or device'

  (Hugenholtz & Quintais, 2021, p. 12). On the contrary, the automatic execution of content 'without the output being conceived or redacted by a person exercising creative choices' would not even qualify as "work" as conceived in the EU copyright law (Ivi., p. 23). This underscores the importance of documenting the creative process and the human contribution to strengthen IP claims. However, it might be possible that authorless output could still 'qualify for protection against misappropriation under less demanding IP regimes, such as neighbouring rights and sui generis database protection, or other doctrines such as trade secrets and unfair competition' (Ivi., p. 24).

- **Patents**: The European patent legal framework is designed around human inventors. In cases like the DABUS litigation, the EPO 'rejected the notion that an AI system can be regarded as an inventor' (Osborne Clarke, 2023[14]). Authorship of an AI-generated

invention is not even attributed to the AI owner and authorless inventions are not patentable. The case is again different for inventions involving AI as a tool. Even though the European Patent Convention (EPC) does not grant patent protection to computer programs 'as such' (EPO, 2020, Article 52), software-based inventions 'can nonetheless be patented provided that they have a technical character, that is – the invention produces a technical effect serving a technical purpose' (Osborne Clarke, 2023). So, bearing in mind that software patentability is not globally harmonised, AI-assisted inventions in the EU can currently be patented in a similar way as computer-implemented inventions.

- **Database rights**: AI-produced outputs might be protected by copyright-related or neighbouring rights (See Osborne Clarke, 2023). The EU and some other jurisdictions 'have a sui generis database right for the protection of the investment made in compiling a database' (WIPO, 2020, p. 10). This might apply to certain AI-generated databases, assuming human effort is significantly involved in the creation process. However, 'copyright protection is not extended to the data contained in a compilation itself, even if the compilations constitute copyrightable intellectual creations' (Ibidem).

- **Trademarks**: Trademarks serve the purpose of distinguishing the origin of goods and services and preventing consumer confusion. Since trademark law is based on consumers' perceptions, and since the trademark system is independent of authorship and inventorship (See WIPO, 2020), AI creativity is less impactful than on other IP systems. Consequently, the creation of trademarks by AI could potentially be protected, if they meet the usual criteria for trademark protection, including distinctiveness and being used in commerce.

3.3 RECOMMENDATIONS FOR SMALL BUSINESSES DEALING WITH ARTIFICIAL INTELLIGENCE OUTPUTS

Developing an effective IP strategy for SMEs dealing with AI-generated content therefore means navigating a complex and evolving legal and technological landscape. Here are several strategic considerations and steps SMEs can take to protect their interests while maximizing the value of their AI-based innovations:

- **Understanding the legal framework**: Stay updated on the evolving IP legislation regarding AI; engage with IP attorneys who specialize in AI to navigate these changes effectively.

- **Identifying and documenting IP assets**: Identify potential IP assets generated with the help of AI; document the human contribution to these assets to establish a basis for IP protection.

- **Protecting your IP**: Utilize the full spectrum of IP protections available, including patents for human-involved inventions and copyrights for AI-assisted creative works; consider trade secrets for AI algorithms and data sets that are not publicly disclosed.

- **Monitoring and enforcement**: Implement monitoring to detect potential IP infringements; be prepared to enforce your rights through legal means if necessary.
- **Engagement in policy and standardisation developments**: Participate in discussions and advocacy efforts regarding future AI, IP policies, and technological standards to ensure that the interests of SMEs are represented.
- **Adopt robust IP management strategies**: As AI-generated innovations are created, they might inadvertently infringe on existing IP rights, leading to costly legal disputes. Stay informed about legal developments and seek legal counsel to mitigate potential liabilities.

INTELLECTUAL PROPERTY ESSENTIALS TOOLBOX

The Four-step Test

As regards the possibility to copyright AI-assisted outputs, the European Commission decided to tackle the current lack of clear legal and policy frameworks by proposing a four-step test to determine whether AI-assisted and AI-generated outputs can qualify for protection under the existing EU copyright law (EC, 2020c, pp. 77-84). AI-assisted outputs must:

1. fall in the literary, scientific or artistic domain – Article 2(1) of the Berne Convention;
2. result from human intellectual effort – be it the development of software, the gathering or choice of training data, editing, etc.;
3. be original – a human author has made creative choices during the conception, execution, and/or redaction process, which are also reflected in the final result;
4. be identifiable with sufficient precision and objectivity – the output stays within the ambit of the author's general authorial intent, despite the AI systems' opacity in the execution phase.

By strategically navigating the IP landscape with a focus on human contribution and staying informed about legislative developments, SMEs can effectively protect and leverage their AI-generated outputs. This proactive approach not only secures the company's intellectual assets but also positions it to thrive in the rapidly evolving digital economy.

4. INTELLECTUAL PROPERTY EXPLOITATION AND TECHNOLOGY LICENSING

IP exploitation means making money, in consensual market transactions, either out of the IP rights themselves or alternatively out of the things that are protected by IP rights. One of the forms of exploitation of IP rights consists in transferring them to third parties through specific license agreements, in some cases for joint exploitation, in others for the inclusion of the transferred technology in the activities of third parties for the development of one's own production activity of goods or services.

Technology license agreements are agreements by which one party authorises another to use certain industrial property rights (e.g. patents, design rights, software copyrights

and know-how) for the production of goods or services. The process involves disclosure, evaluation, and protection of these technologies, ensuring they can be effectively utilized in real-world scenarios.

License agreements are crucial to control how a software is used, distributed, and modified by others. End-user license agreements (EULAs) specify the terms and conditions under which users are permitted to use the software, while software development agreements define the rights and obligations of parties involved in software development projects. Digital SMEs should seek specialized legal advice to draft enforceable and comprehensive license agreements tailored to their specific needs.

The following sections describe some of the most relevant contractual forms commonly used for software licensing of technology.

4.1 SOFTWARE LICENSE AGREEMENT

A software license agreement is a legal contract between the licensor (usually the software developer or owner) and the purchaser of a piece of software. This agreement grants the licensee the right to use the software under specific terms and conditions defined within the contract. The licensor retains ownership of the software, while the licensee gains certain usage rights without transferring ownership.

Here are some of key clauses of a Software License Agreement:

- **Rights and Usage**: A software license agreement outlines how and when the software can be used- It specifies any restrictions imposed on the software, such as the number of installations, permitted users, or usage scenarios.
- **Protection and Ownership**: The agreement protects the licensor's intellectual property rights related to the software It ensures that the purchaser has the necessary rights to use the software without infringing on those rights. This clause confirms that the software provider owns the IP, limits how and when the customer can use it, and deals with the provider's breaches of those obligations.
- **Types of Software Licenses**: “Proprietary Software License” which restricts modification and redistribution of the software. “Free Software License”: Allows modification and redistribution, often under open-source terms.
- **Privacy & Data Security Obligations**: If a service provider will have access to or collect "personal information" from the customer, it's critical the agreement adequately addresses the service provider's privacy and data security obligations[15].
- **Scope of the Agreement**: This clause defines the rights and obligations of both parties, including the software's intended use, restrictions on use, and the terms of the license.
- **Non-exclusivity**: This clause ensures that the software provider can license the

software to other companies.

- **Non-transferability**: This clause prevents the license from being transferred to another party.
- **Limitation of Liability**: This clause limits the amount that the software provider can be held liable for in case of any damages or issues arising from the use of the software.
- **Indemnities**: This clause outlines the obligations of one party to compensate the other for any harm, liability, or loss[16].
- **Termination**: This clause specifies the conditions under which the agreement can be terminated.
- **Warranties**: This clause provides assurances from the software provider about the quality and functionality of the software.
- **Confidentiality**: This clause requires both parties to keep certain information confidential.
- **Dispute Resolution**: This clause outlines how disputes between the two parties will be resolved.

These clauses help protect the interests of both the software provider and the customer and ensure that both parties understand their rights and responsibilities under the agreement.

INTELLECTUAL PROPERTY ESSENTIALS TOOLBOX

The role of licensing in commercializing innovative products: A research project to improve surgical navigation combined with the entrepreneurial mindset of the lead researcher at the University of Coimbra in Portugal led to the creation of Perceive3D. P3D's software runs in a universal add-on service device, overlaying the existing video from the arthroscopy tower with clinical information displayed in Augmented Reality. Patent applications were filed prior to any

relevant technical disclosure, to keep the inventions' novelty secured. P3D finally managed to find a "shortcut", launching its navigation system for hip surgery by licensing its technology to a global implant manufacturer.

4.2 SOFTWARE AS A SERVICE

Software as a Service (SaaS) is defined as a software distribution model where applications are hosted by a third-party provider and made available to customers over the internet. This model allows users to access software on a subscription basis, without the need for internal hosting or extensive IT infrastructure. SaaS is managed remotely by the provider and delivered through a one-to-many model.

A Software as a Service contract is a legal agreement between a software provider and a

customer that outlines the terms of their relationship. A SaaS contract sets out the rules about the way software is going to be delivered and used. This includes who can access the software, how they can use it, and what they need to pay in exchange for this access. SaaS contracts are all different, and they depend on the company and the service[17]. Some companies, offer monthly and yearly subscriptions. Other Software as a Service contracts allow customers to pay as they go, only paying for the software when they use it. An individual SaaS agreement will have unique needs and therefore different clauses. The specific clauses in an agreement will depend on the following relevant information: Industries, Products, Services. However, all cloud service agreements will share certain terms and agreements. This includes Access right and users, Customer service and support, Data ownership, Data security.

SaaS vs Licensing Agreement

A SaaS agreement differs significantly from a traditional licensing agreement. In a licensing agreement, the company provides the actual software for use, which must be installed on the user's hardware. This typically involves a one-time or recurring fee. In contrast, a SaaS agreement grants customers access to software and related services via the cloud, eliminating the need for any physical installation of software or hardware. No physical goods are exchanged; instead, the software is accessed online, usually through a subscription model.

Here are some key differences between Software Licensing Agreements and Software as a Service (SaaS) Agreements:

- **Access and Use**: In a SaaS Agreement users access the software through a web browser or dedicated application, typically from anywhere with internet connectivity. No installation or local storage of the software is required. In a Software License Agreement, users need to install the software on their own devices or servers.
- **Payment Structure**: SaaS Agreements often involve a recurring subscription fee to access the SaaS platform. The fees are often based on usage, the number of users, or other factors. Software License Agreements typically involve a one-time or upfront fee for the software license, although some licenses may include ongoing maintenance and support fees.
- **Ownership**: SaaS Agreements offer customers access to the programs. Software Licenses share copies of the software itself.

In summary, while both types of agreements involve the use of software, they differ significantly in terms of how the software is accessed, used, paid for, and owned. It's important to understand these differences when considering which type of agreement is most suitable for a particular situation.

4.3 PLATFORM AS A SERVICE

Platform as a Service (PaaS) contract is a legal agreement between a PaaS provider and a customer that outlines the terms of their relationship. A PaaS contract sets out the rules about the way the platform is going to be delivered and used. This includes who can access the platform, how they can use it, and what they need to pay in exchange for this access. A standard PaaS Agreement Package generally consists of three parts: Cloud Services Agreement, Service Level Agreement, and an Acceptable Use Policy.

Cloud Services Agreement: This agreement outlines the specifics of what the PaaS business is doing for the customer, including description of services, access and use, documentation license, compliance with laws, sub-contracting, and information around personnel that would be assigned to the customers' account (if applicable).

Service Level Agreement (SLA): This agreement outlines the level of service the customer can expect from the provider.

Acceptable Use Policy: This policy outlines how the customer is restricted from using the application.

Other Clauses: Other important clauses in a PaaS contract can include definitions, use restrictions, support and maintenance, data privacy and information security, fees and payment, confidentiality, intellectual property rights, representations, and warranties.

4.4 INFRASTRUCTURE AS A SERVICE

Infrastructure as a Service (IaaS) refers to cloud infrastructure services that provide virtualized computing resources over the internet, including virtual machines, storage, and networks.

IaaS contract is a legal agreement between an IaaS provider and a customer that outlines the terms of their relationship. An IaaS contract sets out the rules about the way the infrastructure is going to be delivered and used. This includes who can access the infrastructure, how they can use it, and what they need to pay in exchange for this access A standard IaaS Agreement Package generally consists, like the PaaS agreement of three parts: Cloud Services Agreement, Service Level Agreement, and an Acceptable Use Policy Cloud Services Agreement: This agreement outlines the specifics of what the IaaS business is doing for the customer, including description of services, access and use, documentation license, compliance with laws, sub-contracting, and information around personnel that would be assigned to the customers' account (if applicable).

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Service Level Agreement (SLA): This agreement outlines the level of service the customer can expect from the provider.

Acceptable Use Policy: This policy outlines how the customer is restricted from using the application.

Other Clauses: Other important clauses in an IaaS contract can include definitions, use restrictions, support and maintenance, data privacy and information security, fees and payment, confidentiality, intellectual property rights, representations, and warranties.

4.5 OPEN-SOURCE SOFTWARE

Open-source software refers to a category of software programs whose usage licenses contrast with those of so-called proprietary software. Authors of proprietary software distribute only the object code through paid licenses, while keeping the source code secret. This makes it more difficult to study the software's operation and consequently create alternative versions. As a result, companies that invested in the development of the program are able to maintain high license prices.

On the other hand, **authors of open-source software distribute both the object code and the source code through usage licenses**. This allows other developers to study the code, improve it, incorporate it into other programs, and create derivative works.

Yet, a prevalent misconception is that open-source software is universally free from copyright protection and can be utilized without constraints. However, the reality is more nuanced. Open-source software is distributed under licenses, varying in degrees of restrictiveness. The licenses underlying open-source algorithms (or open-source libraries) have to be carefully examined in order to evaluate potential claims of IP ownership by third parties.

For example, "Keras" is an open-source library that provides a Python interface for artificial neural networks. The applicable licence for the use of such open-source library is Apache 2.0[18], which is considered a **permissive license**.

Under the Apache 2.0 license, end-users can use the open-source material in any commercially licensed software, create their own proprietary software and offer the including creating derivative works, without requiring those derivative works to be licensed under the same open-source license[19]. This means that end-users can release the modified parts of the code under any other type of license. However, when a software with Apache-licensed components is redistributed, a copy of the license shall be included, as well as a clear copyright attribution notice, and a statement of any significant changes made to the original code[20]. In other words, it is possible to release modified or derived products under different licenses, but any unmodified parts of the software must retain the Apache License. Among the most permissive licenses, the common ones include the Berkeley Software Distribution (BSD) and the MIT License.

There are also more restrictive licenses: the **GNU General Public License (GPL)**[21] operates as a "strong copyleft" source license, aiming not only to ensure the freedom of the initially covered code, but also to stimulate the development of new free licensed software. It achieves this by mandating that any derivative works incorporating even small copyrightable portions of the GPL code, must be released as free and open code under the GPL. This requirement extends to all parts of the derivative work, not just those directly dependent on the GPL code.

Weak copyleft licenses serve as a middle ground between permissive and strong copyleft licenses. They allow the usage of the software within other programs sold with proprietary licenses. However, open-source software incorporated must be redistributed with its own license and source code. Examples of licenses in this category include the **Lesser General Public License (LGPL)**[22] and the **Mozilla Public License (MPL)**[23].

When digital SMEs use open-source software components to develop their software products, they must comply with the terms of the applicable open-source licenses. Failure to comply with open-source license obligations can lead to legal risks and potential IP infringement claims. For such reasons each company should establish policies and procedures for tracking and managing open-source software usage and ensure compliance with license terms.

5. LEVERAGING INTELLECTUAL PROPERTY IN FUNDING OPPORTUNITIES

Funding opportunities related to intellectual property rights can vary depending on the region, industry, and specific needs of businesses. However, there are some common routes that digital SMEs may explore:

- **Government grants and programs**: Many governments offer grants, subsidies, and funding programs specifically designed to support SMEs in developing and protecting their intellectual property. These programs may provide financial assistance for IP registration fees, IP audits, legal services, and IP training programs. SMEs can research government initiatives at the national, regional, and local levels to identify relevant funding opportunities.

INTELLECTUAL PROPERTY ESSENTIALS TOOLBOX

FOCUS: Ideas Powered for Business SME fund

On 22nd January 2024, the "Ideas Powered for Business" SME Fund by the EUIPO was activated, supporting small and medium-sized enterprises intending to register trademarks, designs, and patents.

To participate in the fund, companies must indicate whether they are a medium-sized (with an annual turnover equal to or less than 50 million euros), small (with an annual turnover equal to or less than 10 million euros), or micro enterprise (with an annual turnover equal to or less than 2 million euros). They must also specify if they are a start-up and/or an

innovative SME, as well as indicate their sector of activity.

The SME Fund provides grants in the form of vouchers, which beneficiaries can utilize to request reimbursement. Reimbursements are directly transferred to the bank accounts of the SMEs. The fund offers four distinct vouchers, enabling SMEs to claim reimbursement for a range of IP-related activities, including applications for trademarks, designs, patents, and plant varieties, as well as IP Scan, which is a pre-diagnostic service active in certain EU countries whereby an expert will evaluate all the intangible assets of the company and provide guidance on the IP strategy to put in place.

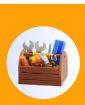
Depending on the country or region, SMEs could potentially save up to 75% on IP right applications and up to 90% on an IP Scan.

Funding for the grant is limited and available on a first-come, first-served basis. Therefore, it is advised to submit the participation application as soon as possible.

More information about this funding opportunity and how to apply can be found here: https://www.euipo.europa.eu/en/discover-ip/sme-fund/overview

- **Venture capital and angel investors**: Venture capital firms and angel investors often invest in innovative start-ups and SMEs with strong intellectual property portfolios. Digital SMEs seeking funding for IP-related initiatives, such as patent filings, trademark registrations, or IP litigation, may attract investment from these sources. Investors typically look for SMEs with scalable business models, defensible IP assets, and potential for high growth and market disruption.

INTELLECTUAL PROPERTY ESSENTIALS TOOLBOX



Strategic support: In the case of a digital health start-up based in Italy developing a novel telemedicine platform, venture capital firms showed interest in investing in the start-up to support its IP-related initiatives, such as obtaining regulatory approvals, securing patents for its proprietary algorithms, and building a strong brand through trademark registrations. Angel investors with expertise in the healthcare industry have a crucial role as they may provide additional funding and strategic guidance to help the start-up navigate IP challenges and scale its business.

A useful tool to understand what are key elements Angel Investors are looking at to conduct a due diligence assessment is the Due Diligence Guidebook for Angel Investors developed by the European Business Angel Network, which also includes an IP checklist, here: https://www.eban.org/eban-due-diligence-guidebook-for-angel-investors/

- **Intellectual property financing**: IP can be used for both equity and debt finance: patents and other forms of IP rights can be used as collateral for loans. Some financial institutions offer IP financing solutions tailored for SMEs, allowing businesses to leverage their intellectual property as collateral to secure loans or lines of credit. This funding option can provide SMEs with the capital they need to invest in IP development, enforcement, or commercialization activities while retaining ownership of their IP assets.

- **Accelerator and incubator programs**: Accelerators and incubators focused on

supporting SMEs may provide funding, mentorship, and access to resources to help entrepreneurs navigate IP-related challenges. Incubators furnish the necessary environment and resources to support entrepreneurs with an innovative business idea earlier in the start-up lifecycle. Accelerators, on the other hand, condense years of learning and growth into just a few months, providing to start-ups that already have a minimum viable product an accelerated path to start-up development These programs often offer guidance on IP strategy, patent drafting, trademark registration, and IP licensing negotiations, enabling SMEs to strengthen their IP positions and attract investment.

INTELLECTUAL PROPERTY ESSENTIALS TOOLBOX

The European Innovation Council (EIC) Accelerator is a flagship funding program of the European Union aimed at supporting high-potential SMEs and start-ups to develop and scale-up innovative products, services, and business models with significant market potential and societal impact.

What for	Who can apply	What you get
Develop and scaleup innovations	Startups and SMEs	Grants and Investments
Develop and scaleup innovations with the potential to create new markets or disrupt existing ones (TRL 5-9)	Startups and SMEs, individual intending to launch a SME and small mid-caps (can apply for equity only)	Up to EUR 2.5 million of grants, up to EUR 15 million of equity investments, coaching and mentoring, networking

More information about the opportunities under the EIC Accelerator and how to apply for funding can be found here: https://eic.ec.europa.eu/eic-funding-opportunities/eic-accelerator_en

- **Research and Innovation grants**: SMEs engaged in research and innovation activities may qualify for grants and funding opportunities offered by research institutions, universities, and industry consortia. University grants aim to foster partnerships between research institutions or universities and SMEs to facilitate knowledge exchange, technology transfer, and collaborative research projects.

INTELLECTUAL PROPERTY ESSENTIALS TOOLBOX

Funding innovation: Glocke Gmbh, a digital SME specializing in developing software solutions for e-commerce businesses, has developed a unique algorithm for optimizing online advertising campaigns, which they believe has significant commercial potential in the digital marketing industry.

To protect their innovative algorithm and accelerate its commercialization, the SME applied for funding through the European Union's Horizon Europe program[24]. Horizon Europe offers various funding opportunities, including support for SMEs seeking to protect and leverage their intellectual property (IP) rights.

Glocke Gmbh successfully secured a €40,000 grant from Horizon Europe to support their IP-related activities. With the funding, the company engages IP experts to conduct a thorough patent search and analysis to determine the novelty and patentability of their algorithm. Based on the findings of the patent search, Glocke Gmbh proceeds to file a patent application to protect their algorithm's unique features and functionalities. The grant covers the costs associated with drafting and filing the patent application, as well as other legal fees incurred during the process. Additionally, Glocke

Gmbh uses part of the grant to raise awareness about the importance of IP rights among their team members through training sessions and workshops. These initiatives help ensure that all employees understand their roles and responsibilities regarding IP management and valuable know-how protection within the company.

With a strong IP strategy in place, Glocke Gmbh attracts potential investors and strategic partners interested in licensing their technology for use in other industries and applications. The company continues to innovate and expand its product offerings, driving growth and competitiveness in the digital market landscape.

6. INTELLECTUAL PROPERTY CHECKLIST AT EACH BUSINESS PHASE

6.1 BEFORE LAUNCHING A DIGITAL PRODUCT

Before the start of a project (launching of a new mobile app or website, for example) it is crucial to identify the intangible assets that can be protected by an IP right.

A **business plan** is a mechanism to ensure that the resources or assets of a business are applied profitably across all its activities for developing and retaining a competitive edge in the marketplace. For a new business it provides a blueprint for success, while for an ongoing business it provides an overview of where a business is at present, how the business is positioning itself, and how it seeks to achieve its objectives to become and/or remain successful. Developing a robust business plan around intellectual property assets is crucial for ensuring the protection and commercialization of innovative ideas and creations.

A comprehensive IP strategy should include *identifying potential IP assets*, securing appropriate legal protections, and outlining clear procedures for enforcement against infringement. Additionally, a business plan should address the management of IP portfolios, exploring opportunities for licensing or selling IP rights as part of revenue generation. It's also important to stay informed about changes in IP law to adapt the strategy accordingly and maintain a competitive edge.

INTELLECTUAL PROPERTY ESSENTIALS TOOLBOX

A step-by-step IP Strategy Checklist for SMEs - WIPO: https://www.wipo.int/sme/en/checklist.html

Below there are a few key questions concerning intellectual property issues that should be considered while preparing a business plan. The list is not exhaustive, as many additional issues will have to be considered depending on circumstances of each business. The answers to these questions should help a company to integrate intellectual property assets into its business planning process:

- What intellectual property assets does the business own? Has it protected all its intellectual property assets? Should it do so?
- What is the status of the company's intellectual property portfolio? Are there any patents pending? Are trademarks up for renewal? Has the company got any confidential information that need to be guarded from early disclosure?
- How important are these intellectual property assets to the company's success? What would happen if third parties were to copy or imitate your company's products infringing the company's IP rights without authorization? What impact would this have on the business?
- Does the company own all the intellectual property assets that it needs to commercialize its products/services, or does it have to rely on the intellectual property assets of others? If the latter is the case, has it requested permission from the owners to use such IP rights? Has the permission been set in a written agreement or license?
- What is the competition's intellectual property strategy and portfolio?
- What is the company's intellectual property policy and strategy?

Protect your IP assets

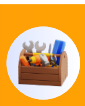
TM Once the intangible assets have been identified, the least that should be achieved before commercialization in terms of IP protection is the **registration of a trademark**.

- Digital SMEs can protect their App/Product/Software brand names, logos, and symbols through trademark registration. Trademarks distinguish products and services from a certain company from those of competitors and help build brand recognition and reputation. The subject who registers a trademark acquires the right to make exclusive use of it for the products and services expressly claimed and to prohibit third parties from using an identical or similar sign for the same or similar sector for the entire duration of the trademark. Trademark protection lasts 10 years.
- As such, the first step of each SME stepping into a new digital project **is choosing a distinctive and new trademark** which will make consumers recognize its own products and services. In selecting a distinctive mark, the entrepreneur must consider what image and information they wish to convey to consumers through their products or services, checking the novelty with other trademarks in the same sector.
- Before proceeding with the application for registration, it is advisable to verify that identical or similar trademarks have not already been registered for identical or similar products or services compared to those for which registration is sought and/or is intended to be used for. Such verification, commonly referred to as a **prior**

art search or availability search, must take into account the territory for which protection is sought and the products/services for which trademark registration is desired. The prior art search can be conducted free of charge using the databases made available by the relevant Offices. Among these, **one of the most useful databases is TMview, provided by the EUIPO**, the European Union Intellectual Property Office, which collects data from national or international trademark offices participating in the project, including EUIPO and WIPO. However, given the importance of the prior art search, it is not advisable to rely solely on freely accessible databases because databases, especially those of national trademark offices, are not always updated or reliable regarding the information contained. Relying on specialized consultants for the preliminary study of the trademark application and the prior art search allows access to more reliable tools and the expertise of industry experts.

Once the trademark has been chosen according to the above criteria, SMEs can proceed with registration at national, EU or international level, according to its business needs.

INTELLECTUAL PROPERTY ESSENTIALS TOOLBOX



USEFUL TOOL: How to internationally protect your trademark through the Madrid System: https://intellectual-property-helpdesk.ec.europa.eu/document/download/e3eee5ad-adc0-4bd3-8212-fbcb5b8f30dc_en?filename=FS%20How%20to%20%20internationally%20protect%20your%20trade%20mark%20through%20the%20Madrid%20system_.pdf

- Furthermore, digital SMEs should also prepare legal documents such as **general terms and conditions, privacy policy** and cookies policy before launching Apps or Websites.
- Once having chosen and registered a trademark, it is advisable to register a corresponding **domain name**. This is because the domain name serves as an essential part of the SME's online presence and directly impacts their brand recognition, online visibility, and search engine rankings. When SMEs register a domain name that corresponds to their trademark, they establish a clear connection between their brand and their website. This makes it easier for customers and clients to find them online.
- Moreover, owning a domain name similar to the SME's trademark can deter competitors or cybersquatters from using the SME's name or creating confusion in the marketplace.
- Furthermore, registering a domain name also gives SMEs control over their online presence. With a registered domain name, SMEs can customize their website's look and feel, host email accounts with their domain name, and have the freedom

to set up additional subdomains to create distinct sections of their website.

Additionally, SMEs should consider registering **variations of their domain name to protect themselves from potential cyber threats**.

As mentioned in the previous chapter, app and website developers should consider registering Graphic User Interfaces (GUIs) as industrial designs to protect their innovative designs.

6.2 AFTER LAUNCHING A DIGITAL PRODUCT

Once a project or product has been launched, there are several actions for SMEs to be carried out to maintain and protect the value of its IP rights:

- **Monitor online presence**: SMEs should regularly monitor websites, social media accounts, and online marketplace listings to look out for unauthorized use of trademarks and designs. The activation of a surveillance system is often used by companies to be alerted each time a third-party file an application for a confusingly similar trademark. The surveillance system gives to opportunity to the IP owner to evaluate the filing of an opposition and avoid that a third party free-rides the investments made on the launching of a successful product or service.
- **Secure websites**: implementing measures such as secure hosting and encryption to protect websites and sensitive information from hacking, impersonation, or unauthorized use.
- **Educate employees on IP enforcement**: training employees on the importance of intellectual property rights and the potential consequences of online IP infringements. Encourage them to report any suspicious activities or unauthorized use of your intellectual property.
- **Enforce IP rights**: taking immediate action against online IP infringements by sending cease and desist letters, filing takedown notices with online platforms, and pursuing legal action against infringers if necessary are activities which are crucial to defend your innovation and competitive advantage.
- **Work with an IP attorney**: seeking guidance from intellectual property attorneys can help companies navigate the complex legal landscape of online IP infringements and provide advice on how to protect intellectual property rights effectively.
- **Assess Freedom to Operate**: Regularly assess your freedom to operate by ensuring that your products or services do not infringe on others' IP rights. This may involve conducting infringement searches or obtaining legal opinions.
- **Stay updated on IP laws**: staying informed about changes in intellectual property laws and regulations, especially in the countries where business is conducted, will help companies adapt its IP protection strategies accordingly.

INTELLECTUAL PROPERTY ESSENTIALS TOOLBOX

The growth of e-commerce and digital technologies has resulted in an increase in online IP infringement, such as trademark infringement, copyright infringement, and patent infringement[25]. SMEs are particularly vulnerable to online IP infringement, which can have a severe impact on their business and prospects for growth. While SMEs often lack the resources and expertise to effectively protect their online IP rights, which can lead to costly legal battles and damage to their brand reputation, alternative dispute resolution processes have become increasingly important over time.

Alternative Dispute Resolution (ADR) and Mediation systems offer SMEs specific advantages when resolving intellectual property rights disputes related to digital products and services:

Cost-Effective: ADR and Mediation typically involve lower costs compared to traditional litigation, making them more accessible for SMEs with limited resources.

Time-Efficient: ADR and Mediation processes are often quicker than traditional court proceedings, allowing SMEs to resolve disputes more efficiently and focus on their core business activities.

Confidentiality: ADR and Mediation proceedings can be conducted in private, maintaining confidentiality and protecting sensitive business information.

Preserving Relationships: ADR and Mediation emphasize cooperation and communication, facilitating the preservation of business relationships between parties involved in the dispute.

Expert Neutrality: ADR and Mediation proceedings are often overseen by neutral third-party mediators or arbitrators with expertise in intellectual property law, ensuring fair and impartial resolution of disputes.

The EUIPO Alternative Dispute Resolution (ADR) services (mediation, conciliation and expert determination) are offered both online and in person and are addressed to all parties involved in inter partes proceedings before the EUIPO Boards of Appeal. For the benefit of small and medium-sized enterprises only, there is an additional "ADR SME special service" available, which covers the EUIPO's first instance inter partes proceedings before the Opposition, Cancellation and Invalidity Divisions of the EUIPO. Mediation at the EUIPO involves no additional charges to the appeal, cancellation, opposition of design invalidity request fee, as the Office offers these services through internal staff, that are IP experts and trained in mediation.

7. CONCLUSIONS

The exploitation of intellectual property rights is a critical aspect of modern business strategy, offering a plethora of benefits that can significantly enhance the value and competitiveness of a company. Intellectual property rights serve as a legal framework that protects and incentivizes the creation and utilization of inventions, trademarks, designs, and creative content. These rights are essential for securing a return on investment in innovation and creativity, providing a competitive edge in crowded marketplaces.

Effective **management and exploitation of IP rights can lead to direct and indirect revenue streams**, such as through the licensing of software end/or patents or the franchising of trademarks, which can be particularly lucrative. This approach not only creates revenue streams but also broadens a brand's presence with minimal need for heavy investment in service provision and distribution.

For digital SMEs, which may not have the same resources as larger corporations, IP rights offer a powerful tool to compete and carve out a niche in the market. They also provide a mechanism for preventing others from exploiting their technologies without proper

authorization or remuneration.

IP Recommendations for Digital SMEs

- **Conduct an IP audit**:
  - Regularly assess your company's IP assets, including patents, trademarks, copyrights, and trade secrets.
  - Identify potential IP that may need protection and areas where your current IP portfolio can be strengthened.
- **Secure trademarks early**:
  - Register your company name, logo, and any product names as trademarks to protect your brand identity.
  - Conduct thorough searches to ensure that your chosen names and logos do not infringe on existing trademarks.
- **Protect innovative technologies with patents**:
  - File patents for any unique technologies or processes your company develops.
  - Consider both utility patents (for inventions) and design patents (for product designs).
- **Use copyrights for creative works**:
  - Register copyrights for any original content your company produces, such as software code, websites, marketing materials, and multimedia content.
  - Ensure employees and contractors assign copyrights of their work to the company.
- **Maintain trade secrets**:
  - Identify and protect valuable business information that gives your company a competitive edge, such as algorithms, customer lists, and manufacturing processes.
  - Implement non-disclosure agreements and confidentiality clauses with employees and partners.
  - Provide physical and cyber security for your IP & trade secrets.
- **Monitor and enforce IP rights**:
  - Regularly monitor the market for potential IP infringements.

- Take swift action against unauthorized use of your IP through cease-and-desist letters, legal action, or alternative dispute resolution methods.

- **Develop an IP strategy**:
  - Align your IP strategy with your overall business goals and market position.
  - Prioritize IP investments based on their potential return on investment and strategic importance.
- **Educate your team**:
  - Train employees on the importance of IP and how to recognize and protect the company's IP assets.
  - Train regularly your employee on recognizing cyber threats and secure IP information handling.
- **Leverage IP for business growth**:
  - Use your IP portfolio to attract investors, secure funding, and enhance your company's valuation.
  - Consider licensing or selling IP rights as a revenue stream.
- **Seek professional advice**:
  - Consult with IP attorneys and professionals to navigate the complexities of IP law and ensure comprehensive protection.

Key Takeaways for Digital SMEs:

- **Early Protection is Crucial**: Protect your IP assets early in the development process to prevent competitors from capitalizing on your innovations.
- **Comprehensive IP Portfolio**: A well-rounded IP portfolio, including trademarks, patents, copyrights, and trade secrets, provides robust protection and enhances business value.
- **Proactive Monitoring**: Vigilantly monitor for potential IP infringements and take prompt action to enforce your rights.
- **Strategic IP Management**: Align your IP strategy with business objectives, prioritizing protections that offer the greatest strategic and financial benefits.
- **Educational and Cultural Focus**: Educate your team on IP importance and foster an innovation-friendly environment to maximize the value of your intellectual property.

Endnotes

[1] 2022 Intellectual Property SME Scoreboard, available at: https://op.europa.eu/en/publication-detail/-/publication/e482883e-438e-11ed-92ed-01aa75ed71a1

[2] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016L0943

[3] See Circular 1 of the US Copyright Office, Copyright Basics, section "Registration" https://www.copyright.gov/circs/circ01.pdf

[4] Art. 10 TRIPS AGREEMENTS and Art. 4 WIPO Copyright Treaty.

[5] *In Europe, the threshold of originality for software to be protected under copyright law is defined as the work being "the author's own intellectual creation." This standard requires that the software reflect the author's personal intellectual effort and creativity, rather than being a mere copy or derivation of existing works. The European Court of Justice (ECJ) has reinforced this standard, emphasizing that originality is met when the work results from the author's own creative choices and effort. See https://www.law.ox.ac.uk/events/originality-european-copyright-law.*

[6] Available at: https://www.epo.org/en/legal/epc/2020/a52.html

[7] Available at: https://www.epo.org/en/legal/guidelines-epc/2023/g_ii_3_6_1.html

[8] More information available at: https://www.epo.org/en/legal/guidelines-epc/2023/f_iv_3_9.html

[9] Oldemeyer, L., Jede, A. & Teuteberg, F, Investigation of artificial intelligence in SMEs: a systematic review of the state of the art and the main implementation challenges, Manag Rev Q (2024)

[10] Matt Hervey, The EU AI Act and IP (2023). Available at: https://loupedin.blog/2023/06/the-eu-ai-act-and-ip/#page=1

[11] WIPO conversation on Intellectual Property (IP) and Artificial Intelligence (AI) (2020). Available at: https://www.wipo.int/edocs/mdocs/mdocs/en/wipo_ip_ai_2_ge_20/wipo_ip_ai_2_ge_20_1_rev.pdf

[12] European Commission (2020), Trends and Developments in Artificial Intelligence Challenges to the Intellectual Property Rights Framework. Final Report. Available at: https://op.europa.eu/en/publication-detail/-/publication/394345a1-2ecf-11eb-b27b-01aa75ed71a1/language-en

[13] Hugenholtz, P.B., Quintais, J.P., Copyright and Artificial Creation: Does EU Copyright Law Protect AI-Assisted Output? IIC 52, 1190–1216 (2021)

[14] Osborne Clarke (2023), Generative AI: is its output protectable by intellectual property rights? Available at: https://www.osborneclarke.com/insights/generative-ai-its-output-protectable-intellectual-property-rights

[15] More information available at: https://gdpr.eu/what-is-gdpr/

[16] Society for Computers and Law (2024), Indemnity and Limitation of Liability Provisions in Software Product Licensing Contracts. Available at:https://www.scl.org/3030-indemnity-and-limitation-of-liability-provisions-in-software-product-licensing-contracts/

[17] Read more about case studies of SaaS companies and their business development strategies here: https://www.saasworthy.com/blog/saas-case-study-examples

[18] More information available at: https://github.com/keras-team/keras/blob/master/LICENSE

[19] More information available at: https://www.mend.io/blog/top-10-apache-license-questions-answered/

[20] *More information available at: https://snyk.io/learn/apache-license/*

[21] *More information available at: The GNU General Public License v3.0 - GNU Project - Free Software Foundation*

[22] https://www.gnu.org/licenses/lgpl-3.0.en.html

[23] https://www.mozilla.org/en-US/MPL/

[24] One example of government grants and programs supporting digital SMEs in Europe is the Horizon Europe program. Horizon Europe is the European Union's flagship research and innovation funding program for the period 2021-2027, with a total budget of €95.5 billion. Within Horizon Europe, there are several initiatives and funding opportunities aimed at supporting SMEs, including those related to intellectual property (IP) rights. SMEs can use EIC Accelerator funding to support various IP-related activities, such as patent filings, trademark registrations, and IP audits. More information available at: https://commission.europa.eu/funding-tenders/find-funding/eu-funding-programmes/horizon-europe_en

[25] European Union Intellectual Property Office (2023), Online copyright infringement in the European Union films, music, publications, software and TV (2017-2022). Available at: https://euipo.europa.eu/tunnel-web/secure/webdav/guest/document_library/observatory/documents/reports/2023_online_copyright_infringement_in_eu/2023_online_copyright_infringement_in_eu_FullR_en_en.pdf

Table notes

[1] Available at: https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:62017CJ0683

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Find more resources for SMEs on IP at: https://www.digitalsme.eu/intellectual-property/

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