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IP Question - What is the role of intellectual property in sustainability?

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*1. **The Role of Intellectual Property in Sustainability***

1.1. Introduction

Intellectual property ('IP') currently plays a strong role in sustainability, although its relationship with, and impact on, environmental, social and economic factors could be strengthened further. For example, at least six of the United Nation's Sustainable Development Goals[2], namely zero hunger, clean water and sanitation, affordable and clean energy, industry, innovation and infrastructure, sustainable cities and communities and responsible consumption and production, overlap directly with most 'definitions' of sustainability and will require a range of new technologies to implement. Technological innovation geared towards environmental or sustainable factors (which could also loosely be referred to as "green" technology) will therefore be pivotal in achieving the UN's goals.

IP (whether falling within the category of patents, trade marks, copyright, designs or some other 'neighbouring' right) plays an important role in the commercialisation and protection of such technology. Given that IP is ultimately an asset which can be commercialised, it has the potential to generate income which in turn can be used to further innovate and develop the technologies required for the pursuit of sustainable goals. IP rights bestow exclusive rights in connection with specific products, services, processes, information, which – in the absence of some form of reward - would not otherwise be economically viable to pursue.

However, there are various issues concerning IP that can also pose limitations or obstacles to progress around Environmental, Social and Corporate (ESG) ESG goals, which are examined later in this chapter.

Fundamentally, the role of IP in sustainability differs across patents, trade secrets, trade marks, copyright and design rights, as broadly set out below.

1.2. Patents

Patents are the seminal example of how IP can contribute to sustainable practices. As a powerful monopoly right, patents allow a greentech business to license products/processes that enhance environmental sustainability (i.e. new technology), but create revenue streams in the meantime.

The process of seeking patent protection requires applicants to disclose their innovation in detail and this can allow others to benefit from, and build on, that innovation. If a patent is granted, the patent owner can prevent unauthorised use of the innovation while the patent remains in force, but after the patent expires the technology is free for anyone to use. In the case of environmentally-beneficial technology this is clearly advantageous.

Patents can be used to protect (and, consequently, disclose) important climate-change mitigation technologies for energy, transport and construction, as well as environmental management and water-related adaptation technologies. Mitigation technologies aim to reduce greenhouse gas emission, increase energy efficiency, improve resource use, minimize waste and improve reuse and recycling. Referred to as low-carbon technologies, they generate relatively lower CO2 emissions than fossil-fuel energy. In transport, an example would be electric

[1] The authors of this report wish to thank Alexander Parkin, a trainee at CMS Cameron McKenna Nabarro Olswang LLP, London, for his invaluable contribution.
[2] UN Department of Economic and Social Affairs Sustainable Development Goals, available at https://sdgs.un.org/goals. Accessed 20 June 2022.

vehicles. In energy production, examples include solar photovoltaic (PV) energy, wind turbines and coal-powered power plants fitted with carbon-capture storage facilities. Carbon dioxide removal and capture technologies, for example power plant storage facilities, reduce CO2 emission by capturing and storing gases either in reservoirs (geological, terrestrial or in the ocean) or in products such as wood.

The World Intellectual Property Report 2022[3] makes the observation that patent filings can in themselves be a valuable data source, particularly in identifying trends in sustainable research and development, which may then inform the technological direction pursued by other entities/organisations. For example, page 68 of WIPO's report illustrates the sharp increase in patents filed after 2000 in the sector of so-called clean technologies. Further analysis shows that they are associated with renewable energy sources, such as solar, wind and fuel cells, which are like batteries that do not run down or need recharging. Trends in patent filings can therefore be observed and assessed, giving an insight into the future direction of sustainable technology.

Examples of the use of patents within the field of sustainable innovation include Nike applying for patent protection for methods for forming footwear using recycled plastics[4], and Allbirds, a footwear and apparel company, filing a patent application for a shoe including a "continuous knit textile comprising eucalyptus fiber[5]".

While patents have a normal lifespan of 20 years, they can create a legacy that extends far beyond their expiry. In 1871 Charles Goodyear, Jr. was awarded a patent (US111197A[6]) for a machine for stitching boots and shoes which allowed the creation of the "Goodyear Welt". This manufacturing technique is still used today, albeit with refinements over the years.

Goodyear welted shoes are considered desirable as they are relatively waterproof, but the construction also allows for relatively easy resoling and repair. This means that shoes using a Goodyear welt are more likely to be repaired and used for longer, thereby reducing wastage and minimising the environmental and financial impact of disposal.

While it is unlikely that environmental considerations were at the forefront of Charles Goodyear's mind when he devised his machine, the resulting patent is a good example of an early sustainable innovation that was disclosed and became freely available for general benefit. Many of the patents filed in the field of green/sustainable technology will eventually become of general utility to the world at large, being periodically improved/refined, and contributing to the pursuit of sustainable practices.

On the other hand, there are those who argue the opposite. Some contend that patent rights *inhibit* widespread adoption of green/sustainable technology. Patents create a monopoly right, and if that monopoly is not made available to other parties for exploitation, for example, via licensing, development and adoption of sustainable practices could be unduly delayed pending expiry of the patent in question. We address these arguments in greater detail in this report.

1.3. Trade Secrets

Over recent years, trade secrets have been the focus of IP reform in the EU (including in the United Kingdom). Following the adoption of the Trade Secret Directive 2016/943 in 2016, many EU member states have upgraded their national protection regime, including the UK via the Trade Secrets (Enforcement, etc) Regulations 2018 (SI 2018/597). In the UK, trade secrets legislation supplements the equitable cause of action of breach of confidence.

Trade secret protection is available for any information that is not generally known, commercially applicable and of value due to its secrecy. Green innovations are thus eligible, but commercial or financial information can also be protected. There is no registration process, but the trade secret owner must have applied reasonable protection measures to keep the information secret.

The Regulations confirm that protection (in the form of infringement proceedings) is only available against

[3] WIPO Report 2022 – The Direction of Innovation, available at https://www.wipo.int/edocs/pubdocs/en/wipo-pub-944-2022-en-world-intellectual-property-report-2022.pdf. Accessed 20 June 2022.
[4] https://patents.google.com/patent/WO2019232024A1
[5] https://patents.google.com/patent/WO2020223382A1
[6] https://patents.google.com/patent/US111197A

unlawful acquisition, use or disclosure of the information – not for the "content" itself. Since only one of these three acts need occur for infringement, it is possible for infringement to take place in circumstances where a Trade Secret was lawfully acquired but subsequently unlawfully used or disclosed.

Under common law / equity, threatened or actual unauthorised use of confidential information can constitute a breach of confidence. Further, in circumstances where a recipient of information comes across that material 'lawfully', i.e. through the discovery of apparently discarded papers in a public place, subsequent disclosure of that information can still constitute a breach of confidence, if the recipient has actual or constructive knowledge of its confidentiality.

Trade secret protection is therefore less "complete" (and harder to enforce) compared to patent protection. Nevertheless, the trade secrets regime/breach of confidence can be especially helpful in stages prior to obtaining patent protection, or as "supplemental" protection, e.g. for aspects that do not need to be disclosed in a patent application.

Confidential information and trade secrets can be amongst the most valuable assets available to a business. A competitive edge in the marketplace may rely on a business having certain information which its competitors do not, and being able to maintain the secrecy of that information.

Treating a technological development in the field of sustainability as confidential information may be a preferable route in circumstances where an invention may not be patentable or enforceability may be difficult, such as where it would be challenging to prove a competitor is using an invention. There are also considerable licensing opportunities for the technology transfer of valuable know-how in combination with other IP rights, including patents. This can enable developers of green technology to commercialise their know-how through a third party or via collaborative arrangements, including as envisaged by WIPO GREEN. WIPO GREEN is an online platform for technology exchange operated by the World Intellectual Property Office. It supports global efforts to address climate change by connecting providers and seekers of environmentally friendly technologies. Through its database, network and acceleration projects, it helps to promote the development and sharing of green technology innovation.

Examples of valuable and proprietary confidential information or trade secrets in this context include source code and algorithms for applications which track food source provenance or provide access to clean water reserves.

AI creations and the data/datasets that inform those outputs are likely to be critical to the world's ambitions to deliver a sustainable future. Raw data in particular will enable technological innovation to be driven by statistical analysis. While everyone agrees data will be of tremendous value, and while *collections* of data can be protected through database rights, there is currently no "traditional IP" protection regime to cover the data itself adequately, which is consistent with the notion of the idea/expression dichotomy. The idea/expression dichotomy is a well-established principle that underpins IP law, namely that while underlying ideas are not protectable, the expression of those ideas in writing can be protected. The trade secrets and confidential information regimes are therefore critical to the protection and commercialisation of IP in the field of sustainable innovation.

1.4. Trade marks

Trade mark registrations are granted to signs that are capable of designating the commercial origin of specific goods and services. Such signs may comprise words or logos, but also three-dimensional shapes, colours or patterns, or even sounds and surface structures. Trade mark registrations are obtained via a simple online application process operated by the United Kingdom Intellectual Property Office[7]. In addition, the United Kingdom bestows national unregistered rights to signs that benefit from goodwill/reputation under the law of passing-off.

Trade marks already play a balanced role in sustainability. They ensure that words that are descriptive of sustainable practices will remain free for use by all traders, so that no one is precluded from using such words to market their own initiatives in the field, which would otherwise have a chilling effect on innovation. By the same token, the trade mark protection regime enables businesses to carve out specific words/logos as distinctive badges of origin that will enable them to foster consumer recognition and loyalty, thereby stimulating growth and enabling further revenue to be invested in the development of sustainable practices.

Trade marks often perform functions other than just indicating commercial origin. They convey attitudes, meanings or expectations – both of the product and of the customer. Trade marks are therefore indispensable to communicating that a product is "green", sustainable or otherwise environmentally friendly. Although trade marks may not be purely descriptive, they can in theory incorporate easily-understandable terms such as "green", "eco", or

[7] IPO – trade mark application portal, available at https://trademarks.ipo.gov.uk/ipo-apply. Accessed 20 June 2022.

"re" (for recycling) to indicate the broad nature of the goods/services provided (although the extent to which the inclusion of such terms affords protection is limited).

As in the case of patents (discussed in section 1.2 above), trade mark filing data can itself also be a useful indication of innovative development, which can subsequently signpost the future direction of specific fields of technology[8]. By way of example, the European Union Intellectual Property Office's (EUIPO) report on Green EU trade marks details the percentage of so-called 'green' EUTMs by product group, finding that over 40% related to energy conservation, 17.7% to pollution control and 9.7% apiece to energy production and transportation[9].

The trade marks regime also has an important role in combatting so-called 'greenwashing'. In essence, 'greenwashing' describes an attempt to make consumers believe that a company/organisation is doing more to protect the environment than it really is.

In its recent report on Green EU trade marks, the EUIPO examined the frequency with which terms contained in trade mark specifications reflect environmental and sustainable goods/services. According to the EUIPO's report[10], of the approximately 46,700 EUTM applications received by EUIPO in 1996, the first year of operation, 1,588 were green trade marks. Since then, the increase in green trade marks has been continuous, except for 2001 and between 2011 to 2014. In 2020, the number of green EUTMs filed approached 16,000.

Recently, the European Commission conducted a website analysis, an exercise carried out each year to identify breaches of EU consumer law in online markets. In its report, the European Commission revealed that over half of the green claims identified in its screening exercise lacked evidence. Further, in over 40% of instances, it is believed that the claims made may be regarded as false or deceptive and may therefore amount to unfair commercial practice under EU law[11]. It is reasonable to assume that a similar proportion of the so-called 'green' trade mark filings listed above may also constitute specious representations concerning the applicant's environmental/sustainable credentials.

Insofar as greenwashing and trade mark protection are concerned, UK trade mark legislation already prohibits the registration of signs which are of such a nature as to deceive the public; for instance, as to the nature and quality of the goods and services[12]. Moreover, misleading *use* of a trade mark can result in the revocation of a trade mark registration pursuant to section 46(1)(d) Trade Marks Act 1994.

Certification marks – which exist as a specific type of trade mark – can also fulfil a significant role in the pursuit of sustainable goals. Certification marks guarantee specific characteristics of certain goods and services, namely by indicating that all such goods/services comply with given standards. The owner of the certification mark is responsible for defining such standards/characteristics; all products/services that feature the certification mark must therefore meet those standards in order to benefit from continued 'membership' of the group. Consequently, certification marks can reassure consumers that the goods/services they purchase are aligned with sustainable practices, or are manufactured according to environmentally-friendly principles.

Trade marks therefore currently play an important role in the field of sustainability. Indeed, brand owners already use trade marks to communicate specific 'green' values to consumers about the nature of the goods/services being provided.

1.5. Copyright

Like other IP rights, copyright is inherently agnostic as to whether the works in question are sustainable or not. However, certainly copyright still has a role to play. Given that we are living in the digital age, a great deal of technological innovation is computer-driven. Copyright can therefore protect software/algorithms that analyse and help to develop more sustainable industrial processes/systems, for example, computer-driven solutions to create more energy-efficient methods and tools.

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[8] See S. Mendonça, T. Pereira and M. Godinho, Trademarks as an Indicator of Innovation and Industrial Change, Research Policy Volume 33, Issue 9, November 2004, pp.1385-1404.
[9] EUIPO – Green EU trade marks, available at https://euipo.europa.eu/tunnel-web/secure/webdav/guest/document_library/observatory/documents/reports/2021_Green_EU_trade_marks/2021_Green_EU_trade_marks_FullR_en.pdf, page 22. Accessed 20 June 2022.
[10] Ibid
[11] EC – Screening of websites for 'greenwashing': half of green claims lack evidence, available at https://ec.europa.eu/commission/presscorner/detail/en/ip_21_269. Accessed 20 June 2022.
[12] Section 3(3)(b) Trade Marks Act 1994

As a licensable right, copyright-protected software can be commercialised through a licensing model. The ability to derive revenue from software will help incentivise creators to develop further solutions and/or improve existing products. Equally though, the idea/expression dichotomy and the general preclusion from protection of ideas and functionality within the field of computer software, will ensure that rightsholders are unable to unfairly leverage their rights to prevent competition/investment by third parties in similar/identical fields.

The present toolkit of IP rights in the UK is well equipped to provide protection for software-driven technologies, both in the green sector and elsewhere. But it seems likely that sustainable innovation in the coming decades will largely be driven by two major trends: Artificial intelligence and big data. Can results stemming from these be protected as well?

1.5.1. Artificial Intelligence

For the protection of works in connection with artificial intelligence, two separate scenarios need to be distinguished. Firstly, inventions and creations made *in the field* of artificial intelligence, which can enjoy the "regular" protection, mostly via patents, copyrights, or trade secrets. Much more discussion is, however, necessary in connection with the scenario whereby an AI system *itself* makes a creation. Examples are manifold – from the creation of church windows by random colour patterns[13] to improved drinking mugs[14] created by "inventing machines".

As of now, such AI creations or computer-generated works (CGW) are afforded radically different treatment in different territories. There are broadly three approaches:

(i) CGW are afforded copyright protection even where there is no human intervention
(ii) Attribution of authorship where there has been human involvement to some degree (e.g. the press of button to commence an operation)
(iii) No copyright protection for CGW if there is no human intervention

Under UK copyright law (section 9(3) of the Copyright, Designs and Patents Act (CDPA)), the legislation as it stands provides that: "In the case of a literary, dramatic, musical or artistic work which is computer-generated, the author shall be taken to be the person by whom the arrangements necessary for the creation of the work are undertaken."

By contrast, the continental European approach has been to say that copyright only applies to original works, and that originality must reflect the *"*author's own intellectual creation*"* (ECJ, case C-5/08 *Infopaq International A/S v Danske Dagbaldes Forening*).

There are certainly arguments that greater – and more internationally consistent - protection for CGW would help incentivise the creation and deployment of AI-driven technologies more broadly.

1.5.2. Data and Databases

The capture and analysis of data is the very life force behind innovation - humans and computers alike need data from which to learn. It is apparent that the underlying software technology supporting industrial and technological development has led to unprecedented volumes of data being generated, measured and recorded. Especially in the field of sustainability, those datapoints are critical – from measuring energy efficiency to carbon emissions, from biological impact data to wind power data – our ability to learn is growing exponentially.

By contrast, the world of IP has never dealt especially well with generic, raw data. Data is not (at the time of writing) an IP right, per se. It is not necessarily a copyright work. It is also not necessarily even confidential information or a trade secret. So how do companies ensure they

[13] Wikipedia – Cologne Cathedral Window, available at https://en.wikipedia.org/wiki/Cologne_Cathedral_Window. Accessed 20 June 2022.
[14] Artificial Inventor – Patent Applications, available at http://artificialinventor.com/patent-applications. Accessed 20 June 2022.

are deriving value from their datasets – whether internally through learning and improvement, or externally through licensing that data to third parties?

Both under UK and EU law, the data may be protected if has been systematically selected and arranged in a database, and if someone has invested financially in the collation, verification or presentation of that data. In that instance, the rights-owner may own database rights which protects the data from being extracted and re-utilised without consent.

In the UK, separately to the database right (which protects the data), rights-owners can also benefit from the database copyright regime which protects the *structure* of a database (but not the individual datapoints within it). To benefit from this, the selection and arrangement of the data points must be the author's own intellectual creation.

There is no current proposal to amend these two complementary rights (database right and database copyright). For now, anyone seeking to protect data arising from their sustainable innovation must either:

Structure the data in a database with the aim that it is protected by database right or database copyright;
Seek to wrap the data in confidentiality – such that one can prevent third parties accessing or disclosing the data to third parties without consent.

1.6. Designs

The United Kingdom's designs regime is complex, consisting currently of four distinct sets of rights, namely registered designs, unregistered design rights, continuing unregistered designs and supplementary unregistered designs. Continuing unregistered designs and supplementary unregistered designs arose post-Brexit in order to combat a perceived imbalance of rights in the United Kingdom.

UK-registered designs protect the appearance of the whole or part of a product resulting from the lines or contours, colours, shape, texture or material of the product itself, or the product's ornamentation. A 'product' is defined as any industrial or handicraft item, including parts intended to be assembled into a complex product (provided they remain visible during normal use), packaging and graphic symbols, and typographic typefaces.

The design must be new; in other words, the design must be different to known designs or differ only in immaterial details, and it must have individual character (i.e. it creates a different overall impression on the informed user to known designs).

Unregistered design rights cover the shape or configuration, whether internal or external, of the whole or part of an article. Surface decoration is excluded. The design must be original and not commonplace in qualifying countries (the United Kingdom, the European Union and countries with reciprocal arrangements with the United Kingdom).

Design rights play a current role in the field of sustainability, as they can be used to secure protection for "green" products or their parts. Although parts that consist of purely technical features are excluded from protection, parts that merely serve a technical purpose but are also open to a degree of design freedom are not. For example, the specific designs of parts of cars or aeroplanes that reduce air resistance and thus lead to better fuel efficiency may be eligible for design protection, but the design right protects the form and not the function of those parts.

Design rights also play an important role with regard to spare parts, and thus have a large influence on sustainability of products. Where products can be repaired – something that especially the EU will require manufacturers to ensure to an ever-increasing degree – design right protection of spare parts could secure the spare part markets for original equipment manufacturers. However, especially where spare parts must have the same design as the original ("must-match" parts), design right protection is often excluded. This is true, e.g. for EU design rights, and similar initiatives are planned in e.g. Germany and France.

In January 2022, the United Kingdom Intellectual Property Office ran a 'Call for Views' consultation on the reform of the UK designs framework[15]. It invited submissions from design industry stakeholders and IP professionals on

[15] IPO – reviewing the designs framework: calls for views, available at

possible improvements to the current system. As part of that consultation, the UKIPO proposed to extend the spare parts exemption to supplementary unregistered designs, which is directed at supporting the right to repair agenda and increasing the lifespan of products. In support of its proposal, the UKIPO referred specifically to the UK government's commitment to achieving net zero by 2050[16].

Unregistered design rights also currently play, at least indirectly, an important role in the restriction of unsustainable practices. Unregistered design rights are utilised frequently in the fashion industry, as they do not entail any registration requirement and are therefore well-suited to fast-moving items made available during a limited sales window. Unregistered designs will assist, in particular, as a deterrent to preclude unlawful reproductions of clothing articles, mass-produced in low-cost jurisdictions, which would otherwise expend significant amounts of water and natural resources. In the United Kingdom, the deterrent has been strengthened further by the decision in *Original Beauty & others v G4K Fashion & others*[17], in which the court made a substantial award totalling over £450,000, including an additional damages uplift of 200%. The decision sounds a stark warning to any business contemplating the direct copying of a competitor's products on the basis of a 'calculated risk' approach that assumes any award of damages would be relatively modest. While the judge in that case may not have taken into account the desire to promote sustainable practices, it is hoped that the financial penalties that may await such infringers could help to dissuade unsustainable manufacturing in the fashion industry.

Design rights are often overlooked by businesses seeking to protect their intellectual investment in new products or new technologies. However, design rights can offer particularly attractive benefits over other forms of IP right. This includes, for example, speed and simplicity of registration at a relatively low cost. Businesses should take into account that design rights may discourage copying, even more so as the increased availability of 3D printing means even complex products can be easily reproduced.

As demonstrated, IP undeniably currently plays a role in sustainability. It plays a role in sustainable innovation. It plays a role through IP related legal instruments. It plays a role in branding. It spills into various sectors from Real Estate, where energy efficient buildings are increasingly on the agenda to Automotive, where the likes of Tesla and Toyota have released their patents as part of the effort to tackle climate change.

2. ***Impact of IP on Sustainability***

As with most things, there are both positive and negative sides to IP's relationship with sustainability. Without the constraints of IP rights, companies, governments, institutions etc. could more easily adopt technology that benefits the environment and/or has some other sustainable benefit. However, we consider that in a market economy with free competition, the use of IP as an incentive to develop/create is critical to the UK's outlook on sustainability and serves as a force for good.

2.1. Positives

The harsh reality is that the lowest cost method of manufacturing, retailing, transporting etc, is rarely the most environmentally-friendly solution. Without the benefit of a (quasi) monopoly, it would be economically restrictive for businesses and institutions to develop brand new technologies solely targeting sustainable practices. Sustainability in an environmental context cannot be (currently) separated from economic benefit. To put it simply, unless publicly-funded or charitable, many organisations would be unable to maintain significant expenditure in the field of sustainability without some form of economic return. IP rights enhance that process by creating the conditions for the creation of revenue streams to maintain research/development in the field of sustainability.

Positives range from the sharing of IP in order to advance sustainable developments, to shifting consumer demands having an impact on sustainable innovation. For example, the exchange of registered IP and unregistered IP (e.g. trade secrets, know-how, etc.) helps to diffuse sustainable technology.

2.1.1. Accessibility and Transparency of IP Registries

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https://ipoconsultations.citizenspace.com/ipo/reviewing-the-designs-framework-call-for-views/. Accessed 20 June 2022.

[16] GOV.UK – Net Zero Strategy: Build Back Greener, available at https://www.gov.uk/government/publications/net-zero-strategy. Accessed 20 June 2022.

[17] https://www.bailii.org/ew/cases/EWHC/Ch/2021/3439.html

A positive can also be found in the accessibility of IP registries and the transparency of the patents regime. UK registered IP applications and registrations are openly published and accessible for all without fees/minimal fees. Publication is particularly helpful in relation to patents, which disclose details of the underlying inventions. In filing a patent, the applicant agrees to disclose their invention to the world, in exchange for a 20-year monopoly right. Whilst the temporarily monopolistic nature of the process could be construed as a negative (see below) the transparent nature of the register and the very fact of having to disclose in the patent claims how the invention works means that in due course (either under licence or on expiry of the patent) others will be able to use and develop such IP.

2.1.2. The Green Channel

A further positive, specifically with regards to patents, is the UKIPO Green Channel. In 2009, an accelerated processing of patent applications was introduced. The channel is open to all patent applications that can make a reasonable assertion of having an environmental benefit, with explanations as to how the applications are environmentally friendly and which actions they wish to accelerate in the application process (examination, publication, etc.). Around 2873 requests have been made since its introduction, for inventions such as "Method for producing fuel using renewable methane" and "Paver with solar panel". The hope is that the Green Channel can continue to stimulate the discovery and production of sustainable inventions.

2.1.3. Specific Positives of Designs Regime

The flexibility and openness of design rights in particular, which allow for protection of the aesthetic configuration of a product, encourages innovation and is an advantage for designers of environmentally friendly products, as design rights may be available for a broad range of innovations, from new types of furniture to innovative packaging.

A particular positive in regard to design rights in the UK is that spare parts are excluded from protection, complementing the extension of the so-called 'right to repair' measures introduced under the Ecodesign for Energy-Related Products and Energy Information Regulations 2021[18]. The rationale for the regulations is to minimise the disposal of electrical goods by enhancing access to spare parts. The spare parts exemption ensures that creators of a design cannot maintain a monopoly over certain "fixable" parts of their design. Consequently, others can create "spare parts" for a design and thus keep a product in its life-cycle for longer, rather than creating such a monopoly right over a design which would allow the designer to strong-arm consumers into buying an entirely new version of the design, should it undergo wear and tear. The environmental benefits of the spare parts exemption are also clear.

2.1.4. Certification Marks

In the field of trade marks, certification marks – i.e. those that guarantee specific characteristics, such as the Fairtrade logo, or the Red Tractor Assurance logo for British food and drink – play a positive role in the pursuit of sustainability. Such marks can instantly communicate to consumers the sustainable credentials of particular goods/services, better informing consumer choice and leading to more sustainable purchasing decisions.

2.2. Negatives

Negative aspects of IP's relationship with sustainability concern typically the perceived financial gain arising from competition to protect ideas, and the absence of competition itself, which might otherwise stimulate further (and faster) growth in the sector in question.

It could be argued that the patent system as a whole is flawed. Patent systems typically support resource-strong companies more than SMEs or new entrants/start-ups (e.g. purchasing power over valuable patents), meaning that the patent system can operate as a barrier to market entry through structural discrimination and stifle the development of green tech and IP. As mentioned above, without an effective licensing regime in place, or appropriate incentives to encourage parties to make patented technology widely available, the widespread adoption of green tech could be hindered pending expiry of relevant patents.

[18] https://www.legislation.gov.uk/uksi/2021/745/contents/made

A further negative aspect of patents are cross-licence agreements. Such agreements raise entry barriers for new players by creating corridors of knowledge for only certain companies in any given field. Such issues may also give rise to competition law concerns.

3. ***Impact of Differing Approaches by Owners/Controllers of IP Rights***

The role played by IP will inevitably differ depending on the attitude/approach of an owner/controller of an IP right. Businesses that leverage IP rights for maximum profitability will weaken the role that IP plays in sustainability, by driving up price and increasing the risk associated with innovation in the field. If the IP rightsholder does not then reinvest the proceeds of the litigation/negotiation into the development of future-facing sustainable technology/practices, the initial investment in the IP is undermined from the perspective of sustainability.

By contrast, the licensing of innovative IP in the field of sustainability on fair and reasonable terms will enable licensees to benefit from the proprietor's investment and insight in an economically viable way that will benefit their business and the environment (i.e. by enabling them to maintain an economically sustainable business), while also generating revenue for the proprietor that can be reinvested in the creation of new technologies.

On an even more extreme level, the examples of Tesla and Toyota are worthy of highlight. Elon Musk, the CEO of Tesla stated in 2014 that in an effort to fight climate change, Tesla "will not initiate patent lawsuits against anyone who, in good faith, wants to use our technology...Tesla Motors was created to accelerate the advent of sustainable transport…If we clear a path to the creation of compelling electric vehicles, but then lay intellectual property landmines behind us to inhibit others, we are acting in a manner contrary to that goal"[19]. Similarly, in 2019 Toyota opened up a number of its patents in the field of electrification and fuel-cell technology on a royalty-free basis, albeit with a charge for 'technical support'[20].

4. ***Normative Role of IP in Sustainability***

4.1. Introduction

The role that IP should play in sustainability depends on one's attitude to market economics and free competition. In an ideal world, technology/products/services in the field of sustainability could be free for all to use, to enhance the wellbeing of the planet/society. However, in the absence of significant state intervention/investment, it is difficult to conceive of a situation where an entity/company/organisation would be sufficiently incentivised to develop such technology for the benefit of the environment (for example). In itself, the practice would be unsustainable, as it would entail significant investment without return. Therefore, whatever one's position on the merits of a democratised economy, in the absence of a centralised government-funded sustainability initiative, it does not appear to be a viable model within which to promote sustainability as a concept.

Being able to maintain an enterprise while avoiding long-term depletion of natural resources likely requires proactive innovation. Because such proactive innovation requires the invention of ideas, and because IP is a field concerning the protection and distribution of ideas, this paper asserts that IP should have a role in sustainability. That is, IP should have a role in protecting and distributing ideas which facilitate the maintaining and continuing of processes while avoiding long-term depletion of natural resources.

4.2. Incentivisation and Co-operation

As outlined above, IP can be a powerful force for good in the pursuit of sustainability in the fields of environment, economy and society. At its best, it can balance rights to incentivise innovation while safeguarding one's ability/right to use existing technology to implement/enhance environmental sustainability. By incorporating the concepts of novelty, obviousness, originality, commonplace, descriptiveness/distinctiveness, IP rights carve out existing inventions, designs, works, words and ensure that they can be used to pursue unrestricted technological development without the risk of infraction or financial burden in the form of licensing. So as much as they are in place to protect such inventions, designs etc., the law of intellectual property is equally critical in establishing what is not protectable, thereby liberating such inventions/designs/works etc. for public consumption.

Against that background, the role of IP to incentivise the creation of ground-breaking and novel technology with the

[19] Tesla – All Our Patent Are Belong To You, available at https://www.tesla.com/en_GB/blog/all-our-patent-are-belong-you. Accessed 20 June 2022.
[20] Toyota Promotes Global Vehicle Electrification by Providing Nearly 24,000 Licenses Royalty-Free, available at https://global.toyota/en/newsroom/corporate/27512455.html. Accessed 20 June 2022.

promise of financial reward that can be reinvested in the development of technology/works with a sustainable aim, or concessionary fees, is a realistic and viable role.

In addition, established firms (incumbents) need to move beyond legacy, less sustainable tech and IP. Incumbents typically operate less sustainable 'legacy' technologies and IP which are vulnerable to lock-in periods and large switching costs. This, in turn, can lead to substantial costs and changes required to become more sustainable. Co-operation between these incumbents and new entrants would help develop innovation. This could manifest through new green IP developed by such entrants being licensed for use or sold to the incumbent, or made in collaboration, or through acquisitions. The resources enjoyed by incumbents give them greater opportunities to develop green IP manufacturing processes[21]. The IP framework should facilitate and encourage such collaboration.

4.3. The Sustainability Dichotomy

In our view, while the role of IP should be directed to supporting sustainable innovation only, it should not seek to penalise the protection of apparently unsustainable technology. Unless premised by governmental action in the form of regulation/amendments to existing statutes, the subsistence of IP should not be excluded specifically from innovation that may currently be considered unsustainable. Exceptions to IP protection already exist and are written into statute (i.e. not descriptive, generic, business models, immoral marks etc.). Further, not only can viewpoints shift (blue hydrogen, for example, is now considered an environmentally-unfriendly energy source, which may in fact hinder the government's ambitions to achieve net zero), but in the absence of government intervention, IP should remain neutral, in the sense that it should not exclude from protection innovation that may not be obviously sustainable.

Moreover, it is submitted that the question of whether a practice/innovation is currently sustainable will need careful consideration, as the burden of classifying a specific work/invention as sustainable should not fall on the shoulders of an IP examiner, who may otherwise be overburdened or underqualified to reach a determination. If the burden is to fall on IP offices, Government will need to produce detailed guidance to enable examiners to accurately assess the sustainability of a specific work/invention etc. Alternatively, the rightsholder could submit a formal declaration supported by a statement of truth attesting to the sustainability of the subject matter of the IP right in question.

4.4. Pursuing this role

When examining IP's role in the support of sustainable innovation, there is some overlap between the influence played by the acquisition of IP and the conditions necessary for IP rights to subsist.

4.4.1. Incentives and the Registration of IP Rights

From the perspective of acquisition, further incentives can be introduced to support sustainable innovation, although care must be taken to ensure (i) that the relevant criteria are as objective and fair as possible and (ii) that the task of determining whether the criteria have been met does not place an undue burden on the UKIPO, which is already stretched.

The UKIPO has already adopted a future-facing approach with the introduction and successful maintenance of the "Green Channel" for patent applications[22].

The Green Channel for patent applications was introduced on 12 May 2009. The service allows applicants to request accelerated processing of their patent application if the invention has an environmental benefit. The applicant must make a request in writing, indicating: (i) how their application is environmentally-friendly and (ii) which actions they wish to accelerate: search, examination, combined search and examination, and/or publication.

The service is available to patent applicants who make a reasonable assertion that the invention has some environmental benefit. If, for example, the invention is a solar panel or a wind turbine then a simple statement is likely to be enough. However, a more efficient manufacturing process which uses less energy is likely to need

[21] E. Eppinger et al., Sustainability transitions in manufacturing: the role of intellectual property, Current Opinion in Environmental Sustainability Vol. 49, April 2021, pp. 118-126.
[22] GOV.UK – Green Channel, available at https://www.gov.uk/guidance/patents-accelerated-processing#green-channel. Accessed 20 June 2022.

more explanation. The UKIPO will not conduct any detailed investigation into these assertions, but will refuse requests if they are clearly unfounded. Applications will only be accelerated when requested by the applicant; there is no automatic Green Channel entry for particular areas of technology.

The Green Channel service may be requested in relation to applications filed prior to 12 May 2009 as well as in relation to those filed after this date. The written request can be made electronically as a covering letter using the Office's online patent filing services. The request can be made at the same time as filing the application, or can be made on a later date, quoting the application number.

In 2012, the United Kingdom government introduced the Patent Box regime, which is a beneficial tax regime to encourage development and exploitation of patents in the UK. Profits under the Patent Box regime are taxed at 10% instead of the main corporation tax rate of 19%[23]. Pure or embedded patent income, including profits from the sale of products deriving their value from patents are included in the regime. However, the regime does not cover profits from the sale of products made by a patented process which are not themselves protected by a patent, or profits from services based on patented innovation. In addition, and of significance to the field of sustainability, is the exclusion of income arising from oil extraction activities or oil rights. It does not operate as a direct penalty to development in the field of oil extraction; however, by excluding traditional, polluting, sources of energy, the Patent Box regime is a relatively early example of a government incentive scheme that seeks to encourage technological development in green technologies.

In 2021, the UKIPO announced the imminent launch of an 'IP Access' fund, directed at helping businesses grow and rebound from the Covid outbreak. The scheme is intended to support businesses to manage and commercialise their IP so that they can, in turn, unlock the inherent value subsisting in those assets in order to further develop their business. The scheme is offered in conjunction with the UK government's existing 'IP Audit Plus' programme. Under that programme, the UK government contributes £2,500 towards the cost of an IP audit undertaken by an approved audit partner, up to a total cost of £3,000. The IP Access fund offers grants of up to £5,000 to small and medium-sized enterprises who have been awarded part-funding for an IP audit between April 2020 and March 2022. The grant funding can be used by the successful applicant for a broad selection of measures, including the management and commercialisation of its IP, or for engaging professional IP services in both the UK and further afield.

Within the field of copyright, at present there are no incentivisation schemes directed specifically at ESG issues – in the sense that copyright arises automatically, and is therefore sector-agnostic as to protection. There also does not appear to be any particular prospect of (or benefit to) a change in this regard.

The one area where additional thought could perhaps be considered is with regards to the *exceptions* to copyright protection. Unlike in the US, the UK has a narrow "fair dealing" regime. The defences to copyright are therefore very specific and include:

(i) Non-commercial research and private study
(ii) Text and data mining for non-commercial research
(iii) Criticism, review and reporting current events
(iv) Teaching or certain other educational purposes
(v) Helping disabled people
(vi) Time-shifting
(vii) Parody, caricature and pastiche

Of the list above, those exceptions designed to help disabled people already achieve an ESG-related purpose – namely improving social fairness and access to materials. For example, the following are not infringements:

(i) making braille, audio or large-print copies of books, newspapers or magazines for visually-impaired people
(ii) adding audio-description to films or broadcasts for visually-impaired people
(iii) making sub-titled films or broadcasts for deaf or hard of hearing people
(iv) making accessible copies of books, newspapers or magazines for dyslexic people

[23] Corporation tax rate correct as of July 2022.

The defences around text and data mining mean that, provided you already have lawful access to the original work, it is not an infringement to use automated analytical techniques to analyse text and data for patterns, trends and other useful information. Currently, the exception applies only to circumstances where such techniques are for the purposes of non-commercial research. However, the UKIPO recently issued a 'Call for Views' in connection with legislative changes required to accommodate and enhance the growth of artificial intelligence in the UK. In its response to the consultation, the UKIPO has confirmed that it intends to introduce a new defence for text and data mining ("TDM"), expanding the existing exception to cover TDM 'for any purpose' (albeit still with a requirement for the data in question to be accessed lawfully). As the exception has the potential to damage the business models of organisations that aggregate and licence data for commercial purposes, the precise wording and implementation of the defence will no doubt be subject to further scrutiny.

With regards to environmental issues, one could see an argument for adding ESG-related uses to the existing list of "fair use" defences. However, such an approach would be difficult to implement. First, we have discussed elsewhere the difficulty in defining the thresholds for sustainability. Whilst some innovations are plainly greentech-related, others are less so – for instance, a less harmful or more efficient method of burning fossil fuels. Comparatively such technology would be preferable to the less efficient/harmful methods that exist today. But others would argue the overall detrimental effects of burning fossil fuels means that should not benefit from ESG-related incentives, whether financial or legal.

There is also the issue of measuring the significance of the improvement. Generally, innovation happens in small increments more than vast leaps. Would a tiny incremental improvement in a technology (e.g. a 1% increase in efficiency) justify what would otherwise be infringements of copyright?

It is not clear how ESG-related changes could easily be added to the exceptions to copyright protection. The existing exceptions for non-commercial research provide a fair balance between the interests of copyright and data owners and the public interest in using ESG data for non-commercial research to achieve sustainable goals.

4.4.2. The Conditions for IP Rights to Subsist

We do not believe that the conditions for IP subsistence should be amended to facilitate the protection of apparently sustainable inventions, designs, works etc. The conditions for subsistence are – correctly – agnostic concerning the specific underlying industry or technical sector. If conditions were revised to favour inventions/works that are presented as 'sustainable', an unfair advantage would be afforded to innovation merely because it could be used for the pursuit of sustainable ambitions. Moreover, there is no guarantee that the proprietor of the resultant right will – having secured protection through a facilitated process – use its invention for the pursuit of sustainable goals. For example, many inventions and designs have dual use capability, including outside of the field of environmental sustainability. The proprietor could also choose to leverage its rights for purely commercial purposes, i.e. to pursue licensing arrangements. The lowering of barriers to entry could even have unintended consequences, namely increased litigation, which may consequently impact adversely on the pursuit of sustainability.

By incorporating the concepts of novelty, obviousness, originality, commonplace, descriptiveness/distinctiveness, IP rights carve out existing inventions, designs, works, words and ensure that they can be used to pursue unrestricted technological development without the risk of infraction or financial burden in the form of licensing. So as much as they are in place to protect such inventions, designs etc., the law of intellectual property is equally critical in establishing what is not protectable, thereby liberating such inventions/designs/works etc. for public consumption. It is our view that the conditions for IP rights to subsist should not, therefore, be revised to facilitate protection of 'sustainable' inventions, works, designs, marks etc. This position is distinguishable from our views in connection with the potential revision of the underlying procedures/processes that regulate IP protection, or the desire for additional incentives to encourage green IP applications.

Rather than revising the conditions for IP subsistence, the solution for demonstrating sustainable origin/provenance is better addressed by regulatory labelling and information requirements, forcing companies to declare where and how the components, ingredients, parts of their products are sourced, so that consumers can reach a transparent purchasing position based on the organisation's green credentials.

4.4.3. Creation of new IP Rights to Support Sustainability

It is difficult to conceive of what types of additional IP rights might be created to achieve sustainable objectives. The selection of registered and unregistered rights which exist are designed to cover the full range of possible innovations – from software to mechanical devices, and from chemical formulae to plant varieties. The meshing of these rights has been developed over years of jurisprudence and legislative development, and therefore seeking to add a brand-new right into the mix will not be straightforward.

To the extent that there are any lacunae in the current IP protection regime, theoretically one might consider a *'patent-light'***.** As it stands, the cost and timeframe involved in protecting patents can be extremely burdensome, especially on start-ups and SMEs. With ballpark costs of £10,000 just to get a patent on file – before having any meaningful sense of its likely path to registration – that can pose challenges for access to justice. Similarly, it typically takes 18 months before a patent application finishes its initial examination and is published.

One idea may be to create a slimmed down version of a patent, possibly borrowing from the German Utility Model. It could be cheaper and more rapid, perhaps in return for having a narrowed scope of protection. This might amount to something less than the traditional patent monopoly right. Or, it could simply be a shorter period of protection – e.g. 5-10 years instead of 20 years. If one were to limit the newly-conceived right to ESG-related inventions, the result may be to incentivise innovation whilst making access to IP protection more feasible. As with other issues above, one of the challenges here would be defining what types of innovation would qualify. Moreover, while a '*patent-light'* may serve to secure protection more affordably, it would not reduce the costs of infringement proceedings themselves, as the validity of the IP right would no doubt be challenged by way of a counterclaim. Consequently any cost savings secured obtaining protection may quickly be exhausted in any ensuing litigation. '*Patent-light'* protection may also increase the volume of disputes, encouraging the proprietors of such rights to leverage their registrations in order to secure licensing revenues. As a result, the merits of introducing any such right appear to be limited.

An alternative option would be the development of some new right protecting raw (or processed) data. However, the implications of such a change would impact every sector, not only ESG-related ones. It is unfeasible, in our view, to seek to make new IPR rights sector-specific – simply because (as we have seen with music and mobile phones) sectors converge in unexpected and unpredictable ways as technology rapidly develops.

4.4.4. The Enforcement of IP Rights Against Third Parties

The idea of a party issuing infringement proceedings against a company/entity in relation to its unlicensed use of IP for a sustainable purpose is likely to instantly arouse strong emotions. Some may question the morality of contesting unlicensed third party use of an innovation/invention with genuine environmental benefits, for example. In those circumstances, it is easy to take the view that enforcement may impact on sustainability by limiting competition and thereby restricting innovation in a specific or even adjacent field that may have environmental benefits. However, while there are specific exceptions to the rule (most notably patent trolls, whose business model is to extract licensing revenue/financial settlement, rather than to develop the underlying IP), in our view a rightsholder's ability to enforce its IP is in fact critical to the pursuit of a sustainable future.

As discussed earlier in this report, in the absence of significant government intervention, it would be financially unviable for the vast majority of companies/organisations to invest in the development of sustainable technology/innovation, without some opportunity for reward. The ability of a rightsholder to prevent others from piggybacking onto their investment (often made at an initial loss), which would otherwise enhance competition and weaken the rightsholder's opportunity to create first-mover advantage and carve out a market for the product/service in question, is therefore a critical tool and one which in fact supports/strengthens sustainable innovation.

Of course, a small number of extremely large tech corporations are in the position of being able to take on new projects that are focused on promoting sustainable development, despite the significant start-up costs. In those circumstances, the scale of projects undertaken are of such a scale and expense that even if third party intent to appropriate the relevant technology existed, the practical ability to do so would be extremely limited. See: https://www.apple.com/uk/newsroom/2020/09/apple-expands-renewable-energy-footprint-in-europe. Therefore, in some (limited) instances the need for enforcement will become less pressing.

The relationship of enforcement and sustainability is also contingent on the IP right at issue. By their very nature, trade marks are unlikely to enable proprietors to prevent third party use of technology, materials and ideas.

Trade marks are premised on the principle of origin – namely an ability to designate the goods/services of a particular undertaking. Consequently, while logos and, in some instances, product shapes are registrable as trade marks, the functionality and innovation they embody cannot be protected under the trade marks regime. As a result, it is highly unlikely that enforcement based on earlier trade mark rights would impact on competition, innovation and sustainability. In the event that a third party were to acquire trade mark rights in a word or logo that is somehow descriptive of the characteristics of a sustainable principle or feature, the mechanism exists under section 47(1) Trade Marks Act 1994 to invalidate the registration of that mark for descriptiveness/lack of distinctiveness.

Similarly, the law of copyright cannot be used to prevent the common acquisition of ideas and functionality. The idea/expression dichotomy reinforces that copyright subsists in the expression of a work in some physical form, i.e. in the words on a page. However, the scope of protection afforded to those words (to continue the previous example) is limited to the appropriation of *the words* themselves, either in whole or a substantial part thereof. As a result, copyright protection does not extend to the ideas/concepts underlying those words. Likewise, while copyright will subsist in computer software in the form of source code and object code as a literary work under the CDPA 88, infringement of that right will arise only where the source code/object code itself has been deliberately or sub-consciously copied, again either in whole or substantial part. Consequently, the mere appropriation of the functionality or idea on which an application or software platform is based will not represent an infringement of the copyright subsisting in the source code/object code. The enforcement of copyright is therefore less likely to impact on competition and thus restrain innovation in the field of sustainability.

5. ***Success (or Otherwise) of IP's Role in Sustainability***

5.1. IP Supporting Sustainability

As outlined above, we consider that the United Kingdom's IP rights, in which we include trade secrets and breach of confidence, are broadly sufficient to support sustainable goals. A significant degree of balance is already ingrained in the relevant legislation, which will safeguard against the monopolisation of ideas, works, descriptive words/terms etc. Consumers should ultimately be given greater visibility in respect of a company's green credentials, but this should not be a burden of the IP regime, rather an impetus for government regulation.

5.1.1. Technological Development and the Relationship with IP

The pace of technological change threatens to complicate the legal landscape, particularly in relation to computer-generated designs/works, which are – in theory – protectable under the law of designs and copyright. Section 2(4) of the Registered Designs Act 1949 (RDA) states that the author of a design shall, "In the case of a design generated by computer in circumstances such that there is no human author, [be] the person by whom the arrangements necessary for the creation of the design are made". A similar provision exists in relation to design rights at Section 214(2) of the Copyright Designs and Patents Act 1988 (CDPA). That section provides that "In the case of a computer-generated design the person by whom the arrangements necessary for the creation of the design are undertaken shall be taken to be the designer". It is noted that the provisions for computer generated works in the field of designs effectively mirror the position in connection with the authorship of computer-generated works under the law of copyright.

Although the legislature should be commended for attempting to anticipate future technological developments, the provisions as drafted are not sufficient to address the complex processes that underlie the relevant technology, particularly within the context of works 'created' by tools/applications powered by artificial intelligence. The generation of such works by artificial intelligence in practice entails numerous inputs/processes, including training datasets, training algorithms, model architecture, neurons, weights and thousands of layers. Each of these inputs/processes is likely to be overseen/managed by numerous human operators. However, the formulation in the RDA and CDPA distils the author/designer to a single 'person by whom the arrangements necessary for the creation of the design are undertaken'. Quite aside from the practical challenge of determining who has made a relevant arrangement (when there may be a large team of human operators responsible for the AI tool), the provisions as drafted are evidently insufficient to address the technological complexities of computer-generated works, which may in fact have numerous contributors.

In the context of unregistered designs and copyright, the grant of protection for computer-generated rights is inconsistent with the operative provisions regulating 'originality' and the subsistence of such rights more generally.

Irrespective of whether 'originality' is construed according to the criteria of 'skill, labour and judgment' of the author, or through the European lens of the author's own intellectual creation, both concepts involve the exercise of input that is tied directly to an author's contribution. In the context of computer-generated works, the author will be the person who made the arrangements necessary for the creation of the design. In practical terms, this may be the programmer who writes the algorithm, or the person who trains the relevant model. However, neither of those individuals could be said to have exercised skill, labour or judgment in connection with the creation of the design itself, as opposed to their specific inputs into the AI program that 'created' the work or design: their contributions will be too remote. Yet the originality criterion is tied specifically to the design, rather than a process, the execution of which leads to the design. Thus, there is a disconnect between the authorship requirement regulating computer generated works in the context of unregistered design rights and copyright and the subsistence of an original design/work itself. To enhance certainty (and the risk that many such works/designs may not be entitled to protection), greater clarity is required, whether in the form of legislative amendment or judicial precedent.

There are also grounds to argue that protection for computer generated designs/works should be excluded for policy reasons. An AI-enabled tool that is used to create designs/works could have the capacity to generate a significant number of works in a very short period of time. Subject to satisfying the requisite novelty/originality threshold, the author of those works (whoever that might be) is then placed in a powerful position, as they will have at their disposal a constantly expanding portfolio of unregistered design rights and/or copyrights, which in the UK will give rise to at least a 10-year monopoly period in relation to designs and a 50-year monopoly period in relation to copyright. It is therefore possible that the extension of such protection for computer generated designs/works will lead to the rise of design/copyright trolls, thereby inhibiting innovation. Based on the increasing importance of artificial intelligence within the field of sustainability and climate change, there is a significant risk that unwittingly the current legal framework applying to computer-generated designs/works may in fact have a chilling effect on innovation within the field of sustainability.

In March 2021, the UKIPO issued a 'call for views' in relation to copyright and its relationship with artificial intelligence. In particular, the UKIPO asked whether copyright protection for computer-generated works without a human author should be retained. The UKIPO reported the findings of its inquiry in July 2022. The UKIPO concluded that changes to the law may have unintended consequences and therefore confirmed that it would maintain the status quo. Given the rapid speed of advance in AI technology, it is submitted that the law should be kept under review so that any challenges posed by the issues identified above can be mitigated promptly, if required.

5.1.2. Information and Data from IP Registering Authorities

As discussed above, the UKIPO offers a "Green Channel" for patent applications, which allows applicants to request accelerated processing of their patent application if the invention has an environmental benefit. The UKIPO also operates a database that enables a search for published applications and granted patents which have been accelerated under the Green Channel, thereby enabling third parties to assess the role of IP in the field of sustainable innovation[24].

While it is possible to search for UK trade marks that may feature words that are relevant to the field of sustainability, there is no specific search function operated by the UKIPO that would allow a user to identify 'green' terms within an application/registration's specification of goods and services. Similarly, it is not possible to search for certification marks according to the underlying characteristics that they guarantee. The current search function for United Kingdom registered designs is also limited, and allows users to search only according to owner name or registration number.

The EUIPO takes a proactive position in publicising the role of IP in the field of sustainability and climate change. For example, in September 2021, the EUIPO published a report on green EU trade marks, providing data on the number of applications incorporating green terms, along with historical trends[25]. While it is acknowledged that the resources (financial and human) available to the EUIPO far exceed those of the national IP offices, it is submitted that enhanced public engagement by the UK regulatory authorities would be beneficial in identifying the benefit of IP rights in supporting sustainability. The UK government has specifically highlighted the integral role that IP will

[24] IPO – Published Green Channel Patent Applications, available at https://www.ipo.gov.uk/p-gcp.htm. Accessed 20 June 2022.
[25] Ibid 7.

play in its pursuit of net zero[26]. It should therefore ensure that further information on green IP is made available publicly, thereby encouraging scrutiny in the system and promoting the benefits of protection to prospective applicants. As stated by the UK government in its Innovation Strategy, IP will play a central role in creating the right environment to meet the challenges posed in pursuit of net zero. An effective IP system gives confidence to businesses, creators and investors that their ideas will be protected and that a financial return can be secured[27].

5.1.3. Procedures and Fees of the IP Right Granting Authorities

While the current designs regime in place in the United Kingdom may be beneficial for certain actors, it also undermines access to justice for others. Currently, the UKIPO does not carry out substantive examination of design applications to verify whether they are "new and have individual character" – the onus is on the applicant to consider these matters before filing. Therefore, the grant of a registration does not guarantee its validity, and the novelty and individual character of a registered design must be challenged at the enforcement stage, or in separate cancellation proceedings.

While a registered design can be obtained cost-effectively and quickly, it is often difficult for the applicant and third parties to understand the validity and scope of the resulting registration. Consequently, in the context of a dispute significant costs can be expended on the identification and assessment of prior art, thereby reducing the value of the design registration itself. Taken within the broader ambition for a sustainable future, the grant of designs without examination for novelty/individual character could be seen to facilitate the grant of anti-competitive (or 'bad faith') registrations that may be used to unfairly extract financial compensation or prevent access to certain technology. In each instance, innovation will suffer. However, any changes to the examination procedure should be balanced carefully against the evident current benefits of cost and time.

It is submitted, therefore, that the UKIPO could consider maintaining current design examination practice, but with the introduction of specific grounds for objection (whether opposition or cancellation) based on bad faith. In those circumstances, a proprietor of a design that could be employed to perpetuate sustainable practices, but who chooses instead to leverage the right merely for financial purposes, could be challenged. The balance of justice would be preserved, however, as the proprietor would have ample opportunity to demonstrate with evidence that its actions are nonetheless consistent with honest commercial practices. It would fall to the Court/tribunal to determine whether the active hindrance of sustainable pursuits through the enforcement of IP rights would amount to bad faith, noting that public perception of honest commercial practices will shift over time and according to local and global economic and environmental conditions.

The UKIPO ceased to conduct substantive examination of designs in 2006, in order to harmonise practice with the EUIPO. As rights granted by the EUIPO do not, following the expiry of the Brexit transition period, apply to the UK, there is no longer a need for harmonisation in design practice. The suggestions outlined above could therefore be implemented on a national level, without seeking international comity.

While, within the field of trade marks, the concept of bad faith was regulated historically by decisions of the Court of Justice of the European Union (CJEU), following Brexit the English courts have freedom to develop the jurisprudence as they see fit. While it is not anticipated that significant departures will be made from existing 'retained' EU case law, the possibility exists that the concept of bad faith could expand to incorporate questionable practices that undermine sustainable goals. Again, any such development in the law can be undertaken on a national level.

It is proposed that the UKIPO consider augmenting its fee regimes by introducing a concession for certification marks that seek to guarantee the environmental/sustainable credentials or provenance of specific goods/services. The supporting evidence that is required to supplement a certification mark, namely the specific regulations governing use, can often be time-consuming and costly to produce, particularly once the cost of legal review is incorporated. As certification marks have particular utility in guaranteeing the ecological and/or sustainable characteristics of specific products/services, which in turn will encourage consumers to base their purchasing choices on sustainable

[26] CIPA – Minister Solloway says IP 'key' to tackling climate change, available at https://www.cipa.org.uk/news/mp-solloway-says-ip-key-to-tackling-climate-change/. Accessed 20 June 2022.
[27] Department for BEIS – UK Innovation Strategy, available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1009577/uk-innovation-strategy.pdf. Accessed 20 June 2022.

concerns, it is submitted that the current fee regime could be qualified to facilitate certification marks with green credentials.

5.1.4. IP Incentivisation Schemes

The Green Channel has achieved a reasonable measure of success. From the publicly-available data released by the UKIPO, it is clear that the number of Green Channel applications has generally been increasing each year. In 2010 (the first full year of the Green Channel), the number of Green Channel applications recorded was 260. In 2020 (the last year for which data is currently available), the number stood at 402. However, more should be done to publicise the Green Channel: as an overall proportion of total patent applications, Green Channel applications amounted to only 1.19% in 2010 and 1.95% in 2020. The Green Channel not only provides an expedited route to protection, but also no doubt acts as a powerful marketing tool for the purposes of acquiring customers or funders. Both sets of parties will be more willing to invest in the product knowing that it has been ratified by the UKIPO as a 'green' technology.

Given that SMEs typically identify costs as the principal barrier to securing registered IP protection, the government's financial interventions are helpful, particularly the IP Access fund and IP Audit Plus scheme. However, anecdotally at least, it appears that many of the prospective beneficiaries of such schemes are simply unaware of their existence. More investment in the promotion of the government's IP incentive schemes would therefore be welcome.

Large corporations already have access to significant funds for the purposes of protecting and enforcing their IP rights. Further, studies on who is carrying out the majority of innovation in low-carbon emission technologies find that most of the disruptive technologies – those that make existing technologies obsolete, as happened in telecommunications with mobile phones – originate from small firms rather than incumbent large ones. By way of example, Climeworks, a start-up spun-off from the Swiss Federal Institute in Zurich, built the world's largest "directly from the air" carbon capture and storage plant in Iceland. Completed in the summer of 2021, the Orca plant is expected to collect 4,000 tonnes of CO2 per year, which it will store underground. Like many disruptive technologies in this field, Orca is expensive to operate and may not return a profit for some time. The example demonstrates why start-ups and SMEs may be reluctant to invest in developing ground-breaking innovation of this nature, or expending valuable (and limited) financial resources on IP protection.

The government's incentive schemes are therefore rightly directed at start-ups and SMEs. However, even with the funding made available, the costs of securing patent protection in particular, as well as enforcement more broadly, are often prohibitive for such businesses. Formal IP protection is often sought consequently at a later stage of development, typically once seed funding is obtained. By that stage, the IP may be invalid for lack of novelty if it has been disclosed to the public, or third party appropriation may have already occurred. Both outcomes are potentially damaging to a company's future ability to commercialise its idea/invention and, thus, the government's pursuit of net zero based on innovation in the field of green tech.

In August 2021, as part of the UK Hydrogen strategy, the Department for Business, Energy & Industrial Strategy launched its consultation on the Net Zero Hydrogen Fund – a proposed £240 million fund to be delivered between 2022 and 2025. The fund is designed to support businesses that are building new electrolytic hydrogen production facilities. Although not marketed specifically, the aims of the fund would cover any associated IP prosecution/enforcement in that field. It is submitted, therefore, that where government funding is allocated on a sector-specific basis (i.e. directed at innovation in green energy sources), the relevant department should ensure that the protection/enforcement of IP is highlighted as a potential beneficiary of such funds.

5.1.5. IP Enforcement Systems/Authorities

To the extent that improvements could be made, we consider that these can be confined to the procedure that underlies the enforcement of IP rights.

In our view, the current system is still broadly effective. However, that is not to say that the system is perfect. Based on recent experience, it is clear that start-ups and SMEs are disproportionately disadvantaged when making use of the IP enforcement framework, particularly on the issue of costs. Indeed, it is well-established that a party with a clear financial advantage can often leverage its position to secure settlement on favourable terms that do not reflect legal reality. Even with the application of discounts and innovative fee structures, the cost of retaining counsel,

drafting particulars and prosecuting the case can ultimately dissuade an aggrieved party from pursuing a case, or at least influence it to take a less bullish approach.

In our experience, in cases where there is a clear mismatch in financial resource, the party with the fiscal advantage can often fail to approach the proceedings constructively with the overriding objective in mind, i.e. by hedging its position on the assumption that the counterparty will be unable to sustain the proceedings from a financial perspective. While the cost caps applying to actions in the United Kingdom's Intellectual Property Enterprise Court ("IPEC") were broadly welcomed on the grounds that they force parties to secure better and more realistic merits assessments at the outset of a matter, the counter-position is that such costs caps may force less well-off claimants to settle claims more quickly to avoid inevitable irrecoverable costs. The UK is currently consulting on increasing the costs cap at the IPEC from £50,000 to £60,000, to account for inflationary pressures.

In May 2021, the Competition and Markets Authority (CMA) published new draft guidance to support businesses that wish to make green claims while complying with consumer protection legislation. As part of that guidance, the CMA found that 40 percent of green claims made online could be misleading to consumers[28]. Both the CMA and Advertising Standards Agency (ASA) have reiterated that green claims will become a key focus for enforcement efforts in the future. Care should therefore be taken to ensure that any green claim is carefully written and can be fully supported by evidence.

The role of the CMA and ASA are critical to ensuring the accuracy of such claims, and the consequent impact on consumer behaviour. As outlined in the CMA's report, half of UK consumers take environmental considerations into account when buying products. The potential for a misleading claim to positively influence consumer behaviour is therefore material. Competition based on green credentials can only be fair to the extent that such claims are based on evidence. The enforcement regimes policed by the CMA and ASA are therefore critical to ensuring that organisations that offer genuinely 'green' goods/services are not unfairly prejudiced and are given the opportunity to thrive based on their sustainable agendas. Only by ensuring a level playing field will such organisations continue to feel incentivised to pursue sustainable/green innovation.

6. ***Conclusion***

The role of IP in the field of sustainability is complex, but certainly positive. As outlined above, the existing IP framework in the UK is broadly sufficient to cater for sustainable innovation. The various IP rights (both traditional and non-traditional) are flexible enough to encompass the majority of innovation that could be classified as 'sustainable', ranging from data and software to formulae and industrial machinery. In our view, the conditions for IP subsistence should remain sector and technology agnostic, and indeed already incorporate sufficient checks and balances to ensure that sustainable initiatives can prosper, while safeguarding fair competition. In the same vein, we discuss – but ultimately dismiss - the addition of new IP rights in the fields of patents and data. While there is certainly a need to further support SMEs and start-ups in particular to commercialise their innovations at lower cost, which will enhance protection and incentivise development in green technology, the law as currently framed is broadly effective.

Indeed, rather than revising the legal conditions for subsistence (or introducing new rights), greater attention should be paid to the systems and procedures that underpin the examination and enforcement regimes. Access to justice is a significant concern, particularly in the context of IP enforcement and notwithstanding the introduction of the UK's Intellectual Property Enterprise Court. While the UK has introduced various incentive programmes directed at encouraging innovation, it is our view that more needs to be done to publicise the availability of these schemes to the very companies they were established to benefit. By way of example, additional fee concessions could be introduced into the trade marks regime, specifically to balance the cost of securing protection for certification marks, which can play a particularly important role in the pursuit of a sustainable future.

[28] GOV.UK – Global sweep finds 40% of firms' green claims could be misleading, available at https://www.gov.uk/government/news/global-sweep-finds-40-of-firms-green-claims-could-be-misleading. Accessed 20 June 2022.