Patenting Sustainable Technologies – Trends and Tips

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Mewburn in numbers

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- Over **330** strong - we're made up of scientists and engineers, as well as trade mark and legal specialists and business management experts.
- We have **5** growing offices in the UK and Europe.
- We've seen a **32%** growth in the last three years.
- Almost **50%** of our **49** technical trainees are women (national average of women graduating in STEM subjects in 2019 according to UCAS was 26%).
- Some of the brightest and best minds in the business work at our firm. Nearly **60%** of our partners have PhDs.
- We are '**Top Tier**' in Legal 500 and MIP IP Stars, '**Band 1**' in Chambers & Partners UK, '**Gold Ranked**' in IAM Patent 1000 and '**Recommended**' in WTR.
- We work in more than **70** specialist technical areas for over **3600** active clients.
- We have over **40,000** active cases and more than **800** dispute resolution cases ongoing.
- We work with **7** out of the **Top 10** Universities in the UK as well as more than **1600** Start-ups and SMEs.
- More than a third of our clients have worked with us for over **20** years.
- Our oppositions success rate is enviable. Only **7.4%** of patents we have opposed in the last 15 years have been maintained as granted, compared with an EPO average of 24.6%. We're even more effective if the case goes to appeal, our maintained as granted rate is **2.7%** at appeal compared to an EPO average of 11.9%.*
- Our clients scored us **9/10** for outstanding service delivery & overall satisfaction**

*Source: Statistics provided by IpQuants AG
**Source: Acritas independent survey 2021

Founded on a passion for science & technology

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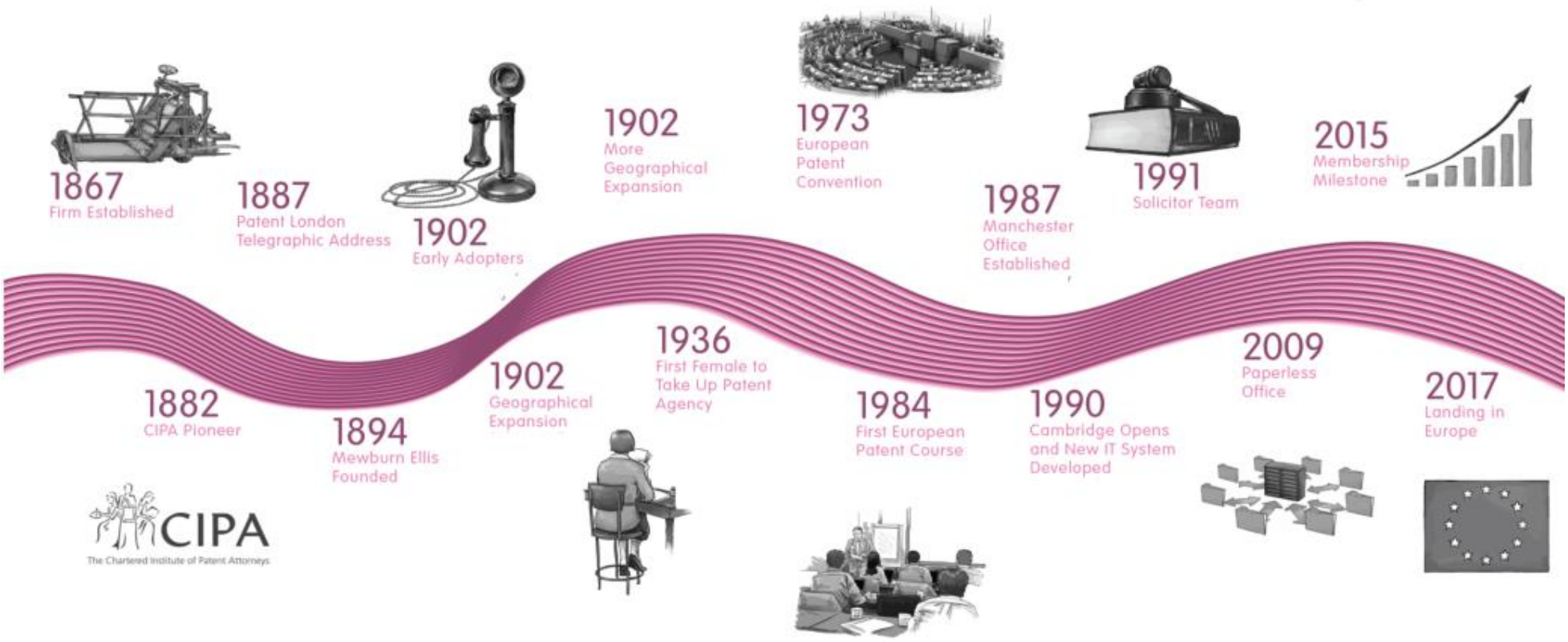
We can trace our history back to 1867, when the talented and enthusiastic John Clayton Mewburn founded an IP office in London aged just 27 years old. He knew an opportunity when he saw one. The Industrial Revolution was still in full swing, with technological and scientific innovation at its height. There were more people looking to protect their inventions and ideas and it was easier and cheaper to do so than ever before.

In the 1890's he joined forces with George Beloe Ellis – a solicitor who shared his passion for new inventions and industrial property. Together the two men set about fulfilling their desire to protect the technologies they loved. Additional offices were established in Bristol in the 1920s, in Manchester in the 1980s and in Cambridge in 1990. Our first office in mainland Europe was opened in 2017, in Munich, Germany.



Law and practice library available to all

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- Fully searchable, our Law and Practice Library consists of over 100 guides all available online and covering a huge range of IP topics.
- In the spirit of openness and information sharing we have decided to keep them openly available to all.
- These are so good our competitors use them as reference – we know because they've told us!

ACCELERATED PROSECUTION

Our pages 'UK Patents - The Basics' and 'European Patents - The Basics' set out in detail the various procedural steps involved in obtaining UK and...

COMPENSATION OF INVENTORS ACCORDING TO THE PRINCIPLES OF THE GERMAN COMPENSATION GUIDELINES

Type (lump sum or instalments) and amount of compensation are determined by an agreement between the employer and employee. The calculation of a...

CONFIDENTIALITY

Download Confidentiality Agreement Form

Often you may wish to tell other people about your invention, for example if you are trying to license or...

COPYRIGHT IN TRADE MARKS

When a trade mark contains or consists of a logo, it is likely that there is copyright in the trade mark. If so, it is important that the trade mark...

DEFERRED PATENT EXAMINATION SYSTEM

Several Patent Offices operate a deferred patent examination system under which patent applications remain dormant until the applicant takes steps...

DEFERRED PATENT EXAMINATION SYSTEM - GERMANY

The German Patent Office operates a deferred patent examination system under which patent applications remain dormant until the applicant takes steps...

DESIGNATION OF THE EU VIA THE MADRID PROTOCOL

The European Union is a member of the Madrid Protocol and so the European Union can be designated in an International Registration so as to seek...

DESIGNATION, EXTENSION AND VALIDATION STATES FOR EUROPEAN PATENT APPLICATIONS

For European patent applications filed since 2009, all available EPC member states are designated by payment of one designation fee.

The EPO has a...

DIRECT EUROPEAN PATENT APPLICATIONS: EARLY STAGE PROCEDURE AND PAYING SEARCH FEES

Download flow chart - EP Early Stage Procedure & Paying Search Fees - Decision chart for action after issuance of a partial search report on a direct...

DISCLOSURE OF SEARCH RESULTS

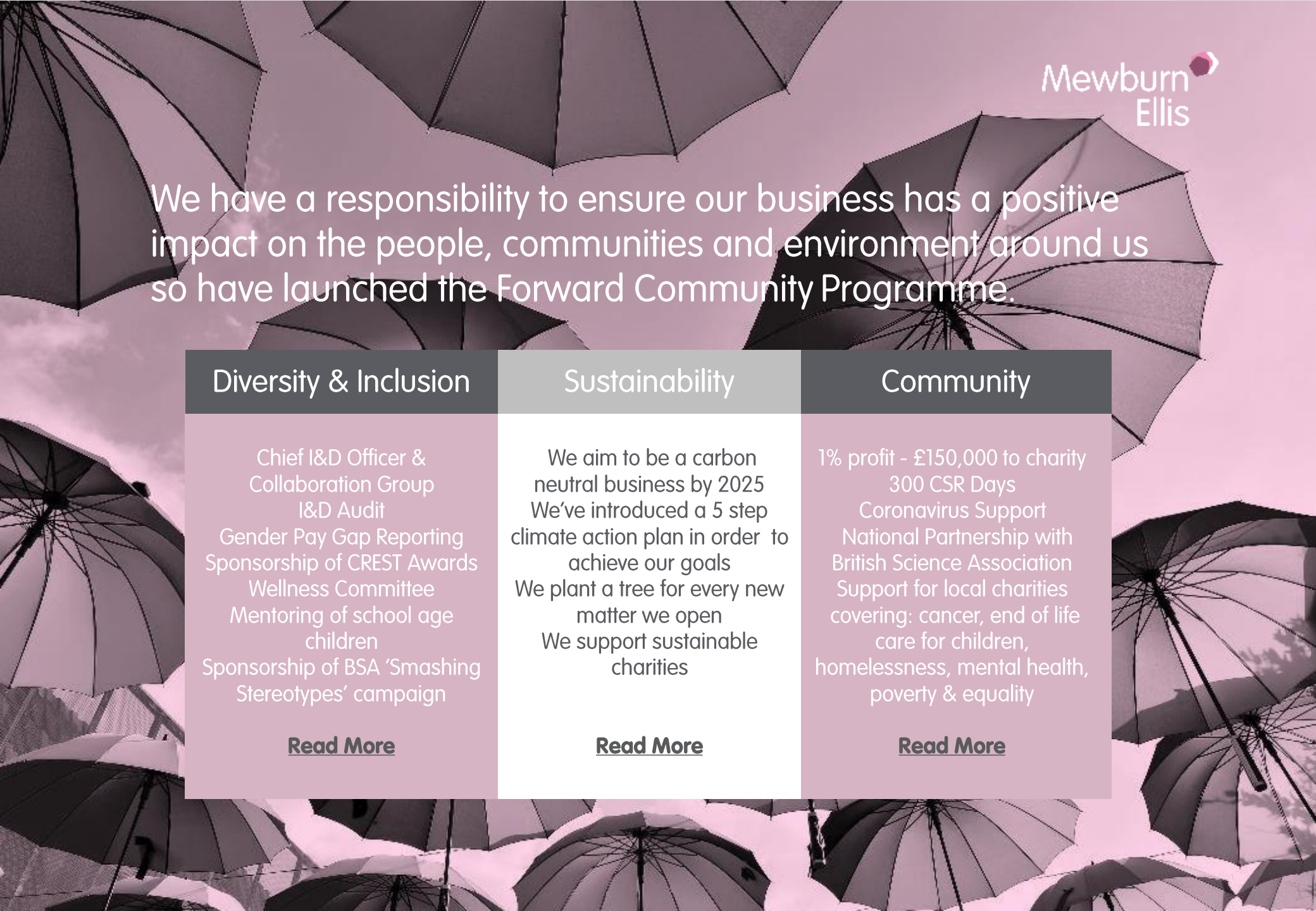
From 1st July 2004 the UK Intellectual Property Office has been requesting the results of official searches produced by other patent offices to be...

DOMAIN NAMES

The importance of trade marks is being increasingly highlighted by the rapid growth in use of the Internet. This page explains the process and some...

DUTY OF DISCLOSURE

Failure to disclose relevant information to the United States Patent and Trademark Office (USPTO) can result in a patent becoming invalid and...



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We have a responsibility to ensure our business has a positive impact on the people, communities and environment around us so have launched the Forward Community Programme.

Diversity & Inclusion	Sustainability	Community
Chief I&D Officer & Collaboration Group I&D Audit Gender Pay Gap Reporting Sponsorship of CREST Awards Wellness Committee Mentoring of school age children Sponsorship of BSA 'Smashing Stereotypes' campaign	We aim to be a carbon neutral business by 2025 We've introduced a 5 step climate action plan in order to achieve our goals We plant a tree for every new matter we open We support sustainable charities	1% profit - £150,000 to charity 300 CSR Days Coronavirus Support National Partnership with British Science Association Support for local charities covering: cancer, end of life care for children, homelessness, mental health, poverty & equality
Read More	**Read More**	**Read More**

Dr Eleanor Maciver

Mewburn Ellis

- BA and MSci in Natural Sciences from Cambridge University; DPhil from Oxford University; Post Doctoral Research at Kyoto University
- Qualified 2017; partner 2022; Mewburn Sustainability Champion
- Lived in Japan for one year, speak some Japanese now visit Japan for 1-2 weeks most years
- Involved with JIPA since joining the profession
- Practice: Chemistry specialising in sustainable technologies, food chemistry, polymers and small molecule pharmaceuticals
- Passionate about the role technology can play in sustainability
- Major clients: Japanese food and drinks companies, Japanese polymer companies, Sustainable technology SMEs and pharmaceutical companies from start-ups to global corporations
- Significant experience of EPO opposition and appeal work

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Patenting Trends in Sustainable Technologies

What are Sustainable Technologies?

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- Sustainable technology generally refers to technologies that act to mitigate climate change in some way
  - Sometimes they as referred to as Climate Change Mitigating Technologies (CCMTs)

- Many technologies in different technical fields are CCMTs
  - This is not surprising – almost all human activity has *some* effect on the environment and technologies are being developed to decrease or eliminate any harmful effect

Motivation

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- Over the past decade, there has been an increase in regulation, legislation and incentives for the development of CCMTs
- There is also powerful public opinion in support of increasing sustainability.
- Unsurprisingly, this is resulting in significant time and energy being spent developing more sustainable technologies
  - From start-ups to global multinationals, almost all businesses are focussed on increases sustainability in some way
- IP, and patents in particular, can be a key part of the journey from innovation to market reality
- We can see this reflected in the patent landscape for CCMTs

Types of Sustainable Technologies

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- Some key areas that we will look at today are:
  - Future of Food (including alternative foods and improved agricultural methods)
  - Energy (storage and generation)
  - Circular Economy (particular plastics and alternative materials)
  - Future mobility

Future Food

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- Use of land, soil and water to produce food for the current population is having catastrophic consequences for biodiversity and our atmosphere
- The world population is expected to grow by another 2 billion by 2050
- In addition to market pressure, it is clear there is huge motivation to increase the sustainability of food production
- Some key areas of research to date are:

Agriculture

- Precision breeding
- Nanomaterials
- Nitrogen fixing bacteria
- Vertical Farming

Alternative proteins

- Cellular agriculture
- Microbially proteins
- Plant Proteins

Energy - Storage

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- A wide range of industries and governments are investing in this technology area
  - Energy storage in various forms is seen as a key part of the puzzle of mitigating our impact on the environment

Some key technologies include:

- Hydrogen Storage
- Lithium Ion Batteries
- Other Metal Based Batteries (e.g. Sodium)
- Capacitor technology

Some key applications include:

- Electric Vehicles
- Mains Power Storage
- Consumer Devices

Plastics

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- There are many strands to innovation in creating a more sustainable plastics future
  - Perhaps this is not surprising, plastics are incredibly versatile materials

- Some key areas include:

Bioplastics

Derived from sustainable resources

Still need to be recycled

New types of plastic

Designed to be *more* recyclable

Recycling technologies

Improve the ability to recycle existing plastic streams

Alternative materials

Replacements for plastics

Typically designed to be composted or consumed

Future Mobility

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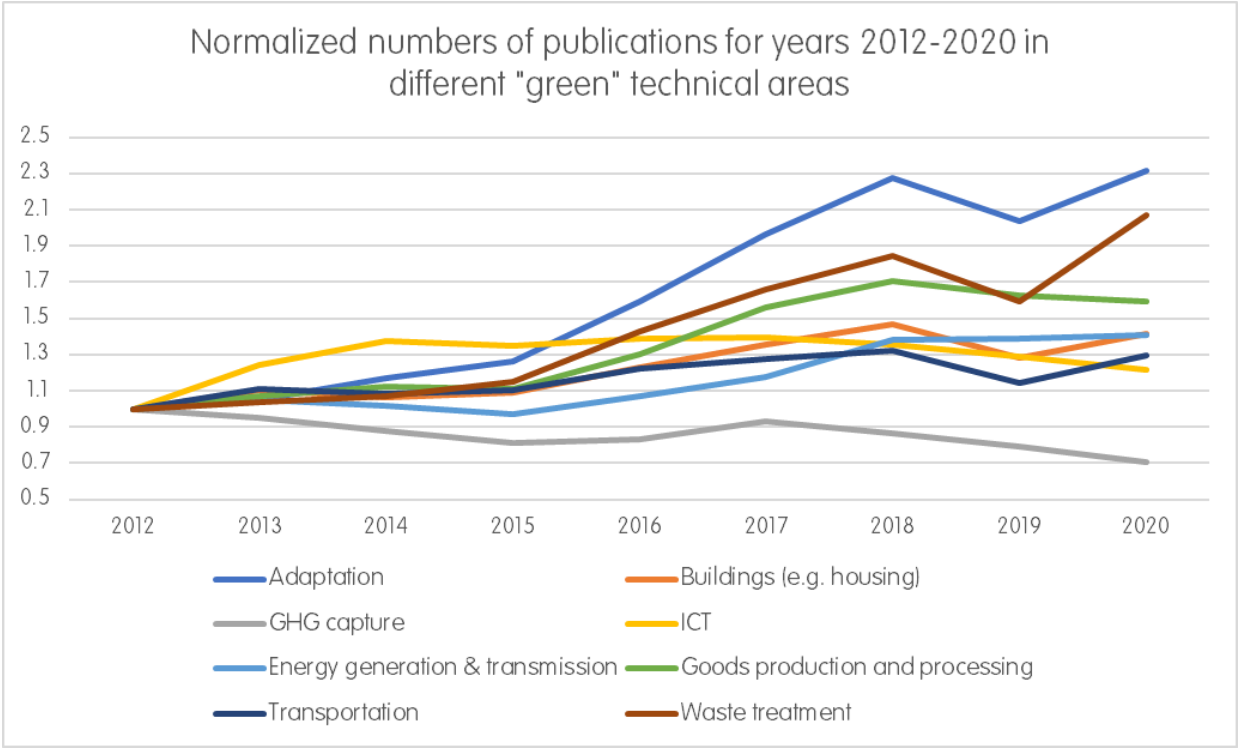
- The term future mobility covers all modes of transport – those that already exist and new ones that will be created

- Changes to mobility are being driven by social, economic and technological
  - The mobility sector is seeing a shift from ownership to access

- Some key areas include:
  - Electric vehicles – cars, trains and planes
  - Other fuels – for example hydrogen
  - Automation – for example self driving cars

Filing Trends

- The EPO developed a tagging system which allocates a Y code to patents for CCMTs
- The main Y classification, Y02, has the categories in the graph
- Most technical fields has increased over the last decade
- Surprisingly GHG capture has declined



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Tips for Protecting Sustainable Technologies

Sustainable Technology

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- In many cases, sustainable technologies can be patented in similar ways to other technologies

- However, particular challenges can arise for types of sustainable technology because they are sustainable:
  - For example, an *ideal* recycled plastic is as close to identical to the same plastics produced using new raw materials as possible
  - So, it can be difficult to distinguish the recycled plastic and obtain patent protection to protect such innovation

Sustainable Technology

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- In this section we will looks at some tips for protecting types of sustainable technology

- This will focus on:
  - Recycled Plastics
  - Alternative Materials
  - Cellular Agriculture

- Of course, different technologies all have different potential issues

- I am happy to answer any specific questions.

Recycled Plastics

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- As discussed, an *ideal* recycled plastic is as close to identical to the same plastics produced using new raw materials as possible

- So, it can be difficult to distinguish the recycled plastic and obtain patent protection to protect such innovation

- Tips for protecting protect such innovation include:
  - The process for recycling the plastic is very different to extracting raw materials
  - It is often possible to identify some *minor* difference that results from the recycling process and is carried into the recycled plastic
  - A good example is ^{13}C amounts which can differ in the recycled plastic compared to plastic produced from new raw materials

Alternative Materials

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- Many alternative materials are produced from natural products such as:
  - 'Notpla' a plastic alternative derived from seaweed that recently won the 2022 EarthShot prizes or
  - Mycelium derived packaging

- Many features of these materials occur in nature but they are generally altered in some way

- Tips for protecting protect such innovation include:
  - Extracted materials such as Notpla can be protected by careful and clear understanding of how the material is altered by extraction

  - Grown materials such as mycelium are almost certainly grown under different conditions compared to the natural process – these differences will result in different physically properties

Cellular Agriculture

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- Cellular agriculture products were approved for sale for the first time in Singapore recently and the US has also taken the first steps to approval

- Despite this product only just being approved, the technical field is very crowded dues to many years of research with all of the accompanying prior art

- Tips for protecting protect such innovation include:
  - Accept that product claims are likely to be relatively narrow and at least provide narrow fall backs that cover the core of the invention
  - Make use of all available product categories to provide a canopy of cover, for example, method and intermediate claims can provide significant protection in a field where the main areas of advancement are in providing ways to make the product in a *commercially* viable way
  - Steer clear of awkward definitions and clearly define the words used, for example there is no universally accepted meaning for the term 'meat'

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Sustainable Technologies – acceleration of application

Acceleration of Applications

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- Sustainable technologies are rapidly advancing
- As we know, the patenting process can take many years to complete
- Many patent offices around the world have introduced systems to allow the acceleration of patent applications directed to sustainable technologies
- The aim is to encourage sustainable innovation

UKIPO – Green Channel

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- Introduced in mid-2009, the UKIPO "Green Channel" allows applicants to request accelerated examination for patent applications having "an environmental benefit"
- Request must be filed in writing and provide reasons
- Typically 300 to 400 requests per year
  - Historically many cases were accepted and accelerated
  - In the past few year, fewer cases (~50%) were accepted and accelerated
  - Important to provide good explanation of the environmental benefits

Global Initiatives – Similar to the UK

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- The Japanese, Australian and Israeli patent offices also introduced acceleration programs for green technologies in 2009
- Canada and Brazil followed in 2011 and 2012 respectively
- Similarly to the UK, no office fees are needed for the request and the applicant must provide reasons
- The US Patent Office has a trial scheme from 2009 to 2012 but this is now closed

Global Initiatives – More requirements

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- Other countries such as South Korea, China and Taiwan also have schemes in place for accelerating applications to green technologies

- In these countries there are additional requirements such as:

    - In South Korea certain funding or certification is required
    - In China, Eligibility requirements for applicants mean many foreign applicants cannot successfully apply
    - In Taiwan, a fee is also required

EPO – PACE

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- There is no specific provision for accelerating prosecution of sustainable technologies at the EPO
- However, the EPO's PACE programme can be used to accelerate prosecution of *any* application
- The PACE system has two part – one for accelerated search and one for accelerated examination
  - These must be requested separately
- In our experience PACE works well and the PACE request is not made public

Summary

Summary

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- Patent filings to sustainable technologies have been steadily increasing
- Sustainable technologies span all technical fields
- Many sustainable technologies can be protected in similar ways to standard technologies
- However, in some cases there are particular points to keep in mind
- It is possible to accelerate applications to green or sustainable technologies in many jurisdictions

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Resources

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- Mewburn law and practice library: www.mewburn.com/law-practice-library
- Mewburn ViCo page: www.mewburn.com/law-practice-library/video-conferencing-of-interviews-and-oral-proceedings
- EPO regularly updated COVID-19 information page: www.epo.org/news-events/covid-19/oral-proceedings-examination-opposition.html
- Frequently asked questions: www.epo.org/service-support/faq/procedure-law/oral-proceedings-by-videoconference.html


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