# Patent Protection for EU funding: Digital Communication

# Agenda

- **Introduction**

  Christian Solltmann, product manager, Patent Knowledge, EPO
- **Main aspects of IP management in EU-funded projects**

  Michele Dubbini IP Expert, European IP Helpdesk
- **Getting to know patents**

  Christian Solltmann, product manager, Patent Knowledge, EPO
- **Patentability of new technological developments in digital communications with focus on wireless telecommunications**

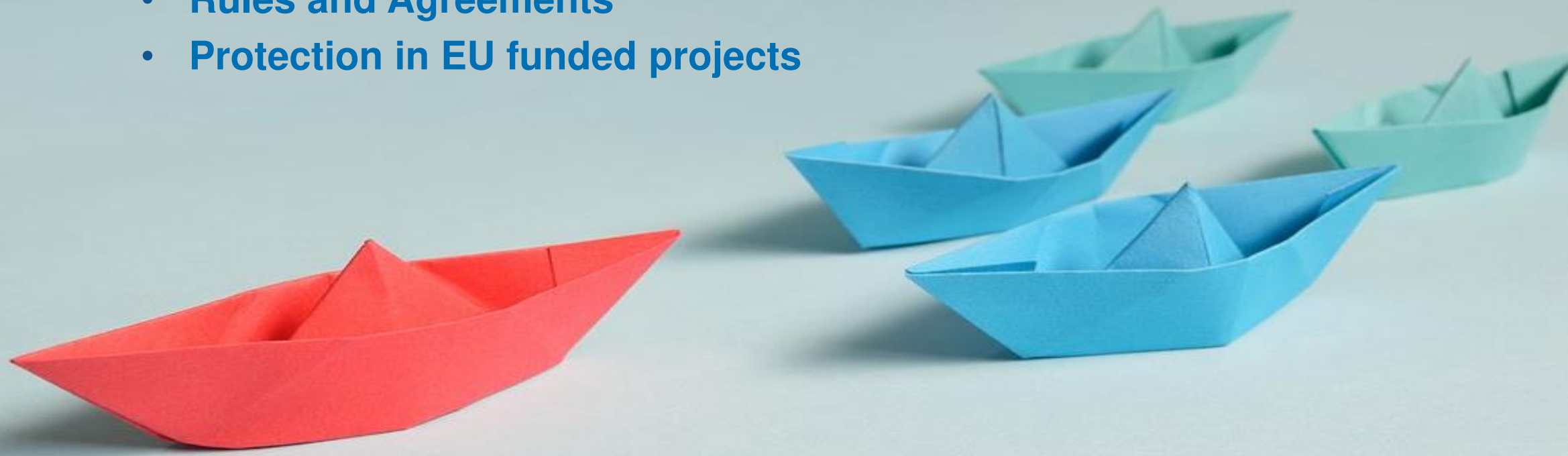
  Georgia Tseliou, examiner, EPO

  **Learning resources**
- **Q&A**


[ REC]

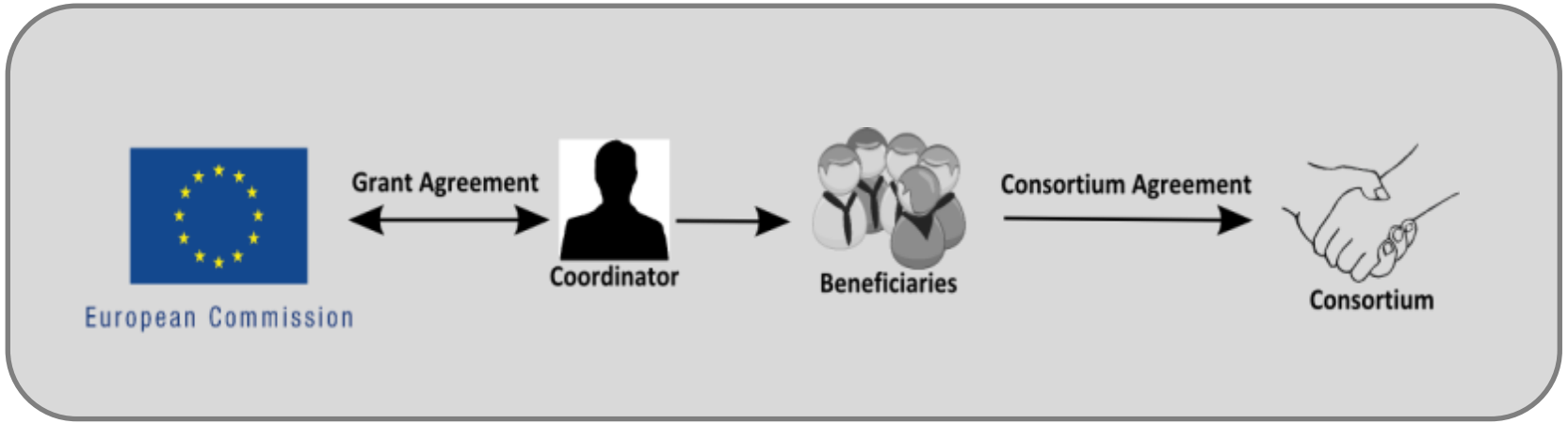
# Roadmap

- **Rules and Agreements**
- **Protection in EU funded projects**

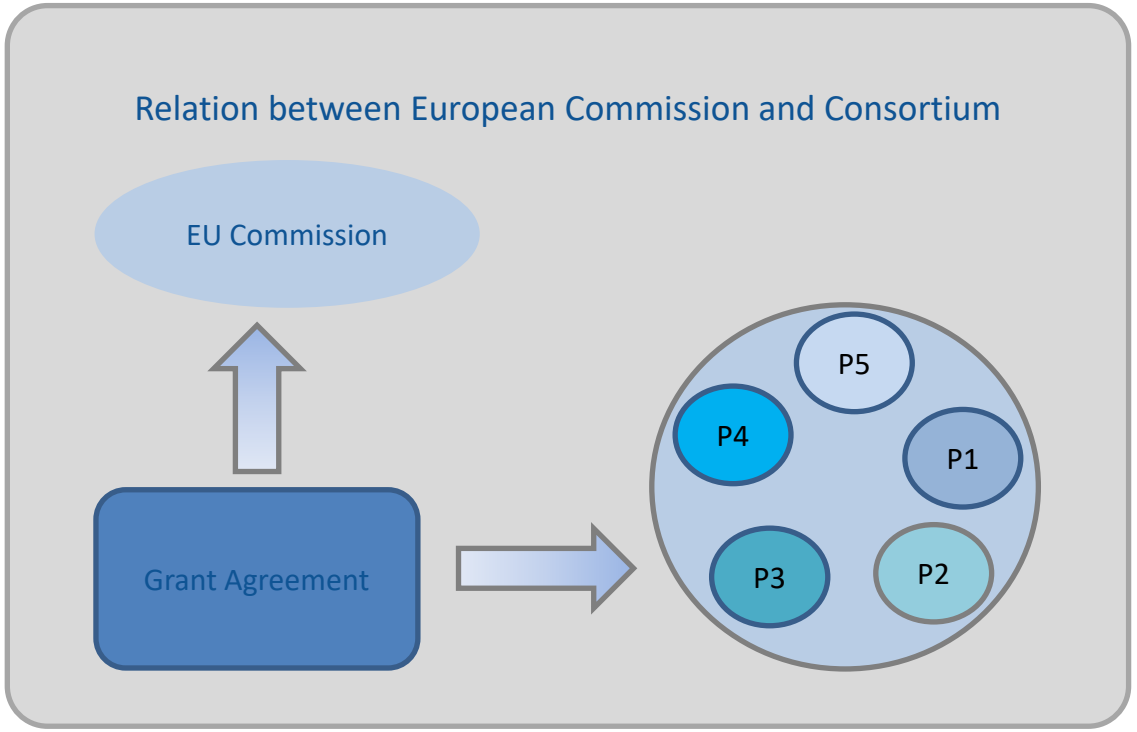


# Rules & Agreements

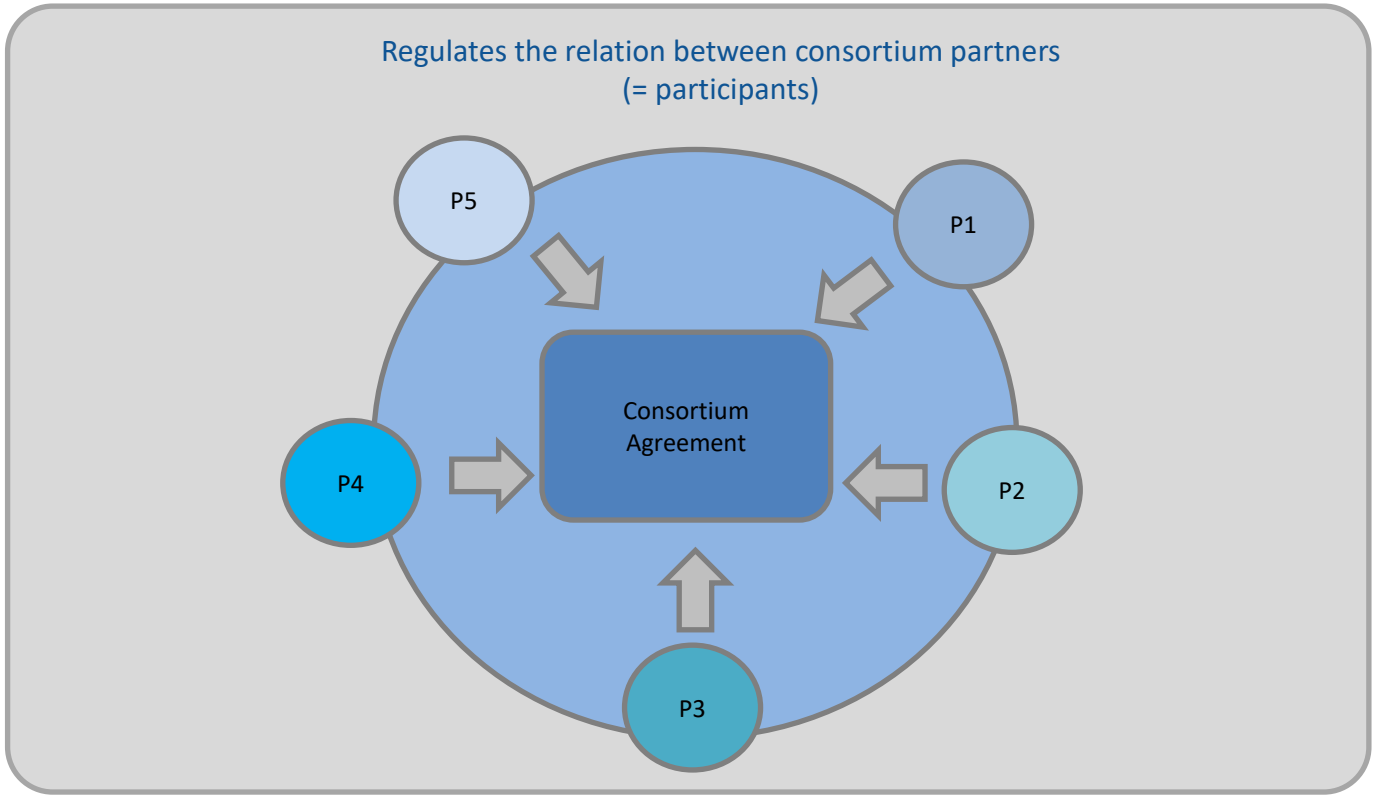
# Overview: Agreements



# Grant Agreement (GA)



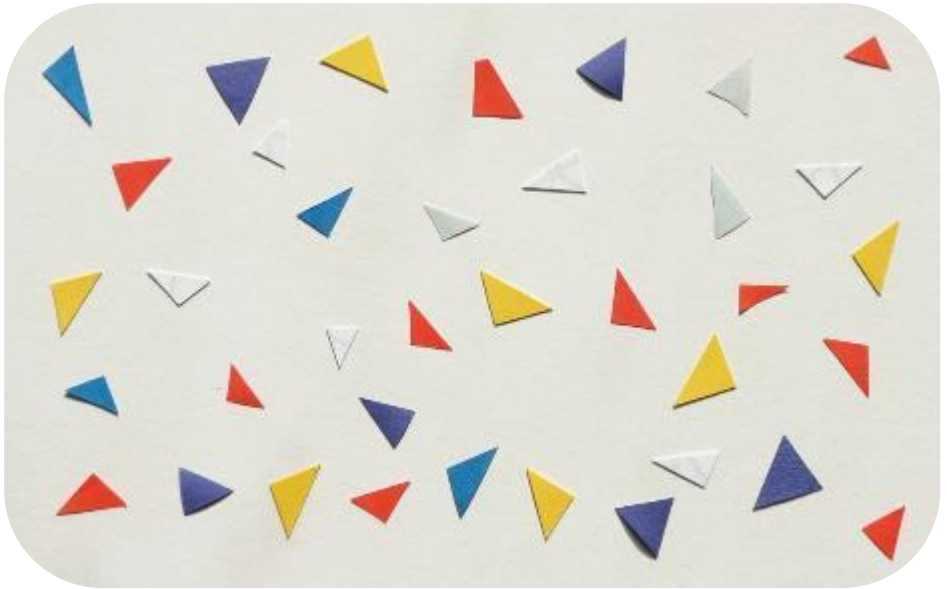
# Consortium Agreement (CA)



# Vocabulary

## Key terms in the context of Horizon projects are:

- Background
- Results
- Exploitation
- Dissemination
- Communication



# General obligation to protect

Each participant must **examine the possibility of protecting its results and must adequately protect them** — for an appropriate period and with appropriate territorial coverage — if:

(b) protecting them is possible justified (given the circumstances).

When deciding on protection, the beneficiary must consider its own interests and the interests (especially commercial) of the other beneficiaries.

**Protection can be secured by IPR or other means (e.g. trade secret protection).**

# Protection by IPR

| IPR | What for? | Registration? |
|---|---|---|
| **Patent** | New inventions | Registration is required |
| **Utility model** | New inventions | Registration is required, but conditions are less stringent than for patentability |
| **Trade Marks** | Distinctive signs | Registration is required |
| **Industrial Design** | Appearance of products | Registration is usually required, but it is possible to acquire an unregistered design right |
| **Copyright** | Literary, artistic and scientific works | Not required, but it can be registered in some countries |
| **Confidentiality** | Confidential business information/trade secrets | Not required, but internal protection measures needed (i.e. NDAs) |

Always use IPR symbols, such as © for copyright, ™ and ® for trademarks, or any other equivalent indicating that it is protected by one or more different IPR

# Combined Use

# Contact:

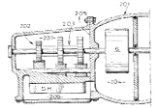
- Website: ec.europa.eu/ip-helpdesk
- helpline@iprhelpdesk.eu
- Twitter @iprhelpdesk
- LinkedIn /european-ipr-helpdesk
- EU IP Helpdesk: IP in HEU https://attendee.gotowebinar.com/recording/2681978669356886110

# GETTING TO KNOW PATENTS

CHRISTIAN SOLTMANN | 5.4 PATENT INTELLIGENCE | 22 MAY 2024

epo.org

# PATENTS AND OTHER IP RIGHTS

| Legal right | What for? | How? | |
|---|---|---|---|
| **Patents** | New inventions | Application and examination |  |
| **Copyright** | Original creative or artistic forms (literary texts, music) | Exists automatically |  |
| **Trade marks** | Distinctive identification of products and services | Use and/or registration | Google |
| **Registered designs** | External appearance | Registration |  |
| **Trade secrets** | Valuable information not known to the public | Reasonable efforts to keep secret |  |

# PATENTS: OVERVIEW

- Patent: A legal title which grants the holder the *exclusive* right to prevent others from using the protected invention for commercial purposes without authorisation
- Principle of territoriality: Valid in countries for which the patent was granted
- Exist for a limited time (up to 20 years)
- Exceptions and limitations apply

# A SIMPLE CONTRACT

Reveal the invention to the public

**PATENTS**

Confer exclusivity

# AN INCENTIVE FOR ECONOMIC GROWTH

- Enables patent holders to recoup their development costs
- Makes the latest technological knowledge available to the public
- Inspires further innovation
- Prevents duplication of R&D
- Provides the legal basis for licensing and R&D co-operation
- Attracts venture capital funds and investors

# THREE POSSIBLE ROUTES TO PATENT PROTECTION IN EUROPE

| Route | National | European | International |
|---|---|---|---|
| **Via** | National offices | European Patent Office or national offices | International Bureau or European Patent Office or national offices |
| **Valid in** | One country | Up to 39 countries<br>+ one extension state<br>+ five validation states | Up to 157 countries |
| **In brief** | Applications are filed with the relevant national office and are valid for that state only | One single application in DE/EN/FR for all EPC contracting states. Same legal effects as national patents | An international patent procedure, not an international patent. After the international phase, applicants can choose to enter the national/regional phase in various states |

# TODAY ... AN AREA WITH SOME 700M INHABITANTS

## 39 European member states

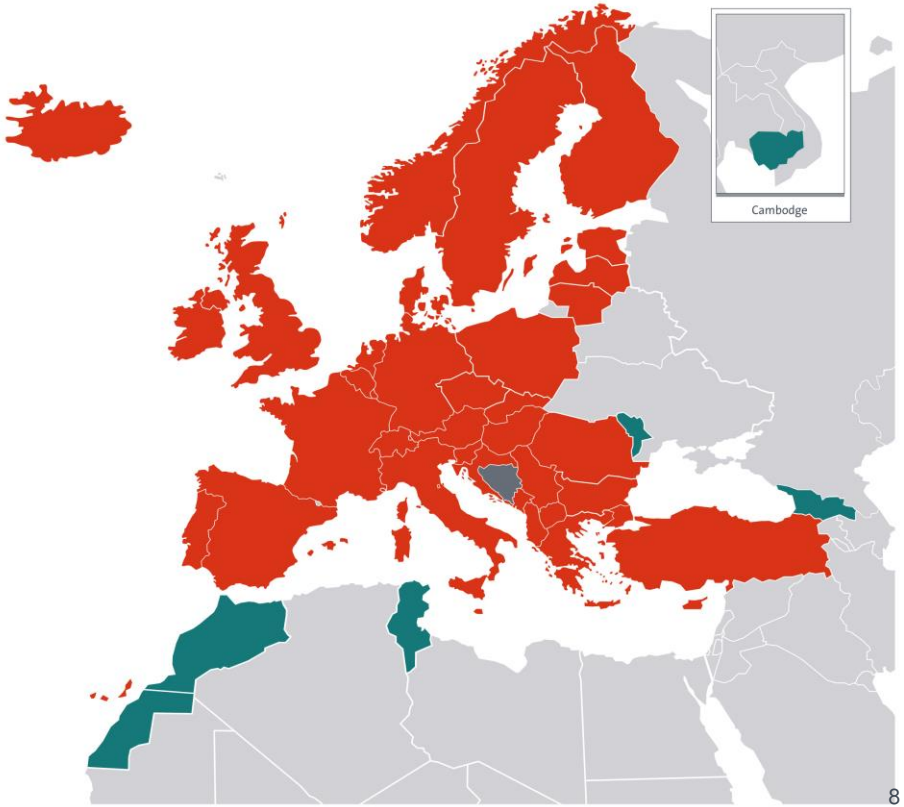
Belgium • Germany • France • Luxembourg
Netherlands • Switzerland • United Kingdom
Sweden • Italy • Austria • Liechtenstein • Greece
Spain • Denmark • Monaco • Portugal • Ireland
Finland • Cyprus • Türkiye • Bulgaria • Czech Rep.
Estonia • Slovakia • Slovenia • Hungary • Romania
Poland • Iceland • Lithuania • Latvia • Malta • Croatia
Norway • North Macedonia • San Marino • Albania
Serbia • Montenegro

## One European extension state

Bosnia and Herzegovina

## Five validation states

Republic of Moldova • Morocco
Tunisia • Cambodia • Georgia



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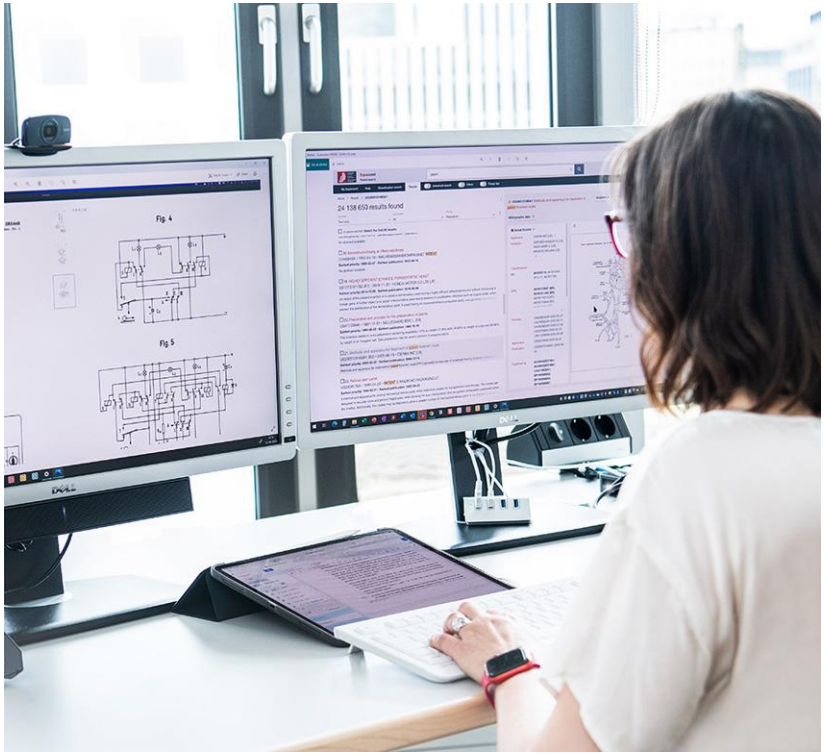
# PATENTABILITY

**Patents** are granted for **inventions** in all fields of technology.

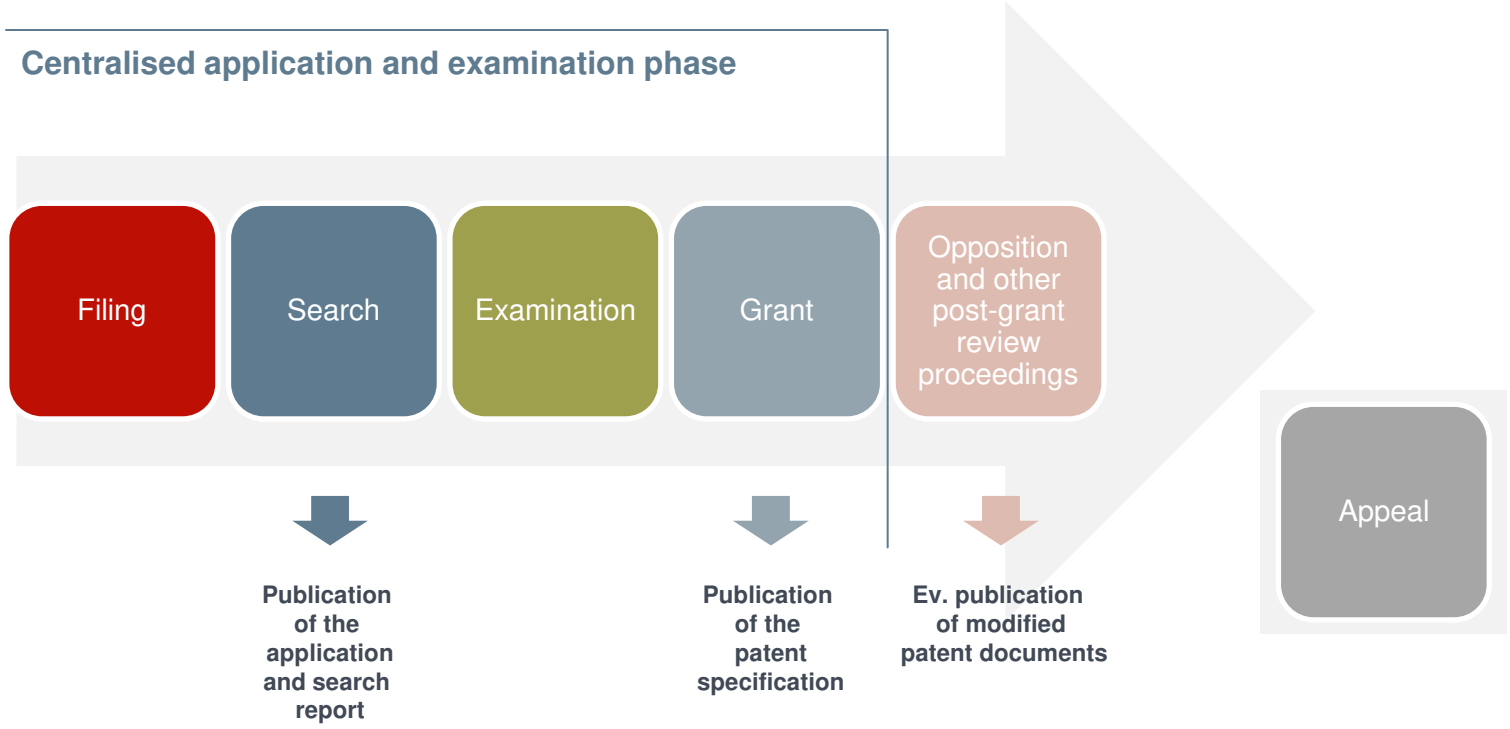
To be patentable, **inventions must**

- **be new**
- **involve an inventive step**
- **be industrially applicable**

They must relate to a product, process, apparatus or use.

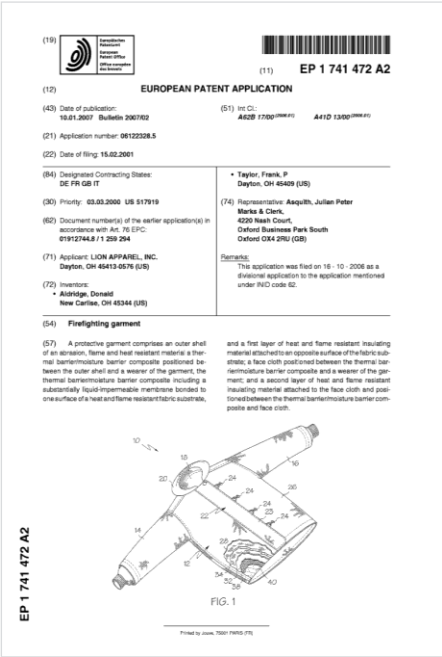


# BASIC STEPS IN THE EUROPEAN GRANT PROCEDURE



# WHAT INFORMATION DO PATENT DOCUMENTS CONTAIN?

- Title of the invention, name of the inventor
- Detailed description of the invention: how it is constructed, how it is used, benefits compared with what already exists
- Claims providing a precise definition of what the patent protects
- Drawings
- Abstracts: summary of the invention − particularly useful for search engine



(19) Europäisches Patentamt European Patent Office Office européen des brevets

(11) EP 1 741 472 A2

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication: 10.01.2007 Bulletin 2007/02

(51) Int Cl.: A62B 17/00 (2006.01) A41D 13/00 (2006.01)

(21) Application number: 06122328.5

(22) Date of filing: 15.02.2001

(84) Designated Contracting States: DE FR GB IT

(30) Priority: 03.03.2000 US 517919

(62) Document number(s) of the earlier application(s) in accordance with Art. 76 EPC: 01912744.8 / 1 259 294

(71) Applicant: LION APPAREL, INC. Dayton, OH 45413-0576 (US)

(72) Inventors:
• Aldridge, Donald New Carlise, OH 45344 (US)
• Taylor, Frank, P Dayton, OH 45409 (US)

(74) Representative: Asquith, Julian Peter Marks & Clerk, 4220 Nash Court, Oxford Business Park South Oxford OX4 2RU (GB)

Remarks: This application was filed on 16 - 10 - 2006 as a divisional application to the application mentioned under INID code 62.

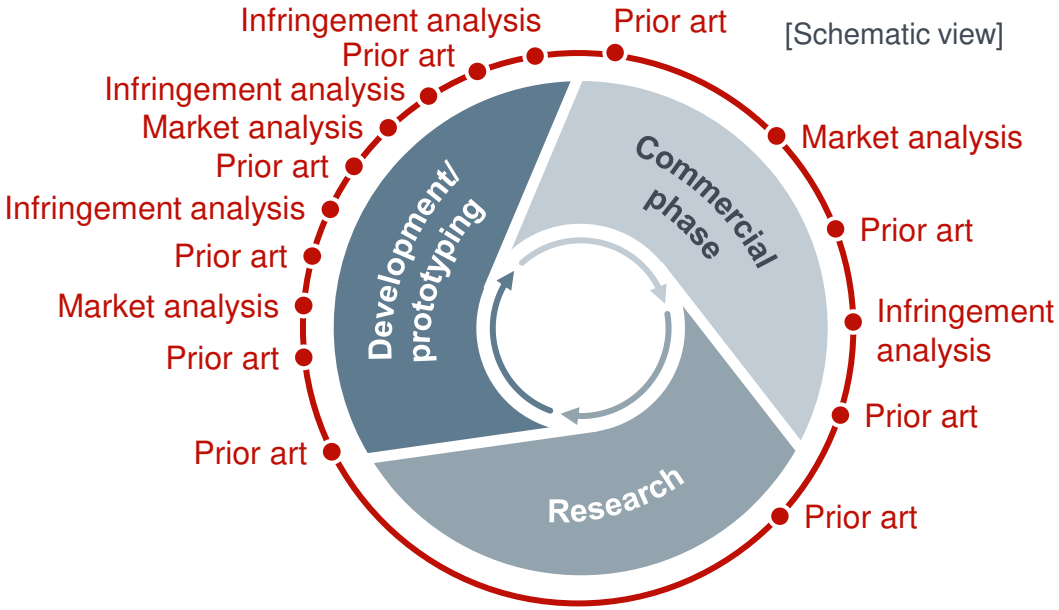
(54) Firefighting garment

(57) A protective garment comprises an outer shell of an abrasion, flame and heat resistant material a thermal barrier/moisture barrier composite positioned between the outer shell and a wearer of the garment, the thermal barrier/moisture barrier composite including a substantially liquid-impermeable membrane bonded to one surface of a heat and flame resistant fabric substrate, and a first layer of heat and flame resistant insulating material attached to an opposite surface of the fabric substrate; a face cloth positioned between the thermal barrier/moisture barrier composite and a wearer of the garment; and a second layer of heat and flame resistant insulating material attached to the face cloth and positioned between the thermal barrier/moisture barrier composite and face cloth.

FIG. 1

EP 1 741 472 A2

# WHY PATENT INFORMATION IS SO IMPORTANT




[Schematic view]

Patent information helps to

- find out **what technology already exists** and build on it
- **avoid duplication** of R&D expenditure
- check where an invention is protected
- **avoid infringing** other people's patent rights
- **keep track** of what others are doing
- **identify new partners**, e.g. for licensing
- **spot trends** in technology or the market

… and much more.

☑ Patent information supports informed decision-making at all stages of the innovation process!

☑ With that, patent information makes businesses more successful and supports innovation

# TO SUM UP

- Patents help to protect (technical) inventions.
- The patent system provides for a balance of interests between patent holders and the public.
- There are different routes to patent protection in Europe.
- It is important to be aware of the patentability requirements, exclusions and exceptions to patentability.
- Patent information is a unique source of technical, legal and business information.

# NEED MORE INFORMATION?

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# PATENTABILITY OF NEW TECHNOLOGICAL DEVELOPMENTS IN DIGITAL TECHNOLOGY

GEORGIA TSELIOU, PHD | EXAMINER WIRELESS AND DATA NETWORKS | 22.05.2024

# OUTLINE

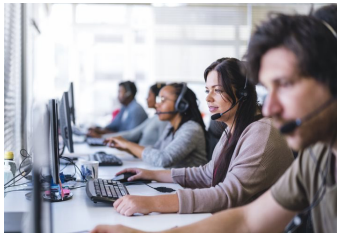
- Motivation
- Technological Evolution
- Patents in Telecommunications
- Patents and Standards
- Conclusions

# MOTIVATION: WHERE DO WE HEAD?

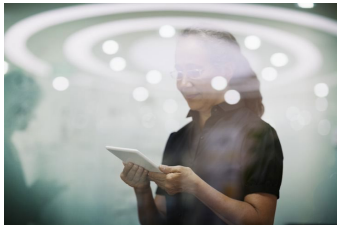
- Information & Communications Technology (ICT): highly innovative and rapidly changing area
- Computing & telecommunications
- Developments in emerging technologies, AI
- Emergence & convergence of new verticals
- 5G: largest technology shift in ICT since 2G to 3G

# MOTIVATION: WIRELESS OF EVERYTHING

| 1980s-2000s | -2020s | -2040s |
|---|---|---|
| Millions of voice users | Billions of Mobile Broadband users | Trillions of connected objects |
| 2G | 3G | 4G | 5G | 6G |



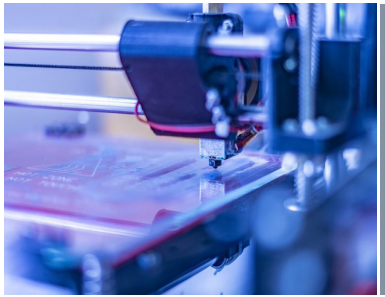
Mobile Voice



Mobile Broadband

Wireless of everything

# BUSINESS CASES DRIVING THE EVOLUTION TO 6G



- Real time data
- Edge Processing
- Process AI

- Sensing system
- Machine Vision
- Preference Analytics

Automated Factories

Personal Experiences

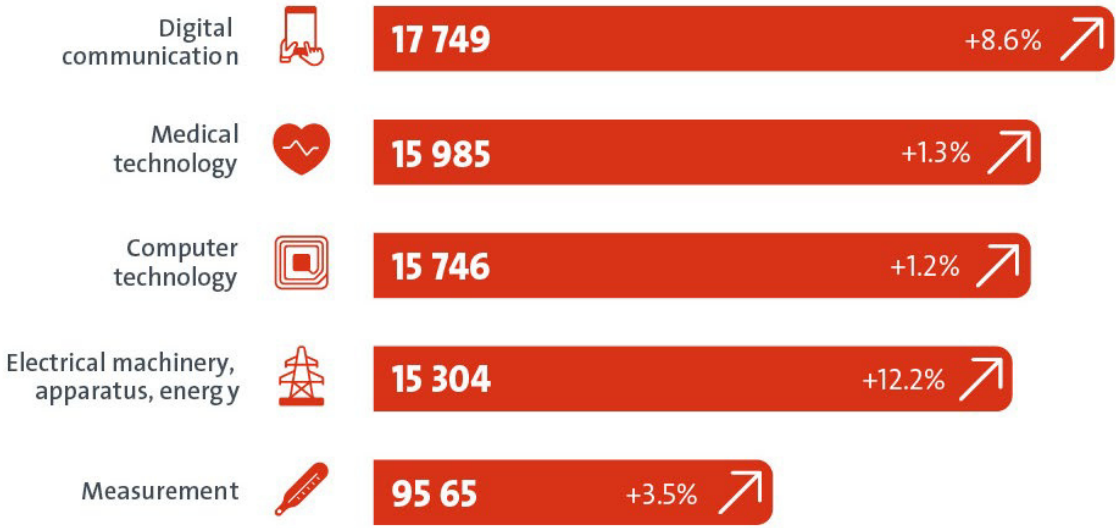
- Edge Analytics
- Wireless Sensing
- Machine Learning

- Multi-radio
- Sensor mesh
- Swarm AI

Smart Health

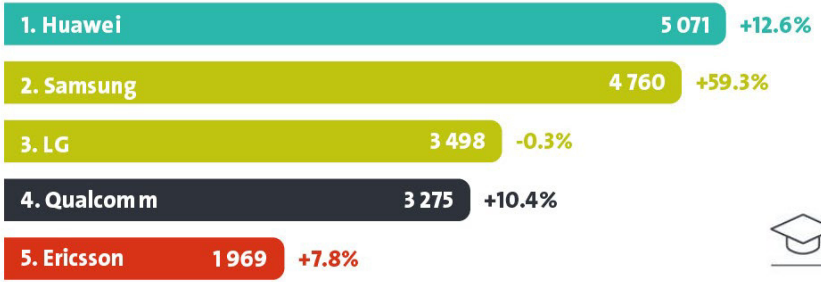
Automated Vehicles

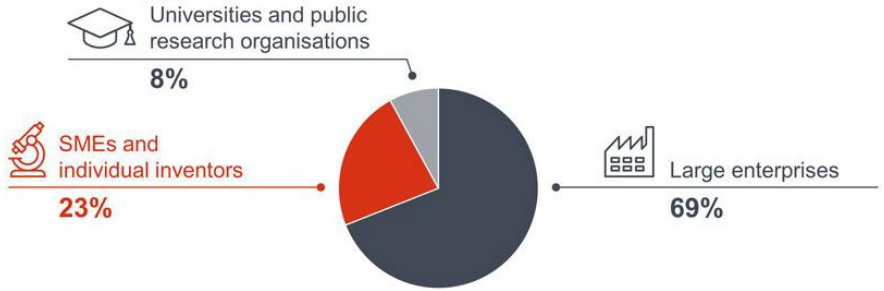
# TOP TECHNICAL FIELDS FOR EUROPEAN PATENT APPLICATIONS 2023




Source: https://www.epo.org/en/about-us/statistics/patent-index-2023

# TOP EPO APPLICANTS 2023

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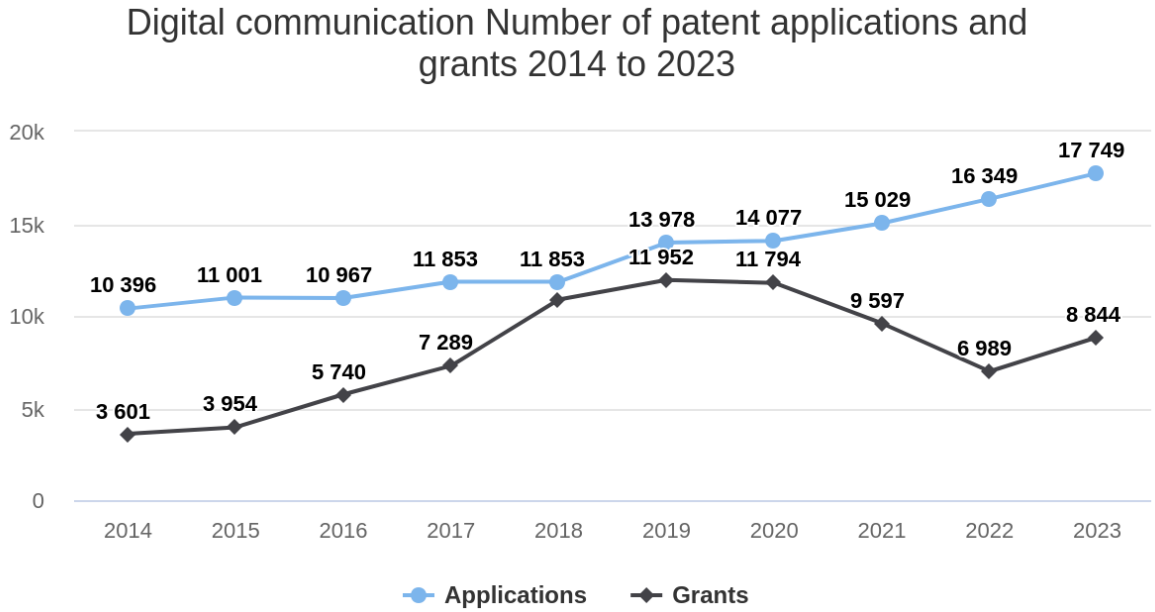
# EUROPEAN PATENT APPLICATIONS AND GRANTED PATENTS

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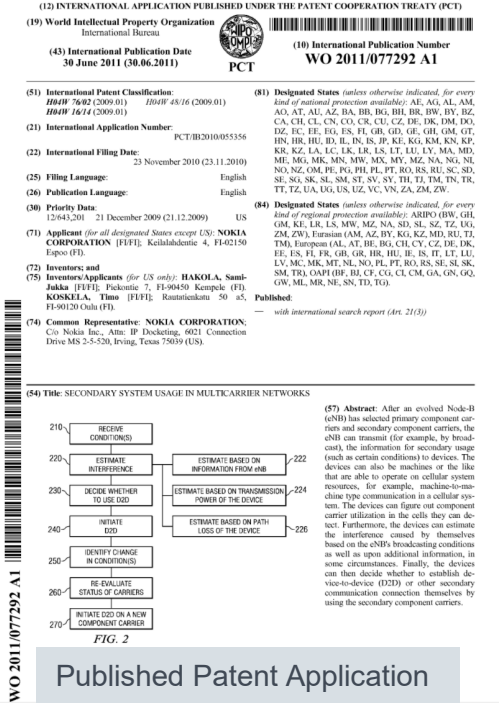

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
30 June 2011 (30.06.2011)

PCT

(10) International Publication Number
WO 2011/077292 A1

(54) Title: SECONDARY SYSTEM USAGE IN MULTICARRIER NETWORKS



FIG. 2

WO 2011/077292 A1

Published Patent Application

Check Espacenet:

SECONDARY SYSTEM USAGE IN MULTICARRIER NETWORKS

https://worldwide.espacenet.com/patent/search/family/044151820/publication/WO2011077292A1?q=pn%3DWO2011077292A1

# HOW DOES A PATENT IN TELECOM LOOK LIKE? (CONT'D)

- Let's have a look at a claim
- Claim is a solution to a technical problem
- Features should be new and inventive to be allowable under EPC
- Industrial application

At search stage

1. A method, comprising:

selecting at least one primary component carrier for a cell of a radio network;

selecting at least one secondary component carrier for the cell of the radio network; and

initiating transmission of at least one condition to at least one device, wherein the at least one condition is configured to permit the at least one device to determine whether to use at least one of the at least one secondary component carriers for device-to-device communication with at least one other device.

Claim as originally filed

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# HOW DOES A PATENT IN TELECOM LOOK LIKE? (CONT'D)

After substantive examination

1. A method, comprising:

Selecting, at an access node of a radio network, at least one primary component carrier for a cell of ~~a~~the radio network;

Selecting, at the access node, at least one secondary component carrier for the cell of the radio network; and

initiating transmission of at least one condition from the access node to at least one device (420), wherein the at least one condition comprises an indication of a maximum allowed interference, wherein the at least one condition is configured to permit the at least one device to determine, at a respective device, whether to use at least one of the at least one secondary component carriers for device-to-device communication with at least one other device (430) based on comparing an estimated interference caused by prospective transmission from the respective device in a prospective device-to-device communication to the at least one condition, ~~wherein the at least one condition comprises an indication of a maximum allowed interference~~.

Amended features

Different from the prior art

Not obvious

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https://worldwide.espacenet.com/patent/search/family/044151820/publication/WO2011077292A1?q=pn%3DWO2011077292A1

# HOW DOES A PATENT IN TELECOM LOOK LIKE?

- Frequency resources are scarce
- Heterogeneous environments
- Technical effect: fewer messages exchanged for D2D communications
- Problem to be solved: how to achieve that signalling overhead during D2D communication establishment is reduced

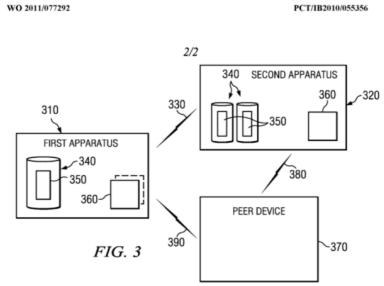


FIG. 3

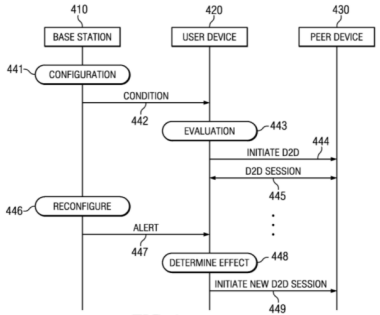


FIG. 4

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SECONDARY SYSTEM USAGE IN MULTICARRIER NETWORKS

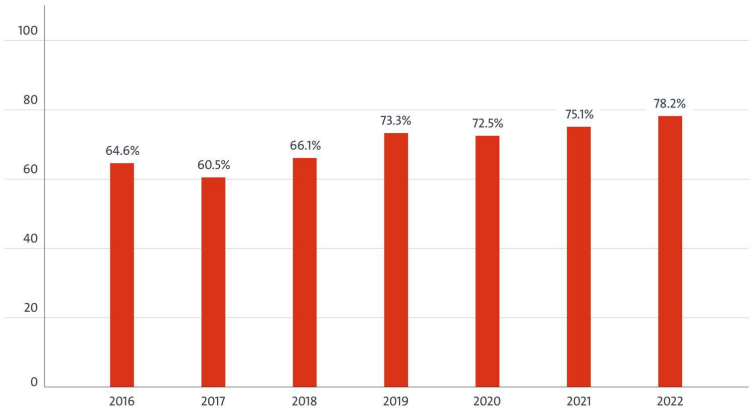
https://worldwide.espacenet.com/patent/search/family/044151820/publication/WO2011077292A1?q=pn%3DWO2011077292A1

# PATENTS & STANDARDS

EPO and Patent information contributes actively to **further development of standards**

Standards provide guidelines to manufacturers, vendors, government agencies, and other service providers to ensure the kind of inter connectivity necessary in today's marketplace and in international communications

Percentage of EPO Search Reports with SDO citations in one example technical area; patent class "H04N19/00: Methods or arrangements for coding, decoding, compressing or decompressing digital video signals"



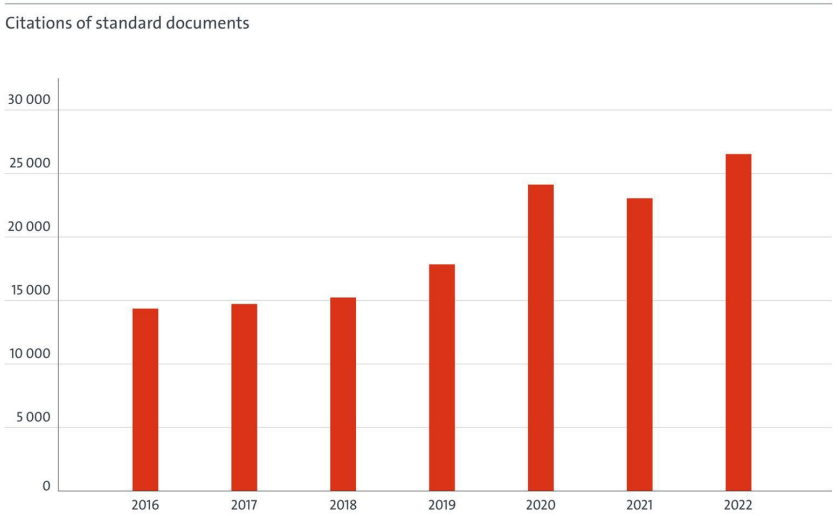

Source: https://www.epo.org/en/news-events/in-focus/ict/patents-standards

# STANDARDS AS STATE OF THE ART

Standards documents qualify as state of the art unless they are subject to a clearly established and well-respected confidentiality obligation

To be considered new, the patent applications claiming these technologies must be filed before disclosure in the standards development process

Previously disclosed standards documentation may also be used to determine what is considered "obvious" to the person skilled in the art

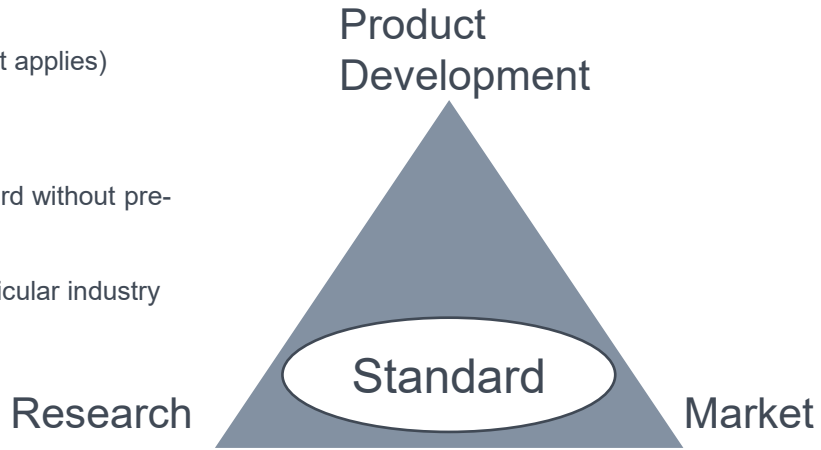



Source: https://www.epo.org/en/news-events/in-focus/ict/patents-standards

# STANDARD ESSENTIAL PATENTS

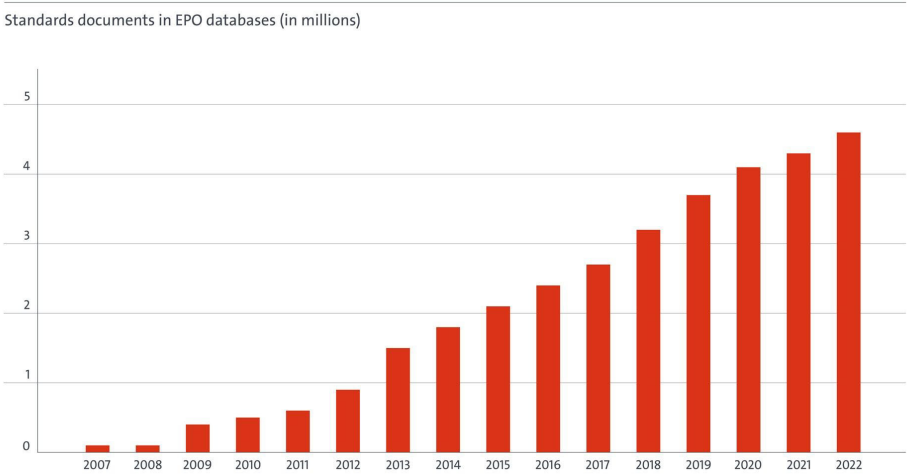
Standard Essential Patents (SEPs) are patents that cover essential technologies that are considered an established standard in a particular industry

- Essential technologies :
  - solution described in the patent is mandated by the standard (where it applies)
  - Any standard compliant (certified) product must implement it
- Established standard:
  - De facto: a particular industry has simply chosen to adopt that standard without pre-existing agreement (Microsoft Windows)
  - De jure: a government agency (regulator) has imposed that standard
  - Compatibility: adopted by a SDO to which many participants in a particular industry belong to (3GPP specs adopted by ETSI)



# HOW DO SDOS AND INDUSTRY FORA HANDLE SEPS?

- Offer licenses of these IPRs on a FRAND basis
- FRAND: Fair, Reasonable & Non-Discriminatory
- Ensuring compatibility between patent and standardisation systems
- Standards development participants to declare SEPs
- The number of patent families declared to standardization bodies as SEP has already reached the tens of thousands

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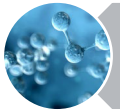
# SOME PATENT BASICS

Patents can be part of a business strategy

There is no worldwide patent; a patent is limited both in territory and time (valid for maximum 20 years)

If you want a patent, you **must keep your invention secret** until the application is filed



You will only get a patent if the application and the described invention fulfils the EPC requirements

Every procedure in each PO is different and the final decision is up to the respective PO

# CONCLUSIONS

- Digital: Highly innovative and rapidly changing field
- Innovation is reflected in the patent system
- Glimpse on search and examination in this field
- SEPs
- Standardization and Patents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**Patent protection for EU funding beneficiaries**
An IP training series offered by the European Patent Office and the European IP Helpdesk

European IP Helpdesk

**Many thanks to the European Patent Academy for supporting this presentation.**

# LEARNING RESOURCES

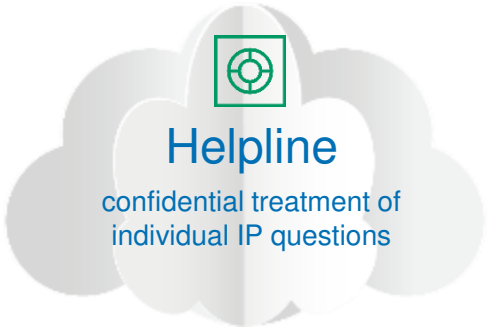
European IP Helpdesk

# European IP Helpdesk

- Service initiative of the European Commission
- Addressing **current and potential beneficiaries of EU-funded projects, researchers and EU SMEs**
- Free-of-charge first-line support on intellectual property (IP)
- Hands-on IP and innovation management support
- International pool of IP experts from various thematic fields
- Unique cooperation scheme with the Enterprise Europe Network: 43 ambassadors from 27 EU countries

ec.europa.eu/ip-helpdesk








# European IP Helpdesk Training Calendar

Europa - Upcoming events

09 APR 2024 — Training and workshops
EU - Webinar: IP in Horizon Projects (H2020/HEurope)
Live streaming available

10 APR 2024 — Training and workshops
EU - Webinar EPO Coop: Patent protection for EU funding beneficiaries - Quantum Technology
Live streaming available

11 APR 2024 — Training and workshops
EU - Webinar: IP & Open Science
Live streaming available

16 APR 2024 — Training and workshops
EU - Webinar: IP for Future and Emerging Technologies
Live streaming available

17 APR 2024 — Training and workshops
EU - Webinar: Consortium Agreements
Live streaming available

18 APR 2024 — Training and workshops
EU - Webinar & Horizon Results Platform: Artificial Intelligence
Live streaming available

23 APR 2024 — Training and workshops
EU - Webinar: IP and Artificial Intelligence - Advanced
Live streaming available

24 APR 2024 — Training and workshops
EU - Webinar: IP in EU funded projects with a special focus on MSCA
Live streaming available

30 APR 2024 — Training and workshops
EU - Webinar: IP in Business collaborations for SMEs and Start-ups
Live streaming available

07 MAY 2024 — Training and workshops
EU - Webinar: Addressing IP impact and innovation in EU projects
Live streaming available

2024

Registration: [www.ec.europa.eu/ip-helpdesk](www.ec.europa.eu/ip-helpdesk)

# Thank you!

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# LEARNING RESOURCES

EUROPEAN PATENT ACADEMY
10 – 04 – 2024

epo.org

# OUR OFFER

## Supporting IP awareness and promoting IP education


Inspiring inventors talk series

Lecture series on Unitary patent

Advanced lecture series on photovoltaics

Academy training catalogue

Materials and products to enhance IP curriculum

MIPEF – University partnership program for IP education

Course “Create-protect innovate: Bringing ideas to market”

# TRAINING CATALOGUE 2024

## Content



# MODULAR IP EDUCATION FRAMEWORK (MIPEF)

## Create - Protect - Innovate: Bringing ideas to market (MIPEF Part I)

**Entry level**

**Reference AU01-2024**
**Course | Online | Q2, 75 hr(s)**

Within the new Modular IP Education Framework (MIPEF), this course is aimed at master's and PhD students who want to know more about intellectual property rights, particularly when it comes to patent protection and commercialising inventions. The course consists of a carefully selected set of case studies, live sessions, self-paced modules and respective quizzes, tutored for a and final marked assignment.

It comprises the following modules:
- Module I: Introduction to IP
- Module II: Patent essentials
- Module III: Introduction to patent information
- Module IV: Patent information in practice
- Module V: Developing an IP strategy

Further information
For information on how your university can participate in the programme, please contact the MIPEF team at mipef@epo.org.

## Create - Protect - Innovate: Bringing ideas to market (MIPEF Part II)

**Advanced level**

**Reference AU02-2024**
**Course | Online | Q4, 75 hr(s)**

Within the new Modular IP Education Framework (MIPEF), this course is aimed at master's and PhD students who want to know more about intellectual property rights, particularly when it comes to patent protection and commercialising inventions. The course consists of a carefully selected set of case studies, live sessions, self-paced modules and respective quizzes, tutored and final marked assignment.

The course comprises the following modules:
- Module I: Grant of patents
- Module II: Enforcement of patents
- Module III: Scouting and assessment of technology
- Module IV: IP commercialisation
- Module V: Use of IPRs

Further information
For information on how your university can participate in the programme, please contact the MIPEF team at mipef@epo.org.

# Q&A

All ☺