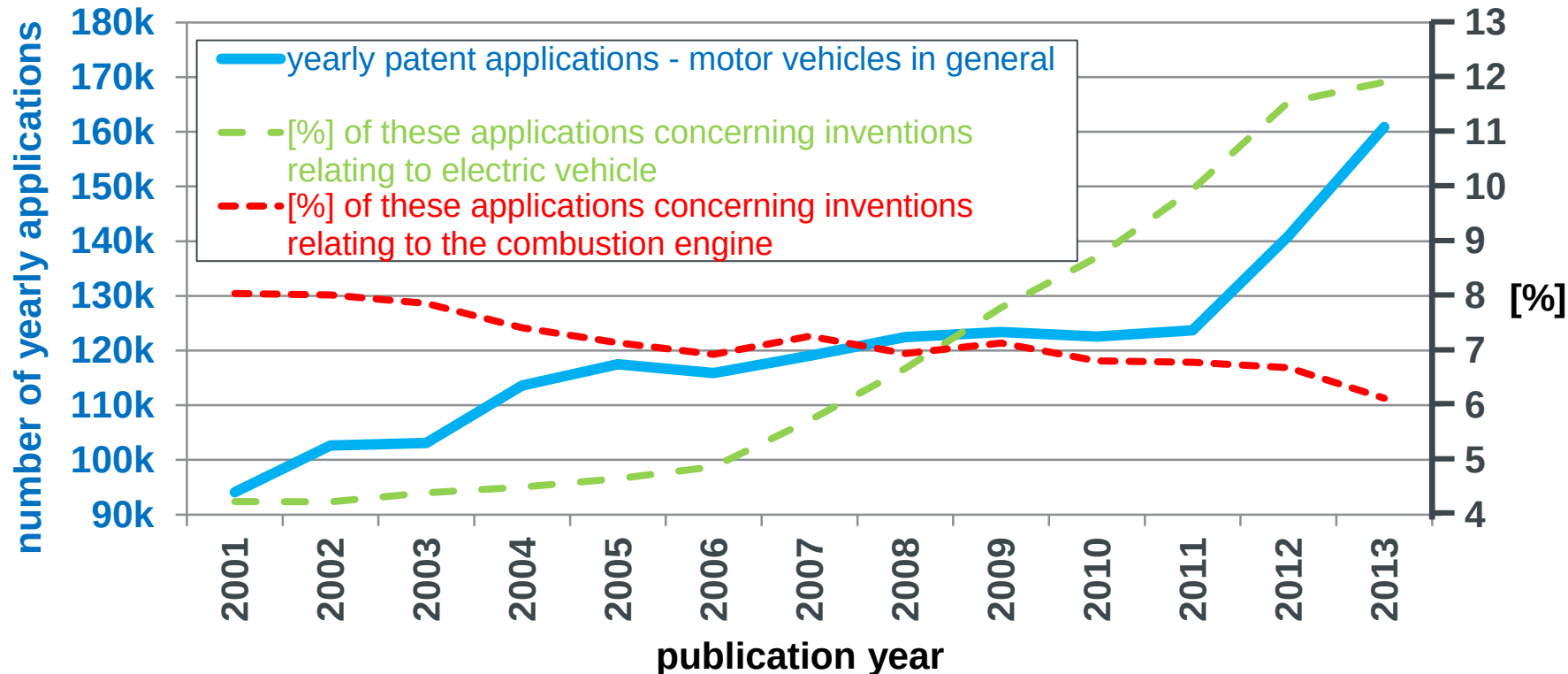


Patents and Progress - Intellectual Property Showing the Future of Electric Vehicles

by Gilles Schmitt

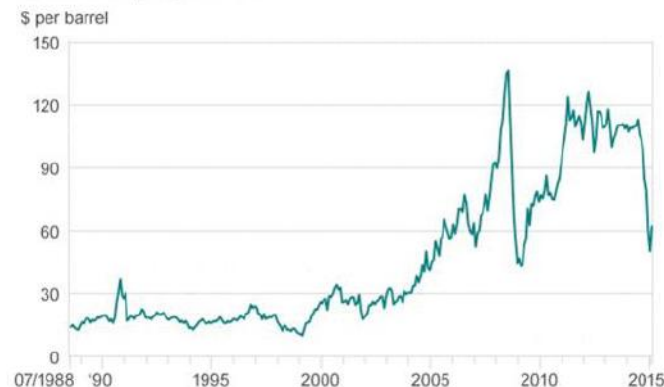


EVS29 - June 21 2016
Montreal



- continuous increase in number of applications filed per year between 2001 and 2013 for EV
- More than 20000 new applications in 2013 for EV
- No visible influence of low oil price
- Since 2008, more applications per year concerning EV then combustion engines
- EV represents 12% of all applications for motor vehicles in 2013

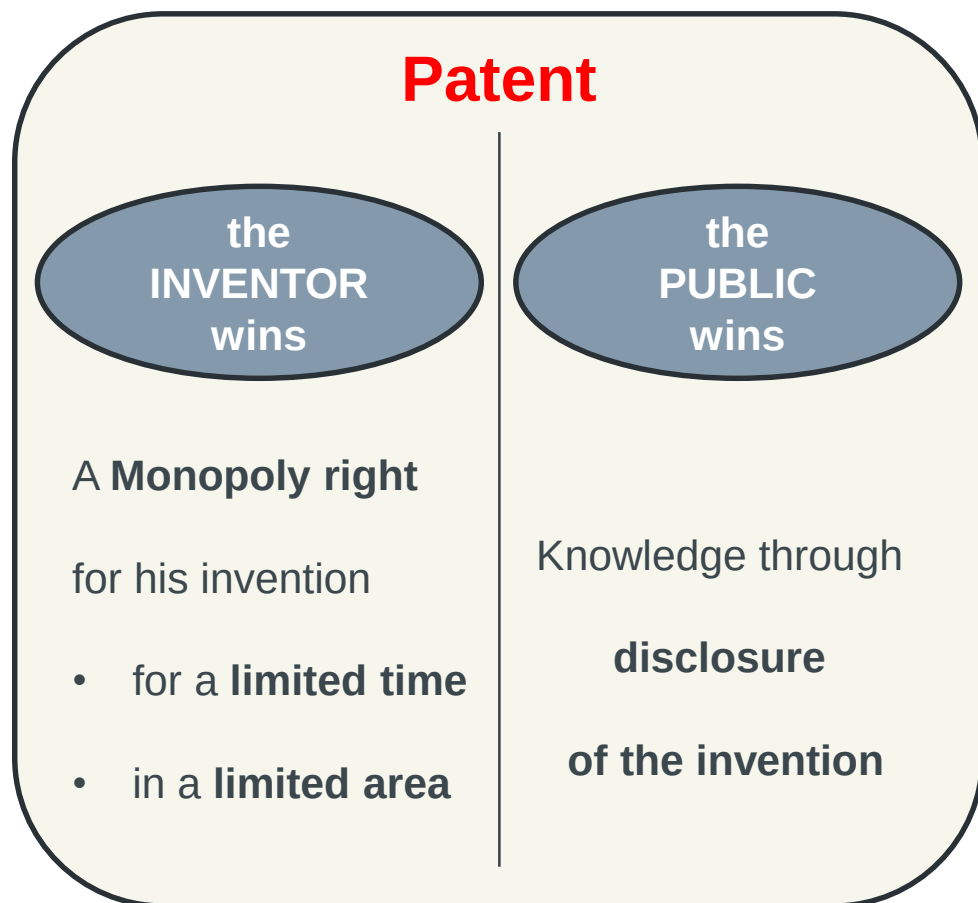
Brent crude oil price, 1988-2015



Source: Bloomberg

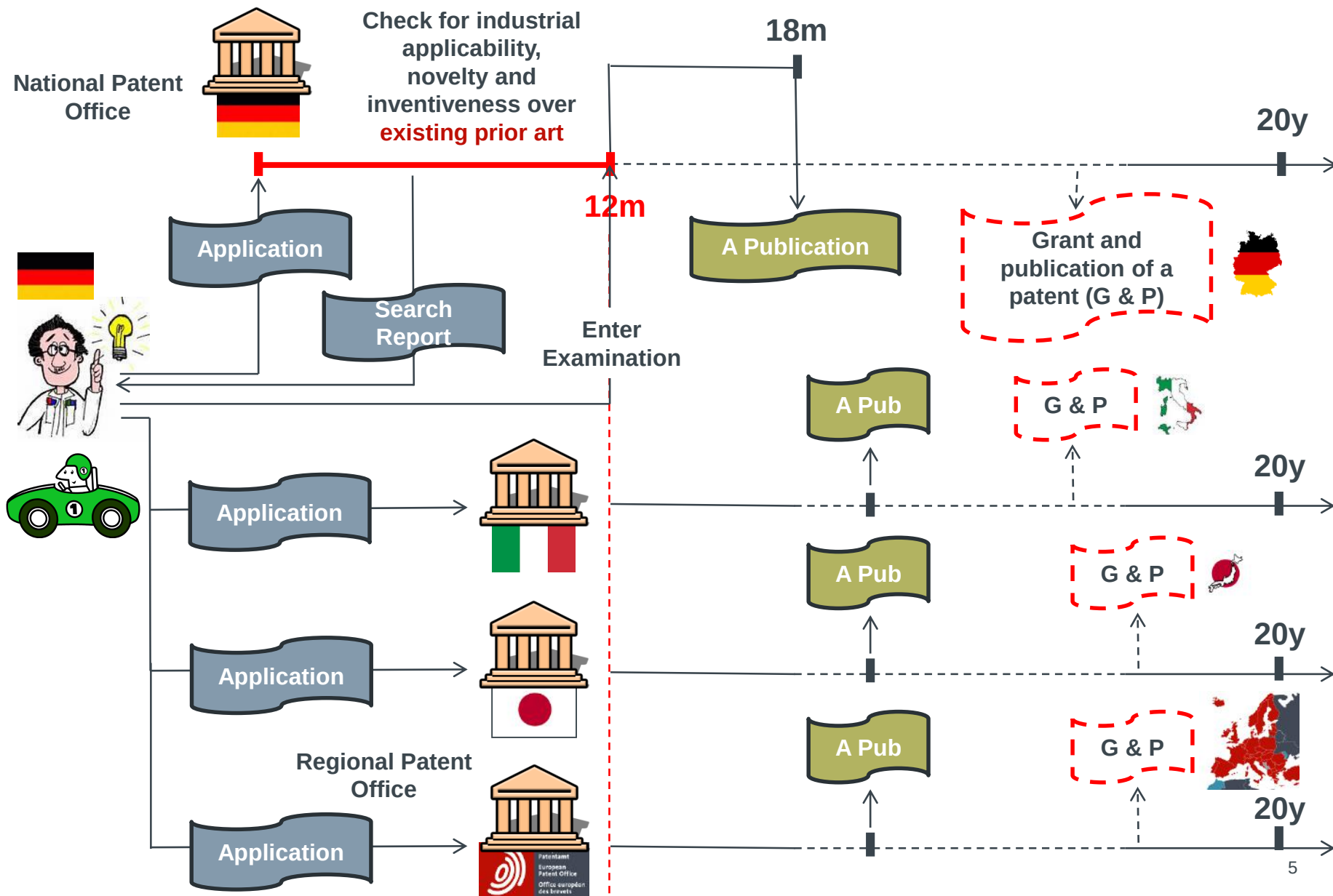
- A **particular state** grants through a contract the exclusive right to an **inventor** to stop others from manufacturing, using, or selling an invention for a certain number of years.

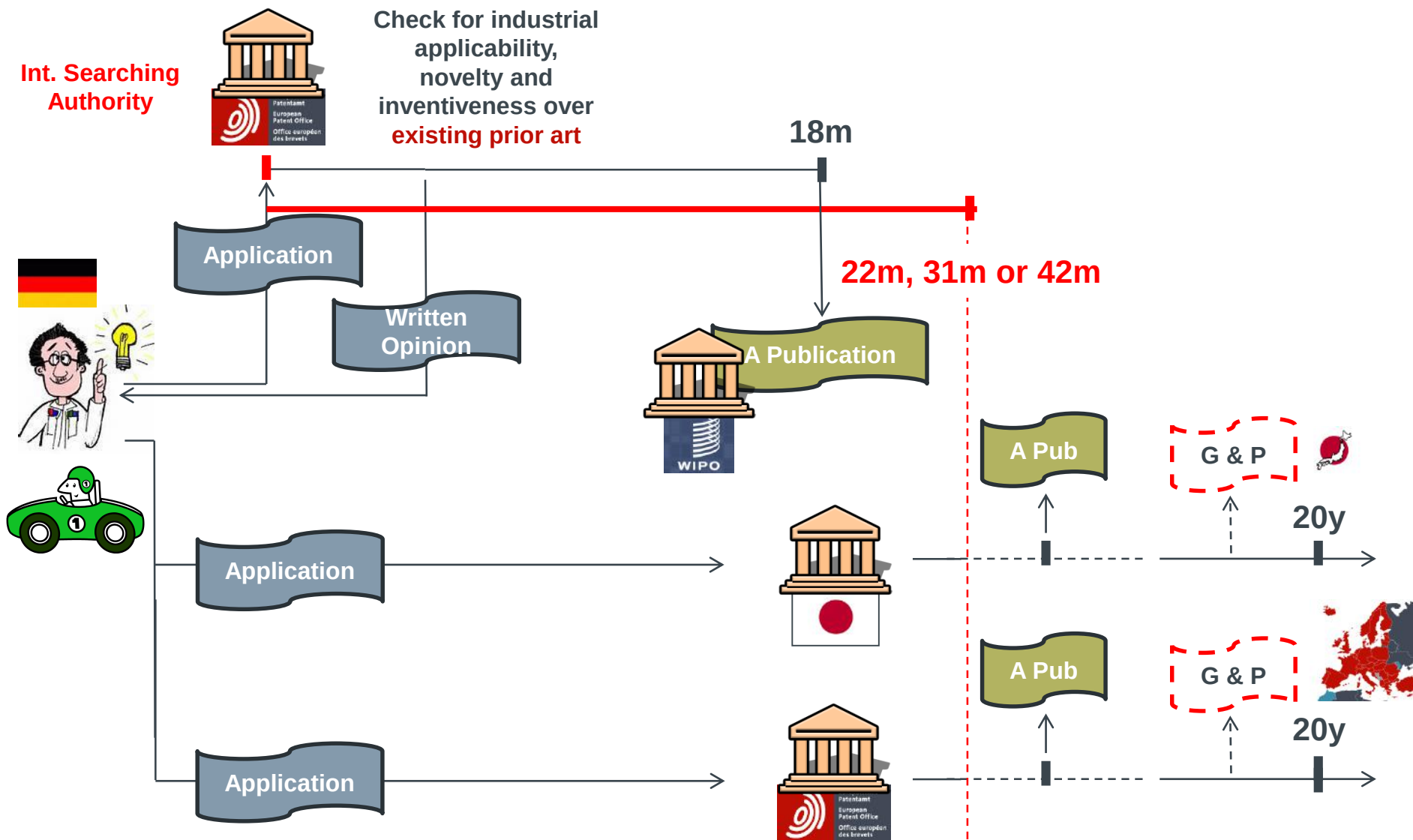
- as a counterpart the invention will be made **available to the public** in form of a **published document** containing the **details of the invention** as well as the **claimed protection**



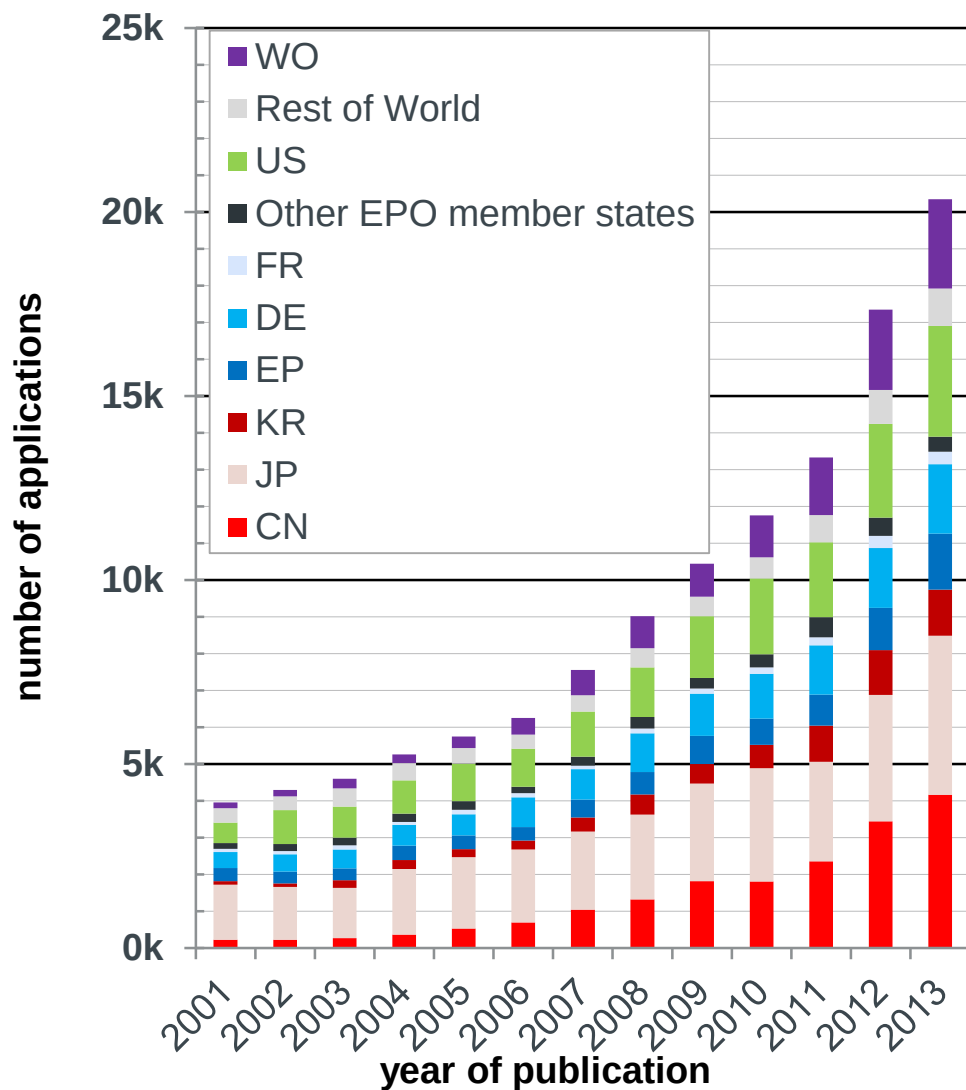
- Allows an **inventor to protect his invention and investments**
- Allows **everybody** :
 - to **be aware of latest innovations** and **latest tendencies in research**
 - to identify if there **own product** is **not infringing something already protected**

How to get a patent? National and regional route





Yearly applications per publication authority in EV fields

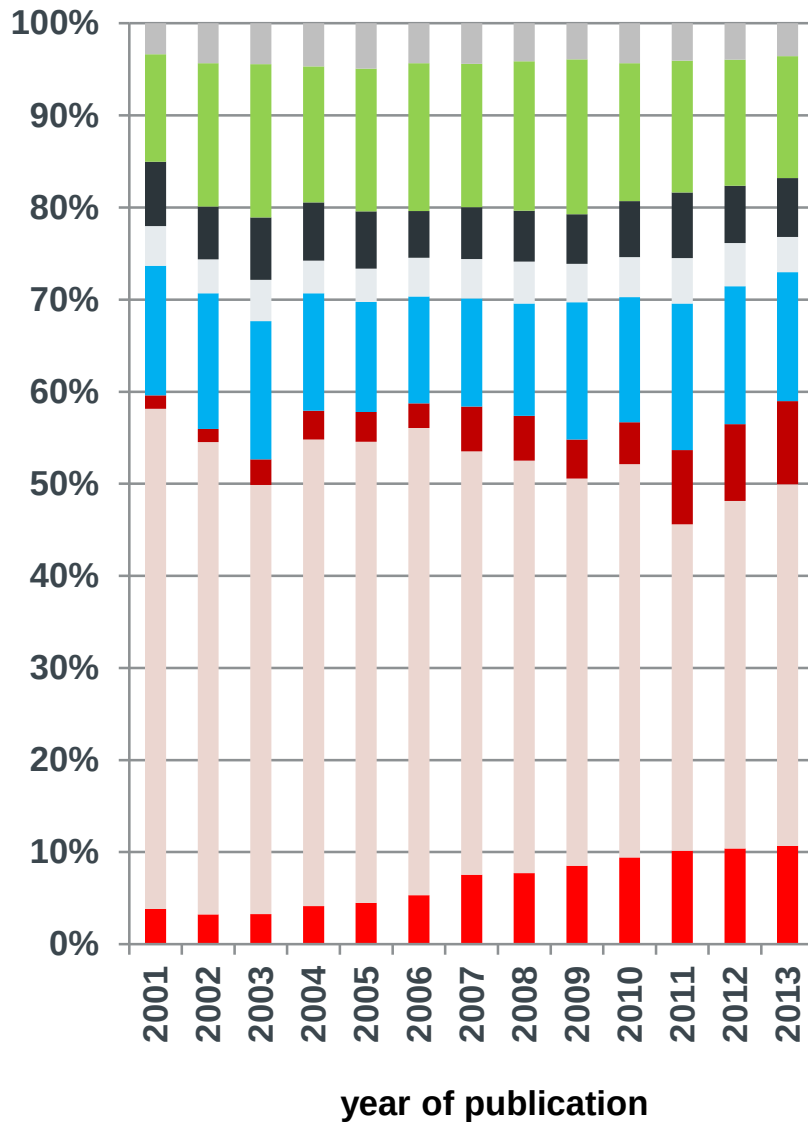


➤ Reasons

- ➔ key market
- ➔ production sites
- ➔ country of competitors

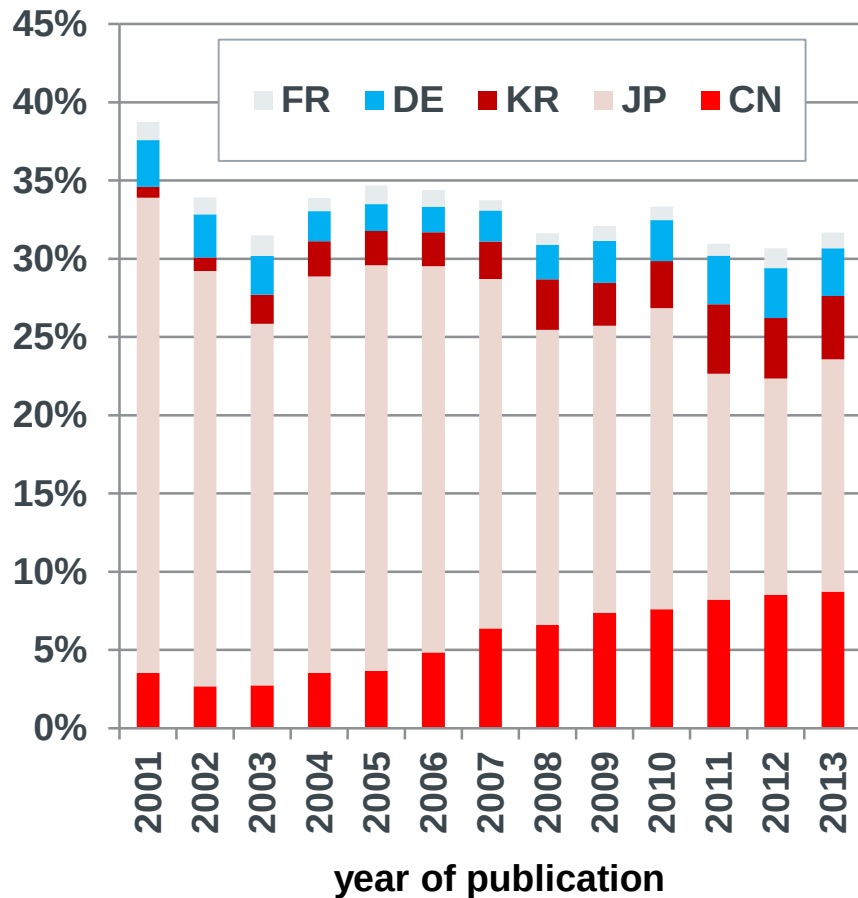
- ~50% of applications in Asia, ~20% in Europe, ~15% in USA,
- this does not change over the years
- 12% are PCT applications in 2013
- The PCT route is more and more used over the years (12% in 2013 vs 4% in 2001)
- In Asia, Korea and China are more and more important as publication authority.

Percentage of yearly filed applications per country of origin of the applicant



- Indicates which countries are active in innovation
- US and Europe keep a constant share in innovation (US with 10% to 15%, Europe with 20% to 25%)
- Japan is leader in innovation in EV technology since 2001 but is losing share progressively (55% to 40%)
- New players in EV innovation are Korea and China with both ~10% share in the last years

Part of yearly publications in EV fields **having no equivalent publication in English** from the total publications in EV field



- **30% to 40% of yearly produced patent literature is not available in English**
- Most of this literature is **only available** in **Japanese** or **Chinese**
- Difficulties to access to the knowledge contained in this prior art for the public
- Difficulties to search efficiently through this prior art for the patent examiners



Challenges for all the patent offices:

- increasing number of applications year on year
- explosion of available prior art to consider for each search (patent literature, scientific publications, books, websites, online videos,...)
- important part of relevant prior art not available in English
- reducing delay for delivery of search report
- keeping procedural costs under control

Solutions adopted by the EPO:

- harmonised classification (CPC) in co-operation with the US, Korea and China
- increased data acquisition from major countries in Asia (EPO has biggest collection of patent literature in the world) and citation database
- recruitment of new examiners
- all EPO examiners speak French, German and English
- special training for examiners in Japanese patent classification schemes
- use of self developed search tools allowing:
 - combination of classification, and full-text search in patent literature
 - automatic pre-search for each file
 - full text search in machine translations of Asian documentation
 - search in standards databases and non patent literature
 - concept searching
- creation of unitary patent for Europe and a unified European patent court for reducing costs and complexity of procedure

- more and more innovation in EV technologies since 2001
- Number of patent applications is rapidly increasing year on year
- This will probably continue like this despite the current low oil prices
- Most of the innovation is taking place in Japan, the US and Germany, with rapidly increasing new players China and Korea
- Less protection asked in Japan, more protection asked in China and Korea, the rest stays constant
- Biggest difference between number of foreign applicants and inventors in the country is in China
- Available prior art documentation is exploding, a significant part of it being not available in English
- Patent Offices like the EPO have developed solutions to deal with these new challenges

Thank you! Merci!



visit our **EPO stand in exhibition Hall: stand 1423**