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Intellectual Property and Patenting in Science

NanED Workshop

Agenda

- I. Basic Information on Patents
- II. Patentability
- III. Structure of a Patent
- IV. From an Invention to a granted Patent



I. Basic Information on Patents

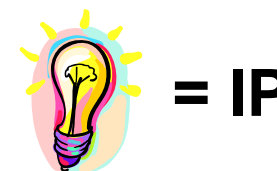
1. What is a patent?
2. Why do we file patents?



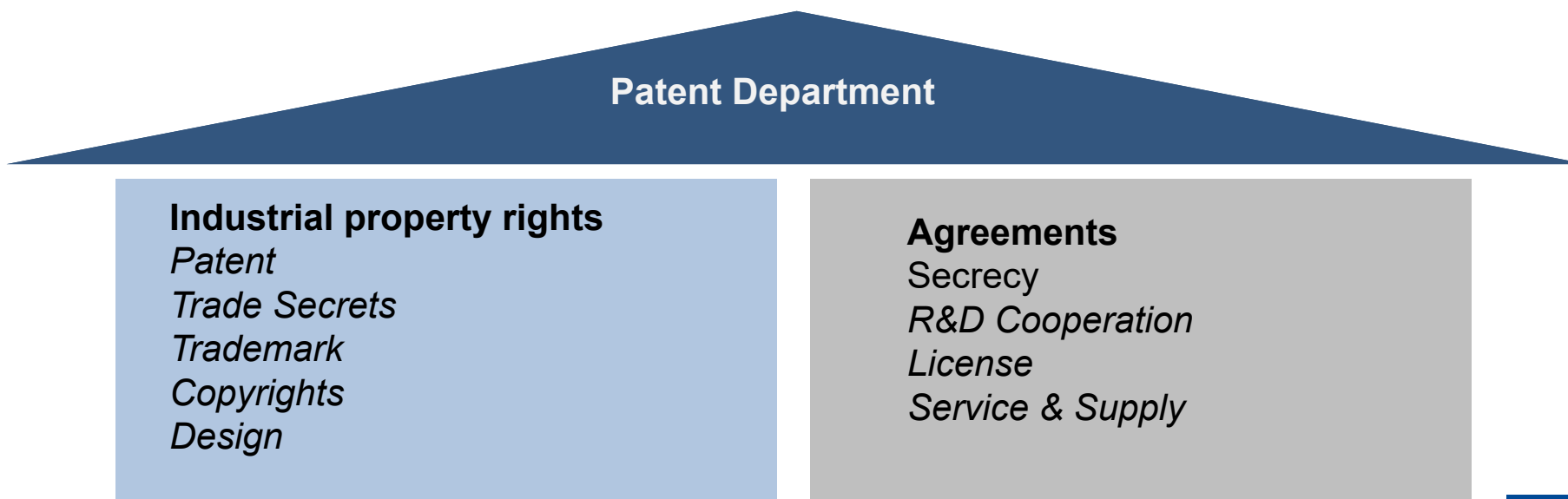
„IP“ = „Intellectual Property“ („Geistiges Eigentum“)

Intellectual property (IP) is a category of property that includes intangible creations of the human intellect.

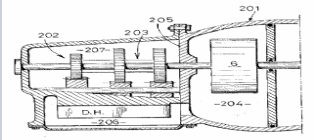
Source: Wikipedia, 03.12.2022



Problem → Thinking → Solution



IP Overview

IP Categories	Protected Object	Obtain Right Method	Example
Patent	New technical invention	Application and examination	
Copyright	Original creative works	Automatically	
Trademark	Identification of product/service	Use and/or registration	
Designs	Aesthetic appearance	Registered	
Trade Secret	Valuable information	Reasonable efforts to keep secret	

➔ IP rights are exclusive rights (create a monopoly) for creations of the mind

What is a patent?

A patent is a **prohibitive right (≠ right to use)**:

- exclusive right
- **granted** by a **sovereign state** to an inventor or assignee
- for a **limited period of time**
- to **exclude others** from making, using, selling, offering to sell, importing
- what is **covered by the claims**
- in **exchange for detailed public disclosure of an invention**.



Purpose:

- Fostering Innovations
- Speeding up technical process by allowing further development by third parties
- Hindering “Copy & Paste”

Freedom to Operate

Patentability versus Freedom to Operate



Patentability

- ▶ Does an invention satisfy the legal requirements for a patent (such as novelty and inventive step)?

Freedom to Operate

- ▶ Can a company make, use, and/or sell the intended product or process in the intended geographic locations without infringing the rights of third parties?

A patent does NOT give patentee the right to actually use the invention. Patentee still has to respect third party patents.

Why do we file Patents?

- **Protect products / technology** from copy paste by competitors
 - ▶ active enforcement
 - ▶ deterrent effect
- **„Blocking patents“**
 - ▶ protect not used products/ technologies, which are equivalent or alternatives to used
- **Assets in various negotiation**
 - ▶ licensing (monetization) & cross-licensing (access to 3rd party patents)
 - ▶ foster cooperation & supply relationships (by owning valuable background IP)
- **Create prior art** – a patent is a clever way to publish
 - ▶ Keeping secret(s) is difficult these days... AND if others get valid patents, third parties have to respect them

Questions



Internal

II. Patentability

1. Criteria of Patentability
2. Novelty
3. Inventive Step



The Basic Criteria of Patentability

A patent may be obtained if:

- an **invention** (technical teaching),
- is **novel** (not part of the state of the art),
- is based on an **inventive step** (it is not obvious to a person skilled in the art),
- has industrial **applicability** (given by the technical features) and, finally,
- is **sufficiently disclosed** to be practiced without undue experimentation.



Novelty

An invention is novel, if it does not form part of the state of the art.

Prior Art (made available to the public before the filing date) by

- Published Patents
- Scientific publications (articles, posters)
- In the web (internet disclosures)
- Conferences
- Exhibitions
- Customers & Suppliers (proven)

Assessment of novelty

- The claims are the basis for examining novelty
- The assessment must be done by comparing each individual prior art

Do not make your invention available to anyone without a secrecy agreement!

Inventive Step

An invention involves an inventive step if it is not obvious for the person skilled in the art

Assessment of an inventive step:

- The "person skilled in the art" is a skilled practitioner in the relevant technology possessing average knowledge
- Assessment of whether the solution involves an inventive step is based on that skilled practitioner's knowledge and ability
- Any solution to a problem that a person skilled in the art can find with his knowledge is not patentable
- A skilled person combines several prior art documents



SURPRISING Results

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Questions



III. Structure of a Patent



Structure of a patent

A patent application contains ...

- Title and Bibliography
 - ▶ Applicant
 - ▶ Filing Date
- A description of the invention
 - ▶ Relevant (closest) prior art
 - ▶ Technical advantage achieved by the invention
 - ▶ Detailed description
 - Definitions
 - Preferred embodiments („fallback positions“)
 - ▶ Experiments
- One or more claims
 - ▶ The claims define the scope of protection (not the description!)
- An abstract (required for formal reasons)

(19)  (11)  **EP 2 729 509 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent: 24.10.2018 Bulletin 2018/43 (51) Int Cl.: C08G 18/10 (2006.07) C08G 18/69 (2006.07) B29D 30/04 (2006.07) C08K 3/36 (2006.07)

(21) Application number: 12733091.8 (86) International application number: PCT/EP2012/062961

(22) Date of filing: 04.07.2012 (87) International publication number: WO 2013/004714 (10.01.2013 Gazette 2013/02)

(54) **FILLED ELASTOMER COMPRISING POLYURETHANE**
GEFÜLLTES ELASTOMER MIT POLYURETHAN
ELASTOMÈRE CHARGÉ COMPRENANT DU POLYURÉTHANE

(64) Designated Contracting States: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR • LI, Yong Shanghai 201100 (CN) • TONG, Zhen Guangzhou 510640 (CN) • CHEN, Zhaohui Guangzhou 510640 (CN)

(30) Priority: 05.07.2011 PCT/CN2011/076872

(43) Date of publication of application: 14.05.2014 Bulletin 2014/20

(73) Proprietor: BASF SE 67056 Ludwigshafen am Rhein (DE)

(74) Representative: BASF IP Association BASF SE G-FLP-C006 67056 Ludwigshafen (DE)

(72) Inventors: • LIANG, Dong Guangzhou city Guangdong Province 511400 (CN) • YE, Weihua 511495 Guangzhou, Guangdong Panyu district (CN)

(56) References cited: EP-A2-0 344 512 GB-A- 1 437 007 US-A- 4 285 854 US-A- 4 343 339 US-A- 4 725 590

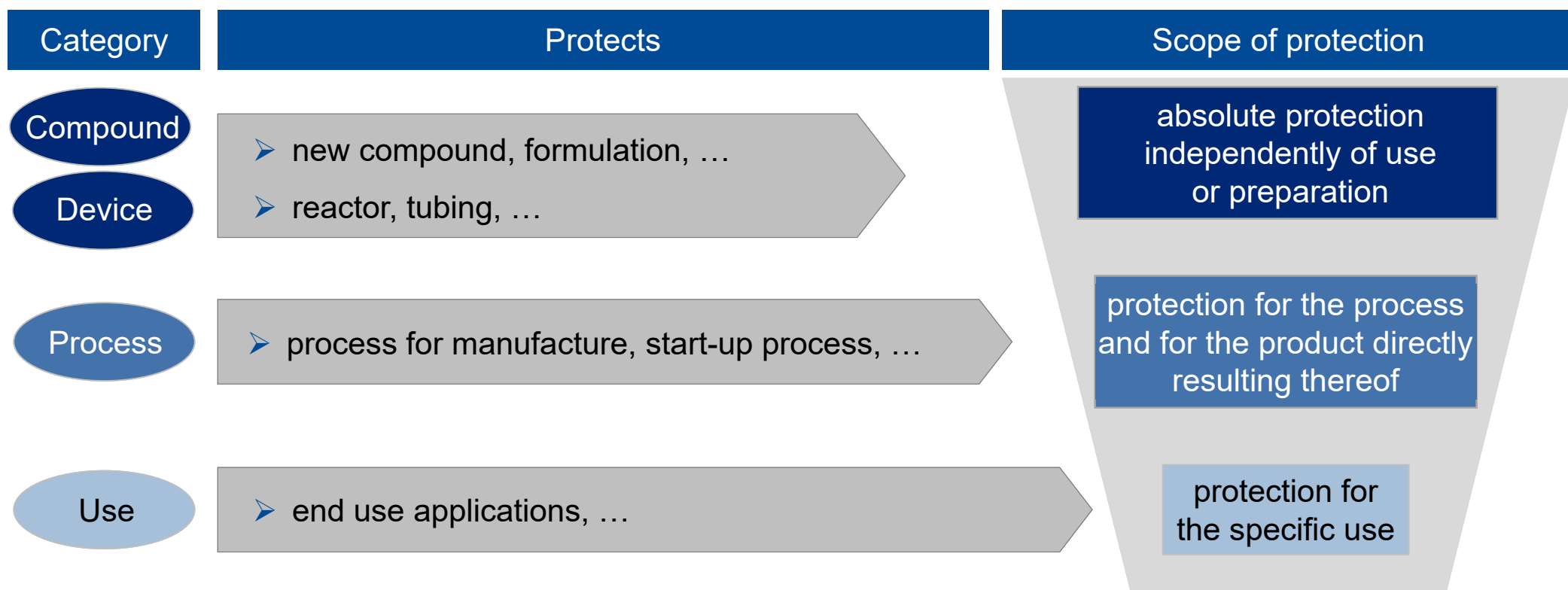
Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

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EP 2 729 509 B1

Structure of a patent

Claim categories



Structure of a patent

... also try to preclude others to work around the invention as claimed ...



Questions

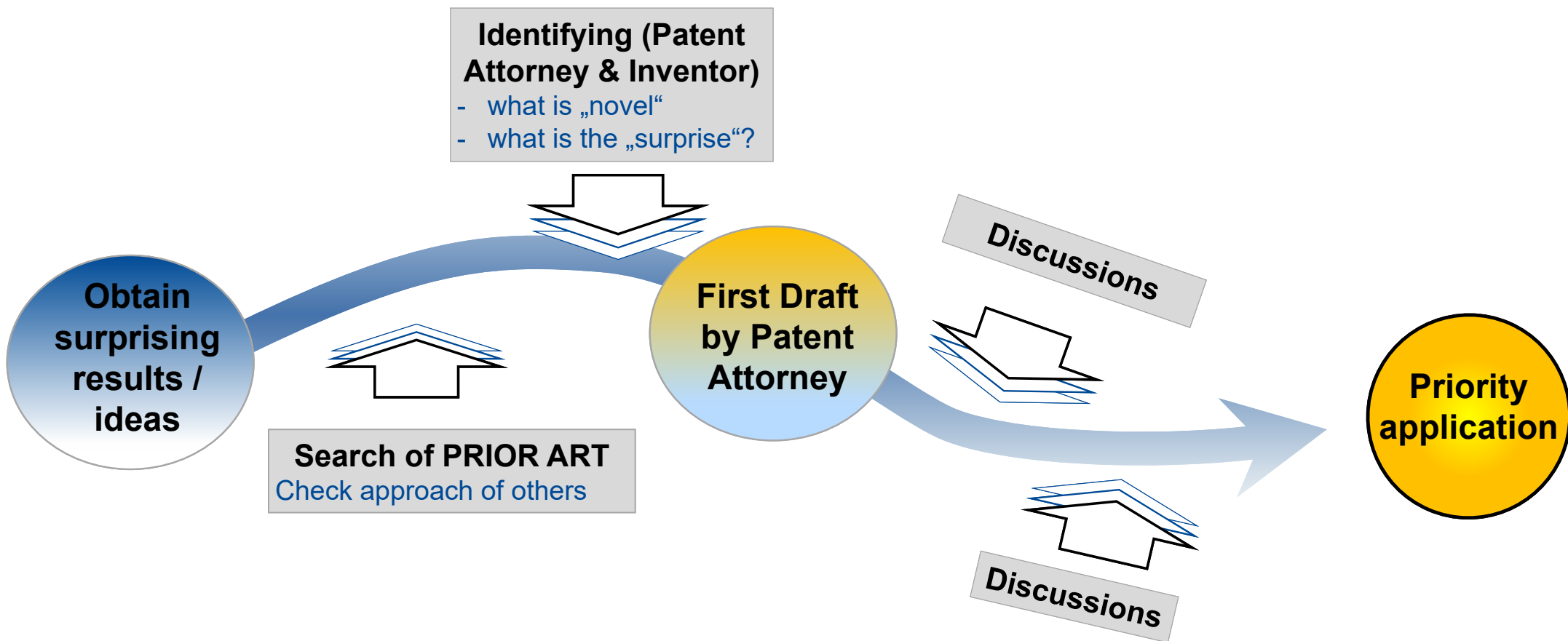


V. From an Invention to a granted Patent

1. Drafting the Patent Application
2. Filing Process & Country Decision
3. End of Protection



Drafting the patent application



Filing process

Procedural aspects – priority year

Carefully steered process
later extension
of country list not possible!

Country Decision:
Foreign Filing

National filing in non-PCT countries

PCT Proceedings (“WO xx/xxxxx”)



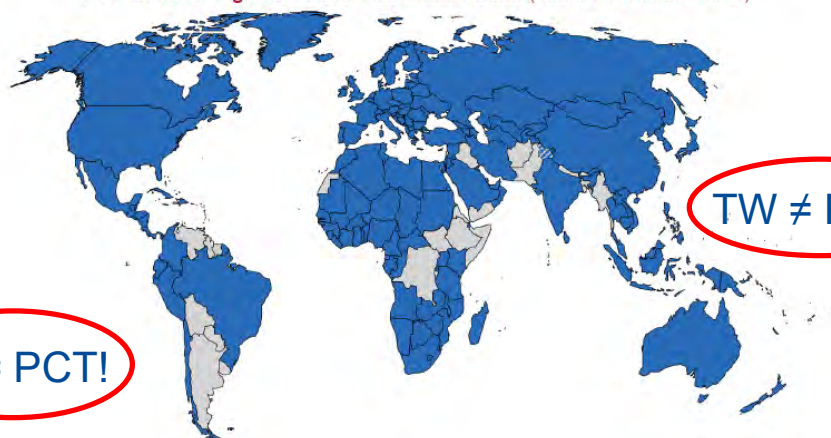
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Publication (“WO xx/xxxxx A”)
generates full state of the art

PCT Contracting States and Two-letter Codes (153 on 2 October 2019)



TW ≠ PCT!

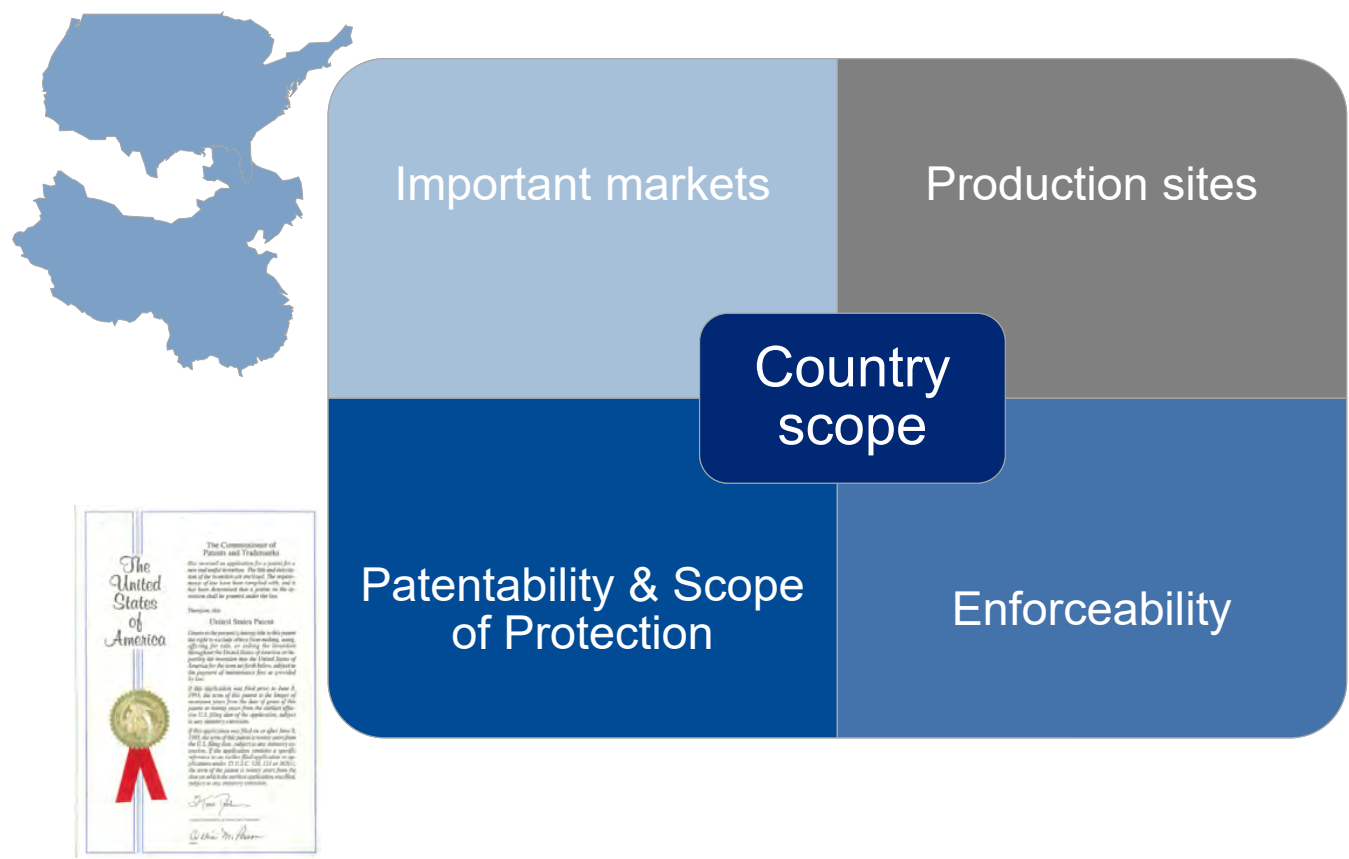
AR ≠ PCT!

Priority
application

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Filing process

Pathway to country decision



Filing process

Procedural aspects – national phase

Regional proceedings
in EP (or EA)

GRANT
Country Decision for validation (AT, BE, DE, ...)

Substantive examination
on patentability

National proceedings
US, CN, JP, ...

GRANT

Europäisches Patentamt
European Patent Office
Office européen des brevets

(19) 

(11) **EP 0 804 421 B1**

EUROPÄISCHE PATENTSCHRIFT

(45) Veröffentlichungstag und Bekanntmachung des Hinweis auf die Patenterteilung
16.09.1998 Patentblatt 1998/36

(21) Anmeldenummer: 95924688.1

(22) Anmeldetag: 21.06.1995

(51) Int Cl.⁶ **C07D 231/22, A01N 43/56, C07D 231/20, C07D 401/04, C07D 403/04, C07C 239/10, C07C 271/28, C07C 271/58**

(86) Internationale Anmeldenummer:
PCT/EP95/02396

(87) Internationale Veröffentlichungsnummer:
WO 96/01256 (18.01.1996 Gazette 1996/04)



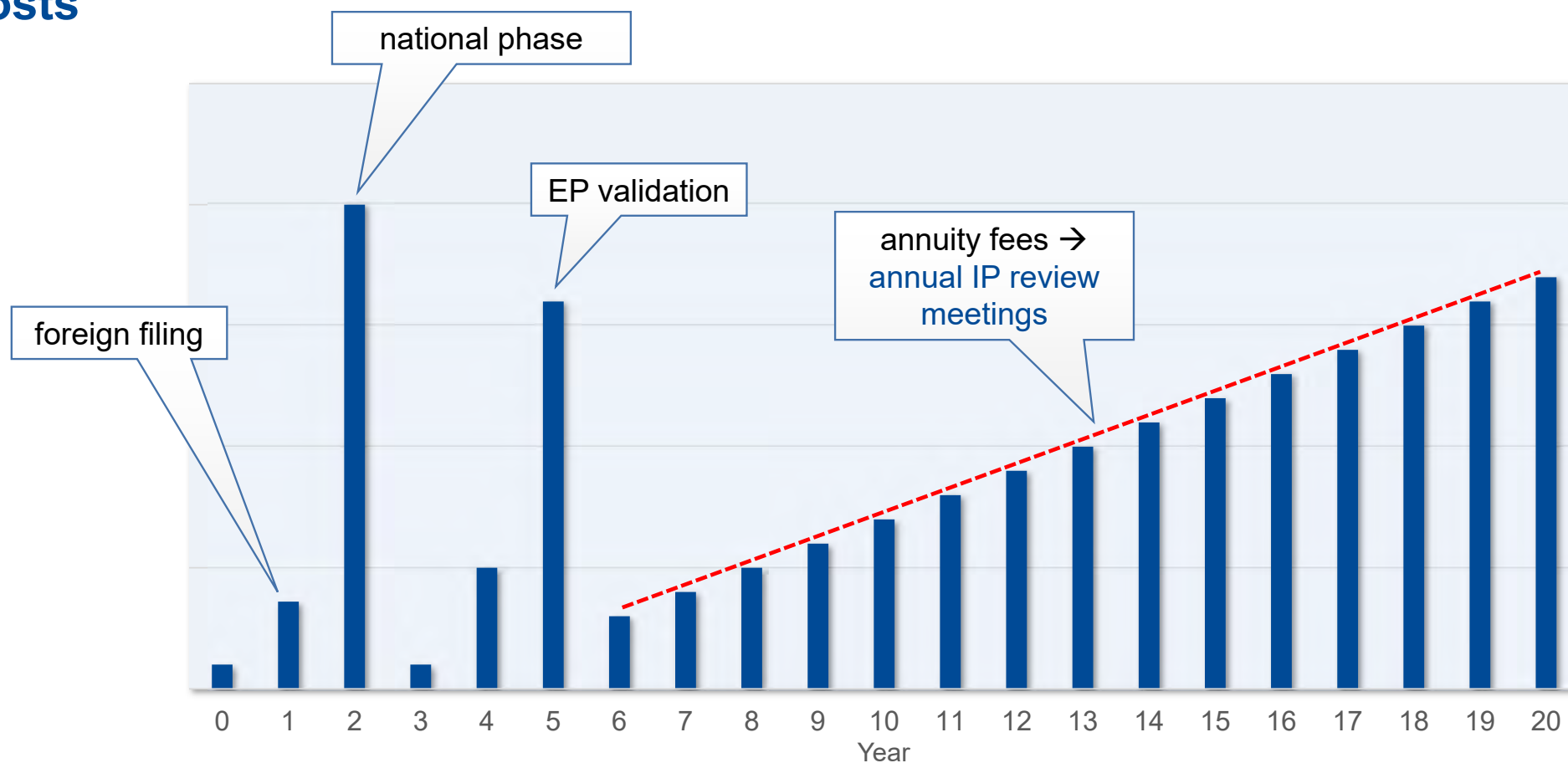
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Internal

Filing process

Costs

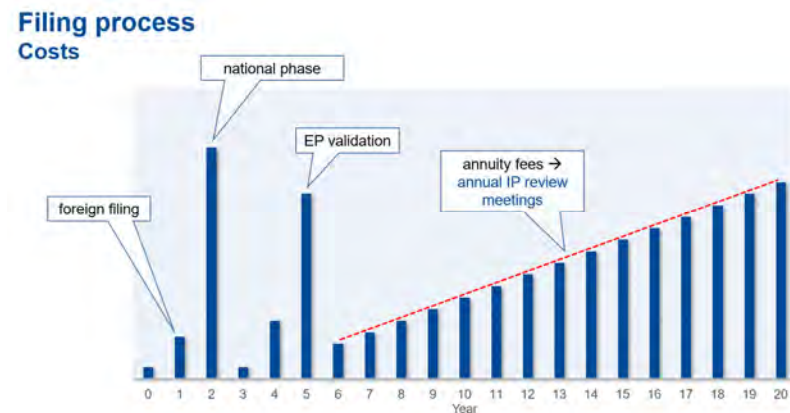


The patent costs of one invention protected in BR, CN, JP, KR, US, EP (DE, ES, FR, GB, IT) accumulate to **100.000 EUR over 20 years**

End of protection

How long does the right to exclude others last?

- As long as the patent is in force (**IP review meetings**)
 - Increasing annuity fees have to be paid
- The patent term might be up to **20 years** from filing
- **Revocation of a patent** by Opposition or Nullity proceedings



Questions



What is a patent?

Some common misconceptions about patents

Right or Wrong?

- ▶ ~~“We have a patent on it, so we can do it!”~~ 
- ▶ ~~“We need a patent on it, otherwise we can't do it!”~~ 
- ▶ ~~“We filed a patent application, so we can directly go and sue the competitor”~~ 



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