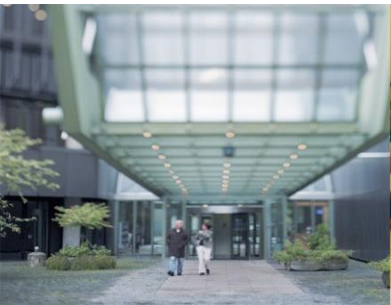# Patenting Your Invention

Marina Moraiti
Patent Examiner, Cluster Computers, EPO

Athens , 27 November 2013
Heraklion, 28 November 2013

Contents

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- What is a patent?
- Why patent?
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- About us
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Part I

- What is a patent?
- Why patent?
- Intellectual property at a glance
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What is a patent?

- A patent is a **legal title** granting its holder the right to **prevent third parties from exploiting an invention for commercial purposes without authorisation**

- In return for this protection, the holder has to **disclose the invention** to the public

- Protection is granted:
  - for a limited period, generally 20 years
  - for a specific geographic area
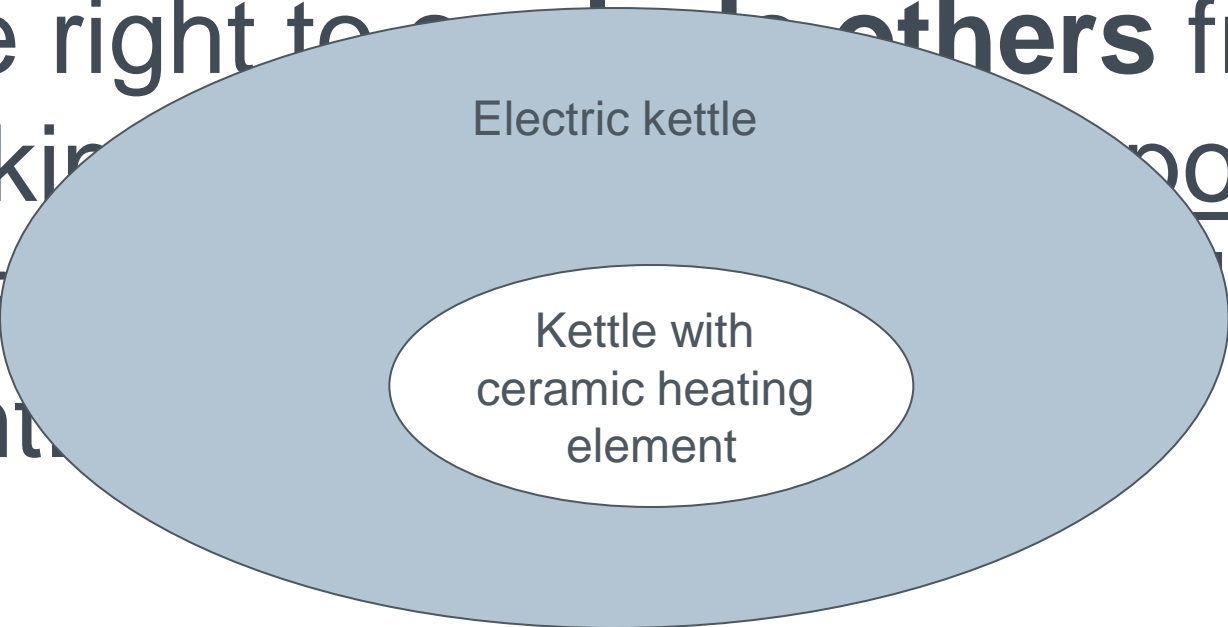
Legal Aspects of Patent Protection

The Fundamental Deal of Patent Law - a Social Contract

full disclosure
of an invention
to the public

inventor

public

an **exclusive right**
granted to the inventor
- to exclude anyone else from commercially exploiting the invention
- in a territory
- for a limited period

■A patent is the right to exploit an invention - NO!

■The right to exclude others from making ... ing ... porting an inve ... ing right...

Electric kettle

Kettle with ceramic heating element

A fair system driving knowledge transfer and innovation
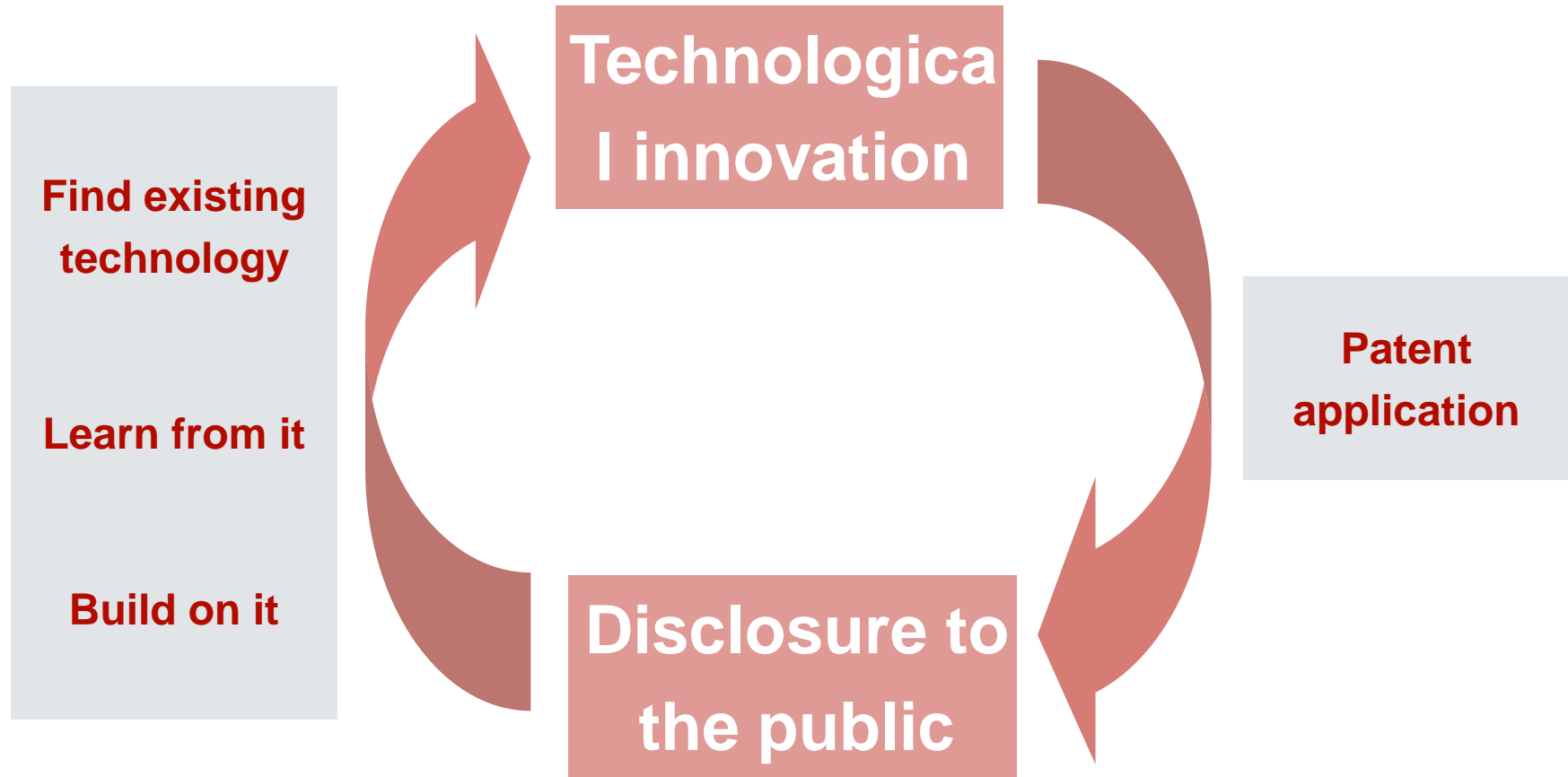
Annual renewal fees: "a tax on innovation" ?

- Applicants pay renewal fees every year in every country to maintain their rights – expensive!

- However, earlier application stages were cheaper!

- Renewal fees drive technology into the public domain

granted patents in force

ca 5%

0   10   years   20
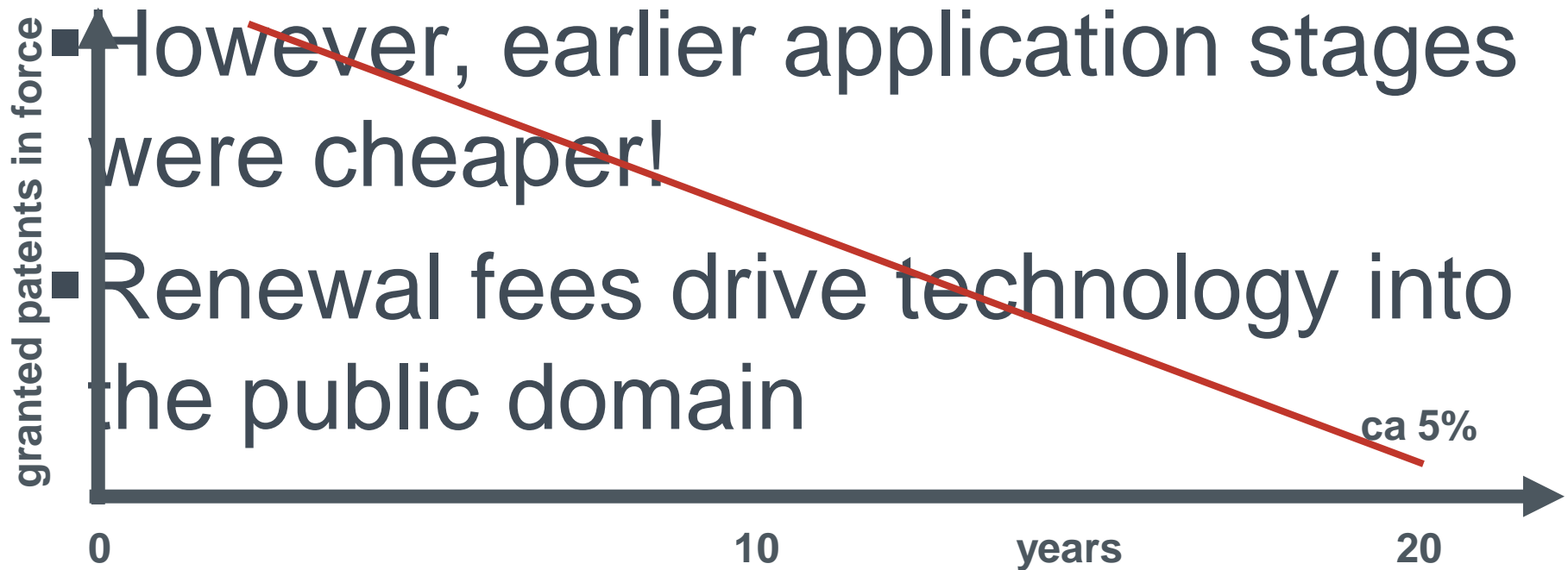
Advantages and disadvantages of patenting

Advantages

- Exclusivity enables investment and higher returns on investment

- Strong, enforceable legal right

- Makes invention tradable (licensing)

Disadvantages

- Reveals invention to competitors (after 18 months)

- Can be expensive

- Patent enforceable only after grant (this can take 4-5 years)

Alternatives to patenting

Information disclosure (publishing)

- Cheap
- Prevents others from patenting the same invention

- Does not offer exclusivity
- Reveals the invention to competitors

Secrecy (creating a trade secret)

- Cheap (but there is the cost of maintaining secrecy)
- Does not reveal the invention

- No protection against reverse-engineering/duplication of invention
- Difficult to enforce
- "Secrets" often leak quite fast

Do nothing

- No effort required

- Does not offer exclusivity
- Competitors will often learn details

Can trade secrets be an alternative to patents?

- If the invention is a process (e.g. a process of manufacturing) "trade secrets" may be a viable alternative

- But trade secrets can leak out and, if they do, there is no protection

- Once the invention has been disclosed, it cannot be patented

- In other cases it may be preferable to keep inventing without patenting – simply keeping ahead of competitors by bringing new products onto the market faster than they do

What not to do when considering filing a patent application

- **No publication** prior to filing

  e.g. no article, press release, conference presentation/poster/proceedings or blog entry

- **No sale** of products incorporating the invention prior to filing

- **No lecture or presentation** prior to filing

  except under a **non-disclosure agreement** (NDA)

- Seek **professional advice** soon!
- **File before others do!**

Part I

- What is a patent?
- Why patent?
- **Intellectual property at a glance**
- About us
- Patentability
- Describing your invention
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Overview of intellectual property

Legal right	What for?	How?
Patents	New inventions	Application and examination
Copyright	Original creative or artistic forms	Exists automatically
Trade marks	Distinctive identification of products or services	Use and/or registration
Registered designs	External appearance	Registration*
Trade secrets	Valuable information not known to the public	Reasonable efforts to keep secret
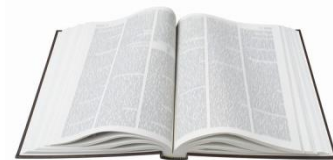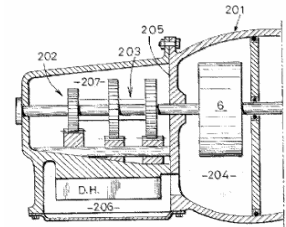
Some IP found in a mobile phone

Trade marks:

• Made by "Nokia"

• Product "N95"

• Software "Symbian", "Java"

Patents:

• Data-processing methods

• Semiconductor circuits

• Chemical compounds

• …

© Nokia

Trade secrets:

 ?

Copyrights:

• Software code

• Instruction manual

• Ringtone

• …

Designs (some of them registered):

• Form of overall phone

• Arrangement of buttons in oval shape

• Three-dimensional wave form of buttons

• …

Part I

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Patent office
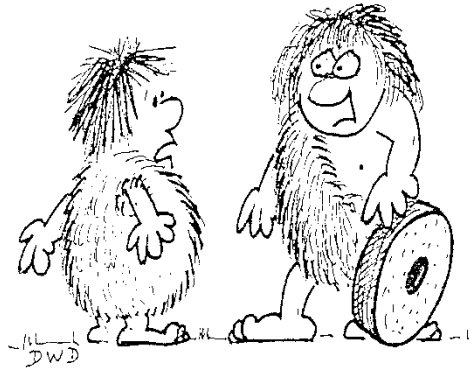
Structure of the European Patent Organisation

European Patent Organisation

European Patent Office

The executive body

- responsible for examining patent applications

Administrative Council

The legislative body

- made up of delegates from the member states

- supervises the activities of the Office

- has a specific legislative function
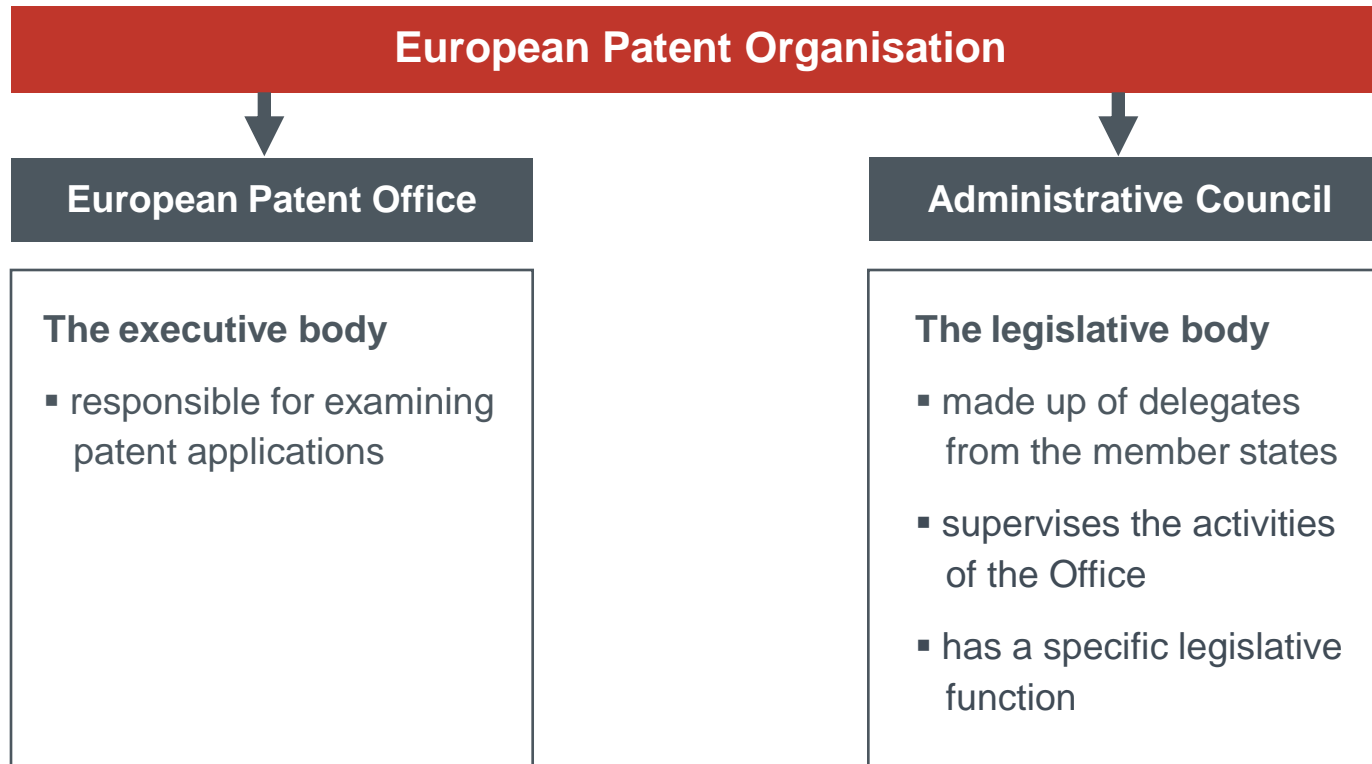
Our mission

As the patent office for Europe,
we support innovation, competitiveness
and economic growth across Europe
through a commitment to high quality
and efficient services delivered under
the European Patent Convention.

38 member states

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

European patent applications and patents can
also be extended at the applicant's request to
the following states:

Bosnia-Herzegovina • Montenegro

Our role in the European patent system

- We provide patent protection in up to 40 European countries based on a single application in one of the three official languages (German, English, French)

  European patent applications can be filed:
  - direct with the EPO
  - via the national patent offices of the contracting states
  - based on an international (PCT) application

- We are also responsible for
  - limitation and revocation proceedings by patentees
  - opposition proceedings by third parties
  - appeal proceedings before the Boards of Appeal

- We will also be in charge of granting and administering the future Unitary Patent of the EU

Highly skilled examiners

- **Top-level engineers and scientists**
  - high degree of technical expertise
  - knowledge of the EPO's three official languages

- **Training during first two years**
  - extensive legal and procedural training
  - individual coaching by experienced examiners

- **Continuing professional development throughout career**

Number of staff in 2012

Munich	3 703
The Hague	2 617
Berlin	277
Vienna	107
Brussels	6
Total	6 710

Around 60% are patent examiners

Part I

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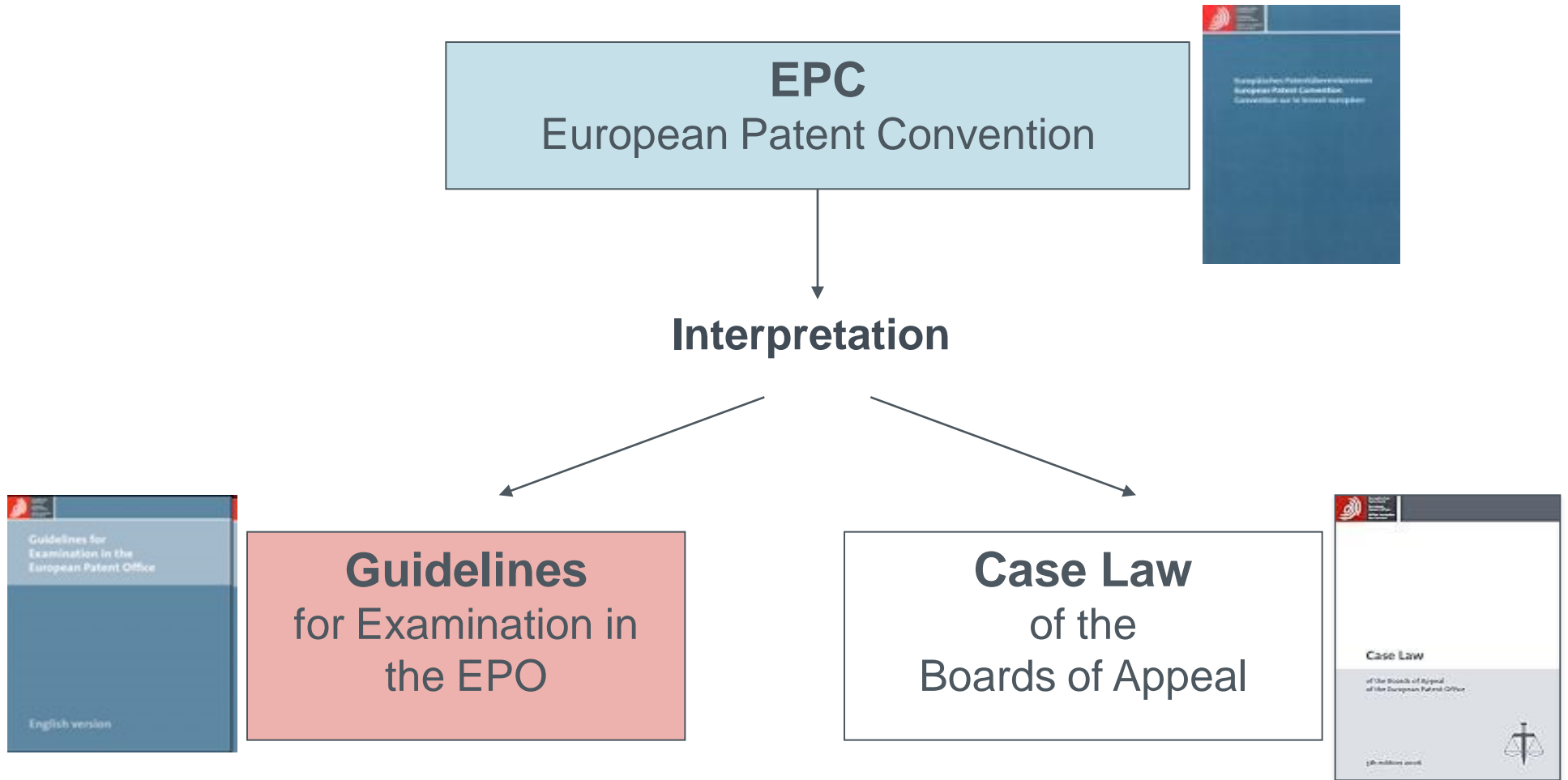
Basic Requirements

European Patent Convention (EPC)

European patents shall be granted for
- **any inventions, in all fields of technology,** provided that they   → A.52(2)(3)

   - are new   → A.54

   - involve an inventive step and   → A.56

   - are susceptible of industrial application   → A.57

A.52(1)

What is an invention ?

What is an invention ?

No positive definition of an invention

EPC defines non-inventions :

The following, in particular,
shall not be regarded as inventions:

a)   discoveries, scientific theories, mathematical methods;
b)   aesthetic creations;
c)   schemes, rules and methods for performing mental acts, playing games or doing **business**, and **programs for computers**;
d)   presentations of information;

A.52(2)

...only to the extent to which a European patent application relates to such subject matter or activities **as such**.

A.52(3)

Exceptions to patentability as defined by the EPC [1]

- **Plant** or **animal varieties**

- **Methods for treatment of the human or animal body by surgery or therapy and diagnostic methods**

[1] See Article 53 and Rule 28 EPC.

Exceptions to patentability as defined by the EPC [2)]

- Inventions whose commercial exploitation would be **contrary to "ordre public" or morality** (e.g. processes for cloning of human beings)

What must an invention have?

An invention has **technical character**

❑ implicitly contained in the EPC

the invention must be of **"technical character"**
to the extent that it
- must belong to a field of technology→ article 52(1) EPC
- must relate to a **technical** field → Rule 42(1)(a) EPC
- must concern a **technical** problem → Rule 42(1)(c) EPC
- must have **technical** features in terms of which the matter for which
  protection is sought can be defined in the claim → Rule 43(1) EPC

❑ what is considered "technical" ?

❑ interpret the EPC with Board of   ecisions

Case Law

What is technical character ?

❑ processing **physical data** parameters or control value

   an industrial process
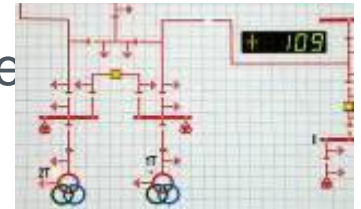
❑ processing which **affects the way a computer operates**

   ✓ saving memory, increasing speed

   ✓ security of a process, rate of data transfer etc.

❑ the **physical features of an entity**

   ✓ memory, processor etc.

What is technical character ?

further technical effect	no further technical effect
control of a brake in a car	aesthetical effects of music or a video
faster communication between mobile phones	new rules for an auction scheme
secure data transmission (encryption of data)	selling and booking sailing cruise packages
resource allocation in an operating system	calculation of a pension contributions

So what is an invention ?

✓ **Subject-matter** *is not* **excluded from patentability**

× **Subject-matter** *is* **excluded from patentability**
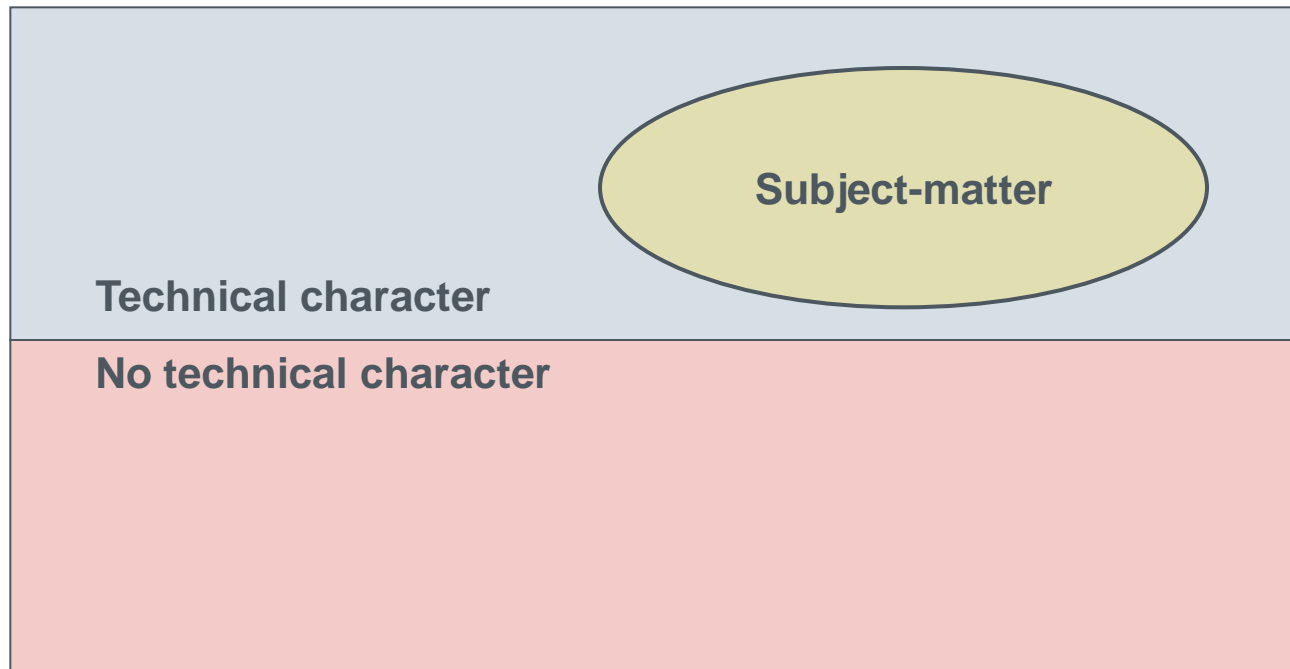
At least one feature has technical character

=> subject-matter has technical character.

Programs for computers

- Program for a computer "as such" is excluded from patentability (Article 52(2)(c) EPC), but…

- Not excluded from patentability if, when running on a computer, it causes a further "technical effect" going beyond the "normal" physical interaction between the program (software) and the computer (hardware)

- Programs for computers are therefore not automatically excluded from patentability

What happens next?

... This does not imply that all methods involving the use of technical means are patentable !

They still have to be
- ➤ new,
- ➤ represent a non-obvious technical solution to a technical problem,
- ➤ be susceptible of industrial application.

Part I

- What is a patent?
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�54 **Process for amplifying nucleic acid sequences.**

�72 Inventor: **Mullis, Kary Banks**
447 Beloit Avenue
Kensington California 94708(US)

What does a patent look like?

- **Bibliographic information**
  - Inventor, proprietor, date of filing, technology class, etc.

- **Abstract**
  - Around 150 words as a search aid for other patent applications

- **Description**
  - Summary of prior art (i.e. the technology known to exist)
  - The problem that the invention is supposed to solve
  - An explanation and at least one way of carrying out the invention

- **Claims**
  - Define the extent of patent protection

- **Drawings**
  - Illustrate the claims and description

What must be disclosed in a patent application?

- A detailed description of at least one way of carrying out the invention must be given

- The information disclosed must be sufficiently clear to a person "skilled in the art" (Article 83 EPC) – this is called "sufficiency"

- The information disclosed is published in the patent document so that everyone can benefit from it

- The disclosure of the invention in exchange for patent protection is also known as the "patent bargain"

Describing the invention

Computer Programs

- **program listings** in programming languages cannot be relied on as the sole disclosure of the invention

- **description:**
  - to be written substantially in **normal language**, possibly by flow diagrams
  - to be understood by a skilled person having general programming skills

- **short excerpts from programs** written in commonly used programming languages can be accepted if they serve to illustrate an embodiment of the invention

```
Inverse-Simulation (realData)
start
        set parameters and rules of each society to random
            for each society      in the world
                Create-Society (parameters, rules)
            end for
        while generation < maxGeneration
            for each society in the world
                Simulate-Society (parameters, rules)
                    fitness <- fitness-function(realData)
            end for
            SelectRecombinate-Society (fitness)
            end while
optimumParameters-and-rules <-
            parameters and rules of society[maxFitness]
            return optimumParameters-and-rules
    End
```

Disclosure of the invention: Article 83 EPC

A typical correspondence

examining division

inventor

The claimed matter is obvious to the person skilled in the art.
(objection under Article 56 EPC)

No, it isn't.
The person skilled in the art is not aware of this.
(argument)

But then, the application does not sufficiently disclose the invention to enable the person skilled in the art to carry it out.
(objection under Article 83 EPC)

Then I'll amend the application and put it in.
(amendment)

No. This adds subject-matter.
(objection under Article 123(2) EPC)

refusal of the application

Contents

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Categories of claims

Claim Categories

There are only two basic kinds of claim:

entity:	activity:
product, apparatus, device	process, method, use

Claim Categories

For many inventions, however,
claims in more than one category are needed for full protection.

**systems consisting of
apparatuses and devices**

**storage media
with computer program**

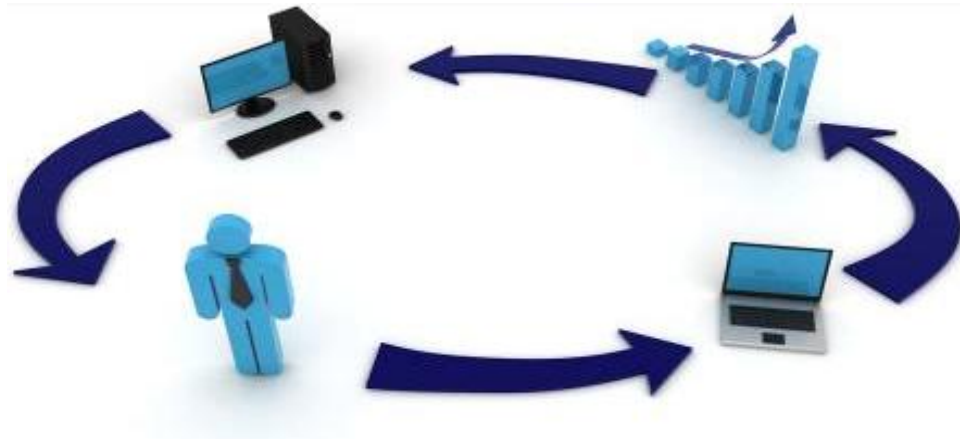**computer programs**

data structures

signals
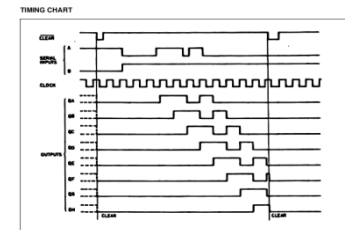
Drafting of Claims - Method Claim

1. A **method** of operating a data processing system comprising steps A, B ... .

Method claims **involving technical means** are not excluded under Art. 52(2) and (3) (*T258/03*)

Drafting of Claims - Apparatus Claim

2. a)   A data processing **apparatus**/ system comprising means for carrying out the method of claim 1.

   b)   A data processing **apparatus**/ system comprising means for carrying out steps A, means for carrying out step B ... .
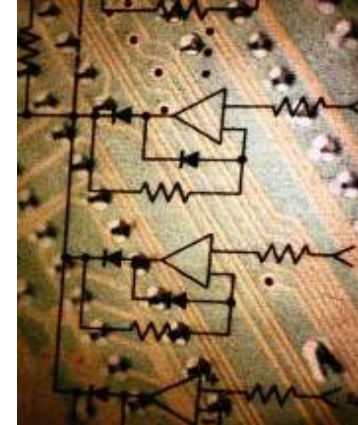
Apparatus/system claims are not excluded under Article 52(2) and (3) (*T931/95*)

Drafting of Claims - Computer Program Product

3. a)   A **computer program [product]** adapted to perform the method of claim 1.

   b)   A **computer program** comprising software code adapted to perform steps A, B...

4. a)   A computer readable **storage medium** comprising the program of claim 3.

   b)   A computer readable **storage medium** comprising instructions to cause a data processing apparatus to carry out steps A, B ....

Types 3 and 4 are of the same nature, both are a consequence of T1173/97. Independent claims of these two types may exist together without infringing Rule 43(2)

Drafting of Claims

1.   A **method** of operating a data processing system comprising steps A, B ... .

2. a)   A data processing **apparatus**/ system comprising
means for carrying out the method of claim 1.

   b)   A data processing **apparatus**/ system comprising
means for carrying out steps A, means for carrying out step B ... .

3. a)   A **computer program [product]** adapted to perform the method of claim 1.

   b)   A **computer program [product]** comprising software code adapted to perform
steps A, B...

4. a)   A computer readable **storage medium** comprising the program of claim 3.

   b)   A computer readable **storage medium** comprising instructions to cause a data
processing apparatus to carry out steps A, B ....

These formulations can be allowed as additional independent claims if the
method claim (type 1) is allowable (*T1173/97*)

To bear in mind ...

...on automation

- A mere automation of constraints imposed by the purely non technical aspects, such automation using conventional hardware and programming methods is considered to be obvious to a skilled person.

  (T172/03; RICOH)

To bear in mind ...

...on automation

❑ It is the normal aim of the skilled person to attempt to automate a manual task as best as possible.

(T845/05; Minerva)

To bear in mind ...

...on information

❑ Use of data processing means for processing or providing information of purely administrative, actuarial and/or financial character is not inventive.

(T931/95; PBS)

To bear in mind ...

...on the presentation of information

❑ The task of designing diagrams is non-technical. This is so, even if the diagrams arguably convey information in a way which a viewer may intuitively regard as particularly appealing, lucid or logical.

(T125/04; CVA)

To bear in mind ...

...on the presentation of information

❑ A specific manner of representation does not contribute to inventive step if conceived exclusively
  ➢ with regard to a human being's mental capabilities,
  ➢ with a view to aiding a user to visually analyse data and make decisions on the basis of this analysis;
  and it does not relate to any technical format or structure of the information processed, nor is it linked to the internal functioning of the system.

(T125/04; CVA)

1.   A method for resource recovery in a computer system,
     said method, running an application (56 A), said
     application (56 A) requesting a work operation involving
     a resource, said method comprising the steps of:

     attempting to implement a commit procedure for said work
     request, whereby the commit procedure is not completed
     due to a failure at some time after said commit
     procedure fails;

     notifying said application (56 A) that it can continue
     to run, whereby said application (56 A) need not wait
     for resynchronization; and

     while said application (56 A) continues to run,
     resynchronizing said incomplete commit procedure for
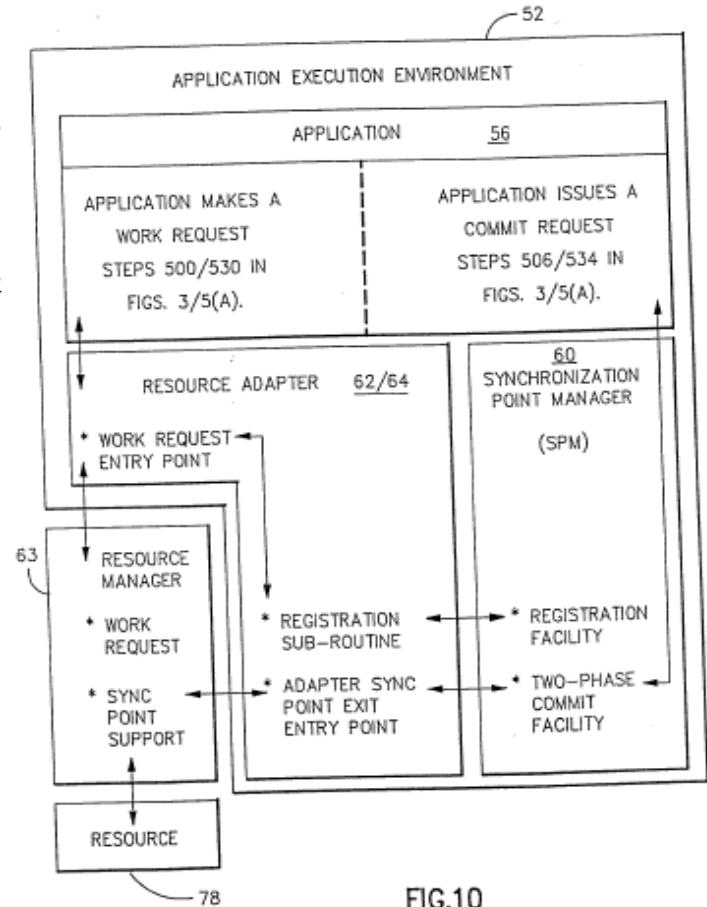   said resource asynchronously relative to said
     application (56 A).

FIG.10

20. A computer program comprising program code means for performing all the steps of any one of the claims 1 to 13 when said program is run on a computer.

21. A computer program product comprising program code means stored on a computer readable medium for performing the method of any one of the claims 1 to 13 when said program product is run on a computer.

- Any questions?