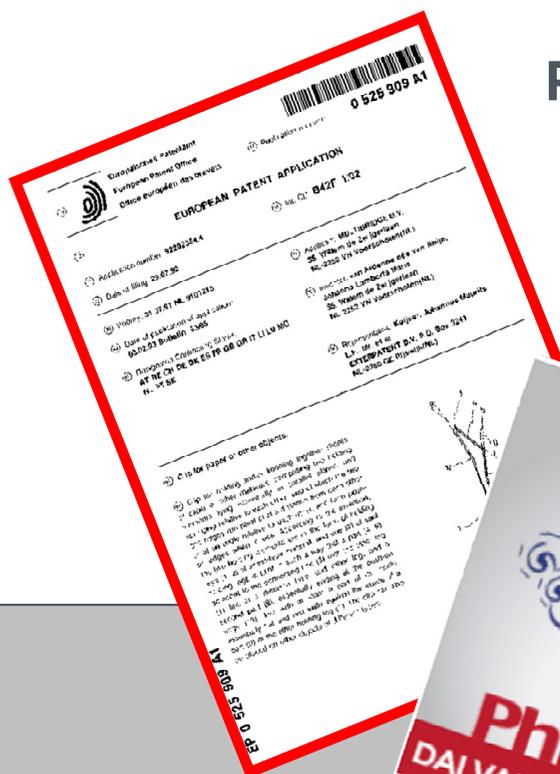




Patents: from defensive stance to value generation



PhD+: Valorizzazione della ricerca, Innovazione
e
Spirito imprenditoriale

Università di Pisa

Pisa, 22.03.2016



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Summary

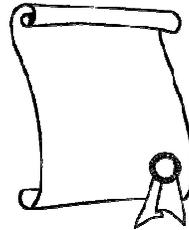
- What is a Patent
- Why File a Patent?
- 5 roles of a Patent
- Who should File a Patent
- When to File a Patent
- Where to File a Patent
- European Patent Procedure
- Examination of Patentability
- Programs for Computers
- Infringement, Patentability and Freedom to Operate

What is a Patent?



- A contract between an inventor and a state

Inventor



State

Protection for about 20 years;
Right to exclude others from
making, using, selling and
importing the invention

- *to recoup investment in R&D*
- *to strengthen market position and competitiveness*

Publication of the invention

- *to spread new technical knowledge*
- *to avoid R&D duplication*
- *to foster innovation*

Patents are granted to **inventions** which are **Novel**, **Inventive** (non obvious), suitable for **Industrial Application** when considered against the **Prior Art**

Why File a Patent

Patents define **Innovation Strategy** and **Market Strategy** and help you:

... to recover your R & D investments and to safeguard the results



... to introduce new products and processes

... to retain your market position



... to provide recognition and motivation for employees



... to bring together inventors and investors

Roles played by Patents

Informative Role



Defensive Role



Co-operation Role



Aggressive Role



Financial Role



Five Roles played by Patents

Informative Role

- Every patent is published in exchange to the rights conferred
- Every patent is abstracted and indexed in several databases
- Patents used to gain a reputation and promote themselves
- Patents used as proof of technical ability to encourage potential partners to form joint ventures
- Patents used to mislead competitors (disinformative role)





Five Roles played by Patents



Defensive Role



- Defensive publication: the invention of a published patent (application) **cannot be patented again**
- Publishing a patent application is easier and cheaper than publishing in a technical journal (no peer/editorial review) and its publication date is certain
- Owning many patents in many technology areas to be used against future competitors
- A large patent portfolio discourages and disorients competitors
- Patents protect a market at its outset („pioneer“ patents)
- Patents build a protective wall around a „pioneer“ patent („fence“ patents)

Five Roles played by Patents

Co-operation Role

- Patents are traded to acquire an advantage (licence) of another patent owned by competitor (cross-license) or know-how
- To create mutual respect between competitors and promote co-operation or joint-ventures





Five Roles played by Patents



Aggressive Role



(INVADERS)

- Patent used directly or indirectly to exclude others from use, produce or sell the same product
- Patent used for threatening competitors
- Patent used to prolong the domination on the market: patents for improvements
- Patent used to scare off competitors not familiar with patent system

(DEFENDERS)

- Patents used for improving a position before negotiations with owner of a master patent: dependent patents may block a master patent



Europäisches
Patentamt
European
Patent Office
Office européen
des brevets

A case of (too much) aggressive strategy



Beta
B

VS.

Video Home System

VHS



- Sony had a very aggressive strategy on Betamax video cassettes
- JVC was less protective on the licensing of his VHS video cassettes

=> Betamax, despite a higher quality, lost the market and VHS became a standard and a great commercial success for JVC



A case of non aggressive strategy



- Philips had a free-license policy for his Music cassettes provided the mechanical dimensions were not changed
- MCs became standard and Philips got the “backward compatibility”, i.e. cassette from other manufacturers could be used on their music reorders/reproducers

Five Roles played by Patents



Financial Role



- Patents used in order to earn money through licensing
- Patents used as a guarantee for a loan (security)
- Patents used as an asset when founding a company
- Creation of business units using internal licensing fees
- Global tax optimisation through transfer of patent rights



Roles played by Patents

Informative Role



Defensive Role



Co-operation Role



Aggressive Role



Financial Role

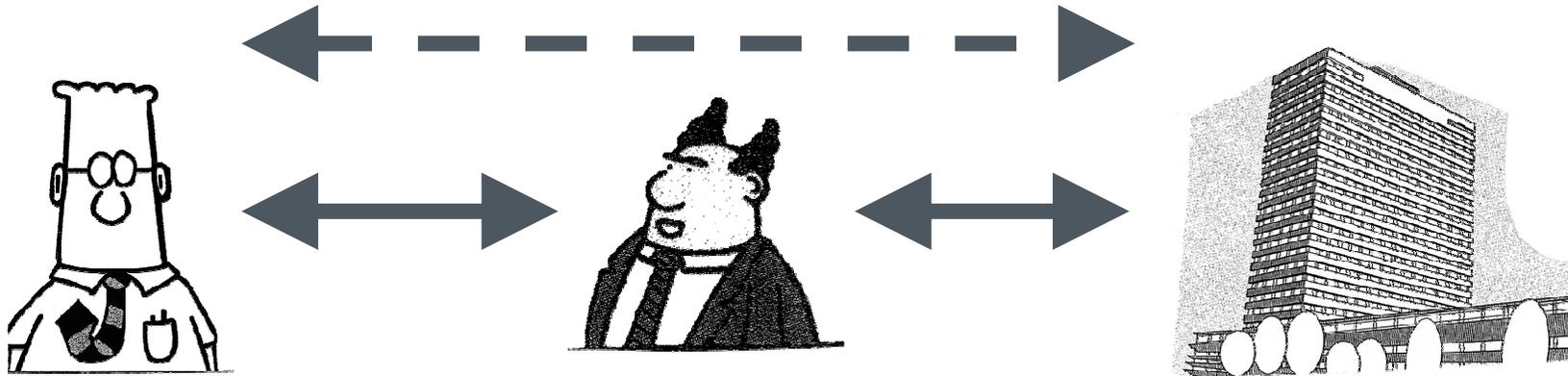


*An Example
of Patent Portfolio*

Maybe the questions to ask yourself are:

- 1) You may have a really great invention, but is it relevant to your business objectives?**
- 2) Would a patent give you any practical leverage over a competitor?**
- 3) Do you already have an appropriate patent portfolio?**

The Actors of the Patent Procedure



Inventor/Applicant

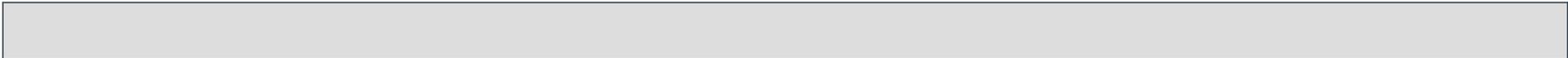
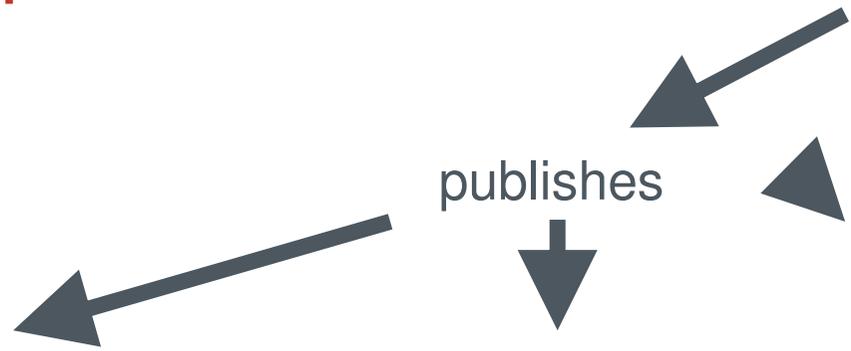
Representative

Patent Office

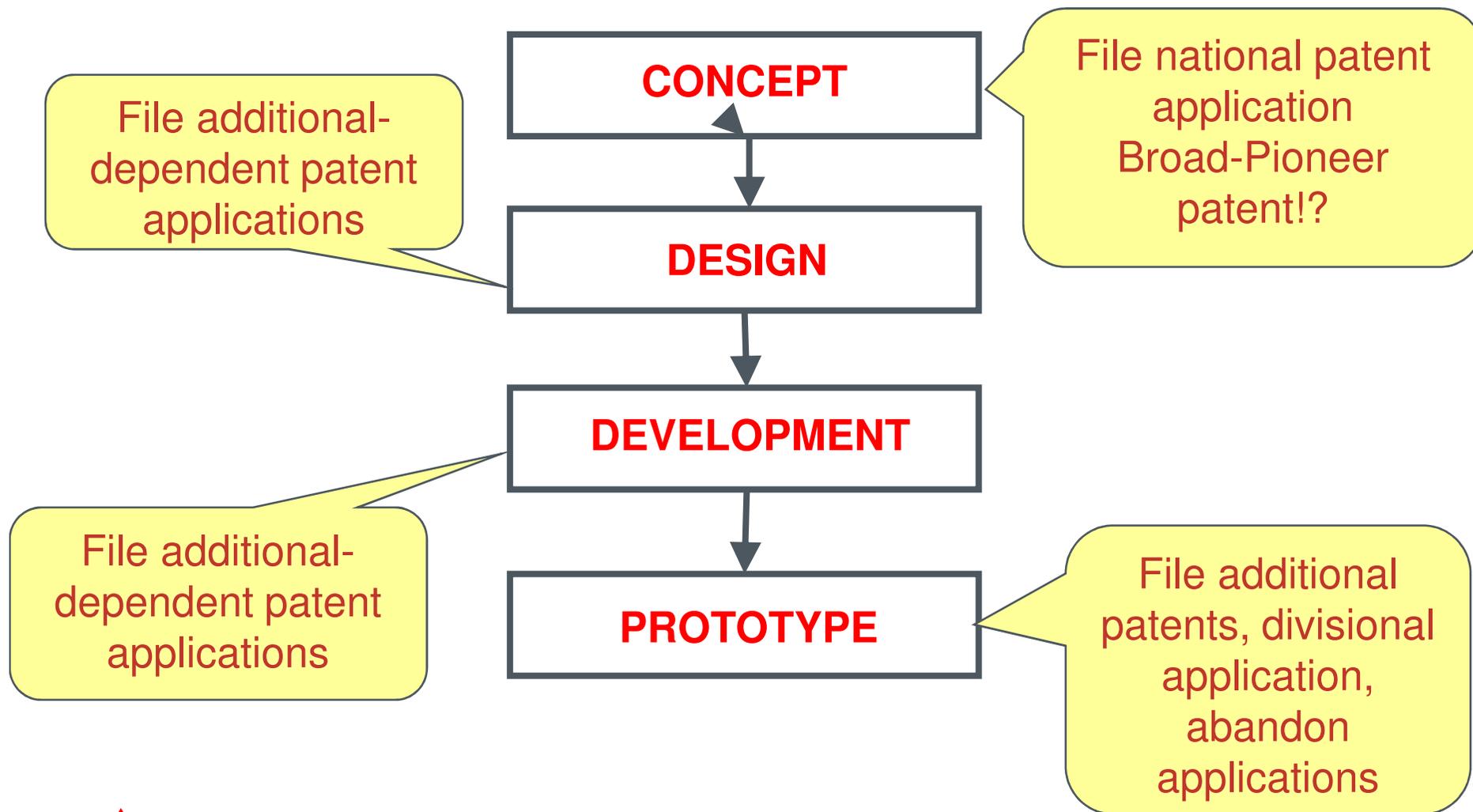
Unexamined Patent Applications (A)
Contract Proposal

Granted Patents (B)
Final Contract

publishes



When to File a patent



File a patent before you disclose your invention !!!



Where to File a patent

Patent Offices in those **Countries**:

- **where** the invention can be **produced**

and/or

- **where** the invention can be **used**

and/or

- **where** the invention can be **sold**

*by the **inventor** (patentee) or by **others** (infringers)*

*Check the compatibility of your invention with the
Technical Standards in use in a specific country:
your invention may be of no interest there!*





Where to File a patent

*As it would be improbable
to sell a fridge to an Eskimo ...*



*... it would be equally pointless
to patent a fridge in the circumpolar countries !!!*

Where to File a patent

There are different routes to patent protection:

- **National patent offices**
 - National patent valid only in that country
 - Non-nationals can apply for a patent
 - 12-month right of "priority" for international applications (Paris Convention)
- **Patent Cooperation Treaty (PCT)**
 - Just one initial application for 141 contracting states
 - After the international phase, the international application leads to multiple national patent examination procedures
 - Costly patenting decisions can be delayed by up to 30-31 months after filing
 - No international patent, but an international patent application procedure
 - PCT application can be filed at a national patent office, EPO or WIPO
- **European Patent Office (EPO)**
 - A "European patent" is equivalent to national patents in the countries for which it was granted
 - the applicant chooses the countries
 - the cost depends on the number of countries designated
- **European Patent with unitary effect (probably as of 2016 or later)**

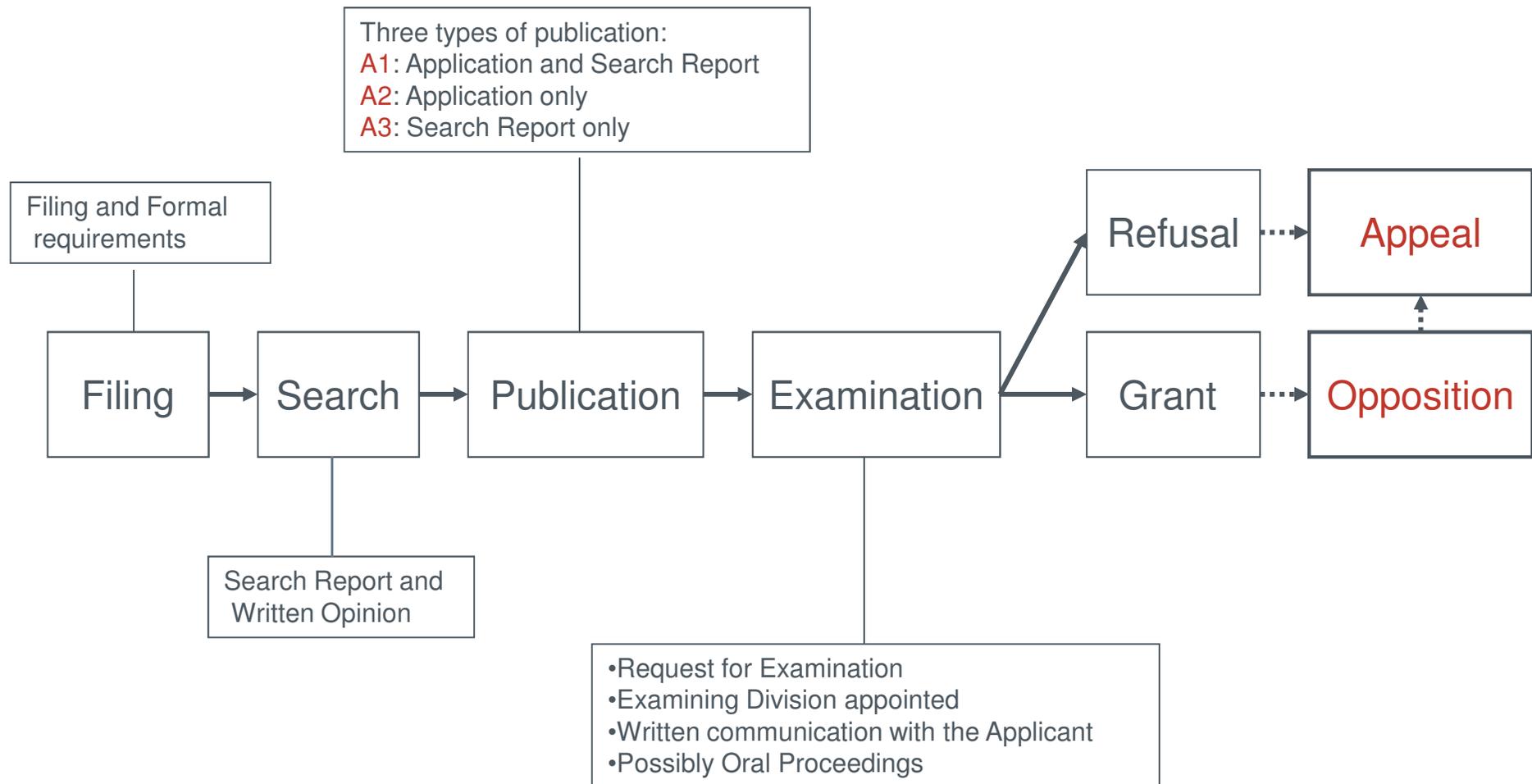
European Patent Application (EPO)

- ➔ *one application filed at one Office for “n” contracting states*
- ➔ *one procedure (in one language) for all “n” states*
- ➔ *one EP patent for all “n” states*
- ➔ *Cost –Effective (costs less than 3 national patents)*

Up today n= 38 states

European Patent with Unitary effect at the EPO (probably as of 2016 or later) bringing one litigation procedure (Unified Patent Court) and simplified linguistic regime after grant

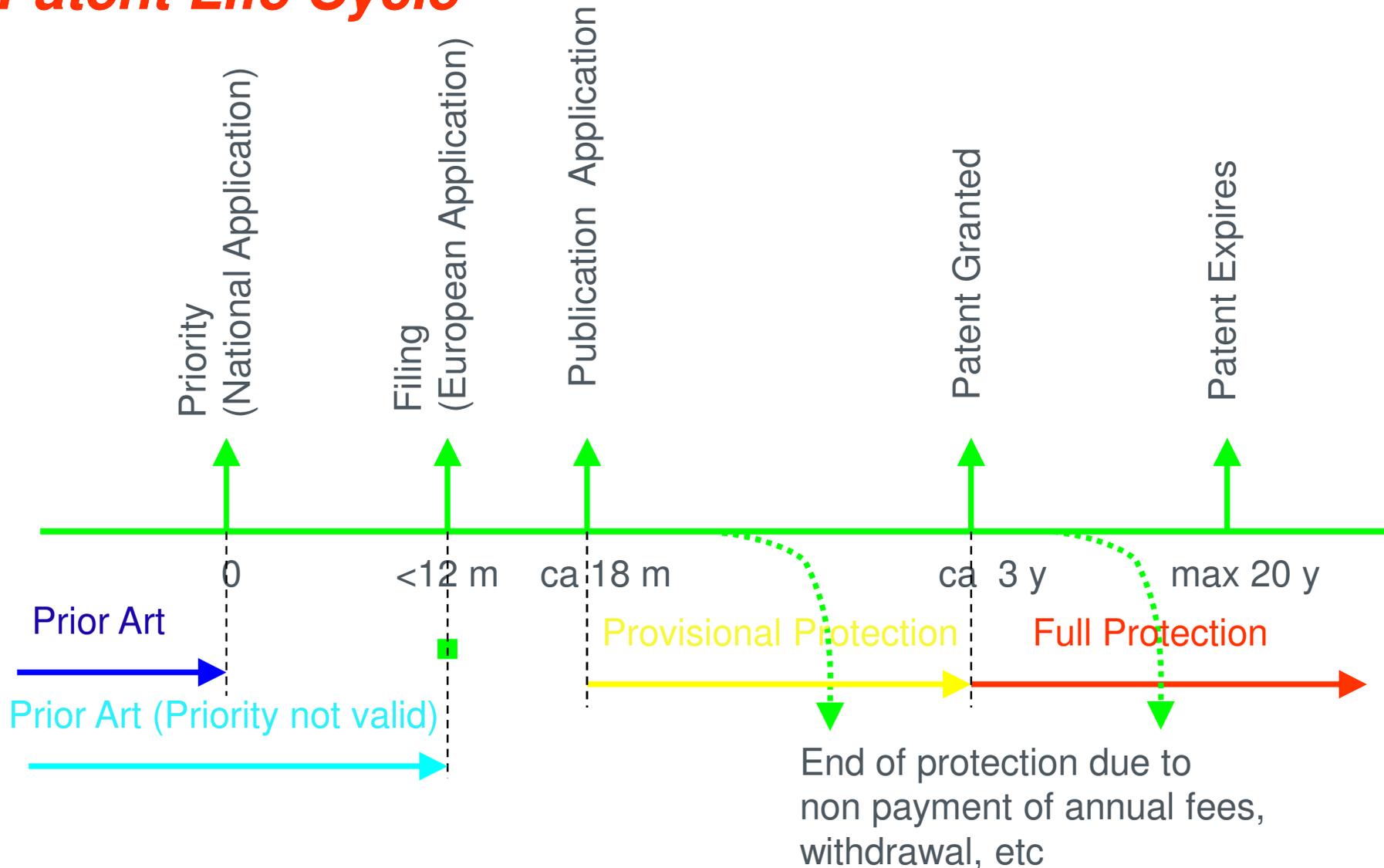
European Patent Search and Examination Procedure



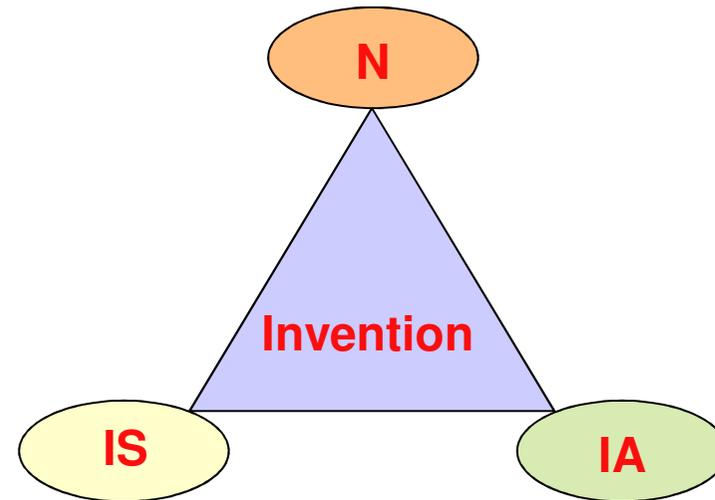
- Limitation/revocation
- Renewal fees
- Invalidity proceedings (under national law)
- Infringement proceedings (under national law)



Patent Life Cycle



- **Invention**
- **Novelty**
- **Inventive Step**
 - Problem Solution Approach
- **Industrial Application**
 - It should have the **possibility** of industrial application, not necessarily the **probability**,...



Whether the invention is actually produced/used is up to the market not to the patent office!

- **Prior art:** EVERYTHING made available to the public, by any means, e.g. oral or written description, use etc **before the filing date** of the application.

What is a "new" invention?

- New **at the date of filing** the patent application
- New if it does not form part of the "state of the art"
(Article 54(1) EPC)
- "State of the art" means **everything made available to the public before the filing date of the European patent application**
(Article 54(2) EPC)
- There must have been no public disclosure of an invention before the filing date of the patent application

Article 56 EPC

An invention shall be considered as involving an inventive step if, having regard to the state of the art, it is not **obvious** to a **person skilled in the art**.

Person Skilled in the Art

- Ordinary practitioner, no specific inventive ability
- General knowledge in the art
- Knows everything from the state of the art
- Uses normal experimentation means
- Might be a team

Obvious:

- Not beyond normal progress of technology
- Follows plainly or logically from the prior art
- Does not require any skill or ability beyond that one may expect from the person skilled in the art



When is an Invention Obvious

- If the solution to a particular technical problem with respect to the **closest prior art** is also known from prior art and the teaching of that prior art **would** prompt the **skilled person**, faced with that particular technical problem, to modify or adapt the closest prior art according to the teaching of that prior art.
- If the skilled person would thereby arrive at something falling within the terms of the claims, and thus achieves what the „claimed invention“ achieves, the „claimed invention“ is considered „obvious“.

The following are **not** considered to be inventions for the purposes of granting European patents:

- Discoveries, scientific theories and mathematical methods (Article 52(2)(a) EPC)
- Aesthetic creations (Article 52(2)(b) EPC)
- Schemes, rules and methods for performing mental acts, playing games or doing business, and programs for computers (Article 52(2)(c) EPC)
- Presentations of information (Article 52(2)(d) EPC)
- However, the above exclusions only **apply if the patent claim relates to that subject-matter or activities "as such"**

Programs for computers (1)

- 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

Programs for computers (2)

Allowable

- **Example 1:** A program for controlling an x-ray apparatus having instructions adapted to carry out the following steps:
Step 1, Step 2, ..., Step n

Further effect generated by the program running on a computer: Control of the x-ray apparatus

This further effect is **technical**.

Not Allowable

- **Example 2:** A program for checking the spelling of a word having the following instructions:
Instruction 1, Instruction 2, ..., Instruction n

Further effect generated by the program running on a computer: Decision of orthographic correctness

This further effect is **not technical**.

Legal basis - Technical Character

*Technical character is a further requirement for patentability **implicitly** contained in the EPC:*

- *the invention must be of "**technical character**" to the extent that it*
 - *must relate to a **technical** field → R.42(1)(a) EPC*
 - *must concern a **technical** problem → R.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 → R.43(1) EPC*

Guidelines, C-IV 1.2

- *no general definition of "technical"*
- *series of individual Board's of Appeal decisions*
- *interpretation grey areas*

Technical features are:

*processing **physical data** parameters or control values
of an industrial process*

*the **physical features of an entity** (memory, port, etc.)*

Non technical features are :

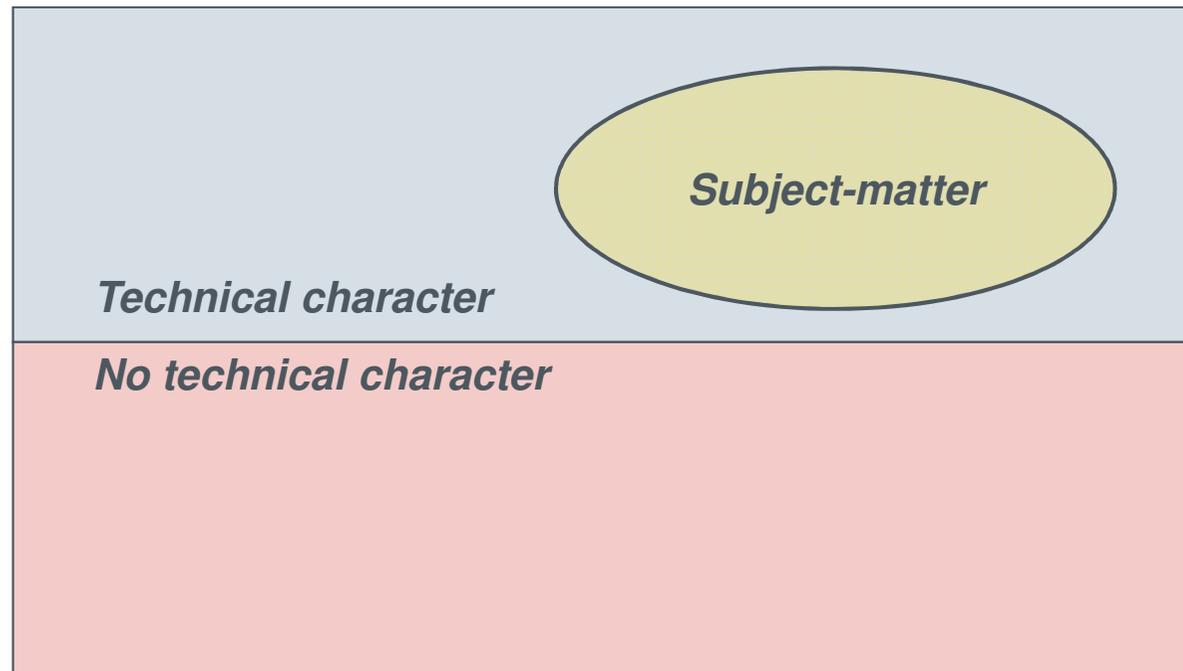
*method steps of a **business or financial process***

*method steps of a **mental act***

Legal basis – Patentable or Excluded?

✓ *Subject-matter is patentable*

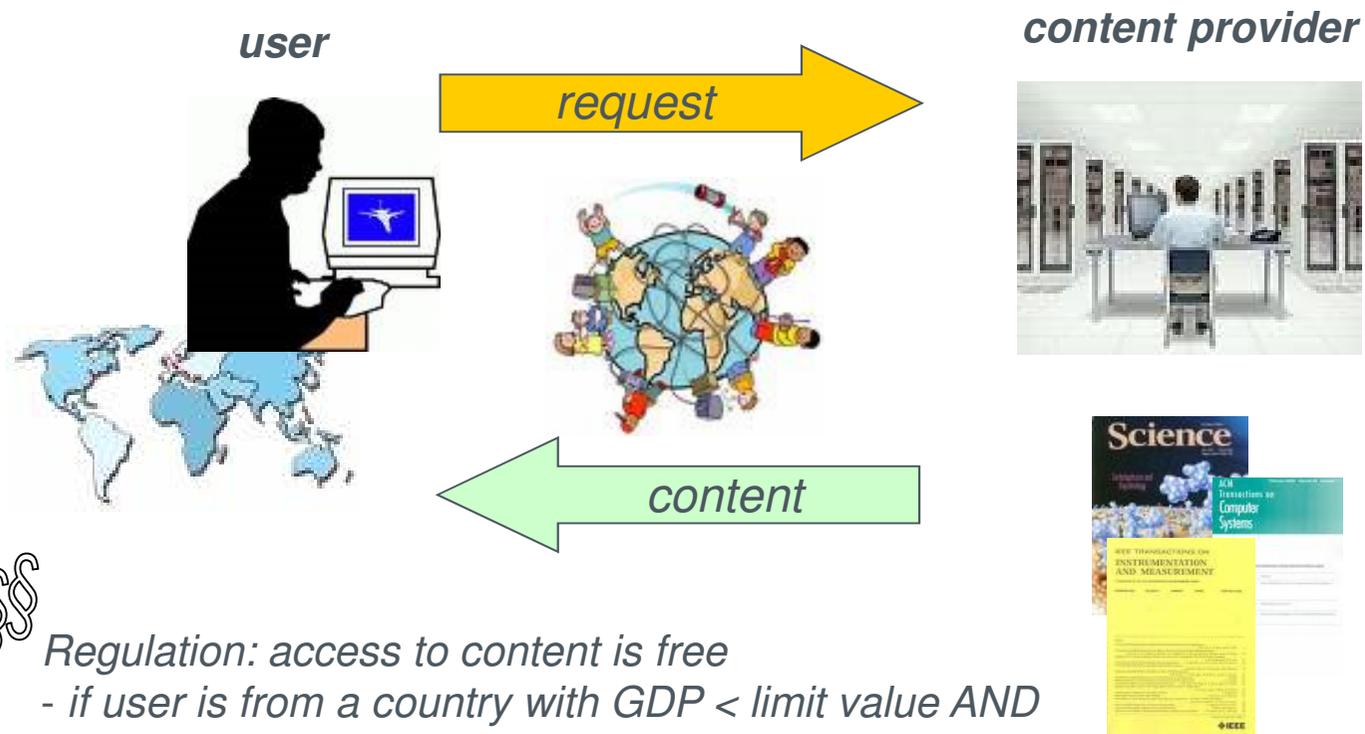
× *Subject-matter is excluded from patentability*



*At least one feature has technical character =>
subject-matter has technical character =>
subject-matter is patentable*

Example

"A method of controlling payment and delivery of content"



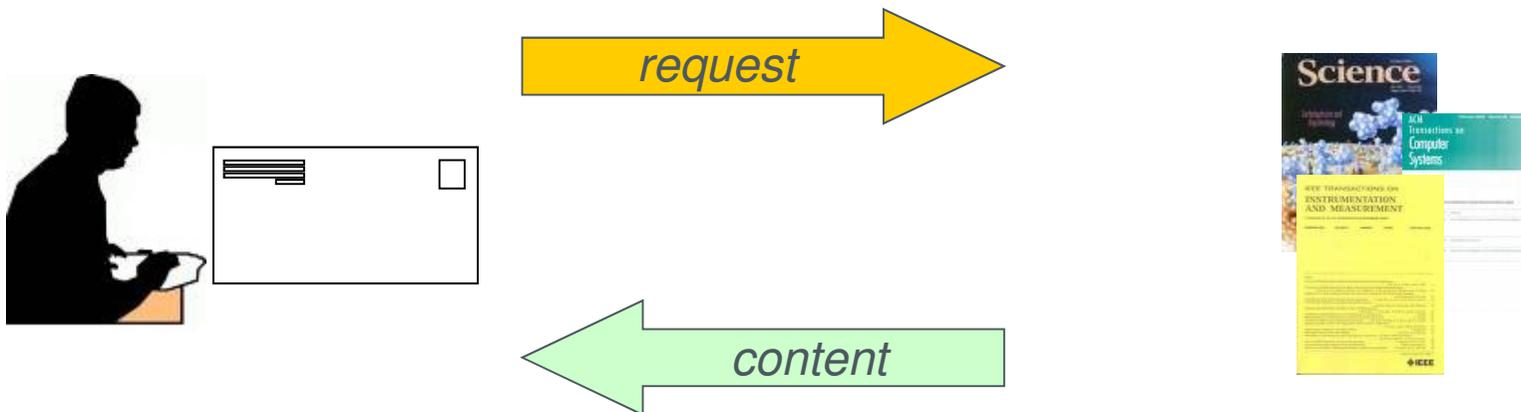
Regulation: access to content is free

- if user is from a country with GDP < limit value AND
- if the requested content is scientific content

Example I

A method of controlling payment and delivery of content, the method comprising:

- a provider receiving a request for content from a user;
- the provider accessing content information describing the requested content;
- determining the geographic location of the user;
- the provider determining, based on the content information and the user location, whether the requested content satisfies the at least one regulation;
 - if so, delivering the requested content to the user for free;
 - if not, transmitting a payment request to the user.





Example I

A method of controlling payment and delivery of content, the method comprising:

- a provider receiving a request for content from a user;
- the provider accessing content information describing the requested content;
- determining the geographic location of the user;
- the provider determining, based on the content information and the user location, whether the requested content satisfies the at least one regulation;
 - if so, delivering the requested content to the user for free;
 - if not, transmitting a payment request to the user.

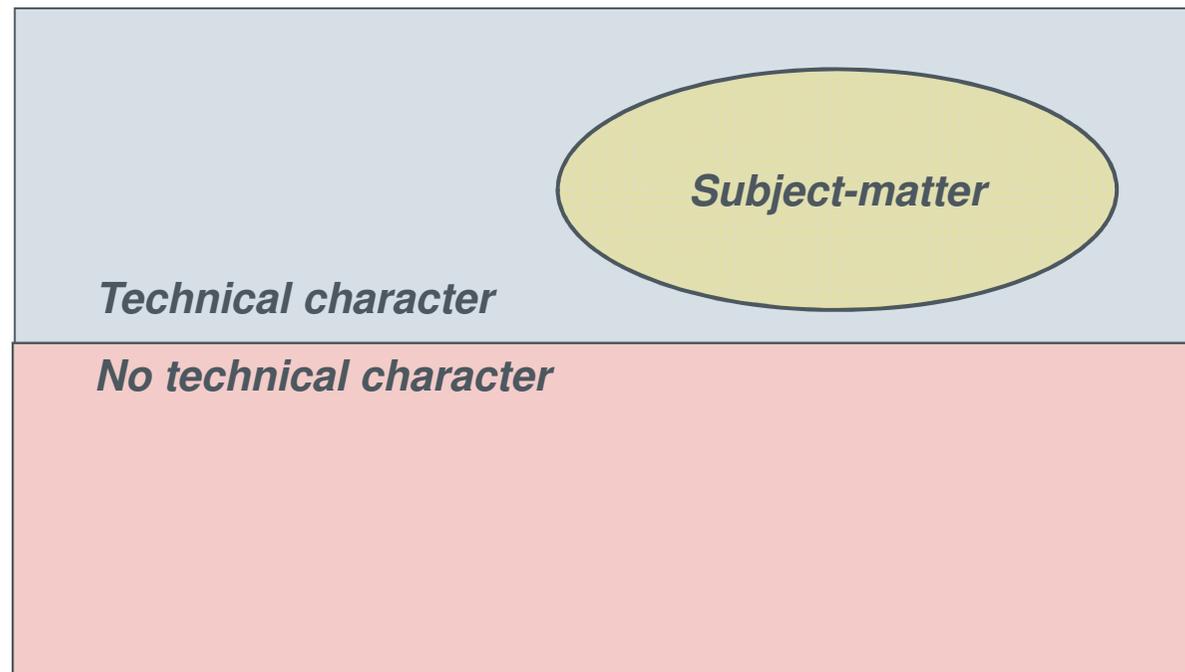
Non-technical process/ aspects

Clearly Technical Aspects

none

Example I

× *Subject-matter is excluded from patentability*



Example I: Exclusion

The subject matter of the claim defines purely a business or administrative method and does **not** have a **technical character**.



*objection under Article 52(1) EPC
because the claim constitutes subject-matter in the
sense of Article 52(2) & (3) EPC*



*Search report:
Declaration of under Rule 63 EPC (no search)*

Example II

A **computer-implemented** method of controlling payment and delivery of content within a **computer system** comprising a user **terminal**, a provider **server** and a **database** which are connected via a **communication network**, the method comprising:

- the provider **server** receiving a request for content from the user **terminal**;
- the provider **server** accessing **in the database** content information describing the requested content;
- determining the geographic location of the user;
- the provider **server** determining, based on the content information and the user location, whether the requested content satisfies the at least one regulation;
 - if so, delivering the requested content to the user **terminal**
 - if not, transmitting a payment request to the user **terminal**.





Example II: Computer Impl. + Business Method

Clearly Technical Aspects

A computer implemented method comprising:

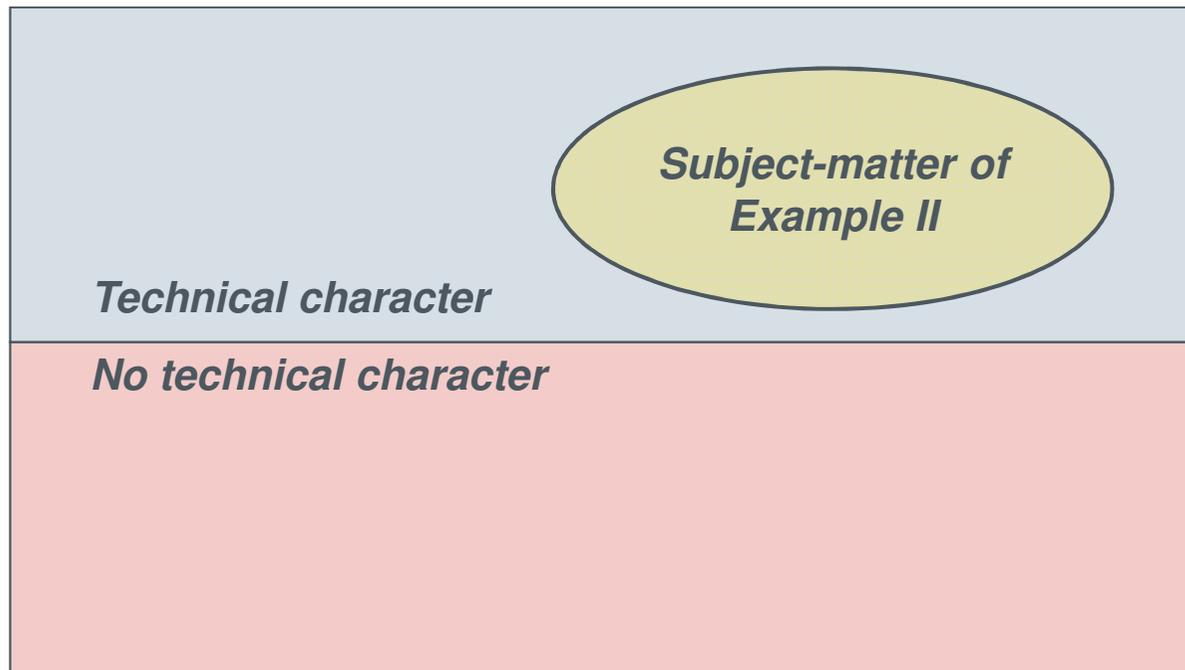
- a server receiving data from a terminal over a communication network;*
- the server accessing data in a database;*
- the server processing the accessed and received data;*
- the server transmitting the processing result to the terminal;*

Non-Technical Aspects/Process

Same business process as in Example I

Example II

Subject-matter is a combination of technical and not technical features.



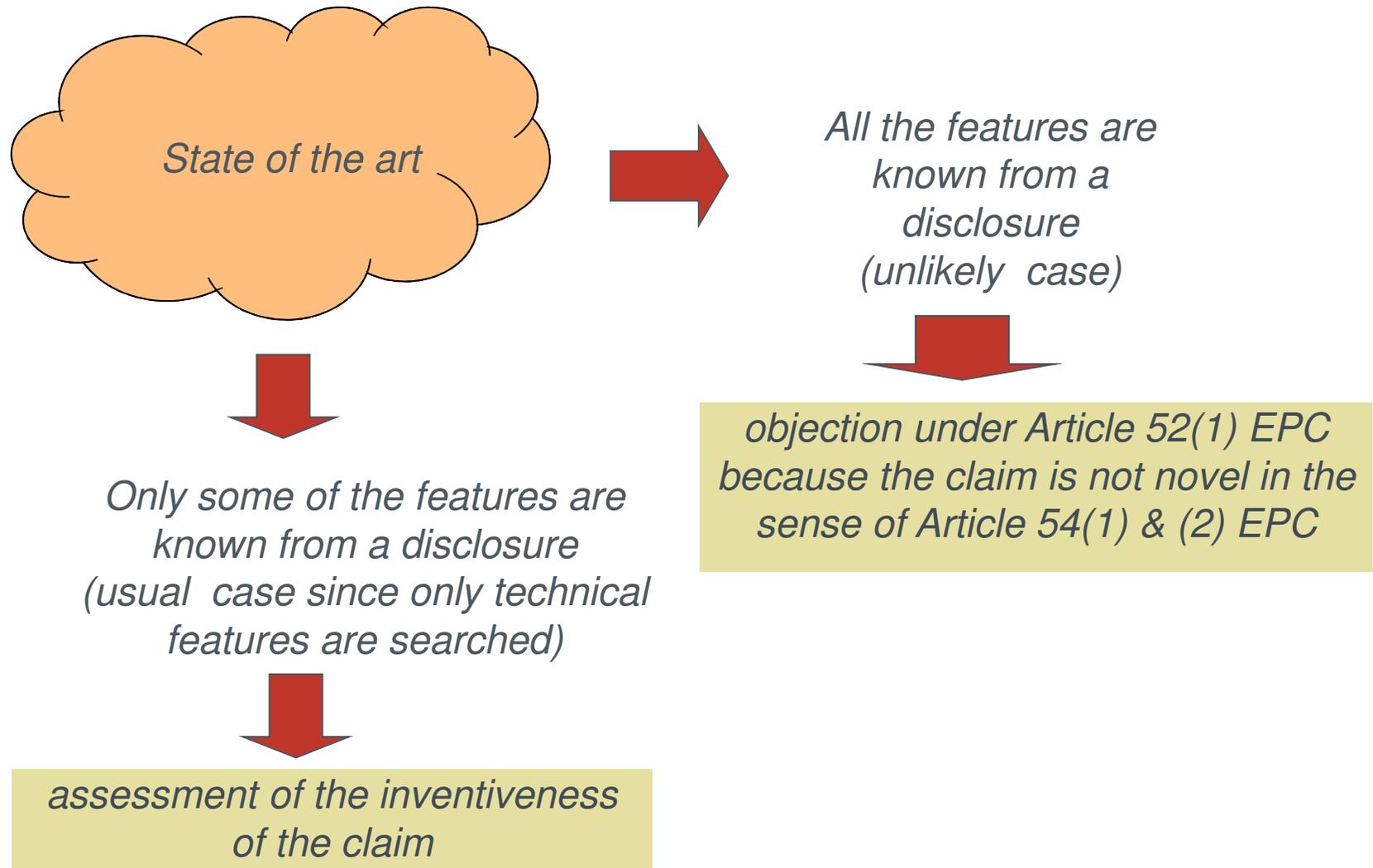
At least one feature has technical character

→ *subject-matter has technical character*

→ *search is performed (**only technical features are searched**)*

→ *assessment of novelty and inventiveness **may lead to a patent***

Example II: Examination

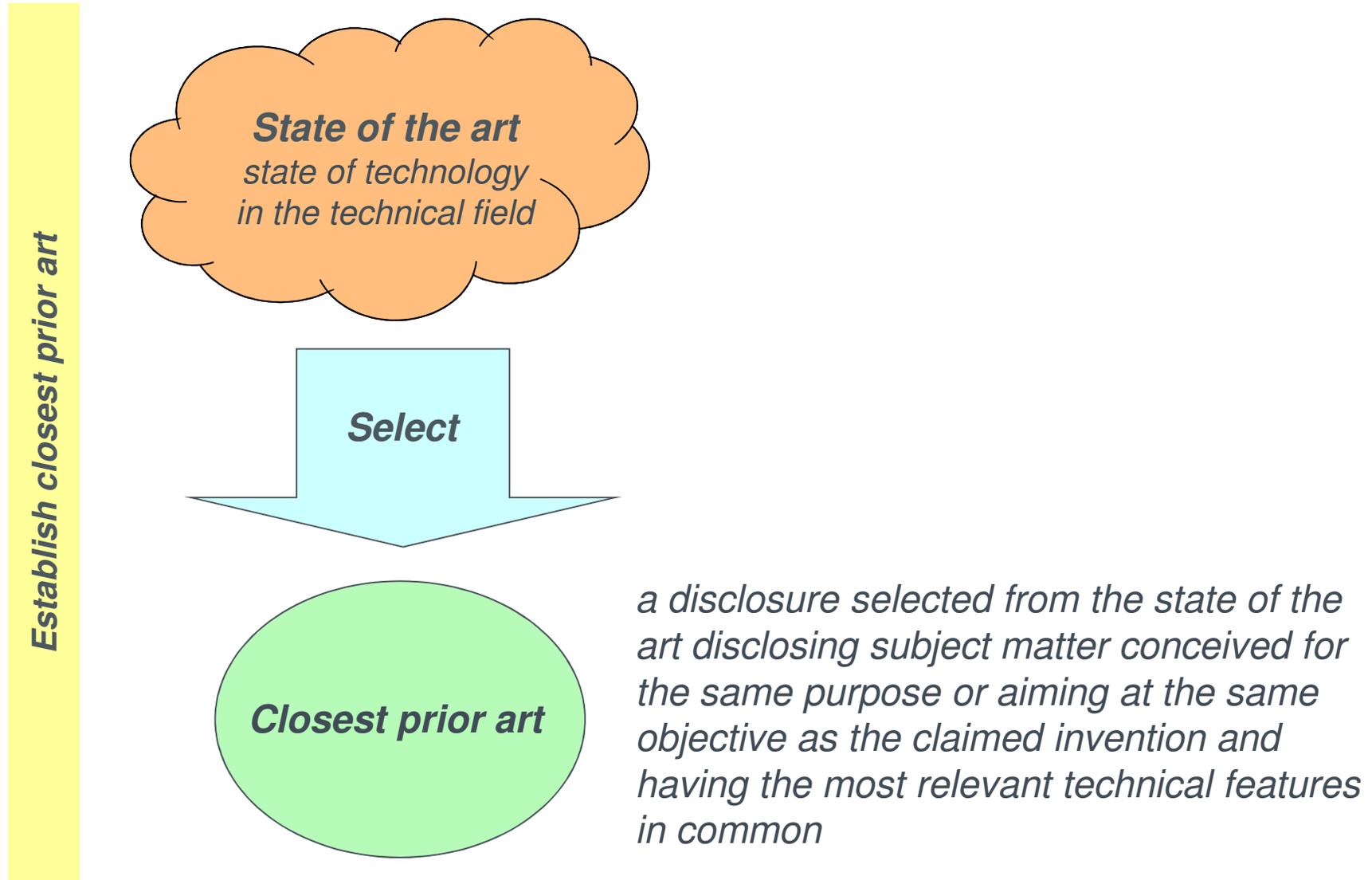


Inventiveness of a claim: Problem Solution Approach

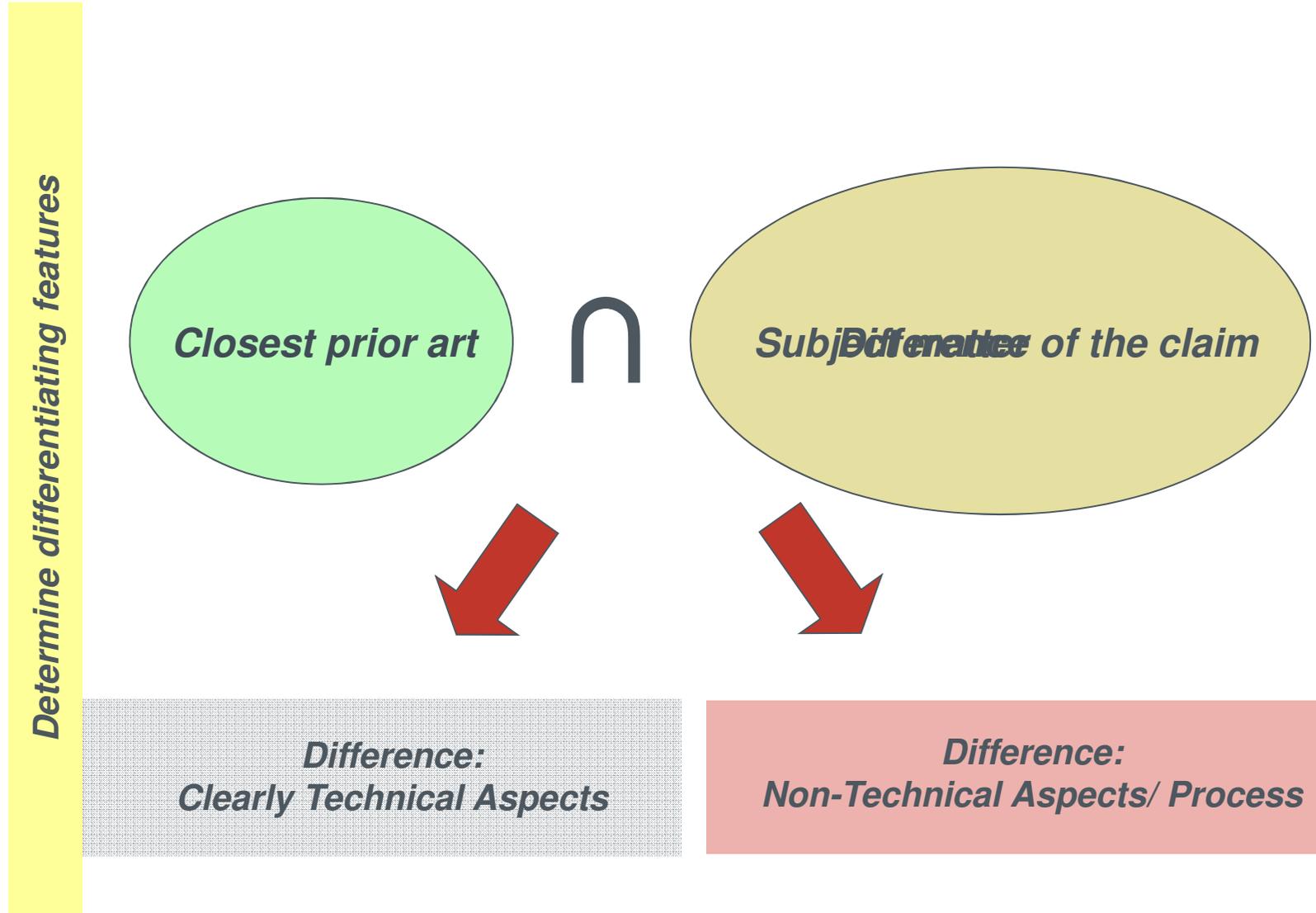
- Establish closest prior art
- Determine differentiating features and their technical effects
- Formulate an objective technical problem
- Decide whether the proposed solution is obvious for the skilled person



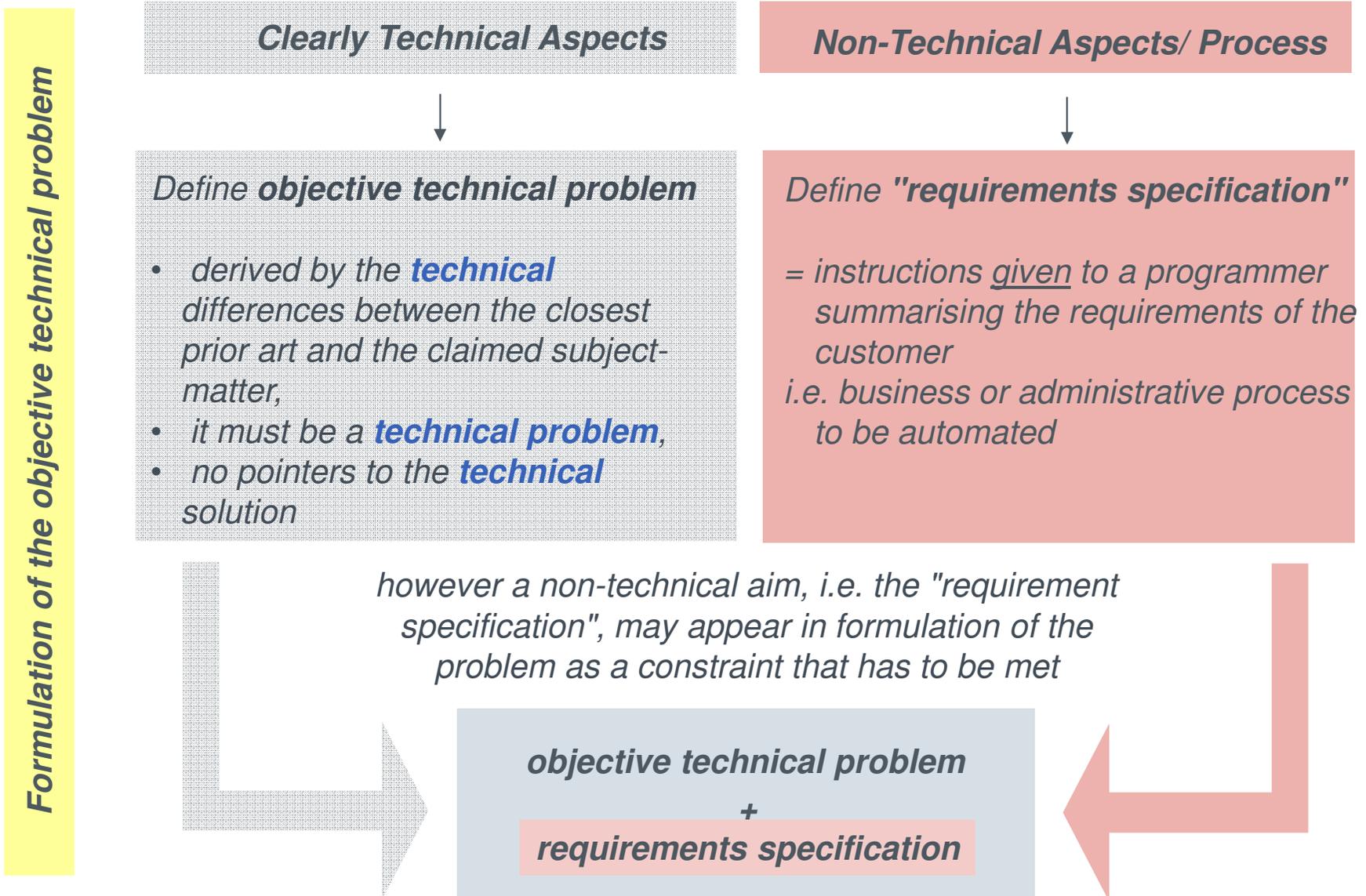
Example II: Inventive Step



Example II: Inventive Step



Example II: Inventive Step





Inventive Step

Assessment of objective technical problem

Skilled person:

- skilled in the specific field of the invention
- aware of common general knowledge
- no knowledge of non-technical fields



Closest prior art

+

Resulting objective technical problem

objective technical problem

+

requirements specification

=

Subject matter of the claim

Example II: Inventive Step

Technical character:

Non-technical aspects:

Closest prior art:

Differences:

Objective technical problem:

Skilled person:

Solution:



computer system comprising a server, database, and a terminal which are connected via a communication network

*business method (=requirement specification):
"ordering content and calculating its price"*

automate said business method on said computer system

data processing expert

implementation/automation is considered obvious



*objection under Article 56 EPC
because the claim of Example II is not inventive*

Example III

- A **computer-implemented** method of controlling payment and delivery of content within a **computer system** comprising a user **terminal**, a provider **server** and a **database which are connected via a communication network**, the method comprising:
 - the provider **server** receiving a request for content from the user **terminal**;
 - the provider **server** accessing **in the database** content information describing the requested content;
 - determining the geographic location of the user;
 - the provider **server** determining, based on the content information and the user location, whether the requested content satisfies the at least one regulation;
 - if so, delivering the requested content to the user **terminal**
 - if not, transmitting a payment request to the user **terminal**.

▪ *wherein the geographic location of the user is determined by the IP address of the user terminal using method steps x, y, z.*



Example III: Inventive Step

Technical character:
Non-technical aspects:



Closest prior art:

computer system comprising a server, database, and a terminal which are connected via a communications network capable of determining the location of user.

Difference:

- 1) *said business method (non technical)*
- 2) *method steps x, y, z to determine location*

Objective technical problem:

- 1) *automate said business method*
- 2) *find alternative method for determining geographic location of use*

Skilled person:

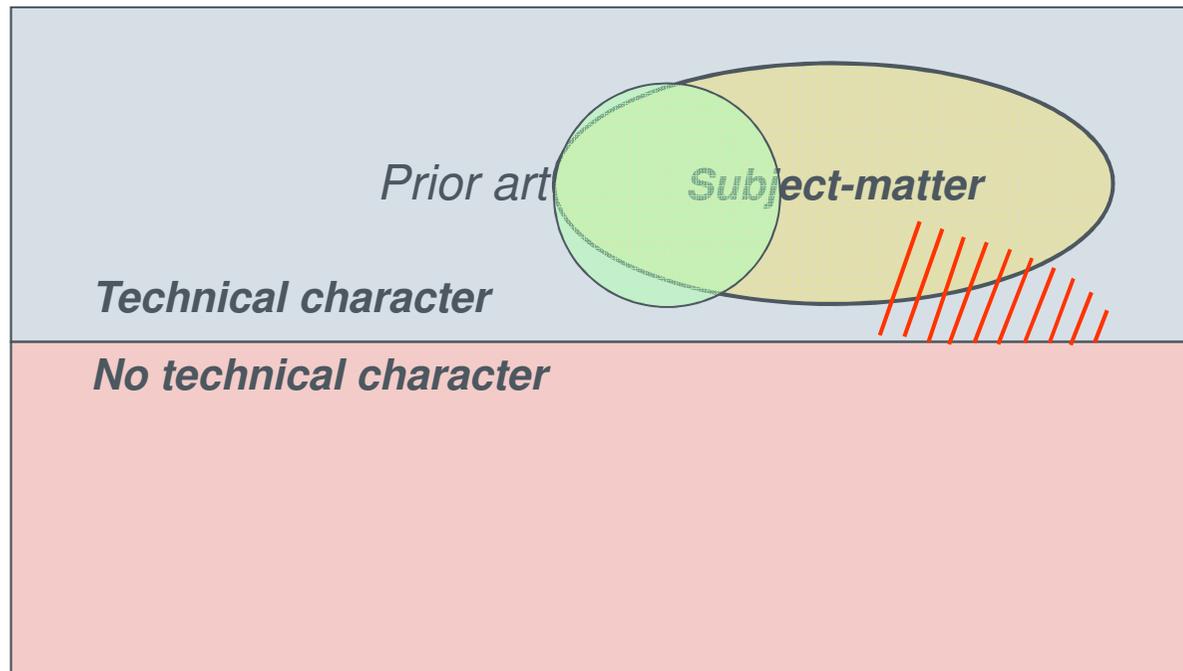
data processing expert

Solution:

- 1) *automation is obvious*
- 2) *obvious?*

Example III: Inventive Step

Depending on the prior art a patent may be granted.



What cannot be patented?

- Inventions whose commercial exploitation would be contrary to **"ordre public"** or **morality** (Article 53(a) EPC)
- **Plant or animal varieties** or essentially biological processes for the production of plants or animals (Article 53(b) EPC)
- **Methods for treatment** of the human or animal body **by surgery or therapy** and **diagnostic methods** practised on the human or animal body (Article 53(c) and Article 54(4)-(5) EPC)

Infringement

- An infringement occurs when the patented invention is used, produced, imported without the authorization of the patent owner
- The scope of the invention is solely defined by the claims. Other aspects of the invention which are not covered by the claims are not considered to be patented.
However the interpretation of the claims and the information contained in the description and in the figures of the patent may lead to a different appreciation of the infringement.
- The patent must be in **force at the time of infringement**. It should not have expired because the maximum life span (20 years) has lapsed or it should not have been abandoned failing to pay maintenance or renewal fees.
- The patent must be in **force in the country** where the infringement allegedly occurs

Novelty

A Claim is novel if its features are not disclosed together in a single prior art document, object, activity, etc

Infringement

An entity infringes on a valid patented claim if the entity shows all the features defined in that claim

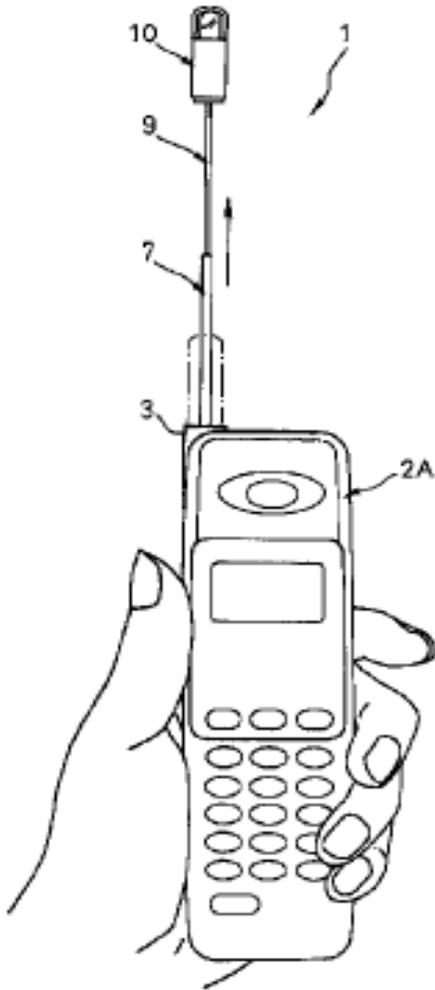
An activity **infringes** on a valid patented claim if the activity shows all the features defined in that claim

If your entity or activity does not infringe on a existing valid patent you have **Freedom to Operate**.

If that entity/activity is also **novel** you may **seek for patent protection**, if you can prove is not obvious.



Your Invention



A possible Claim formulation:

Claim: A **mobile telephone handset** comprising a **casing** and an **extensible antenna** characterised in that the extensible antenna is **telescopic**.

Features in the Claim:

A: mobile telephone handset

B: casing

C: extensible antenna

D: telescopic

Symbolized Claim:

Claim: A B C D

Novelty (Are Claim 1 to 5 Novel?)

Prior art (object, disclosure, use, etc.)	Claim 1	Claim 2	Claim 3	Claim 4	Claim 5
A	A	A	A	A	A
B	B	B	B	B	B
C	C		C	C'	
			D		D
	Not Novel	Not Novel	Novel	Novel	Novel

Remember: A Claim is novel if all its features are not disclosed together in a single prior art document or object

Infringement (Are Products 1 to 5 Infringers?)

Valid Patent Claim	Product 1	Product 2	Product 3	Product 4	Product 5
A	A	A	A	A	A
B	B	B	B	B	B
C	C		C	C'	
			D		D
	<i>Infringes</i>	<i>Does Not Infringe</i>	<i>Infringes</i>	<i>Does Not Infringe ?</i>	<i>Does Not Infringe</i>

Remember: A product infringes on a patented claim if it shows all the features defined in that claim

A patented invention featuring A,B,C exists and is in force in a certain country

You want to enter that market with a similar product and, possibly, you would like to patent it:

1. Is your product **Infringing** on the valid patent, i.e. on Claim ABC? If not you have Freedom to Operate

2. Is the claim defining your product **Novel and Patentable** in view of the prior art defined by the existing patent?

3. Can you **Patent** your product and at the same time having **Freedom to Operate**?

Patentability and Freedom to Operate

Valid Patent Claim	Product I	Claim Product I	Product II	Claim Product II	Product III	Claim Product III	Product IV	Claim Product IV	Product V	Claim Product V
A	A	A	A	A	A	A	A	A	A	A
B	B	B	B	B	B	B	B	B	B	B
C	C	C			C	C	C'	C'		
					D	D			D	D
	I	NN	NI	NN	I	N	NI	N	NI	N
	NF	NP	FO	NP	NF	P	FO	P	FO	P

I = Infringing ; **NI** = Not Infringing; **N** = Novel ; **NN** = Not Novel;
P = Patentable ; **NP** = Not Patentable ; **FO** = Freedom to Operate;
NF = No Freedom to Operate

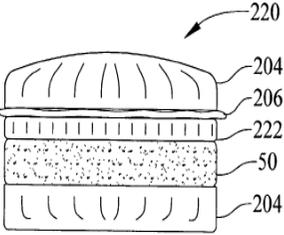
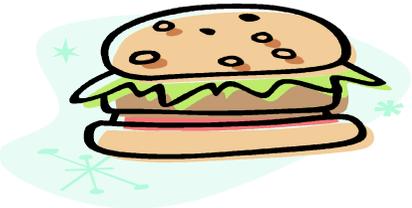
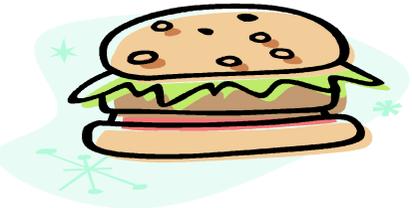
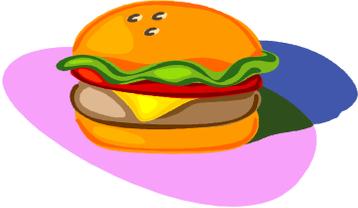
A patented invention featuring a Hamburger exists and is in force in a certain country

You want to enter that market with a similar Hamburger and, if possible, you would like to patent it:

1. Is your Hamburger **Infringing** on the valid patent? If not you have Freedom to Operate
2. Is the claim defining your Hamburger **Novel and Patentable** in view of the prior art defined by the existing patent?
3. Can you **Patent** your Hamburger and at the same time having **Freedom to Operate**?

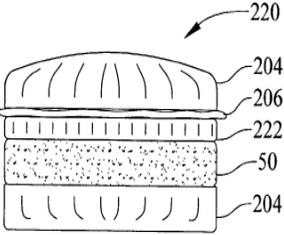
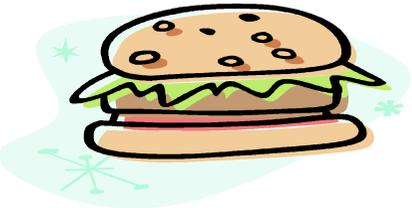
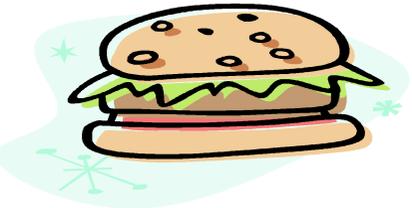
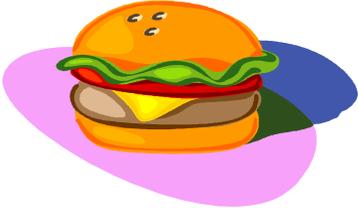


Infringement (The Hamburger case)

Valid Patent Claim	Hamburger 1	Hamburger 1'	Hamburger 2
			
Two Slices of Bread (204)	Two Slices of Bread	Two Slices of Bread	Two Slices of Bread
Cheese (206)		Cheese Flavoured Dressing	Cheese
Meat product (50)	Meat product	Meat product	Meat product
Lettuce (222)	Lettuce	Lettuce	Lettuce
	Tomato slice	Tomato slice	Tomato slice
	Does Not Infringe	EQUIVALENT??	Infringes



Novelty (The Hamburger case)

Valid Patent Claim	Claim for Hamburger 1	Claim for Hamburger 1'	Claim for Hamburger 2
			
Two Slices of Bread (204)	Two Slices of Bread	Two Slices of Bread	Two Slices of Bread
Cheese (206)		Cheese Flavoured Dressing	Cheese
Meat product (50)	Meat product	Meat product	Meat product
Lettuce (222)	Lettuce	Lettuce	Lettuce
	Tomato slice	Tomato slice	Tomato slice
	<i>Novel</i>	<i>Novel</i>	<i>Novel</i>



Patentability and Freedom to Operate (The Hamburger Case)

- **Hamburger 1:** Novel. If the new characteristics, i.e. absence of cheese and addition of tomato not obvious, is also inventive and therefore **Patentable**; **No infringement** on existing patent, **Freedom to Operate**
- **Hamburger 1':** Novel: i.e. absence of cheese and addition of tomato not obvious, is also inventive and therefore **Patentable**; **Infringement/No infringement** on existing patent depending on the degree of "equivalence" attributable to the cheese flavoured dressing
- **Hamburger 2:** Novel, if the new characteristics, i.e. addition of tomato not obvious, is also inventive and therefore **patentable**; **Infringement** on previous patent, **No Freedom to Operate**

An existing Patent

1. A mobile telephone handset comprising a casing **characterised in that** it comprises an extensible antenna.
2. A mobile telephone handset according to claim 1 wherein the antenna is made of a single element.
3. A mobile telephone handset according to claim 2 wherein the antenna is mounted on the right side of the casing.
4. A mobile telephone handset according to claim 2 wherein the antenna is mounted on the left side of the casing.
5. A mobile telephone handset according to claim 1 wherein the antenna has a circular cross section.

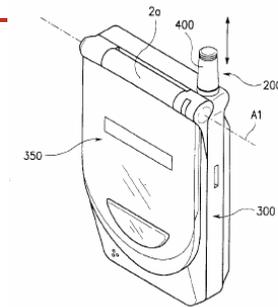


FIG. 1

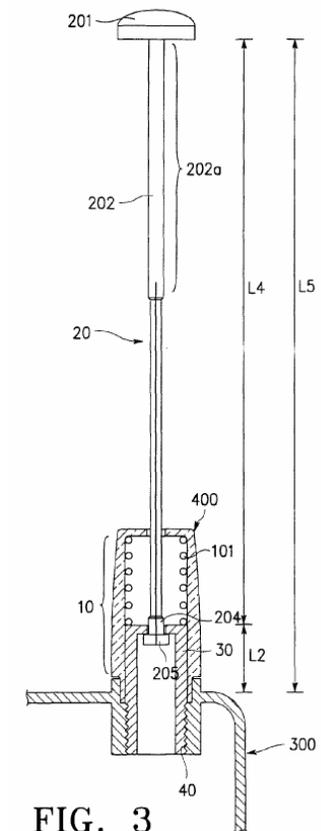


FIG. 3



Infringement, Novelty and Patentability

Your invention: telephone with a telescopic antenna

Does it infringe on the patent in the previous slide?
Can you patent your invention?

Your invention is for mobile telephone handset, with a casing and a telescopic antenna.

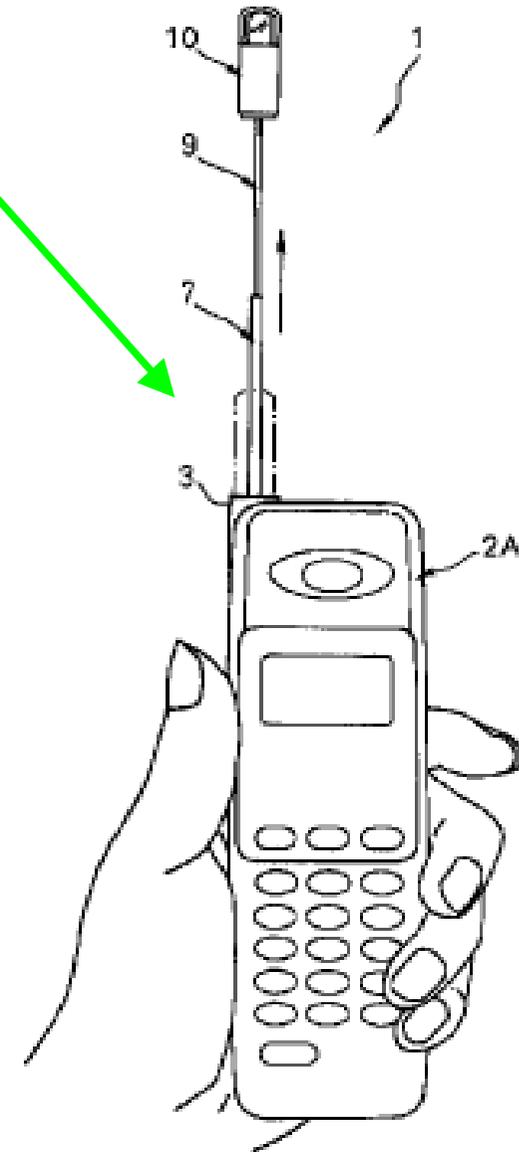
A **prior patent** defines in the claim: **A mobile telephone handset comprising a casing characterised in that it comprises an extensible antenna.**

The description, the drawings and the dependent claim in this patent indicates that the extensible antenna is a one-piece rod.

Is your invention infringing on the patent?

You have filed a patent application where the independent claim defines: **A mobile telephone handset comprising a casing and an extensible antenna characterised in that the extensible antenna is telescopic.**

Is this claim patentable?



Does your invention infringe on the previous patent?

Read the prior patent claim into your invention:

A **mobile telephone handset** comprising a **casing** characterised in that it comprises an **extensible antenna**.

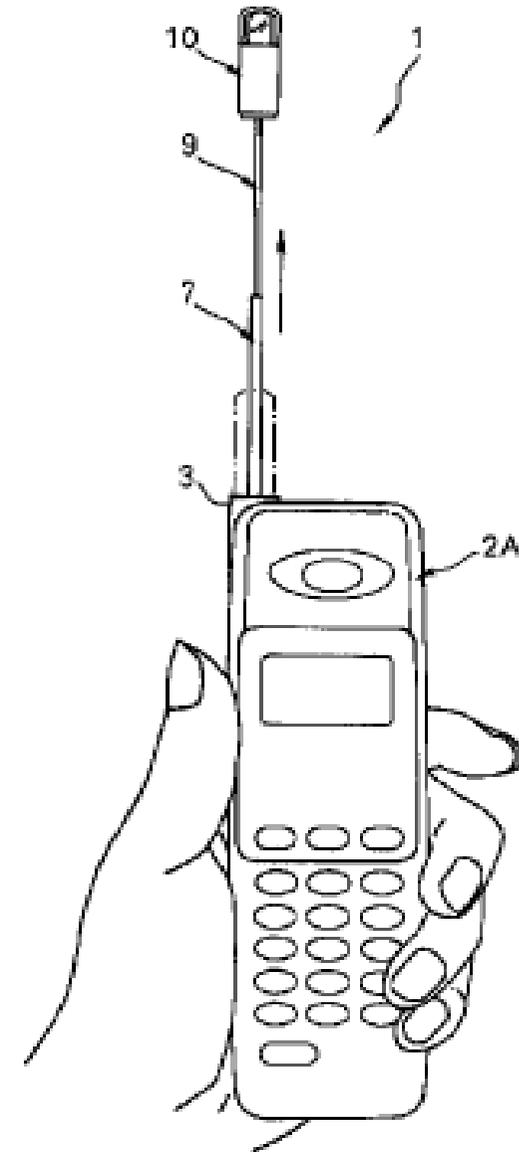
Your invention has all the features of the patent and falls in the scope of the patent: **it is infringing!**

Can you patent your claim assuming the previous patent as only prior-art?

Claim: A mobile telephone handset comprising a casing and an extensible antenna characterised in that the extensible antenna is **telescopic**.

Telescopic is a feature not disclosed in the previous patent: the claim is novel and if you identify a problem and a solution, for instance a telescopic antenna allows for more extensibility, the claim is patentable, i.e. novel and inventive.

But your patent "depends" on the previous one!



Your **invention**: a mobile telephone where the two parts of the body are joined by one hinge.

A **previous patent** claims "A mobile telephone where the two parts of the casing are joined by two hinges"

Does your invention infringe on the patent?

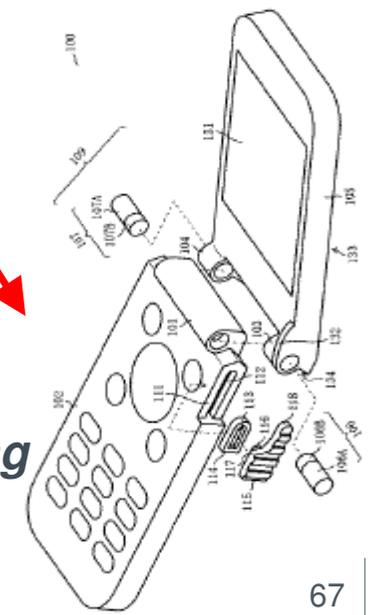
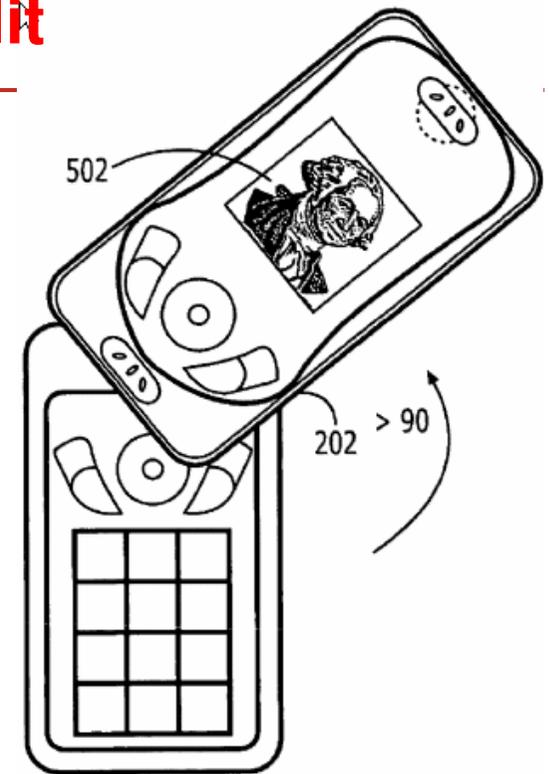
You claim "A mobile telephone comprising a casing with two parts and one hinge"

Is your claim novel?

Your invention **does not infringe** on the claim because has only one hinge.

The claim is **not novel** because the prior art shows also one hinge.

The claim should be redrafted as e.g. **A mobile telephone comprising a casing with two parts and only one hinge**





**More questions?
Please consult
www.epo.org
or
write to
dgolzio@epo.org**

Thank you!!

