dompatent
von Kreisler

CODE MEETS LAW

Insights into the Criteria for Software Inventions in Europe

29.10.2024-Webinar-dompatent

Dr. Mark Hendrik Standke

WHAT WILL WE LEARN TODAY?

- What is a computer-implemented invention (CII)?
- Why is software so hard to patent in Europe?
- How does the EPO determine the patentability of a CII?

dompatent
von Kreisler

WHAT IS A COMPUTER-IMPLEMENTED INVENTION ACCORDING TO THE EPO?

WHAT IS A COMPUTER IMPLEMENTED INVENTION?

,,(…) "computer-implemented inventions" (CII) cover claims which involve:

- computers,
- computer networks
- or other programmable apparatus,
- whereby at least one feature is realised by means of a program. (…)''

Source: EPO Guidelines – F-IV-3.9

dompatent
von Kreisler

EXAMPLES

- **Method:** A computer-implemented method comprising steps A, B, ...
- **Device:** A data processing apparatus/device/system comprising means for carrying out [the steps of] the method of claim 1.
- **Storage Medium:** A computer-readable [storage] medium comprising instructions which, when executed by a computer, cause the computer to carry out [the steps of] the method of claim 1.

Source: EPO Guidelines – F-IV-3.9

dompatent
von Kreisler

WHY IS SOFTWARE SO HARD TO PATENT IN EUROPE?

LET'S HAVE A LOOK AT ARTICLE 52(1)

European patents shall be granted for any inventions**, in all fields of technology**, provided that they are **new**, involve an **inventive step** and are susceptible of **industrial application**.

Source: A 52(1) EPC

dompatent
von Kreisler

HOWEVER, ARTICLE 52(2) ALSO MENTIONS:

The following in particular **shall not be regarded** as inventions […]:

(a) discoveries, scientific theories and 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

Source: A 52(2) EPC

dompatent
von Kreisler

HOW COME?

PROPOSAL TO REWORK ARTICLE 52 DURING THE EPC 2000 NEGOTIATIONS

Patentable inventions

(1)European patents shall be granted for any inventions, in all fields of technology, provided that they are new, involve an inventive step and are susceptible of industrial application.

(2)The following in particular shall not be regarded as inventions within the meaning of paragraph 1:

(a)discoveries, scientific theories and 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.

Source: Basic Proposal for the Revision of the EPC (MR/2/00) – page 45

REASON FOR REJECTION

February 20th, 2002:
The European Commission initiated a proposal for a directive to codify and "harmonise" the different EU national patent laws and cement the practice of the European Patent Office of granting patents for computer-implemented inventions provided they meet certain criteria.

July 6th, 2005
The European Parliament rejected the proposed EU regulation for patent protection of computer programs.

dompatent
von Kreisler

HOW DOES THE EPO DETERMINE IF A COMPUTER IMPLEMENTED INVENTION IS PATENTABLE?

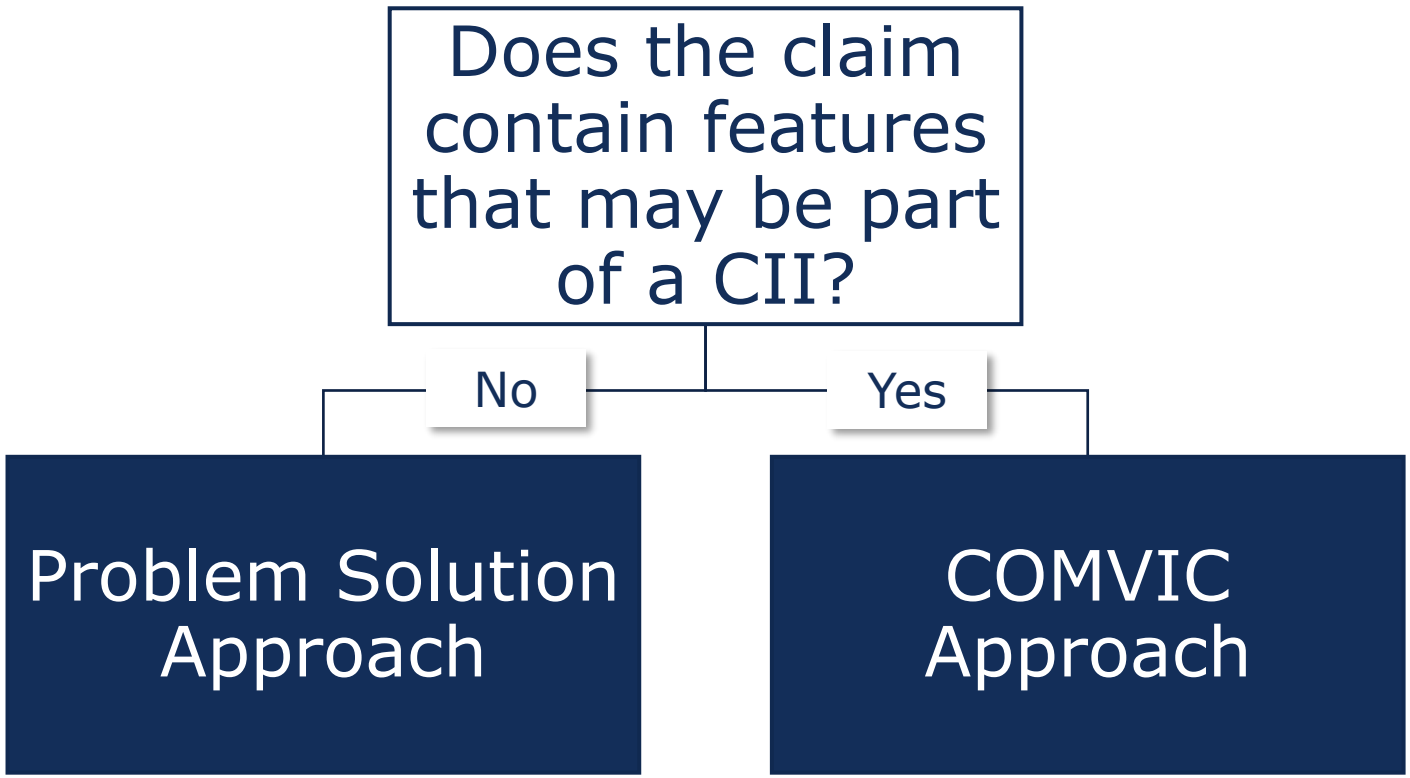
WHAT DOES THIS MEAN IN PRACTICE?

The EPO uses a **modified problem solution approach** to determine if an application features a technical effect. This approach is called the **COMVIC** approach.

Source: EPO Guidelines – G-VII-5.4

dompatent
von Kreisler

WHEN TO PROCEED WITH COMVIC?



Source: EPO Guidelines – G-VII-5.4

dompatent
von Kreisler

COMVIC APPROACH STEP 1

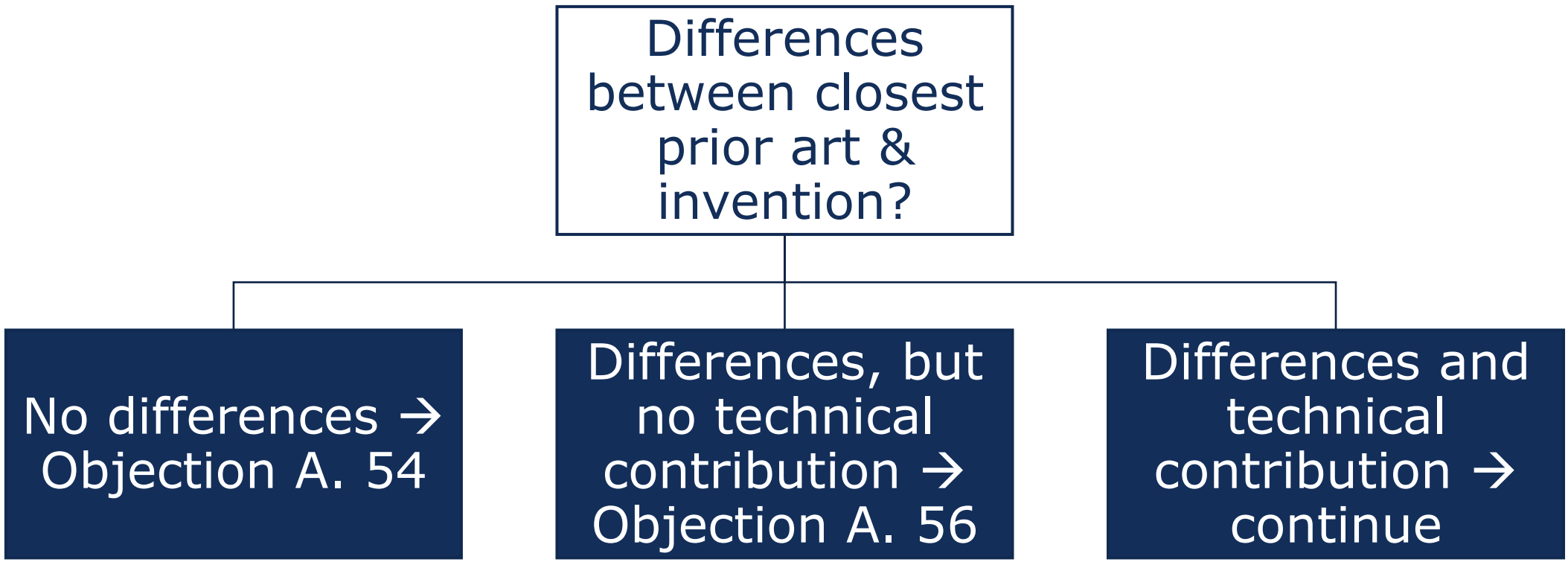
Selection of closest prior art

A suitable starting point in the prior art is selected as the closest prior art **with a focus on the features contributing to the technical character** of the invention identified.

Source: EPO Guidelines – G-VII-5.4

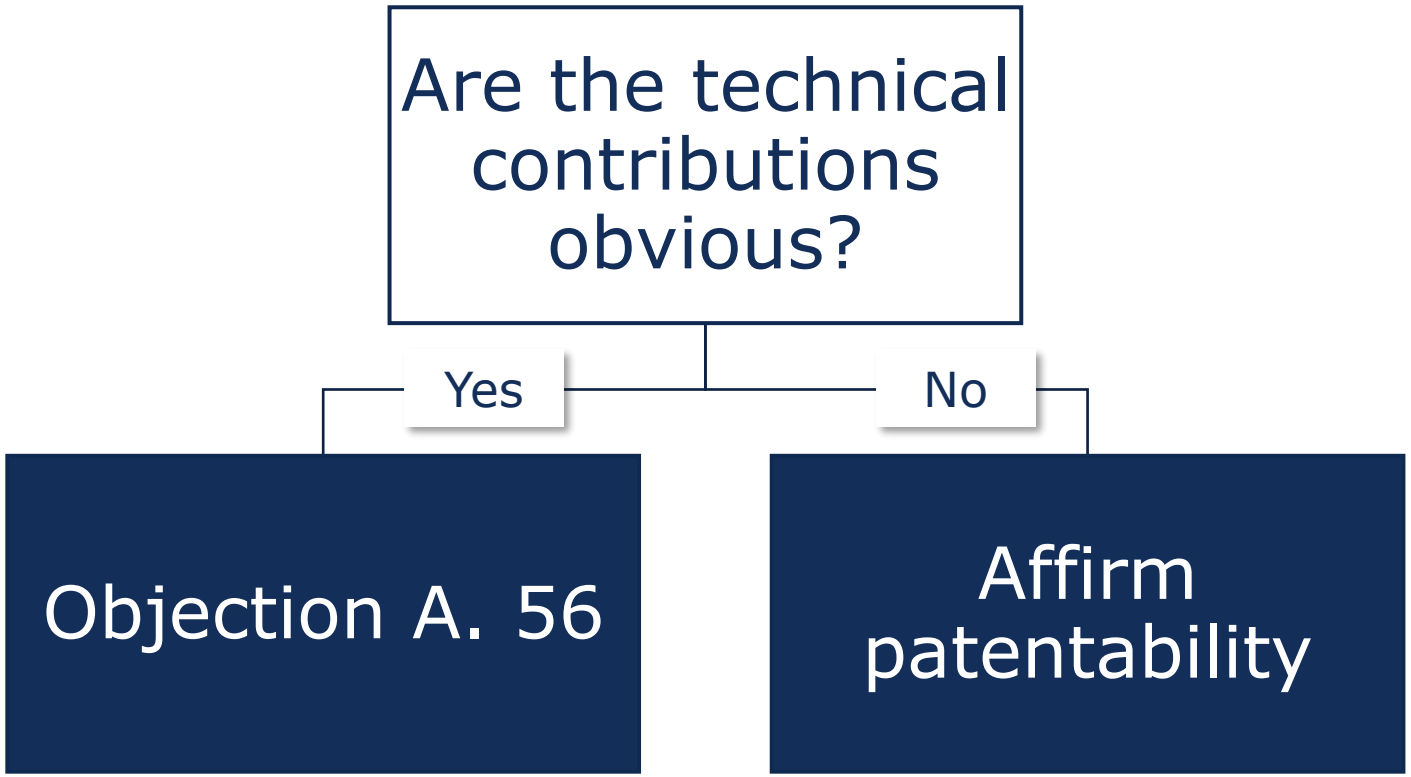
dompatent
von Kreisler

COMVIC APPROACH STEP 2



Source: EPO Guidelines – G-VII-5.4

COMVIC APPROACH STEP 3



Source: EPO Guidelines – G-VII-5.4

COMVIC APPROACH STEP 3

	Problem Solution Approach	COMVIC Approach
Determine closest prior art	✓	Only consider technical features
Objective technical problem	✓	Only consider technical features
Obviousness	✓	Only for technical features

Source: EPO Guidelines – G-VII-5.4.

A TECHNICAL CHARACTER …

… must produce a "**further technical effect**" when run on a computer.

A "**further technical effect**" is a technical effect **going beyond** the "normal" **physical interactions** between the program (software) and the computer (hardware) on which it is run (G 0003/08).

Source: EPO Guidelines – G-II-3.6

FURTHER TECHNICAL EFFECT EXAMPLES

Decision	Argument
T 208/84	Technical character can be indicated by a method having an overall technical effect, such as **controlling some physical process**.
T 2079/10	If a **purely non-technical interpretation** of the claim's subject-matter is not possible, it is deemed to have technical character.
T 1375/11	Improving **ergonomic operability** is a technical problem. The problem and its solution are technical if they **depend on technical parameters** rather than psychological or subjective factors.

Source: EPO Guidelines – G-VII-5.4

EXEMPLARY LIST OF POTENTIAL TECHNICAL CHARACTERS

Argument
Effects and features in the "classical" technical fields, such as telecommunications, mechanical engineering/mechanics, electrical engineering, image processing, chemistry, etc., and in industrial processes → physical process
More efficient resource allocation: energy, memory, processor, I/O interfaces, etc.
Improving keyboards, terminals, or other mechanical- or system-components
Increased bandwidth
Increasing security and reliability
Improvement of the IT system’s overall architecture

EXAMPLE INVENTION

Method of facilitating shopping on a mobile device wherein:

a) the user selects two or more products to be purchased;

b) the mobile device transmits the selected products data and the device location to a server;

c) the server accesses a database of vendors to identify vendors offering at least one of the selected products;

d) the server determines, on the basis of the device location and the identified vendors, an optimal shopping tour for purchasing the selected products by accessing a cache memory in which optimal shopping tours determined for previous requests are stored; and

e) the server transmits the optimal shopping tour to the mobile device for displaying.

Source: EPO Guidelines – G-VII-5.4.2.1

WHAT ARE THE INVENTIONS TECHNICAL FEATURES?

The features contributing to the technical character are at first glance identified as a distributed system comprising a mobile device connected to a server computer which has a cache memory and is connected to a database.

Source: EPO Guidelines – G-VII-5.4.2.1

WHAT ARE THE TECHNICAL FEATURES?

Method of facilitating shopping on a mobile device wherein:

~~a) the user selects two or more products to be purchased;~~

b) the mobile device transmits the selected products data and the device location to a server;

c) the server accesses a database of vendors to identify vendors offering at least one of the selected products;

d) the server determines, on the basis of the device location and the identified vendors, an optimal shopping tour for purchasing the selected products by accessing a cache memory ~~in which optimal shopping tours determined for previous requests are stored; and~~

e) the server transmits the optimal shopping tour to the mobile device for displaying.

Source: EPO Guidelines – G-VII-5.4.2.1

CLOSEST PRIOR ART – D1

Document D1, discloses a method for facilitating shopping on a mobile device wherein the user selects a single product and the server determines from a database the vendor selling the selected product nearest to the user and transmits this information to the mobile device.

Source: EPO Guidelines – G-VII-5.4.2.1

WHAT ARE THE TECHNICAL FEATURES?

Method of facilitating shopping on a mobile device wherein:

a) the user selects two or more products to be purchased;

b) the mobile device transmits the selected products data and the device location to a server;

c) the server accesses a database of vendors to identify vendors offering at least one of the selected products;

d) the server determines, on the basis of the device location and the identified vendors, an optimal shopping tour for purchasing the selected products by accessing a cache memory in which optimal shopping tours determined for previous requests are stored; and

e) the server transmits the optimal shopping tour to the mobile device for displaying.

Source: EPO Guidelines – G-VII-5.4.2.1

PRIOR ART– D2

Document D2 discloses a travel planning system for determining travel trips, listing a set of places to visit, and addresses this technical problem: the system of D2 accesses for this purpose a cache memory storing results of previous queries.

Source: EPO Guidelines – G-VII-5.4.2.1

WHAT ARE THE TECHNICAL FEATURES?

Method of facilitating shopping on a mobile device wherein:

a) the user selects two or more products to be purchased;

b) the mobile device transmits the selected products data and the device location to a server;

c) the server accesses a database of vendors to identify vendors offering at least one of the selected products;

d) the server determines, on the basis of the device location and the identified vendors, an optimal shopping tour for purchasing the selected products by accessing a cache memory in which optimal shopping tours determined for previous requests are stored; and

e) the server transmits the optimal shopping tour to the mobile device for displaying.

Source: EPO Guidelines – G-VII-5.4.2.1

EXAMPLE INVENTION 2

A computer-implemented method of determining areas in which there is an increased risk of condensation for a surface in a building comprising the steps of:

a) controlling an infrared (IR) camera to capture an image of the temperature distribution of the surface;

b) receiving mean values for the air temperature and the relative air humidity measured inside the building over the last 24 hours;

c) calculating, based on said mean air temperature and mean relative air humidity, a condensation temperature at which there is a risk of condensation on the surface;

d) comparing the temperature at each point on the image to said calculated condensation temperature;

e) identifying the image points having a temperature lower than the calculated condensation temperature as areas at increased risk of condensation on the surface; and

f) modifying the image by colouring the image points identified in step (e) in a particular colour to indicate the areas at increased risk of condensation to a user.

Source: EPO Guidelines – G-VII-5.4.2.4

WHAT ARE THE TECHNICAL FEATURES 2?

The control of an IR camera in step (a) clearly makes a technical contribution. The question is whether steps (b) to (f) also contribute to the technical character of the claimed subject-matter.

Considered in isolation, steps (b) to (e) relate to algorithmic/mathematical steps and step (f) defines a presentation of information. **However, the claim is not directed to a mental act, a mathematical method or presentation of information as such (which would be excluded from patentability under Art. 52(2)(a), (c), (d) and (3))** because the claimed subject-matter involves technical means such as a computer.

Source: EPO Guidelines – G-VII-5.4.2.4

EXAMPLE INVENTION 2

A computer-implemented method of determining areas in which there is an increased risk of condensation for a surface in a building comprising the steps of:

a) controlling an infrared (IR) camera to capture an image of the temperature distribution of the surface;

b) receiving mean values for the air temperature and the relative air humidity measured inside the building over the last 24 hours;

c) calculating, based on said mean air temperature and mean relative air humidity, a condensation temperature at which there is a risk of condensation on the surface;

d) comparing the temperature at each point on the image to said calculated condensation temperature;

e) identifying the image points having a temperature lower than the calculated condensation temperature as areas at increased risk of condensation on the surface; and

f) modifying the image by colouring the image points identified in step (e) in a particular colour to indicate the areas at increased risk of condensation to a user.

Source: EPO Guidelines – G-VII-5.4.2.4

CLOSEST PRIOR ART – D1 EXAMPLE 2

Document D1 discloses a method for monitoring a surface to determine the risk of condensation forming on it. The risk of condensation is determined based on the difference of the temperature reading obtained via an IR pyrometer for a single point on the surface and the condensation temperature calculated based on the actual ambient air temperature and the relative air humidity. The numerical value of the difference is then shown to a user as an indication of the likelihood of condensation at said point.

Source: EPO Guidelines – G-VII-5.4.2.4

EXAMPLE INVENTION 2

A computer-implemented method of ~~determining~~ areas ~~in which there is an increased risk of condensation for a surface~~ in a building comprising the steps of:

a) controlling an **infrared (IR) camera** to capture an image of the temperature distribution of the surface;

b) receiving **mean values** ~~for the air temperature and the relative air humidity measured inside the building~~ over the last 24 hours;

~~c) calculating, based on said mean air temperature and mean relative air humidity, a condensation temperature at which there is a risk of condensation on the surface~~;

~~d) comparing the temperature at each point on the image to said calculated condensation temperature~~;

~~e) identifying the image points having a temperature lower than the calculated condensation temperature as areas at increased risk of condensation on the surface; and~~

~~f) modifying the image~~ by **colouring** the ~~image points identified in step (e)~~ in a particular colour to indicate the **areas** at increased risk of condensation ~~to a user~~.

Source: EPO Guidelines – G-VII-5.4.2.4

dompatent
von Kreisler

SUMMARIZING THE DIFFERENCES

Feature	Technical or Non-Technical?
Using an IR-camera instead of an IR-pyrometer	✓
Using mean values to calculate condensation temperature	✓
Identifying critical points as areas	✓
Using colors for displaying areas	✗

Source: EPO Guidelines – G-VII-5.4.2.4

SUMMARIZING THE DIFFERENCES

Feature	Obvious or Non Obvious?
Use an IR-camera instead of an IR-pyrometer	Yes ✗
Use mean values to calculate condensation temperature	No ✓
Identify critical points as areas	No ✓

→ Invention 2 involves an inventive step ✓

Source: EPO Guidelines – G-VII-5.4.2.4

SUMMARY AND BEST PRACTICE: COMPUTER IMPLEMENTED INVENTIONS

- Generally inventions in “all fields of technology” are patentable, but not “[…] programs for computers.
- EPO uses modified problem solution approach (COMVIK) to raise objections based on technicality.
- Best argument for technicality is relation to some physical process (e.g. robots, sensors, etc.).

dompatent
von Kreisler