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Computer implemented inventions (CII): the EPO approach

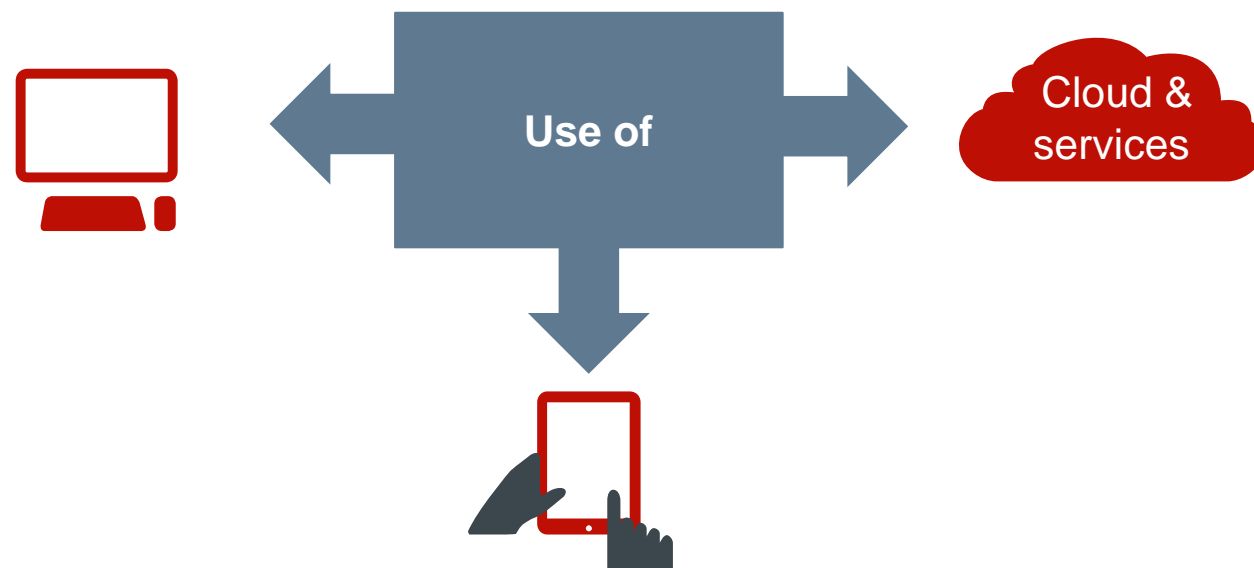


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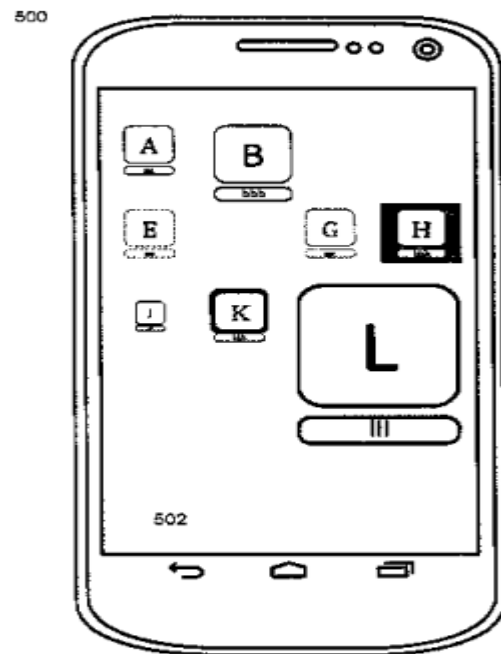
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Computer Implemented Inventions



The features of the inventions are realised wholly or partly by means of a computer program.

Computer Implemented Inventions – a typical example



“A method of displaying applications on a mobile device, comprising....”

§ mainstream CII:

“computer-implemented method”

§ functional features implemented in s/w

CII is a KEY area of innovation

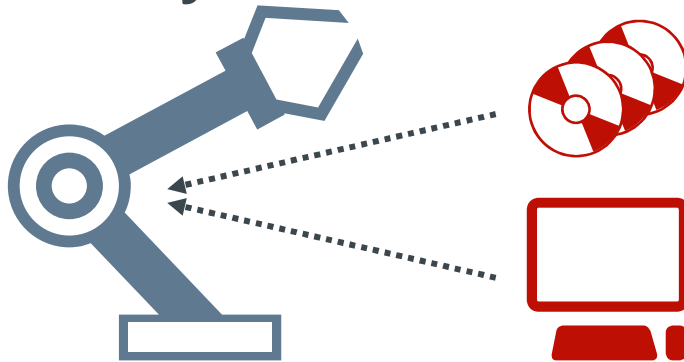
Industry 4.0: it's all about software

IoT

Virtualisation

AI

Inductive
inference

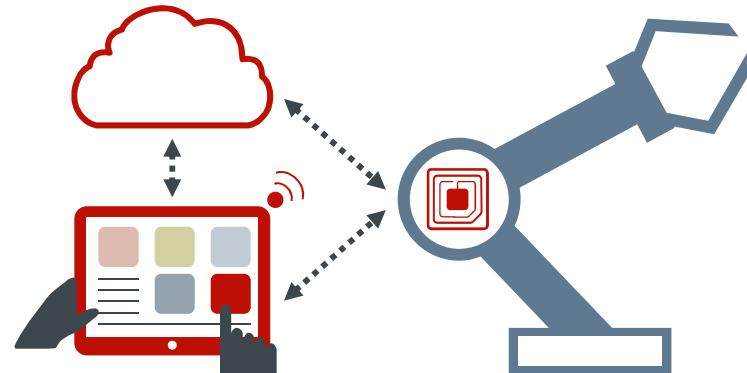


Today

**Advanced machines using
standard software**
(advances from improving
the machine)

Industry 4.0

**Advanced software
using standard
machines**
(advances from improving
the software)



Computer Implemented Inventions

Can patents be granted for computer-implemented inventions in Europe?

YES!

Requirement

Compliance with conditions and criteria of the European Patent Convention (EPC)

European Patent Convention

§ Article 52(1) EPC 2000

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

European Patent Convention

§ Article 52(2) & (3) EPC 2000

- (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.
- (3) Paragraph 2 shall exclude the patentability of the subject-matter or activities referred to therein only to the extent to which a European patent application or European patent relates to such subject-matter or activities as such.

EPO Practice: two-hurdle approach

1. First hurdle:

Is the claimed matter as a whole not excluded under Art.52(2),(3)?
Is there a technical character?

2. Second hurdle:

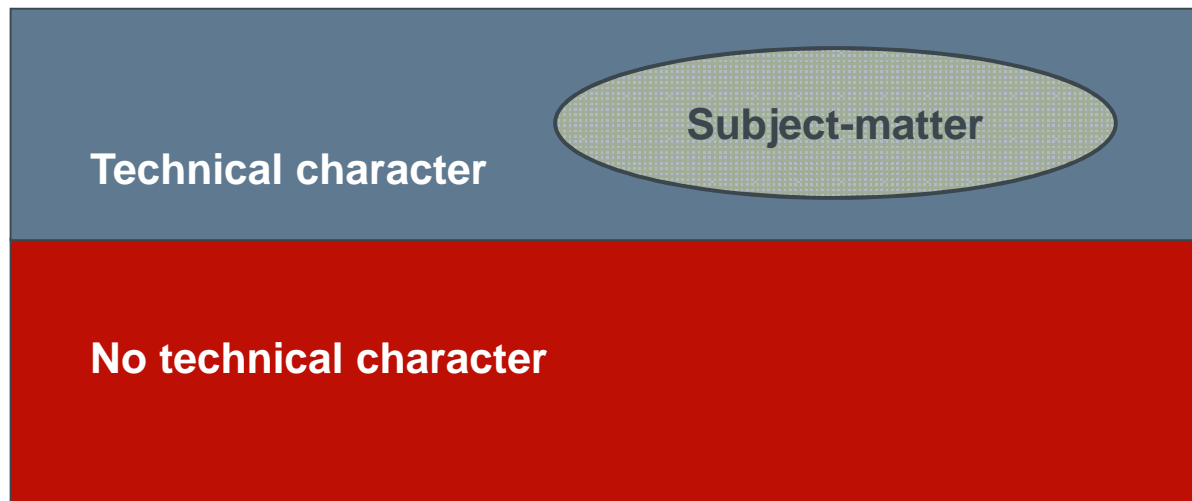
Is the claimed matter as a whole novel in the sense of Art. 54?
Does the claimed matter as a whole involve an inventive step in the sense of Art.56?

A mixture of technical and non-technical features in a claim is allowed. For the assessment of inventive step only the features which contribute to the technical character are taken into account (T0641/00 COMVIK)

EPO Practice: First Hurdle (eligibility)

ü 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.

CII “Mixed Type” Inventions

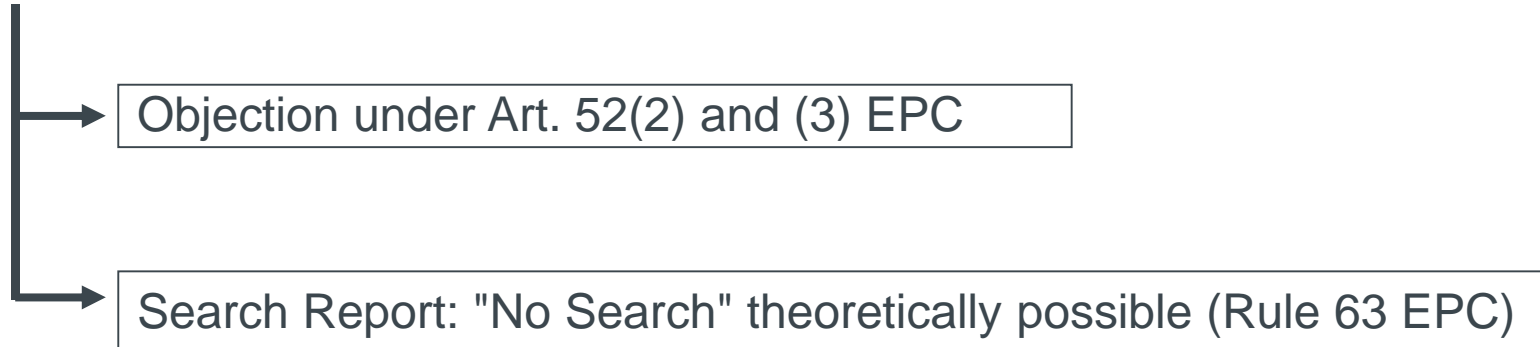
FIRST HURDLE PASSED?

- § *'A method of encouraging customers to be loyal buyers by giving a discount on future purchases'*
- § *'A computer with a database of customers who have previously purchased and applying a discount to any subsequent purchase'*
- § *'A computer-implemented method of encouraging customers to be loyal buyers by giving a discount on future purchases '*
- § *'A program to do the method of encouraging customers to be loyal buyers by giving a discount on future purchases '*

???

EPO Practice: First Hurdle (eligibility)

- If, after this analysis, the subject matter of the claims is found **not** to have a **technical character**:



EPO Practice: First Hurdle (eligibility)

- If a mixture of technical features and features making a contribution to the technical character, is contained in a claim:



- The search, at minimum, covers all features found to contribute to the technical character
- Features not making a contribution to the technical character are indicated in the search opinion

Example I: Exclusion

A security policy for controlling a subject's access to an object comprising :

- defining a clearance level for the subject;
- defining a security level for the object;
- determine whether to grant access to the object based on the object's security level and the subject's clearance level.

Non-technical process

Technical Aspects

none

Example I: Exclusion

The subject matter of the claim defines a model which is purely abstract and devoid of any discernible **technical character**.

The enforcement of an abstract company policy specifying worker's access rights to buildings based on the building's security levels and the worker's clearance levels by (human) security guards who have memorized this policy falls under the scope of this claim.

No clear use of technical means is involved.

 **Subject-matter excluded from patentability (non-eligible)**

Example II: No Exclusion

A **computer-implemented** method for controlling a user's access to a computer resource in a network comprising:

- allocating a clearance level to the user;
- allocating a security level to the computer resource;
- determine whether to grant access to the computer resource based on the user's clearance level and the resource's security level.



Example II: No Exclusion

Technical features

A computer implemented method comprising:

- allocating means => there must be some memory involved
- means for restricting access => there must be some mechanism that implements the monitor function that controls the access attempts and prevents access to the computer resource

Non-Technical Process

broad security policy
as in Example I

The subject matter of the claim defines at least one technical feature and thus has **technical character: First hurdle taken, subject-matter is eligible**



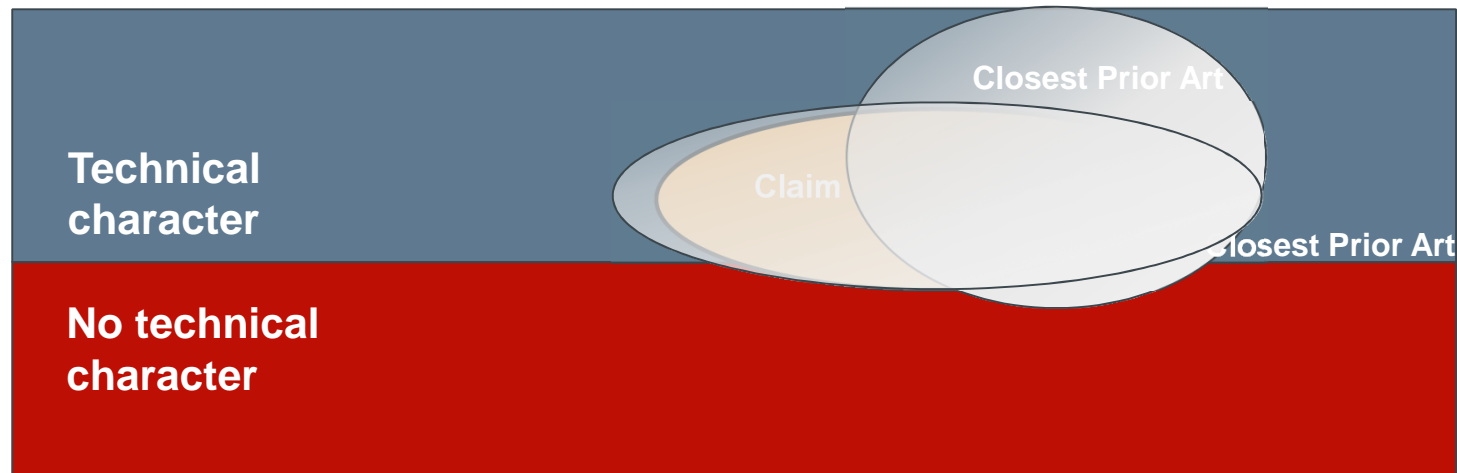
Second Hurdle : Assessment of **Novelty** and **Inventive Step**

EPO Practice: Second Hurdle

Assessment of Novelty

ü Subject-matter *is* novel

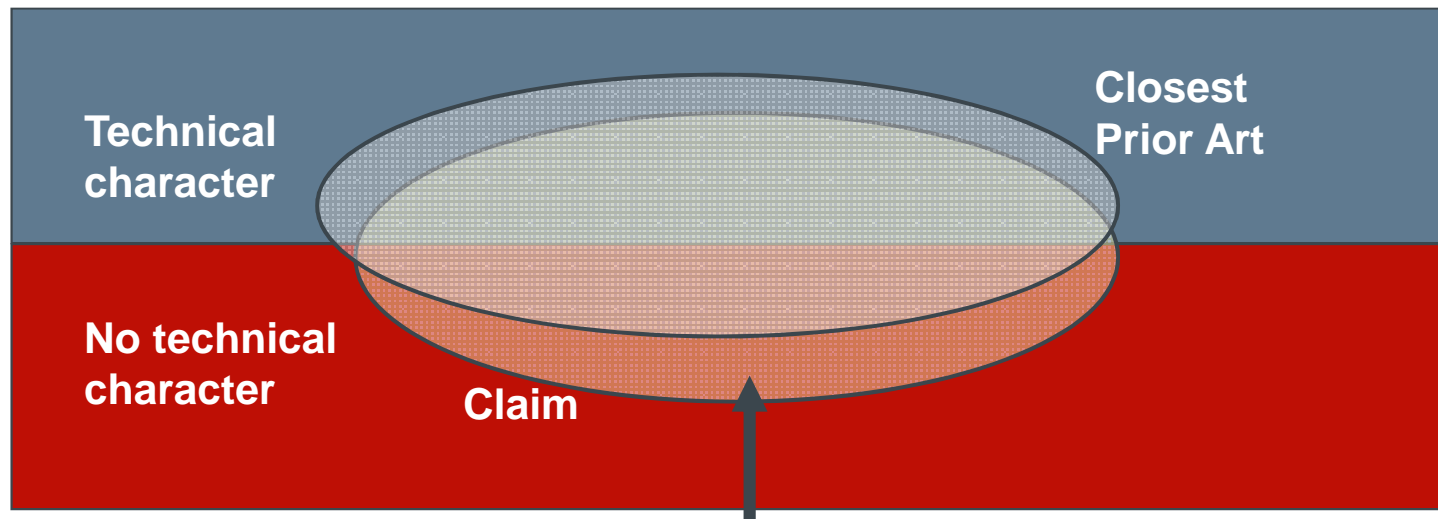
× Subject-matter *is not* novel



All features of the claim known from a single prior art document.

EPO Practice: Second Hurdle

Assessment of Novelty



All differences consist of non-technical features only

The subject-matter of the claim is new

Principle of Photographic Novelty

Non-technical features are taken into account when assessing novelty even when they are the only differences

Example II: Novelty

Technical character:	yes
Non-technical aspects:	yes
Closest prior art:	computer network
Differences:	security policy

The subject-matter of the claim is new because there is one feature (the security policy) which is not known from the closest prior art...

although this feature is non-technical

EPO Practice: Second Hurdle

Assessment of Inventive Step

Problem solution approach

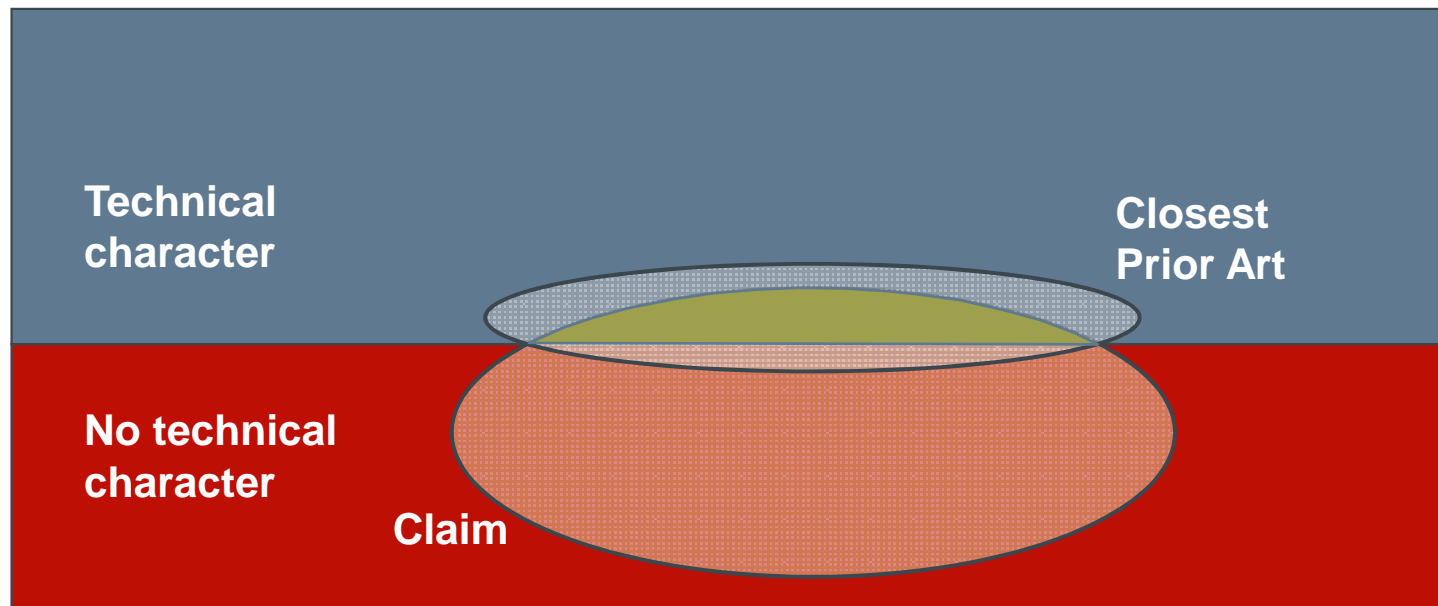
- Establish closest prior art
- Determine differentiating features
- Determine the technical effects of the differentiating features
- Formulate an **objective technical problem** based on those effects
- Decide whether the proposed solution is obvious for the skilled person

EPO Practice: Second Hurdle

Objective technical problem:

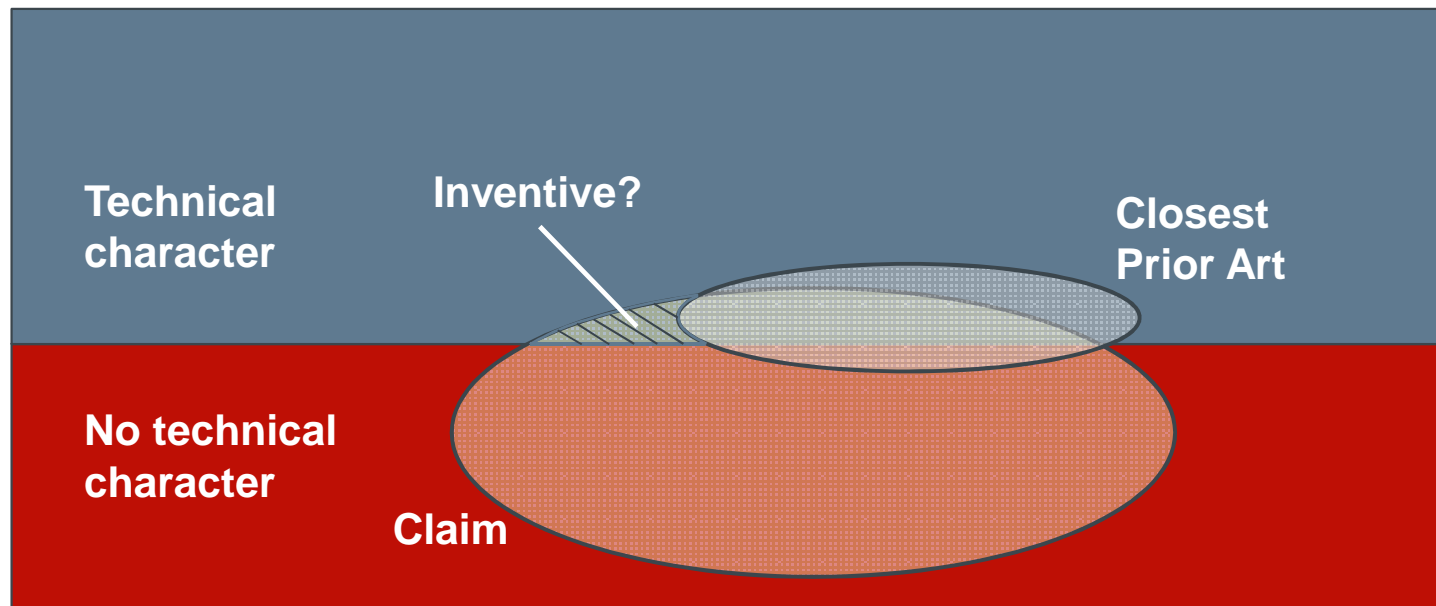
- § derived by the **technical** differences between the closest prior art and the claimed subject-matter,
- § it must be a **technical** problem,
- § no pointers to the **technical** solution,
- § features making **no technical contribution** may appear in the formulation of the objective technical problem as a constraint that has to be met

EPO Practice: Second Hurdle (Patentability)



Technical features are known from the prior art => lack of inventive step

EPO Practice: Second Hurdle (Patentability)



A non-obvious solution to a technical problem is required

Example II: Inventive Step

Technical character:	yes
Non-technical aspects:	yes
Closest prior art:	computer network
Differences:	security policy
Skilled person:	data processing expert
Objective technical problem:	implement said security policy on a computer network
Solution:	implementation is straightforward

Example III: Computer-implemented method

A **computer-implemented** method for controlling a user's access to a computer resource in a network comprising :

- allocating a clearance level to the user;
- allocating a security level to the computer resource;
- determine whether to grant access to the computer resource based on the user's clearance level and the resource's security level by...

[details of technical implementation].

Example III: Inventive Step

Technical character:	yes
Non-technical aspects:	yes (security policy)
Closest prior art:	access control implementation on a network
Differences:	details of technical implementation
Skilled person:	access control data processing expert
Objective technical problem:	how to implement said security policy on a computer network
Solution:	inventive?

CII “Mixed Type” Inventions – Two Hurdle Approach

1st hurdle: Exclusions (**Art. 52, Rule 42, 43 EPC**)

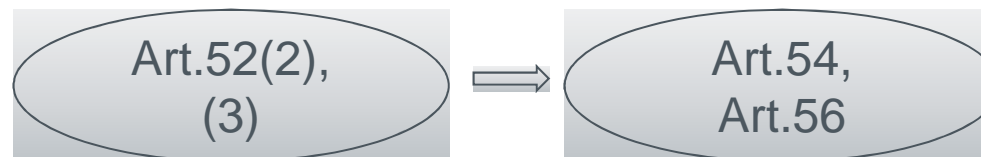
Low Threshold

The claimed subject-matter must have a **technical character**. But claims may contain a mix of technical and non-technical features, in which case:

2nd hurdle: Novelty & Inventive Step (**Art. 54, 56 EPC**)

High Threshold

- § To establish **Novelty** all features - technical and non-technical - are considered
- § To establish **Inventive Step** only those features of the claim are considered which contribute to its **technical character**, i.e. those features which solve a **technical problem** by providing a **technical effect**. There must be a non-obvious **technical contribution** over the prior art.



Summary

<i>a priori</i>	<i>in the light of prior art</i>			<i>objection</i>
NO TECHNICAL CHARACTER				EXCLUSION Art.13(2)(3) EPC
TECHNICAL CHARACTER	NO DIFFERENCE			NOVELTY Art. 52(1), 54 EPC
	DIFFERENCE:	NOT TECHNICAL		INV. STEP Art.52(1) and 54 or 56 EPC
		TECHNICAL	OBVIOUS	INV. STEP Art. 52(1) and 56 EPC
			NOT OBVIOUS	other requirements?

EPO practice - Worldwide Benchmark for patentability

1. CII is KEY area

- innovation
- growing number of applications
- many fields impacted

2. EPO is worldwide benchmark in CII

- we take the lead
- harmonised approach for legal certainty and predictability

3. Full management support and Quality Cycle

- “do what we say”; ISO9001
- reinforce standing practice in the Guidelines; clarify where appropriate
- cross fields harmonisation for legal certainty
- clarification, training, managerial commitment

*all technical fields
prepared to handle CII*

*EPO follows the trends
in technology*

*like subject matter
treated in the same way*

*predictability is key to
our quality*

Thank you.

Questions?