



# SSM



## JIPA Seminar

January 2022

# Disclaimer

This presentation is intended to give you a basic understanding on mixed-type inventions (CIIs) at the EPO (European Patent Office). Any information given has been prepared to the best of our knowledge. Nevertheless, we cannot guarantee that the information is complete and considers all aspects of the case law correctly. In particular, in praxis, each case has particularities which have to be considered. Therefore, please do not base any practical decision on the information given to you in this presentation but please ask us or any other European patent attorney for specific advice for each case or local national patent attorney with respect to enforcement.

# AGENDA

Introduction to our firm and myself

---

# MAIN TOPIC

Mixed type inventions at the EPO:  
How to draft the application text for  
optimizing patent prosecution of mixed type  
inventions

---

**Maximilian Engelhard**

Dipl.-Phys. Dr. rer. nat.,  
LL.M.

Partner SSM

German Patent Attorney

European Patent Attorney

European Trademark and  
Design Attorney



## CV

Doctoral Thesis in Physics  
at Max Planck Institut 1993

Joined SSM 1993

German Patent Attorney 1996

European Patent Attorney 1997

Master of Laws 2006

Represents several global players  
on behalf of SSM

Handling of Landmark Decision  
Cases in field of CII and Medical  
Technologies

Usually twice a year travel to Japan  
since 2001

# SSM

Mid-size IP firm (60 staff)  
Founded in 1896  
Located in Munich, Germany  
All IP services  
All technical fields  
Worldwide network of  
associated firms



SSM

## SSM: Best of two worlds:



- For each of our clients, we have a dedicated team of technical and formal experts deeply familiar with our client's needs and requirements and highly skilled in a broad range of IP services.
- The sizes of our specialised teams are flexibly adapted depending on our client's needs. This allows us to handle peak service demands of major global companies while we still concentrate on tailor-made services for our clients.

## Development

Growing for decades



## Facts about SSM:

- Dedication to client: Most of our 17 attorneys are equity partners (>70%)
- Extraordinary Qualifications:
  - Most of technical experts are patent attorneys (>75%)
  - About half of formal experts are certified paralegals
  - Multi-lingual and cultural approach: 2 Japanese patent attorneys, one with EPO qualification and one as trainee and one Chinese trainee
- Sustainable growth: 5 new partners in last 6 years. 4 highly qualified trainees.
- We offer inhouse training programs for trainees of our clients (one week to a few months)
- High loyalty of attorneys and other staff members to SSM (up to about 35 years)
- High loyalty of clients, e.g. Ricoh Company since 1956 or Panasonic since 1985



# How to draft the application text for optimizing patent prosecution of Mixed-Type Inventions (MTIs)

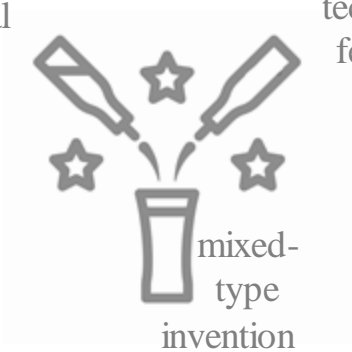
- A. Eligibility and inventive step
- B. Claim drafting
- C. Description drafting



# January 2022

non-  
technical  
features

technical  
features



# I. Mixed-type Invention (MTI)

What is a mixed-type invention (MTI)?

- A mixed-type invention comprises a mix of non-technical and technical features (EPO Guidelines G–VII, 5.4).
- A mix of non-technical and technical features usually occurs in the field of software inventions. That is mixed-type inventions are usually software MTIs:
  - An example for a non-technical feature of a software MTIs is a business method step caused by a program instruction.
  - An example for a technical feature of a software invention is the computer used by the software MTI.





## II. Eligibility of MTIs in Europe

1) Is a MTI eligible?

Article 52(1) EPC rules:

*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 applications.*

Is a software MTI in a **technical field** because it uses a computer?

Is a software MTI in a **non-technical field** because it uses a program?



## II. Eligibility of MTIs in Europe

### 2) What are non-eligible fields?

Article 52(2) EPC rules that the following “subject-matter or activities” is **not eligible**:

- a) ...**mathematical methods**;
- b) Schemes, rules and methods for performing mental acts, playing games or **doing business**, and **programs** for computers;
- c) **Presentations of information**.

However, only not eligible if it relates to the subject-matter or activities **as such** (Article 52(3) EPC).

What does “as such” mean?

## II. Eligibility of MTIs in Europe

### 3) “As such”

**“As such”** means that if a claim **only** consists of not eligible subject-matter or activities then the claim is not eligible. In other words, “as such” means that the claim has to consist to **100 %** of not eligible features.

Thus, **adding a technical feature to a non-eligible claim renders the claim eligible.**

Do we make a software MTI eligible just by adding the term “computer” to a software MTI claim?

Is a computer (always) technical even if non-technical data are processed?



## II. Eligibility of MTIs in Europe



### 4) Is a computer technical?

1998: A computer has to have further technical effects beyond common technical effects like electrical currents inside the computer; T1173/97 IBM

2000: A claim directed to a computer is always technical (FCJ, "Sprachanalyseeinrichtung"; represented by **SSM**)

2004/2006: **Any hardware approach** T258/03 Hitachi; T424/03 Microsoft

## II. Eligibility of MTIs in Europe



5) Drafting Advice: Always mention “computer” in a software MTI claim!

- A computer makes a software MTI eligible!
- **Always mention “computer” in a software MTI claim!**
- An software MTI including a computer is called

**Computer Implemented Invention: CII**

in Europe.

- CIIs are generally eligible because they include the “C” (computer)



## II. Eligibility of MTIs in Europe



### 6) Example for a not eligible claim:

- *A method for selling goods, comprising the following steps:  
setting an initial price;  
reducing the price by ten percent every five minutes; and  
displaying the current price.*

### 7) Example for how to draft an eligible claim:

- *A **computer implemented** method for selling goods, comprising the following steps performed by the **computer**:  
setting an initial price;  
reducing the price by ten percent every five minutes; and  
displaying the current price.*



### III. Inventive Step of MTIs



#### 1) Inventive step hurdle

Eligibility hurdle: low !

Inventive step hurdle: high !

MTIs **purely** based on an inventive business idea have no chance to be granted in Europe! Just adding the term “computer” to an MTI claim is not sufficient!





### III. Inventive Step of MTIs

#### 2) Only technical features count for inventive step

Basic case law development between 2002 to 2004:

**Only features contributing to the technical character of the claimed invention are to be taken into account when assessing inventive step.**

(T641/00 Comvik, 2002; T172/03 Order Management/Ricoh represented by **SSM**, 2003; T528/03 Hitachi, 2004).

Features have technical character if they solve a **technical problem** by technical means. What does this mean for software MTIs?





## IV. What software is technical?

### 1) Application and Implementation Layers

- The functions of software can be divided in functions relating to the **application layer** and functions relating to the **implementation layer**.
- The **implementation layer** concerns control of the computer. Since controlling of a device is considered to be technical, the implementation layer is **always** considered to be **technical**
- The application layer is concerned with the purpose of the software. Depending on the purpose, the **application layer can be technical or non-technical**.

## IV. What software is technical?



### 2) Technical applications

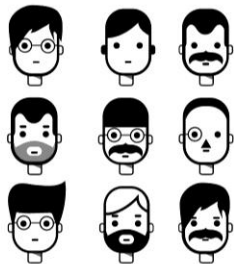
- Input, processing and output of measurement or control data, e.g. control of a technical device (e.g. by **IOT**)
  - Image data processing and analysis (e.g. by **AI**)
  - Presentation of information for technical reasons (e.g. for control purposes)
  - Data compression
  - Data security, authentication, encryption and integrity (e.g. by **blockchain**)
  - Data synchronising and load balancing between data processing units and cloud computing technology
  - Simulation of technical process if used for technical purpose
- G1/19

## IV. What software is technical?

### 3) Non-Technical applications

- Text processing
- Processing of business data
- mathematical data processing without technical use case
- Computer games
- Presentation of non-technical information for non-technical reason (e.g. more aesthetic **GUI** design)





# I. Claim types for MTIs in EP

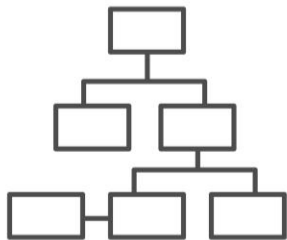
## Usual claim types:

- Computer implemented method claims
- Computer program claims (considered to be the same as “Computer program product claims” Guidelines for Examination F-IV-3.9.1)
- Program storage claims or program memory claims
- Product claims, e.g. device or system
- Signal wave or data stream claims (T 121/06), intended for protection of downloads

## Rare claim types:

- Virtual machine claims (T 21/06)
- Data structure claims (as a product of a program): depends on details
- Product-by-process claims: try for AI!

## II. Claim language



### 1) How to structure the independent claims?

**Start with a computer implemented method claim.** All other independent claims should be drafted by making directly or indirectly a reference to this claim, for example:

1. Computer implemented **method** comprising the steps....
11. A computer **program** comprising instructions which, when the computer program is executed by a computer, cause the computer to carry out the method of any one of the preceding claims.
12. Computer-readable **storage** medium on which the program of claim 11 is stored.
13. A **computer** comprising the storage medium of claim 12 and...
14. A **system** comprising the computer of claim 13 and...
15. A **data stream** comprising the computer program of claim 11.



## II. Claim language

### 2) How to write the claims?

- Standard claim wording:

*Computer-implemented method for determining data C constituted to cause a computer to perform the following steps:*

- *acquiring data A;*
- *acquiring data B; and*
- *determining data C based on data A and data B.*

- **Advice:** For identifying essential steps, define the technical problem on which you want to base the inventive step. Then draft a flow diagram and identify those steps in the flow diagram which are essential to solve the defined technical problem.



## II. Claim language

### 3) What about non-technical features in the claim?

- **Advice:** Only add non-technical features to the claim which, when taken in isolation are non-technical, but do, in the context of the invention, contribute to producing a technical effect serving a technical purpose (Guidelines for Examination, G-VII, 5.4), e.g. by serving as a parameter for a technical process.
- **Example:** A technical process of transporting money bills can be controlled in dependence on the total amount of money to be transported. The total amount of money (e.g. 1.000.000 Yen) is a non-technical feature. However, it serves as a parameter for the technical process of collecting the bills.





# I. Non-technical terms

Avoid critical IPC classification by using “unsuspicious” terms

- **EPO scans** filed patent applications **for non-technical terms**
- Applications suspicious to be non-technical are transferred to special departments of **high rejection rate!**
- **Avoid non-technical terms in claims and description**, like cost, managing, administration, payment, money, etc. better use terms like resource and control



## II. Summary of Invention (SoI)

Most important part of description: Summary of the invention (SoI)

- Rules for amendments are very strict at the EPO.
- Intermediate generalization and feature picking out of embodiments in detailed description are not allowed.
- Solution: disclose optional steps of flow diagram also in SoI!
- Wording: “Alternatively or additionally the step... can be performed by the following substeps...”
- Define each technical term used in the claims in the SoI if the meaning of the term is not notoriously known
- Give examples for the technical term in SoI to support their broad meaning and for enablement





SSM

### III. Technical Advantages



- Very important! Describe technical advantages of claimed features of the MTI to attach technical character to each claimed feature! This is best done in the Summary of Invention.
- If both technical advantages and non-technical advantages of a feature are mentioned for the same feature, the non-technical advantage will render this feature non-technical.
- **Therefore first advice:** Avoid description of non-technical advantages for features which may be of importance for inventive step!
- **Second advice:** Restrict disclosure of any non-technical advantage to the non-technical features of the MTI.



## IV. Clarity and Enablement

### 1) “Result to be achieved” steps

- A claimed software step can be attacked to be unclear because it is defined by its result to be achieved. **Example:**

*determining compressed image data*

*“compressed image data” is the result achieved by “determining”*

- In order to be able to specify an attacked claim wording during prosecution, the following could be disclosed in the Summary of Invention:

*The determination of the compressed image data can be performed by inputting the (uncompressed) image data in a compression algorithm which outputs the compressed image data. Examples for such compression algorithms are ....*





## IV. Clarity and Enablement

2) Beware the typical trap caused by “result to be achieved” software steps:

- Any argument that the implementation of this kind of software step is straightforward for the skilled person is an argument against inventive step of this step.
- Any argumentation that this kind of step software step is inventive is an argument against sufficient enablement of this step.
- **Thus, don't describe a software step just by its result to be achieved!**
- Thus, for each software step, describe in detail **how the step achieves the result**. To this end, use and describe in detail flow diagrams. This allows to defend or amend claim wordings during prosecution if attacked to be unclear or not supported. Best place for this is again the SoI.



## Further Information:



www.ssm-patent.de