

Written statement for case G 1/19 before the Enlarged Board of Appeal

22 August 2019

FEMIFI, the European umbrella organization of patent attorneys in industry, is pleased to have the opportunity to provide this written statement in accordance with Article 10 of the Rules of Procedure of the Enlarged Board of Appeal for case G 1/19¹

* * *

I. Case G 1/19

Case G 1/19 relates to the question whether computer-implemented simulations of technical systems and processes should be precluded from patentability and what criteria should be relevant for assessing the technicality of these simulations.

The referred case, European patent application No. 03793825.5, is directed to a computer-implemented simulation of a pedestrian crowd movement through a digitally represented environment as well as to designing a building comprising such a simulation step. The Examining Division refused the application basically due to lack of technical character of the simulation step. In the appeal proceeding T 0489/14, the Board of Appeal expresses its doubts with previous case law T 1227/05 finding that simulations of technical systems can have technical character and expresses its intention to deviate from this jurisprudence.

II. FEMIFI statements

1. Open definition of technology

The legislator has deliberately refrained from defining the terms “technical” and “technology” in order to not preclude adequate protection for the results of future developments in fields of research which the legislator could not foresee. Instead, the legislator intended to continuously adapt the open definition by way of individual cases to the development of technology and to ensure that no technology – neither new nor existing – will ever get precluded from patentability. This implies a high responsibility to all actors to always remain open-minded towards any kind of technology and to continuously stay at the forefront of research.

¹ The IP Federation will submit its view separately.

2. Computer-implemented simulations are of high industrial relevance

Computer-implemented simulations perform technical functions typical of modern engineering work. They can, depending on the quality of the simulation, provide – by way of an **approximate imitation** of the **physical reality** – a realistic assessment or prediction of the operation of a technical product, process or system. Thereby the simulation ideally allows the product, process or system to be developed so accurately that a prototype's chances of success can be assessed before it is built. This enables a wide range of products, processes or systems to be virtually tested and examined for suitability before high investments in a manufacturing process must be taken. These technical effects are core elements of the digital revolution that drives the digital conversion of European industry. They result in **huge cost savings**, and a tremendous **reduction of development cycles**, including a reduction in field and performance testing, which are paramount for the success and competitiveness of European Industry. Thus, they clearly constitute well-defined technical effects in a physical reality.

3. Computer-implemented simulations can constitute a field of technology

The referring Board expresses the view that a technical effect requires, at a minimum, a direct link with **physical reality**, such as a **change** in or a **measurement** of a physical entity. We agree that a link with physical reality is a well-accepted **sufficient** criterion that establishes technology. However, the openness of the definition of technology would be put at risk if it were made a necessary criterion for each and every invention. This would go too far and could preclude any computer-implemented digital technologies from patentability.

Considering how computer-implemented simulations are applied by industry today, software and computers must be accepted as physical entities that can create technical effects with physical reality. For computer-implemented simulations that provide a realistic assessment or prediction of the operation of a technical product, process or system, the sufficient link lies in the **approximate imitation** of the **physical reality** of the simulated **technical** product, process or system. Because of this link with physical reality they can't be precluded from patentability. Instead, they must be accepted as a field of technology.

4. Computer-implemented simulations are not mental act as such

By the limitation of patent claims to computer-implementations any kind of protection of pure mental acts is excluded from the scope of the protection. It is therefore contradictory to preclude computer-implemented simulations from patentability by ignoring the limitation to computer-implementations and alleging that they could be “in principle” pure mental-acts as such. This examination approach would potentially preclude any computer-implemented invention that

processes digital data from patentability. Moreover, this would constitute a clear violation of the legal obligation of Art. 52 (3) EPC to interpret the exclusions of Art. 52 (2) EPC narrowly and a deviation from long established case law regarding the patentability of computer implemented inventions.

Instead, computer-implemented simulations must be examined in the same way as any other computer-implemented invention. By providing the limitation of computer implementation, they always pass Art. 52 EPC. Under Art. 56 EPC it has to be analysed in a second step WHAT is simulated and HOW it is simulated.

5. Computer-implemented simulations have the same technical potential as hardware inventions

It should be enough if a computer-implemented simulation has the potential to provide an inventive technical effect in a specific application. It should not be required to include this application in the patent claims. As recognized correctly by T 1173/97, COMPUTERPROGRAMMPRODUKT / IBM, an inventive computer-implemented simulation is ready for industrial application as soon as the computer-implementation is available in the form of a computer program.

The same should be applied for computer implemented simulations. In this regard computer-implemented simulations are comparable to hammers or other tools. Both have the potential to generate inventive technical effects, but this potential will only materialize in the physical reality if they are applied by industry. Thereafter, they can be improved by virtue of typical engineering work. It is up to engineers to recognize problems resulting from their industrial application, searching for root causes thereof and finding, by way of non-obvious technical considerations, new inventive technical solutions that solve the identified problems and ideally perform better than the prior-art. With hammers this would result in a “better hammer” and with computer-implemented simulations in a “better computer-implemented simulation”.

6. Conclusion

In modern times, there is no justification to discriminate computer-implemented simulations from hardware. In the same way as inventive hardware serving as tools for industrial application and being claimed independently from its industrial application is not precluded from patentability, inventive computer-implemented simulations which serve as tools for industrial application, design or planning must not be precluded from patentability if they are claimed independently from their industrial application.

It is the responsibility of the Patent System to ensure that no technology is ever precluded from patentability. The Patent System is expected to keep track with the development of technologies

and to always remain at the forefront of research. In the past, technology was haptic hardware. With digitalization, it is software and computers – including computer-implemented simulations that provide realistic assessments or predictions of the operation of technical product, processes or systems.

FEMIFI encourages the Enlarged Board of Appeal to comply with its responsibility by recognizing the inherent technicality of simulations that provide – by way of an approximate imitation of the physical reality – a realistic assessment or prediction of the operation of technical products, processes or systems and by ensuring that these computer-implemented simulations are not precluded from patentability.

7. Answers to referred questions

- I. Yes. A computer-implemented simulation of a technical system or process that is claimed as such can solve a technical problem by producing a technical effect which goes beyond the simulation's implementation on a computer. Exemplary technical effects are the cost savings and the reduction of development cycles, including a reduction in field and performance testing, that can be achieved by way of a realistic assessment or prediction of the operation of a technical product, process or system which ideally allows it to be developed so accurately that a prototype's chances of success can be assessed before it is built. This allows a wide range of products, processes or systems to be virtually tested and examined for suitability before investments in manufacturing must be made.
- II. A computer-implemented simulation claimed as such solves a technical problem if it provides – by way of an **approximate imitation** of the **physical reality** – a realistic assessment or prediction of the operation of a technical Product, process or system.
- III. The answers to the first and second questions are the same if the computer-implemented simulation is claimed as part of a design process, in particular for verifying a design. If the computer-implemented simulation claimed as such passes the test of Art. 56 EPC, this fact will not change if the simulation is claimed as part of a design process whether such design process be of a product, process, or system.