G 1/19: No special routes for computer-implemented simulations

From recent EPO case law on the question of patentability of software-related inventions -

The Enlarged Board of Appeal of the European Patent Office recently published the eagerly awaited decision G 1/19, shedding light on the question of how computer-implemented simulations are to be assessed in patent application proceedings.

To anticipate the result: they are to be treated in the same way as other computer-implemented inventions and do not occupy a privileged position among them. No new principles are introduced, known ones are at best refined. Those who are familiar with the COMVIK principles established in T 0641/00 and who are able to recognize the decisions T 1227/05 and the referring T 0489/14 as extreme examples for more liberal or stricter grants, respectively, will probably come to at least reasonable results in the evaluation of the patentability of the subject matter even without reading G 1/19.

Does that make G 1/19 any less worth reading? Not at all. It contains a readable, condensed, yet thorough discussion of the relevant case law on the limits of patentability of computer-implemented inventions in general and computer-implemented simulations in particular. Here, even excursions into national case law ("Rote Taube", "Logikverification") are made, even if these remain superficial. Specialists in computer-implemented inventions will not be able to avoid reading the almost 70-page decision anyway, but also the interested or the generalist in patent law is recommended to read it.

For more details follow the link.

Baseline:

The Enlarged Board of Appeal was confronted with the following questions from appeal proceedings T 0489/14, the answers to which are briefly supplemented here and explained in more detail below:

1. In the assessment of inventive step, can the computer-implemented simulation of a technical system or process solve a technical problem by producing a technical effect which goes beyond the simulation's implementation on a computer, if the computer-implemented simulation is claimed as such? **- YES**

2. [2A] If the answer to the first question is yes, what are the relevant criteria for assessing whether a computer-implemented simulation claimed as such solves a technical problem?
   - **THIS QUESTION REMAINED UNANSWERED DUE TO INADMISSIBILITY.**
   [2B] In particular, is it a sufficient condition that the simulation is based, at least in part, on technical principles underlying the simulated system or process? **- NO**

3. What are the answers to the first and second questions if the computer-implemented simulation is claimed as part of a design process, in particular for verifying a design? - **NOT OTHERWISE**

In detail:

In summary, the object of the invention is a method for simulating the movement of autonomous entities (pedestrians) through an environment, taking into account a pedestrian profile and determining a personal space around the pedestrian that is preferably not violated by disturbances during path planning.

In the numerous amicus curiae briefs - written almost exclusively by major applicants in the field of computer-implemented inventions, patent attorneys, or patent attorney associations, two main approaches to "automatic" technicality of simulation features have been advanced.

- Since a technical system or process is simulated in a manner that sufficiently corresponds to the behavior of the real system or process, the result of such a simulation in the form of calculated (virtual) technical effects could be viewed as equivalent to corresponding "real" technical effects or as potential technical effects, which virtual or potential technical effects would have to be treated like the "real" technical effects in the context of the COMVIK case law.

- Decision T 1227/05 - one of the few previous and particularly liberal decisions on patenting computer-implemented simulations - relied on a functional technical feature represented by the simulation of "an adequately defined class of technical items." The deciding board was satisfied that the claims were functionally limited to the simulation of a noise-affected electronic circuit. The simulation of a technical system was an important engineering tool for further development of such a system - which technical function of the simulation should be taken into account in the context of the COMVIK approach.

The Enlarged Board of Appeal did not follow these approaches.

In the assessment of inventive step, the usual principles were applicable. In the "two hurdle approach", which - as the decision subtly states - is actually a "three hurdle approach", first of all the technicality has to be assessed according to Art.t. 52 (3) and (3), respectively, whether the invention is not excluded from patentability as a computer program as such. This first hurdle is usually overcome quite easily by including, for example, a computer system.

The COMVIK approach from T 0641/00 now applies the same aspects to technicality in the assessment of inventive step and considers - in the light of the prior art - only those claim features that contribute to the technical solution of a technical problem, wherein in this situation the application of an ordinary computer basically belongs to the prior art. The determination of the features that can be taken into account for assessing inventive step is

the second hurdle. For this purpose, a distinction is made between features that are per se technical or non-technical and features that contribute or do not contribute to the technical solution, whereby any combination of the first and second groups is possible. Problematic here are only per se technical features that do not contribute to the technical solution - the simulation of a billiard game may be based on technical principles, but does not contribute to a technical solution of a technical problem - and per se non-technical features that contribute to the technical solution - for example, computing processes that read and process sensor data or whose outputs control devices. If T 0489/14 still requires a "direct link with the physical reality", for example a claimed control of a device with the output data, G 1/19 does not go quite so far in the requirement, but requires that such a "further use" of the output data must be at least implicit in the claim, even if the controlled device is not subject matter of the claim. However, G 1/19 also does not go so far as to allow the statement from T 1227/05 - since the subject matter of the assessed method claim is explicitly limited to a technical purpose of simulating a noise-affected circuit, a functional technical feature must be assumed - not to stand as generally applicable in this breadth.

The third hurdle is now to be overcome by the fact that those features which have overcome the second hurdle persist as non-obvious in the usual application of the problem-solution approach to the prior art.

Therefore, with respect to question 1, the Enlarged Board of Appeal arrived at the following answer:

> *A computer-implemented simulation of a technical system or process that is claimed as such can, for the purpose of assessing inventive step, solve a technical problem by producing a technical effect going beyond the simulation's implementation on a computer..*

The Enlarged Board of Appeal is ultimately consistent in its reasoning here. If the requirements from the COMVIK approach are fulfilled, a computer-implemented simulation as such can be patentable.

Regarding question 2B, the Enlarged Board of Appeal arrived at the following answer:

> *For that assessment it is not a sufficient condition that the simulation is based, in whole or in part, on technical principles underlying the simulated system or process*.

This is also consistent. There should be no privileging of computer-implemented simulations, but the COMVIK approach must be fulfilled.

Regarding question 3, the Enlarged Board of Appeal arrived at the following answer:

> *The answers to the first and second questions are no different if the computer-implemented simulation is claimed as part of a design process, in particular for verifying a design.*

Again, especially considering the breadth of the term "design", it is not the design process that matters, but the requirements following from the COMVIK approach.

What can you take away from it:

There are no new evaluation principles. Computer-implemented simulations are treated like other computer-implemented inventions. The COMVIK approach (by the way not an acronym but the name of the applicant of T 0641/00) has been confirmed again and by the highest instance.

G 1/19 does not apply the strict standards from T 0489/14, but also does not generalize the liberal grant practice from T 1227/05. The simulation needs to form the basis for a further technical use of the outcomes of the simulations and that further use also needs to be at least implicitly specified in the claim. Since computer-implemented simulations often lack the link to reality, unlike, for example, computer-implemented control devices, which include the technical effect almost obligatorily, patenting computer-implemented simulations is likely to remain challenging in practice. Particular attention must be paid at the design stage to this connection to reality, which must be based on the simulation itself and not on the simulated system or process.

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Further Questions? Contact us!

We regularly give lectures on this topic and advise and handle inventions in daily practice in this field.

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FIELDS OF EXPERTISE:

Patent infringement proceedings, opposition, nullity, cancellation and application proceedings among others in the fields of:

- Computer-implemented inventions (construction and use of self-learning systems/AI, search engines, data network technology, IoT, cryptography and security systems, software development, databases, audio and video coding, user interfaces)

- Automotive engineering (including engine and system control, sensor technology, in particular sensor evaluation and automotive control using AI, braking systems, airbags, chassis)

- Measurement and processing technology (including weighing systems)

- Mechatronics, precision mechanics (e.g. printing systems)

- Mechanical engineering (e.g. machine tool control, manipulator management)

CV:

Studied computer science, minor in mechanical engineering at TU-Munich, specializing in data networks and data network management.

Stueide law at the LMU Munich, legal clerkship at the OLG Munich.

10 years of industrial experience, e.g. for Mannesmann Pilotentwicklung/Vodafone Group R&D in the field of data networks, firewalling, security applications.

Patent attorney/lawyer since 2009.

ABSTRACT OF ACTIVITIES:

- Self-learning localization detection from search queries for search engines.
- AI-supported distance and proximity detection from vehicle symmetries, in particular rear light arrangement
- Safeguarding of data transmission and storage during the installation of engine control software
- Production optimization using artificial neural networks
- Multimaster bus management for CAN buses
- Protection and communication concepts for remote maintenance of machine tools during operation
- IoT sensors, especially communication via GPRS/Cat-M1/NB-IoT

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