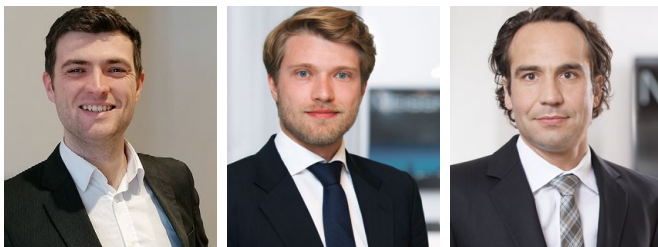


MB Milestones
Special Edition



Protecting Simulation based Inventions in Europe



Authors: Samuel Giles, Florian Meyer and Julian Würmser, LL.M.

The European patent office has confirmed in a new decision of the Enlarged Board of Appeal (G1/19) that inventions based on computer simulations can be patented. Such computer simulations will now be assessed in the same manner that the EPO assesses computer software implemented inventions. Below we explore this new decision, and what it means for filing strategy given the approach to patentability in key European jurisdictions.

A simulation is an approximate imitation of a system or process. A simulation does not have to exactly replicate reality. Indeed, the decision states that for computational efficiency certain real life effects may be omitted from a simulation. The accuracy of a simulation therefore may not limit its inherent patentability, although it may be relevant in the assessment of inventive step, or in sufficiency of disclosure.

What was the law before this decision?

Prior to this decision there had not been an Enlarged Board Decision concerning simulation. Instead there had been many Board of Appeal cases which had resulted in contrasting results. One particularly liberal case was T1227/05 (“Infineon”) concerning the simulation of noise in electrical circuitry. In this case the simulation was considered technical. Other decisions were much stricter in their approach to patentable subject matter. We know from our daily practice that until now Examiner’s at the EPO have not been applying a single standard when assessing the patentability of simulations. This has led to increased costs in the past for applicants due to the uncertainty in how to proceed. We hope such uncertainty is now a thing of the past.

The patentability of software implemented inventions at the EPO is assessed using the COMVIK approach. This states that firstly the closest prior art is determined and the differences between the claimed invention and the closest prior art are found. These differences are referred to as novel features. Only those novel features that contribute to the technical character of the claims are considered when assessing inventive step. This means that where a feature cannot be considered as contributing to the solution of any technical problem by providing a technical effect it has no significance for the purpose of assessing inventive step. Therefore, technical character and inventive step are assessed in the same test. For non-technical subject matter, the novel features (such as those relating to business method etc.) are disregarded and so claims that are novel only by virtue of such non-technical subject matter are found to lack inventive step.

The information contained in this newsletter may or may not reflect the most current legal developments; accordingly, information in this newsletter is not promised or guaranteed to be correct or complete, and should not be considered an indication of future results. Meissner Bolte expressly disclaims all liability in respect to action taken or not taken based on any or all contents in this newsletter.



Key Points of the Decision

In this decision the EPO has given applicants much needed certainty as to what may or may not be patentable. The EPO has set out that a computer implemented simulation of a technical system *can* provide a technical solution to a technical problem. It is thus not required that a (direct) link to a physical system is claimed. However, the mere fact that the simulation is of a technical system is not sufficient for that system to be inherently patentable. Due to the patent application in question, the Enlarged Board also stated that simulations for design considerations are treated no differently to other simulations.

In the Enlarged Boards reasoning, it was stated that all simulations are necessarily based on at least some technical considerations – and therefore this is not enough to be considered technical. The model underlying the simulation may contribute to technical character if the boundaries within the model form the basis of a further technical use of the outcome of the simulation. The boundaries may also be technical if they are a reason for adapting the computer or its functioning.

The use of the output of the simulation is therefore of potential importance when considering patentability. Patent attorney's drafting applications should focus on describing how the output of the simulation may be used. It is noted that this use may only be implicit in the claim for the claim to be considered technical. This may be the "sweet spot" for drafting as the use of the output would then not explicitly limit the scope of protection. This also means that uses of the output of a simulation in non-technical fields such as in financial modelling are likely to be excluded, whereas more technical modelling (such as weather systems, or critical safety systems that cannot be easily tested such as those needed in nuclear reactors) are much more likely to be considered technical. Drafters should include in the dependent claims a technical use of the output so that there are no added matter issues if this step is judged to be required in the claims.

In a further important remark made, the Enlarged Board of Appeals emphasised the importance of the description. As laid out in the EPC, the invention has to be disclosed in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art. The Enlarged Board highlights that the technical effect and technical advantages need to be reproducible by studying the description. For example, a model to be simulated needs to be described to the extent that it is possible to achieve a described improved accuracy during simulation. As a result, care needs to be taken to include sufficient technical implementation details that credibly show all technical effects. The decision follows a trend at the EPO that requirements regarding the description are taken more seriously.

Filing Strategy

Of course it is also possible to apply for national rights rather than filing a European patent application. For particularly commercially valuable applications it may be worthwhile filing both a European application as

well as national rights. We consider the case of the UK and Germany as they are two important markets within Europe – and because Meissner Bolte has expert patent attorneys in both jurisdictions.

Germany

According to German case law, claimed subject-matter is only eligible for patent protection if it is in a technical field. This is the case if the subject matter serves to solve a concrete technical problem by technical means. Moreover, only technical means that serve to solve the technical problem can be taken into account in the assessment of inventive step. What exactly is meant by a "technical problem" and what is meant by "technical means" is regularly in dispute.

The German Federal Supreme Court considers technical means at least if they lead to device components being modified or addressed in a fundamentally different way. It is also recognised as a technical means if the course of a data processing program used to solve a problem is determined by technical circumstances outside the data processing system or if the solution consists precisely in designing a data processing program in such a way that it takes into account the technical circumstances of the data processing system.

With regard to simulation methods, the German Federal Court of Justice ruled in the decision "Flugzeugzustand" ("Aircraft Condition") (BGH - X ZB 1/15, GRUR 2015, 983) that a mathematical method can only be considered non-technical if, in the context of the claimed teaching, it has no reference to the directed application of natural forces. There would be a sufficient relationship to the directed application of natural forces if a mathematical method is used for the purpose of obtaining more reliable results about the condition of an aircraft on the basis of available measured values and thus influencing the functioning of the system used to determine this condition (decision's guiding principles 2 and 3). It should be noted that in this case the claimed teaching was limited to the determination of the aircraft's state and no further technical system was controlled or adapted. The Federal Court of Justice stated that in the case it was a matter of gaining knowledge about the condition of an aircraft and thus influencing the functioning of the system that determines this condition.

In this respect, parallels to the decision T1227/05 of the Boards of Appeal of the EPO can be recognised in the decision. Given the generally less strict approach to added subject matter, Applicants should consider filing a German patent application in cases where the requirements of the present decision of the Enlarged Board of Appeals cannot be met without difficulty. For example, for patent applications already on file the strict EPO approach to added matter may make amendment to comply with the requirements of this decision difficult. In that case a German national application may offer a commercially valuable route to protection.

UK

In the UK the courts have taken a very different approach to the assessment of computer implemented inventions to the EPO. The EPO's approach is based on the assessment of computer software implemented

inventions using the COMVIK approach. The UK has eschewed this approach in favour of the *Aerotel* test. The UK has considered the protection of simulation inventions before. It seems unlikely that the UK approach will be altered by G1/19 given the large differences in how software is assessed in the UK and at the EPO.

In the UK the patentability of software implemented inventions are assessed in accordance with the *Aerotel* test. This is to construe the claim, identify the contribution of the claim, assess whether this contribution falls solely within excluded subject matter, and then check that this contribution is technical in nature. To aid this assessment there are five signposts that indicate whether a claim is technical in nature. The first signpost is whether there is an effect on a process outside of the computer – we note this may be quite similar in practice to how simulations may be assessed in the future at the EPO. The second is if the invention relates to the level of computer architecture (this is likely irrelevant to simulation based inventions). The third is if a computer has been made to operate in a new way. The fourth is if the computer is made to be a better computer, or made to operate more efficiently. And the fifth is if a technical problem is overcome as opposed to being circumvented. The assessment of technical character is therefore markedly different to the EPO. This assessment takes place before any assessment of novelty or inventive step. The EPO on the other hand assesses the differences to the closest prior art before determining if these features are technical.

In the UK a simulation patent application was assessed in the Patents Court after the UKIPO rejected a *Haliburton* application concerning the simulation of a drill bit. The claims at issue did not include the step of manufacturing the simulated drill bit. The case was therefore very much in the remit of simulation. The Court overturned the UKIPO's decision and so ultimately the patent was granted. This was because the *Aerotel* test only excludes acts carried out mentally, and the judge held that exclusions from patentability should be interpreted narrowly. Interestingly despite differing software practice to the EPO, in the *Haliburton* case the judge did note the decision of the EPO in T1227/05. G1/19 upholds the ultimate findings of T1227/05 (although the way in which simulations are now assessed may be slightly narrower than the general approach taken in T1227/05). It remains to be seen whether the UK approach and G1/19 lead to the same result and claim scope.

For some simulation inventions filing a UK national application may be advantageous as the *Haliburton* decision stated that the computer

program exclusion did not apply to the simulation because the simulation was plainly more than a computer program as such. This was because the simulation was a method of designing a drill bit which the judge construed as being plainly more than a computer program as such. If a simulation application can overcome the exclusion test in this way, then the UK may be more lenient in allowing a simulation claim without the use of the output being recited in the claim itself. In general, the UK can be more averse to the patenting of some software implemented inventions than the EPO – but in this specific case relating to simulations there could be benefits to a national approach. The cost of a UK application is also low and so filing a UK application in conjunction with a European application may be beneficial. A UK application may offer a further route to patentability – with potentially different resulting claim scope if the simulation is plainly more than a computer program as such, akin to the method of designing a drill bit in *Haliburton*.

Conclusion

The EPO has given applicants certainty as to its approach to patenting simulation based inventions. Simulations can be protected particularly if the outcome of the simulation is used for a technical purpose – and that use was affected by the manner of the simulation. This certainty also helps Applicants to draft patent applications to secure broad protection.

Moreover, for pending applications not specifically drafted in accordance with this new decision national applications in the UK and Germany may give applicants more flexibility to amend the claims to comply with the relevant legal standards in each jurisdiction. Our offices and attorneys in both jurisdictions will be using this decision to advise clients as to how to maximise protection with efficient filing strategies. ■

Further information:

UK

**Meissner Bolte (UK) Limited | 4a Top Land Country Business Park
Cragg Vale, Hebden Bridge | HX7 5RW, United Kingdom
T +44-1422-84 45 98 | F +44-1422-84 52 89
E-mail: mail@meissnerbolte.co.uk**

Germany

**Meissner Bolte | Widenmayerstrasse 47 | 80538 Munich, Germany
T +49-89-21 21 86-0 | F +49-89-21 21 86-70 | E-mail: mail@mb.de**