EIP

Reality check for patenting computer-implemented simulations at the EPO

In its decision G1/19 (Simulations), the Enlarged Board of Appeal of the EPO has confirmed that it is business as usual when assessing the patentability of computer-implemented inventions, even when the invention relates to a computer-implemented simulation of a technical system or process. In particular, it re-affirmed that for a finding of inventive step, the implementation of a simulation on a computer must solve a technical problem by producing a "further technical effect" going beyond the normal interaction between software and a general-purpose computer. This can be achieved if either (i) the simulation is adapted to the internal functioning of the computer on which it is to be implemented, or (ii) when implemented, the simulation produces a technical effect on a system outside of the computer hardware. In so doing, the Enlarged Board effectively approved of the so-called "Comvik approach" in which for inventions involving both technical and non-technical features, only the technical features can contribute to a finding of inventive step.

According to the Enlarged Board, the main features of a computer-implemented simulation include a numerical model of a system or process, along with equations and algorithms for generating numerical output data representing a calculated state of the modelled system or process. The simulated system or process may or may not exist in reality. For example, in the context of a design process, a simulation may be used to test scenarios or modifications which do not, and may never, exist in reality. In any case, the Enlarged Board has reasoned that to qualify as a simulation there must be no physical interaction with the simulated system or process.

A computer-implemented simulation, claimed as such, is therefore distinguished from a measurement method in which data collected from a real-life system is processed to determine a physical state of the real-life system, and also from a control method in which control data is generated for controlling an entity in a real-life system. In each of these cases, the output of the method is directly related to physical reality. For a control method, even if the claim does not explicitly recite the use of the control data to produce a technical effect, the nature of the control data leads to a "potential technical effect" which can be sufficient for a finding of inventive step. By contrast, the output of a computer-implemented simulation can only produce a "calculated technical effect" or "virtual technical effect" that is not directly related to physical reality. The output may be used for a range of different purposes, and while some of these will have a technical effect on the simulated system or process, others will not. It is therefore unlikely that a claim to a computer-implemented simulation as such would imply a technical effect on the simulated system or process, though the Enlarged Board have stopped just short of excluding this possibility, stating that it may be possible "in exceptional cases". The Enlarged Board further reasons that recognising a simulation as having technical character merely by virtue of the technical nature of the simulated system or process would grant computer-implemented simulations a privileged position among the wider group of computer-implemented inventions, without any legal basis for doing so.

It follows that a computer-implemented simulation, claimed as such, is unlikely to be found patentable by virtue of a technical effect on the system or process which it is intended to simulate. A computer-implemented simulation may still be found patentable if it is specifically adapted to the internal functioning of the computer on which it is to be implemented so as to solve a technical problem, but the Enlarged Board has made clear that any such technical interaction can only be relied upon if it is properly disclosed in the specification, and that the technical interaction with the computer is reflected in the claim language. In practice, this will generally mean that the claim will need to recite features of the hardware to which the simulation is adapted.

To conclude, the Enlarged Board of Appeal has further endorsed the current approach adopted by the EPO to examine patentability of computer-implemented inventions, particularly those involving both technical and non-technical features. The comments regarding the need for proper disclosure of the technical interaction being relied upon, and the need for the claim language properly to reflect the technical interaction, are consistent with the tendency towards increasingly strict examination by the EPO in this respect. So, computer-implemented simulations, like other computer-implemented inventions, are patentable under certain circumstances, but the specification will need to be carefully crafted to describe the relevant technical interaction relied upon and to

reflect that technical interaction accurately in the claim language.

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