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SOFTWARE-BASED SIMULATIONS - ARE THEY PATENTABLE AT THE EPO?

A Board of Appeal of the European Patent Office (EPO) has now referred new questions to the EPO's Enlarged Board of Appeal, i.e. the EPO's highest instance, regarding the patentability of software-based simulations, i.e. computer-implemented simulations. Specifically, the questions referred to the Enlarged Board of Appeal are the following:

- "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?"*
- "2. 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? 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?"*
- "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?"*

The case underlying the referral relates to a European patent application for a software-based method of modelling pedestrian crowd movement in an environment, which takes into consideration obstructions in the environment such as other pedestrians and fixed obstacles. The modelling can be used to assist in designing environments that are prone to crowding, e.g. railway stations.

At present, the EPO's established case law says that a claim directed to a computer-implemented invention is patentable insofar as the claim causes "a further technical effect", so shifting the analysis from one of patentability to one of novelty and inventive step of the claimed technical feature. According to Board of Appeal that made the referral, 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. The referring Board held that even though the simulation may assist in designing a physical environment, "the cognitive process of theoretically verifying its design appears to be fundamentally non-technical". The referring Board also held that implementation of a given algorithm by means of a computer invariably increases the speed at which the algorithm can be performed, but this does not provide a technical effect over and beyond that provided by the computer implementation.

As a result, the Board of Appeal referred the questions relating to whether, for the purposes of inventive step, a claim directed to a computer-implemented simulation of a technical system/process solves a technical problem by producing a technical effect that which goes beyond that of merely implementing the simulation on a computer.

Following the referral, the EPO President issued a notice indicating that all proceedings before EPO Examining and Opposition Divisions in which the decision depends entirely on the outcome of the above referral will be stayed ex officio until the Enlarged Board of Appeal issues its decision. The President's notice specifies that the cases to be stayed are those where "*the assessment of inventive step requires deciding whether or not a computer-implemented simulation of a technical system or process, claimed either as such or as part of a design process, can be considered to produce a technical effect which goes beyond the simulation's implementation on a computer (i.e. whether or not the simulation achieved can itself qualify as a technical effect for the purposes of assessing inventive step...)*".

It will surely be important to monitor the development of this new referral closely, given the impact it may have on a significant segment of the software and high-tech industries.