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BLAMING GALILEO: LIABILITY FOR DAMAGES CAUSED BY GNSS ENABLED AUTONOMOUS
SYSTEMS

Abstract

Global Navigation Satellite Systems (GNSS) offer solutions for many sectors. In Europe, Galileo is currently used by approximately 1 billion users for exact positioning, emergency-response services, agriculture, road traffic or civil engineering. Due to the latest technological developments, Galileo is also being integrated as an essential component of artificial intelligent (AI) systems. The relationship between AI systems and GNSS is reciprocal. The needs of this emerging technology are driving the developments of GNSS, while integrated navigation solutions are key components for reaching full automation. GNSS enable the operation of various automatic systems, such as self-driving cars, drones, lane keeping systems on highways etc.

Despite its numerous benefits, GNSS are not risk-free. Even though it is highly unlikely that a loss of signal will lead to an accident caused by an AI system, this scenario cannot be totally ignored. Recent incidents involving, for example, self-driving cars, revealed a series of technical flaws that need to be addressed before these systems can become active participants in our societies. In this context, it becomes clear that the most pressing issue is the one related to liability: who will be liable in case an accident is caused by an AI system due to an absent or inaccurate GNSS signal at a critical point during navigation?

In such context, this paper investigates the impact of GNSS, in particular Galileo, in the operation of AI systems, taking into consideration their various automation levels. GNSS can be implemented in narrow AI systems without having any control over the system. In this case, the attribution of liability does not raise any challenges since human control is still in place, being part of the system's operation. A more challenging legal situation is caused by more advanced AI systems, where the human control is delegated, thus GNSS becoming a crucial component in influencing the system's decision-making process.

Since such a scenario is not covered by the fragmented legislation governing GNSS, this paper investigates if international space law is able to provide a solution. The provisions of the "core" space law, i.e., the UN's International Treaties are analyzed, alongside Galileo's legal framework.

Clarifying the applicable legislation is especially important in the context of the debates concerning Galileo's potential acceptance of liability, as opposed to other providers, such as the Global Positioning System. Clarity is also stringently needed for avoiding situations where incidents occur and liability cannot be attributed.