



Extended Abstract

Mobile Geolocation- a Technico-Legal revolution

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Accepted:

Introduction

For this paper *Mobile Geolocation* will be used to describe the determination of the spatial location of a personal mobile communications device from the signals it emits. The signals may be analyzed either in the device or in other locations. The phrase "location based services" is often used to describe the processes used for geolocation. Geolocation may involve both retrieving identification and locational data generated by the mobile device, or interpretation of the signal in relation to receiving stations.

Mobile Geolocation has its roots in the work of Robert Watson-Watt and High Frequency Direction Finding. HF/DF was developed originally in the 1920s to track lightning and later adapted to track German submarines and aircraft transmissions by virtually instantaneous triangulation using a small antenna and sophisticated electronics. However such technology did not automatically give the identity of the source.

GPS systems developed in the 1980s allowed the receiver to calculate its position by analysis of transmissions from special satellites. However GPS receivers did not routinely broadcast their location.

Cellular telephones developed in the 1990s to create portable communication devices. These devices "identified themselves" to the cellular towers at all times when they were on so they could receive communications.

By the year 2000 WIFI technologies were spreading throughout the world. WIFI technologies gave the increasingly smaller mobile computers massive increases in internet connectivity. Since 2000 the changes have largely been in improved higher speed, smaller more capable mobile devices and greater penetration in the marketplace.

However the key change has been the integration of technologies. Phones, computers GPS's and cameras are now in a hand held package. A mobile phone is now a camera, when it takes a picture its GPS data may be engrafted to the picture. Signal routing from a WIFI system can routinely include the location of the WIFI hotspot. Telephones can be located at any time and linked to the WIFI internet activity. The capability of processing these signals has also exploded. (1)

The consumer is essentially faced with a stark choice. Disconnect from the entire connected world, or expose precise geolocation information to a vast number of potentially hostile parties.

Many different kinds of parties want access to the geolocation information. Rental car companies can track their fleets, police officers can track suspects, parents can track children, spouses can track one another. stores can track customers and security services can track dissidents.

Courts are increasingly asked to resolve very complex issues involving these technologies. Different legal systems and different legal traditions approach the problem in very different ways. The technology may be worldwide but the legal controls are supposedly local. The problem of course is that as long as communication networks are international there may be little or nothing even a national government can do. Unless, like the individual it cuts itself off from the global community.

This paper cannot and does not present any "solution" to these problems. What it suggests is an analytical framework suitable to the problem. The framework is called a Technico-legal revolution.(2) A technico-legal revolution occurs when a given technological advance cannot be clearly analogized to existing legal structures. A technico-legal revolution consists of a series of stages in the legal response to the novel developments in technology.(3) The purpose of this paper is to briefly describe the theory of a technico-legal revolution, point out past examples of such revolutions, and then apply the theory to the developments in Mobile Geolocation.

Understanding the development of legal analytical principles applicable to Mobile geolocation is an example of the legal system's process of adapting to technological change. TLR analysis allows

researchers to anticipate and discount the spurious legal arguments inevitably made each time a new technology is developed.

The framework suggests that each technico-legal revolution passes through four distinct phases. Although there is no fixed time period for each phase, a fixed order is identifiable. These phases are: (1) *Autonomy*, (2) *Conflict*, (3) *Determination*, and (4) *Resolution*. The four phases describe the actions of the parties, and provide a coherent structure for analysis of the problem.

In the *Autonomy* phase, the developers of the technology act without any significant constraints imposed by the legal system, which is essentially reactive and often requires a triggering event before it becomes involved.

The second phase is the *Conflict* phase. Conflict may come from any of a number of sources, including a sudden disaster, a scientific study, or a marketing plan or political action. In the *Conflict* phase, the developers of the technology are challenged by at least one other interest group, such as competitors, consumers, government, or labor. The conflicting groups stake out claims as to which prior legal analogy is most “relevant” i.e. most favorable to their requirements, and the irreconcilability of the conflict under standard legal analysis is the hallmark of the technico-legal revolution.

The third phase is *Determination*. In this phase, the parties muster the factual support for their predetermined positions. Technico-legal revolutions are extraordinarily fact-sensitive. The assignment of the technico-legal revolution to a particular legal regime depends largely on which set of facts is accepted by the legal system.

Typically, the parties know in the *Conflict* phase which type of facts will support their position. AOs a result political pressure is often used to determine which sets of facts will be researched. Studies which might produce unfavorable results will not normally be supported by the party opposed to that position. Depending on the positions taken in the *Autonomy* and *Conflict* phases, the parties will want either prompt or extended analysis during the *Determination* phase.

In the *determination* phase parties routinely “appropriate” phraseology in an attempt to alter the debate landscape prior to resolution. Terms such as “dna fingerprinting” “software piracy” “signal stealing” “Privatsphere” and even ordinary words like “accident” are created or repurposed to push the legal debate in one direction or another. The goal is to move the debate into a more favorable domain.

The key argument used by all parties in the *Conflict* and *Determination* phases is the false analogy. Since technico-legal revolutions are defined as situations in which no exact analogy to a preexisting legal regime is possible, the false analogy involves comparing some of the attributes of a new technology to those of a preexisting technology with a legal structure favorable to that party, while ignoring those which would lead to a different conclusion.

The analogies are false in the sense that they are not exact as well as in the sense that the divergence from the prior situation is often overlooked or minimized.

The fourth phase is Resolution. In this phase the legal system assigns the technology to a legal structure. One of the most important effects of the Resolution phase is the assignment of the burden of proof concerning unknown events. The fact that this burden is assigned after the factual material has been developed is one of the most striking characteristics of a technico-legal revolution.

Historical examples of technico legal revolutions include the ability of aircraft to fly over private land without paying, the role of Submarines and Radio in maritime Warfare, the interception of telegraphic and telephonic communications and the development of the concept of informational privacy

Early USA cases on Geolocation show a disturbing inability to comprehend just how complex the problem really is and indicate that we are heading towards a fragmented world order of expectations related to the law and Geolocation. There are currently statutory and regulatory proposals in both Europe and the USA.

Acknowledgments

Dr. Bernd Beier (Germany) is my longtime research colleague in this area and his comparative law insights have been critical.

References and Notes

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