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► **To cite this version:**

Jean-Sylvestre Bergé. Internet of Things: From Techno-Legal Fascination to Complex System. N. de Lucca, C. Rosa Pereira de Lima, A. Simão Filho, R. Mota Maciel (eds). in N. de Lucca, C. Rosa Pereira de Lima, A. Simão Filho, R. Mota Maciel (eds), *Direito & Internet*, Volume V, Quartier Latin, 2024, pp. 133-141., Quartier Latin, 2024. <halshs-04722866>

**HAL Id: halshs-04722866**

**<https://shs.hal.science/halshs-04722866v1>**

Submitted on 25 Feb 2025

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Collective work edited by N. de Lucca, C. Rosa Pereira de Lima, A. Simão Filho, R. Mota Maciel

**Internet of Things: from techno-legal fascination to complex system**

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*Abstract*

*This contribution raises two short theoretical reflections on objects connected to the Internet. The first is about the risk of technological fascination when it strikes lawyers. The second relates to the approach to the topic of connected objects in terms of a complex system.*

**Connected objects and the risk of techno-legal fascination**

The dialectics of “technological risks and legal risks” can feed on what may be called somewhat provocatively the fascination that the technological myth can exert on legal experts.

In law, there is no objective reality that experience can allow us to verify. There are only constructs.

But the law is neither completely arbitrary nor completely disembodied.

On the one hand, it aspires to a certain objectivity, a form of neutrality with regard to other spheres of knowledge – technological knowledge in the case of connected objects.

On the other hand, the law must necessarily rely on a certain perception/conception of reality. The way in which legal experts, more or less intuitively, understand the so-called “real” world – in this case the technologies of connected objects – plays an absolutely crucial role in the way legal constructs behave.

This general state of affairs, in terms of risk, could lead to a serious pitfall that we must be aware of when adopting a multidisciplinary approach to the problems associated with connected objects.

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For legal experts, this pitfall would be to project their fascination for legal technology onto technology generally, and the technology of connected objects in particular. Their fascination for their own technology (the term “legal technique” is widely used) reflects the need for objectivity just mentioned. This is highly common in legal thinking, which is dominated by certain forms of positivism (the law as it is postulated in a given place at a given time) and the ostensible eschewal of approaches based on natural law (the law as it exists in the nature of beings and things and which man endeavours to reveal). The result is that legal thinkers have a certain faith in legal technology. One might even speak of a technological myth.

This belief is not limited to the legal sphere alone; it is also found in the technological sphere in the scientific sense of the term. In many areas, the law must create particularly elaborate links with science. Biotechnologies are a good example of how the law evolved in the 20th century. In a comparable analysis, if we include connected objects in the digital revolution, the 21st century can be expected to herald significant changes. This relationship between law and science generates a proximity that favours a sort of “transfer” from the former to the latter. Since legal experts are fascinated with the technicality of their own domain, they also are inclined to be fascinated by other technologies. The mental process is the same; only the subject matter is different.

Legal experts must of course be wary of transferring the technological myth of law to that of science in this way. The force of the law is its ability to create its own specific rationality, one that remains relatively impermeable to manipulations from the outside. It is this autonomy of the legal construct that gives it the stability that is so essential to what lawyers call “legal security”. For legal experts to abandon their own field and unquestioningly accept the diktats of other spheres of knowledge would be to completely lose sight of their *raison d’être*. This near loss of identity results in a breakdown of all critical thinking. If legal experts can no longer think for themselves, then they are even less capable of developing the critical perspective that is so indispensable to the vitality of their thought.

This is why it is of the utmost importance, particularly when working on connected objects, to maintain a distance from all technological myths, both of the law and of science.

This distance requires considerable efforts to explicitly define the objects (in this case “connected”) to which experts intend to apply their legal constructs. This of course applies to

all fields of knowledge; it is up to legal experts to take part in the discussion and contribute to the process of questioning and dialogue between disciplines.

The questions we need to ask when legal experts address an issue related to connected objects, what conception/perception are they required to have? What is the specific legal need? By whom or what is it commanded? When approaching connected objects, which technology is used: the technology of material or immaterial things? Rather than a focus on things, would it be preferable, in the name of technology, to favour a focus on the data collected by the object and put into circulation via its connection? In which environment do we imagine connected objects: the earthly world or the digital sphere (datasphere)? etc.

This legal and theoretical work is not specific to connected objects. It explores how the technological myth runs through legal thinking<sup>1</sup>. One example looked at in detail is the work done by the Australian legislature on genetic manipulations. Depending on one's conception of the technologies at work in this area, the positions adopted change radically. The two authors D. Grant and L. B. Moses, both legal scholars, suggest the need to develop robust critical legal thinking not only at a collective level but also individually (what they call "self-responsibility")<sup>2</sup>.

### **Connected objects and the legal model of "complex systems"**

The approach adopted by the law is essentially dogmatic (in the positive sense of the term). Legal experts create classifications and, through their efforts to characterise the different facets of each situation, are able to situate both the ordinary and exceptional scenarios of life within the different categories of the law. Each category corresponds to a legal regime and identifying the "right" category allows them to apply the "right" legal rule.

Faced with a "new" situation (or one that is assumed to be new), the question that legal experts face is whether it must be made to fit within the existing categories at all costs or whether they should come up with a new category.

In the case of connected objects, if we imagine that a new category of the law must be created, then what would be its characteristic traits?

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<sup>1</sup> See, D. Grant and L. B. Moses, *Technology and the Trajectory of Myth*, Edward Elgar, 2017.

<sup>2</sup> *Op. cit.*, p. 153 seq.

One of the most appealing approaches to answering this question is that of “complex systems”. This is a concept essentially drawn from the “hard” sciences, which created eponymous institutes formed as networks. Researchers in the humanities and social science have also taken an interest, but more recently<sup>3</sup>.

In law, although some scholars have worked on this issue (but not in the context of connected objects as far as we are aware), the “complex systems” approach cannot be said to have any real visibility. Rather, it is the subject of marginal analysis that has not been modelled (as in the hard sciences) to any significant extent.

Its primary virtue is that it has highlighted blind spots, angles of observation generally overlooked by legal experts.

Each legal scholar will no doubt have his or her own definition of complex systems.

If pressed for an answer, one might say that two principal traits – which one finds formulated in one way or another in the hard sciences, humanities and social science – characterise such systems: interaction and circulation. Let us look at how these criteria apply to connected objects.

The complex legal systems formed in relation to connected objects naturally depend on the way the object interacts with its environment. It would not be reasonable to adopt an a priori approach to the law on connected objects as a monolithic whole, i.e. as a distinct specialisation set apart from all others and whose interaction with them is no more than secondary. On the contrary, one must draw on all of the legal constructs that may come into play in the interaction between a connected object and its environment.

The relationship between the connected object and other objects, between it and persons, and between it and society require the application of potentially very different legal constructs but which necessarily interact with one another. The interaction between these different sets of rules must be central to any attempt to build a legal regime for connected objects as a complex system.

For example, the commercial launch of a connected object raises questions about the protection of privacy as well as public freedoms. Placing the connected object at the heart of these different

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<sup>3</sup> The literature on complex systems is abundant, but here we highlight just two articles in French that complement one another. The first is a reflection on complex systems offered by a French institute: E. Bertin, O. Gandrillon, G. Beslon, S. Grauwain, P. Jensen and N. Schabanel, ‘Les complexités: point de vue d’un institut des systèmes complexes’, *Hermès, La Revue*, 2011, p. 145. The second is a publication by a legal scholar: D. Bourcier, ‘Sciences juridiques et complexité. Un nouveau modèle d’analyse’, *Droit et Cultures*, n°61/2011, p. 37.

constructs is to approach the law as a complex system in which the private and public spheres interact for the same purpose.

The second criterion, circulation, is just as crucial when it comes to approaching the law on connected objects as a complex system. These objects can be mobile or immobile (smart vehicle or smart building), but since they are connected to networks (whether closed or open), they are in perpetual movement. The data about and collected by the connected object is in essence intended to circulate. Through the data that it conveys, a connected object reflects a dynamic that is close to that the paradigm of a specific branch of law and legal regime for connected objects which characterises the circulation of data. This condition of circulation is not without consequence in terms of the “complex systems” approach.

By definition, the law is required to immobilise situations across different scales: material, spatial, and temporal. Faced with objects in a state of perpetual circulation (via their connections), the law must deal with a level of complexity that can be described as systemic.

For example, if a legal rule is to be applied to an entire, end-to-end flow of data generated by a connected object, it must be backed up with the means of appreciating the situation as a whole rather than simply addressing the causes or effects, as all too often happens. This comprehensive approach to data flows requires the development of tools akin to “complex systems” that combine multiple facets on all three scales: material, spatial, and temporal.

It is clear that the two criteria which feature one way or the other in most approaches to complex systems – “interaction” and “circulation” – can contribute to reflections on how best to develop a legal regime for connected objects.

The “complex systems” approach is a useful way to tackle the law on connected objects. It identifies criteria which can serve to sketch the matrix for this legal regime. The notions of interaction and circulation are potentially useful research avenues.

We can see, therefore, that using complex system-type legal tools to approach a complex phenomenon such as connected objects requires the law to act simultaneously at multiple levels. These include the following in particular:

- specific and differentiated regulation that distinguishes, in technical terms, between data collection and data exploitation, and further considers the interconnections between data, the circulation of data and the fact that several different operators can simultaneously access it;

- specific regulations for each risk (personal data protection, infringements of individual freedoms, environmental risk, etc.);
- regulations for certain domains to account for their specific features, such as insurance, healthcare, competition, contracts, etc.;
- given the close interdependencies generated by connected objects, adopt an “inter-regulation” approach that can act and interact on several geographic levels (international, European, and national), sector-specific levels (e.g. finance, telecommunications), and organizational levels (public regulation, private self-regulation, and public–private joint regulation).