

The Importance of Big Data for Jurisprudence and Legal Practice

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Abstract M2M-communication will play an increasing role in everyday life. The classic understanding of the term “declaration of intent” might need reform. In this regard, the legal construct of an electronic person might be useful. The use of autonomous systems involves several liability issues. The idea of “defects” that is laid down in the product liability law is of vital importance regarding these issues. To solve legal problems in the field of big data the main function of law as an element of controlling, organizing, and shaping needs to be kept in mind.

1 Introduction¹

Big data is of vital importance for the jurisprudence as well as for the legal practice.

Already in 2011 the term “big data” occurred in the Gartner Trend Index for the first time. In this index the US IT-consulting firm and market research institute *Gartner* annually classifies new technologies in a so-called hype-cycle. Since the 2014 cycle, big data is no longer seen as a mere “technologic trigger” but turned out to have transcended the “peak of inflated expectations”.² Following this assessment a bunch of success stories would have caused an excessive enthusiasm, which strongly differs from reality.³

In the opinion of the mentioned market research institute big data is now on a way through the “trough of disillusionment” before it reaches the “slope of enlightenment” and the “plateau of productivity”. After this journey, the advantages

¹The author thanks *Benjamin Schuetze*, LL.M. from the Institute for Legal Informatics (Hannover) for his important suggestions.

²Gartner, Gartner’s 2014 Hype Cycle for Emerging Technologies Maps the Journey to Digital Business, <https://www.gartner.com/newsroom/id/2819918>.

³Gartner, Hype Cycle, <http://www.gartner.com/technology/research/methodologies/hype-cycle.jsp>.

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replaces the old and still widespread IPv4,⁷ the more devices will be connected with the internet. With an increasing number of connected devices a more comprehensive M2M-communication is possible.⁸

Once robots in fully networked factories or smart refrigerators and washing machines at home are technically capable of ordering new production materials, food, and washing powders on their own and needs-based, there will be significant effects on the legal institution of declaration of intent. The more complex the possible transaction scenarios become and the more independent the machines can act, regarding offer and acceptance, the more questions will be raised.

A declaration of intent is the expression of a will, bent on the conclusion of a contract.⁹ Objectively, the intention of causing a legal consequence must become apparent, subjectively, the declaring person must have the will to act and the will of causing legal consequences and be aware of declaring something legally relevant.¹⁰

According to the classic conception, to become effective, the declaration of intent has to be declared and received by a human being. In addition, the declaring person must have a minimum of cognitive faculty and sense of judgment, which requires the ability of decision-making, social action and the knowledge of its own existence.¹¹

Even with modern or even future machines with markedly high artificial intelligence, the latter criteria will be not met. Therefore, it is not possible to treat the machine as a declaring person under current law. Rather the objective characteristics of the declaration of intent are attributed to the user, from whose perspective the subjective characteristics of the declaration of intent has to be met.¹²

Accordingly, the German Federal Court (BGH) decided. The court had to decide in 2012 on the effectiveness of a travel booking via the computer-based booking system of a travel provider. The crucial passage states: “Not the computer system, but the person who uses it as a means of communication is declaring its intent. Therefore the content of the declaration has to be determined according to how the human addressee can understand in good faith and common usage, and not according to how the automated system is likely going to understand and process the content.”¹³

There are still isolated voices in literature qualifying the machines in such or similar cases as agent of the human behind it, or applying the legal framework for agents at least in analogy.¹⁴ Yet, those voices overlook that the machine must have

⁷The use of 32-Bit-addresses, divided in four decimal blocks. In this system 4.294.967.296 individual IP-addresses are possible.

⁸Klein, Tagungsband Herbstakademie 2015, p 424 et seq.

⁹Ellenberger 2017, in: Palandt, Bürgerliches Gesetzbuch, pre section 116 Ref. 1.

¹⁰Ellenberger 2017, in: Palandt, Bürgerliches Gesetzbuch, pre section 116 Ref. 1.

¹¹Cornelius, MMR 2002, p 354.

¹²Klein, Tagungsband Herbstakademie 2015, p 436.

¹³BGH, Decision of 16 Oct 2012, X ZR 37/12, NJW 2013, p 598 et seq.

¹⁴Sorge 2006, Schriften des Zentrums für angewandte Rechtswissenschaft, p 118.

at least limited capacity to contract, section 165 of Civil Law Code (BGB). However, a machine has no fully legal personality, thus a machine has not even the capacity to have rights and obligations of all kinds.¹⁵

Furthermore, according to section 179 BGB an unauthorized agent is liable as *falsus procurator* and has to pay damages. It is simply unimaginable, that a machine—as intelligent as it may be—has its own liability mass.¹⁶ In the end, the natural person behind the machine is relevant and applying the rules of agents would be meaningless. Proposals to prevent the lack of power of agency by technical measures fail because of the reality in which clearly defined requirements are increasingly discarded.

Already today, the natural person behind the machine does maybe not think about the content and scope of the declaration of intent by the machine. The higher the degree of automation, the less can be said with certainty whether the machine or the user behind it declared something.¹⁷ This also raises doubts about the subjective characteristics of the declaration of intent.

This question can still be countered at present by focusing on the person's will of acting at all, the will of causing legal consequences and if the person was aware of declaring something legally relevant at the time of commissioning the machine.¹⁸

However, an understanding of declarations of machines such as in the BGH judgment will not be up-to-date in distant future anymore. In the era of big data machines will be even more independent and be able to react even better on cheap offers on the market and many other variables. Thus, the machine declarations cannot be controlled by a natural person in last instance or rather clear limits for the scope machine declarations are missing.

Therefore, it appears doubtful to assume the machine user is aware of declaring something legally relevant not only when generating the machine declaration but already when commissioning the machine. Without this awareness—or if the will of causing legal consequences is missing—the declaration of intent could often be contested. If the will of acting at all is missing, the declaration of intent is mandatorily void.

Both legal consequences cannot be intended by the user of the machine; otherwise, the use of the machine would be superfluous. The contract could be concluded on the traditional way, without the use of M2M. Yet this is desired for reasons of saving work, costs, and time.

For this reason, the long-term solution may be provided in the modernization of the principle of the declaration of intent. For this purpose, it was suggested to extend the list of natural and legal persons with an electronic person.¹⁹

¹⁵Bräutigam and Klindt 2015, NJW, p 1137.

¹⁶Gruber 2012, *Jenseits von Mensch und Maschine*, pp 158 et seq.

¹⁷Bräutigam and Klindt 2015, NJW, p 1137.

¹⁸Glossner, MAH IT Recht, Teil 2, margin no. 15.

¹⁹Considerations to that in Sester and Nitschke, CR 2004, pp 549 et seq.; also Wettig, Zehendner, *The Electronic Agent: A Legal Personality under German Law?*, 2003, pp 97 et seqq.

2.2 Challenges Regarding Liability

The question of attributability of declarations of intent is accompanied by questions of liability in cases of misconduct by autonomous systems.²⁰ On the one hand, the system can develop further and adapt itself to the user's behavior²¹ while, on the other hand, it can react more autonomously. Therefore, it is more difficult to comprehend if a damaging event was caused by the system's user or by the system itself²² what can lead to substantial difficulties of gathering evidence in trial.

However, the user of the autonomous system, the producers and developers and the supplier are potential opponents of non-contractual claims for damages,²³ but, because of the lack of legal personality, not the autonomous system itself.²⁴

The user's liability will be fault-based liability in particular. The system of strict liability, which was discussed in the context of self-propelled vehicles, cannot be applied on every situation.²⁵ However, if the machine's conduct is not foreseeable for the user, he cannot be blamed for fault either. At most, he could be liable if he failed to exercise reasonable care.²⁶ Here, the user's inspection obligations will descend with growing complexity of the systems. At the same time, it is not in the interest of the parties to avoid liability for users, who use an autonomously acting and limitedly controllable machine consciously, at all. Therefore, the creation of a new law of strict liability would be desirable.²⁷

The producer of end products and components can be liable without fault under the German Product Liability Act (Produkthaftungsgesetz). Yet, this Act primarily earmarks compensation for damages to body and health. Material damage can only be compensated if it is caused to an item of property intended for private use or consumption, section para. 1 sentence 1 Product Liability Act. This will regularly not be the case within the scope of Industry 4.0.

Apart from that, the damaged party must merely prove pursuant to section 1 para. 4 Product Liability Act that a causal product defect for the damage exists whereby a prima facie evidence is sufficient.²⁸ "A product has a defect when it does not provide the safety which one is entitled to expect, taking all circumstances into account", section 3 para. 1 Product Liability Act. However, "the producer's liability obligation is excluded if the state of scientific and technical knowledge at the time when the producer put the product into circulation was not such as to enable the defect to be discovered", section 1 para. 2 No. 5 Product Liability Act.

²⁰Bräutigam and Klindt 2015, NJW 2015, p 1138.

²¹Beck, Mensch-Roboter-Interaktionen aus interkultureller Perspektive 2012, p 126.

²²Beck, Juristische Rundschau 2009, p 227.

²³Contractual claims for damages shall not be taken into account here.

²⁴Horner, Kaulartz, Tagungsband Herbstakademie 2015, p 505.

²⁵Bräutigam and Klindt 2015, NJW 2015, p 1139.

²⁶Kirn, Müller-Hengstenberg, KI – Künstliche Intelligenz 2015 (29), p 68.

²⁷Horner, Kaulartz, Tagungsband Herbstakademie 2015, p 509.

²⁸Jänich, Schrader, Reck, Neue Zeitschrift für Verkehrsrecht 2015, p 316.

Especially the machines within Industry 4.0 are building their conduct on the basis of previous specific user behavior with the effect that the time of placing the product on the market becomes less relevant. The question rises whether a misconduct of an autonomous system can be captured by the Product Liability Act at all.²⁹ Unexpected reactions of an intelligent system instead of functional deficits could constitute a problem, too.³⁰

However, it can be expected that more autonomous machines must satisfy higher safety requirements. Therefore, one can expect a more extensive duty of instruction from the producers. This is relating to both the “how” and the “if” of instruction.³¹ At the same time, one can assume a higher duty to observe the product after placing it on the market.

3 Conclusion

The more the automation of machines is proceeding, the higher the legal challenges are rising too. In some sectors, the applicable legal system seems to stand up to these challenges while the need of amendment exists in other areas. If the legislator wants to take action, it has to take the main function of law as an element of order, control, and design into account. With this in mind, one can find regulations for big data issues, which are particularly fair and economic.

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²⁹Horner, Kaulartz, Tagungsband Herbstakademie 2015, p 510.

³⁰Kirn, Müller-Hengstenberg, MMR 2014, p 311.

³¹Hartmann, DAR 2015, pp 122 et seq.

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Big Data in Context

Legal, Social and Technological Insights

Hoeren, Th.; Kolany-Raiser, B. (Eds.)

2018, XII, 120 p., Softcover

ISBN: 978-3-319-62460-0