



BDI

The Voice of
German Industry

Noerr



Industrie 4.0 – Legal challenges of digitalisation

An input for the public debate

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Foreword

Business is going digital – do the legal framework conditions also need to “go digital”? Do laws in Germany have a negative impact on the development and use of digital innovations, applications and business models? Questions such as these place legal experts at the heart of the public discussion. A working group in the “Plattform Industrie 4.0” is currently developing concrete possible concrete solutions for the legal challenges of digitalisation.

The Federation of German Industries (Bundesverband der Deutschen Industrie e.V. – BDI) and Noerr LLP (Noerr) have carried out a survey among numerous German companies’ legal departments, inquiring major legal problems of digital business. In addition, BDI has commissioned Noerr to prepare a detailed legal opinion. This publication summarises both the findings of the survey and legal report.

What are the essential conclusions?

The legal departments surveyed identified data law (data protection, data/IT security, rights to data), contract and liability law as well as IP law as essential areas for action. Taken jointly with the legal opinion, the following core considerations emerge:

The upcoming European data protection law needs to be constantly developed to meet the challenges of digitalisation. Approaches in this regard include concepts such as “privacy by design”, “privacy by default”, pseudonymisation and anonymisation, recommendations from authorities or codes of conduct.

A legal provision on ownership of data is not a primary concern – companies do not regard the absence of a legal assignment of non-personal data as an insurmountable obstacle to business development.

The issue of IT security should also be regulated at the European level; in particular, the aim here should be a conceptual consideration in the planning and programming process (“security by design”).

Competition around digital products and business models should be ensured; new rules must be designed to enable digital products, future-oriented business models and productivity-enhancing industrial applications, not to stand in the way of their development.

Companies themselves bear a high degree of responsibility. This applies especially for contract law, in particular in the areas of development cooperation, allocation of rights, measures to protect confidentiality, outsourcing/cloud computing and insurance solutions. From the practical angle, standard contracts are also sometimes deemed to be desirable.

Insofar as poor behaviour in production and supply chains can still be identified, existing liability and product liability law offers adequate remedies.

The new challenge to companies posed by the use of autonomous systems could be addressed through further development of indemnity law which would smooth the way for appropriate universal insurability.

This publication is intended to promote a legal discourse involving business, policy-makers and academia in equal measure. The aim of this discussion must be to shape a competitive legislative framework for the industry of the future.

November 2015

1. Digitalisation – a top issue in the legal department

The digital connection of industry in real time and hence a new stage in the organisation and management of the entire value creation chain is encapsulated under the heading of Industrie 4.0. This so-called fourth industrial revolution follows on from the discovery of the steam machine (first revolution), division of labour for assembly line production (second revolution) and automation (third revolution).

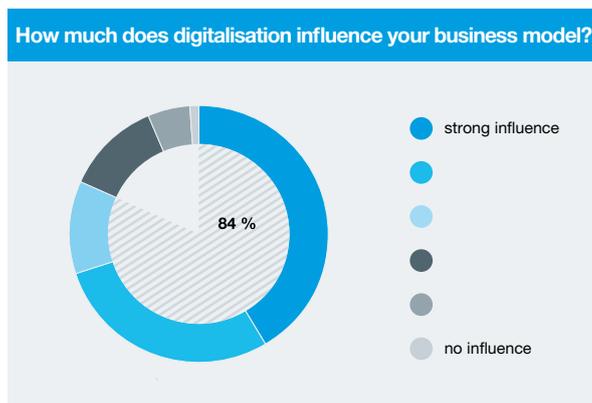
Together with the Federation of German Industries (BDI), Noerr LLP has carried out a survey which addresses the central legal problems of the emerging digital economy. In-house lawyers were asked to what extent the existing German, European and, where applicable, also the international legislative framework enables or impedes the use of innovative technologies, applications and business models of digital business. To this end, the legal departments of 500 relevant German companies were approached, of which 91 participated in the online survey.

Building on this empirical input, a legal analysis of the legislative fields requiring adjustment was prepared. A detailed legal report indicates where regulation is needed in order to strengthen the international competitiveness of German businesses. The report looks at the central legislative areas of digitalisation. Alongside the issue of IP and other rights in the digital world (right to data, protection of know-how, open innovation, cooperative ventures and R&D), light is shed on the important fields of data protection, IT security and IT infrastructure/cloud. Also examined are the intensively debated civil law themes of liability including standardisation/product conformity and contract law. Not least, the legal overview also assesses other relevant areas of law such as procedural law, antitrust law, export control law, telecommunications law and criminal law. Lastly, the report concludes with a closer examination of the situation in the chosen sectors of health-care and energy.¹

¹ The report can be downloaded from the websites of BDI and Noerr LLP. http://www.bdi.eu/Gutachten_Digitalisierte-Wirtschaft_Industrie-40_en.pdf
<http://www.noerr.com/legal-opinion-digitalisation>

1.1 Large companies are digital pioneers and are simultaneously subject to fierce competition

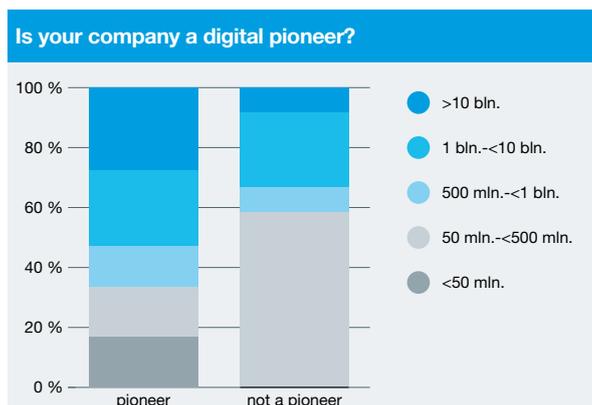
In-house lawyers were asked how digital connectivity will influence their business model over the next five years. 84% of companies assume that the innovations of digitalisation will strongly alter their existing business model. Nevertheless, around 40% believe that they are adequately prepared for this development and regard themselves as pioneers which occupy a leading position vis-à-vis their competitors in terms of their digital maturity.



Source: BDI, Noerr



Digital pioneers are primarily very small and very large companies; medium-sized enterprises increasingly identify a need to catch up in this area. However, a large proportion of companies are not yet pushing ahead with their own further development and adaptation of the business model as well as the implementation of digital innovations.



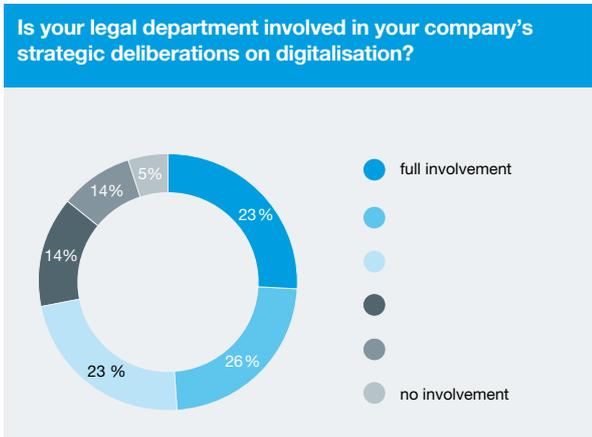
Source: BDI, Noerr



The danger of competitors in other sectors attacking the business of “incumbents” on the basis of their digital advantage or disruptive technology elicits a very mixed reaction. Almost half of the legal departments’ lawyers surveyed (45%) is currently unaware of any such development. By contrast, large companies (turn-over in excess of € 1 billion a year), which constitute most of the remaining 55%, are increasingly observing competitors from other sectors. It is to be expected that this development will increase as digitalisation continues its forward march.

1.2 Legal departments are involved in digitalisation strategies

Digitalisation poses a challenge for the law. It is important to keep an eye on rapid technical developments in an ongoing exchange between legal practice, policy-makers and academia. Only then can appropriate legislative instruments be deployed in due time. Within the company itself, it is necessary to involve the legal department at an early stage in deliberations on the digitalisation strategy and development of corresponding products and business models. This is also overwhelmingly the case in the companies surveyed. In particular, this applies for companies whose business model will be very strongly influenced by digitalisation over the next five years.

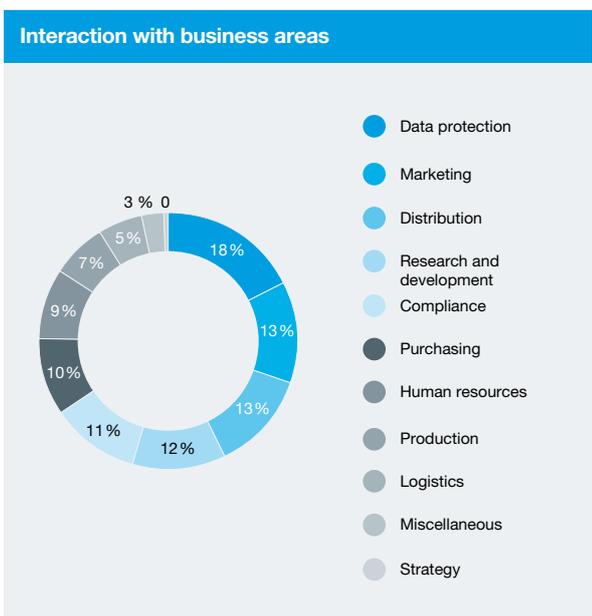


Source: BDI, Noerr



1.3 Legal departments focus on providing guidance for the market and product side

Legal departments interact first and foremost in the business areas of data protection, marketing, distribution, research and development as well as compliance. It can be concluded from this that legislative issues linked to digitalisation in companies relate less to internal corporate processes but rather the market-side departments which develop and sell new (and digital) products.



Source: BDI, Noerr



2. The law as a brake on digitalisation?

Which areas of law affect digitalisation in your company?



Source: BDI, Noerr



2.1 Areas for legal action

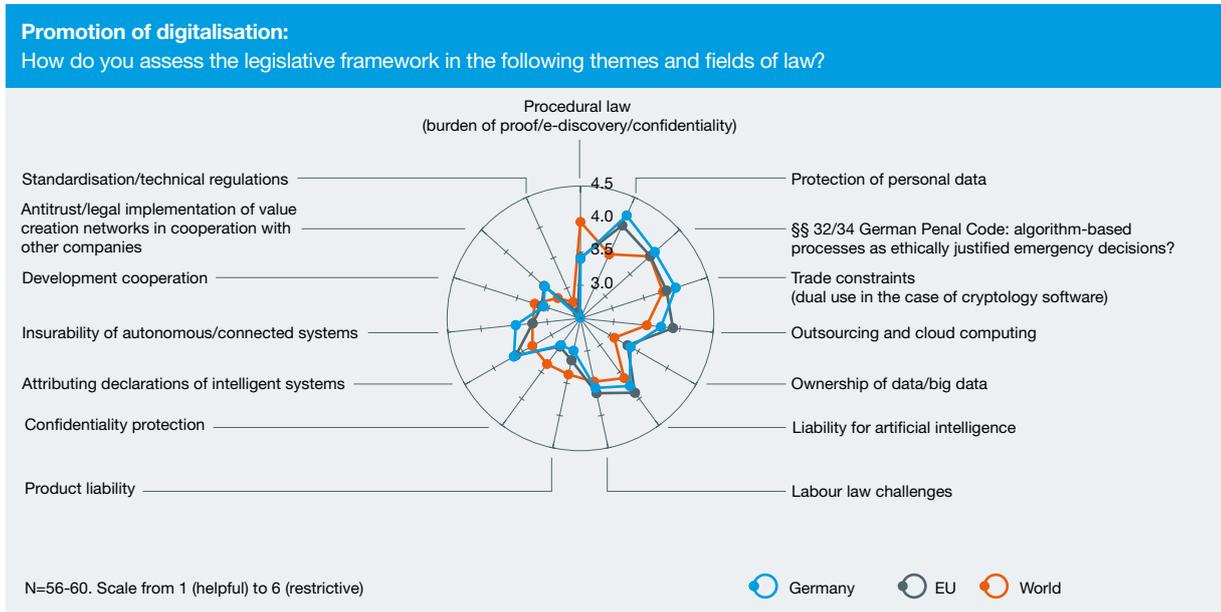
Which areas of law impact most strongly on digitalisation? Top of the list for corporate in-house lawyers are issues linked to data legislation (data protection, data/IT security and the ownership of personal and non-personal data).

There is also a focus on contract, liability and IP law in relation to digitalisation. Labour law, tax law, competition and antitrust law also emerge as important but less urgent.

2.2 Obstacles to digitalisation – a closer look at the relevant legal issues

Most of those surveyed see the greatest obstacles to digitalisation in Germany (blue line in the graphic) in the broad area of data protection, outsourcing and cloud computing as well as the issues of responsibility, liability insurability of the actions of autonomous systems. Europe presents a better picture (grey line) but here, too, there is a need to catch up on the protection of personal data and in cloud computing. Only minor obstacles are identified in the other parts of the world (red line). This can be explained by the lower regulatory intensity outside Germany and Europe. The only exception is procedural law; in addition, this finding is to

be understood against the background of Anglo-American procedural rules which also apply extraterritorially. Internationally active companies in particular should be prepared to deploy data and documentation via digital procedures in the area of procedural law: they are not immune to the admissibility of “discovery” procedures or “requests for documents”, not least in the area of international arbitration. Lastly, it is striking that companies see less need for action at all levels on the issue of “ownership” of data. There appears to be a certain scepticism about overhasty regulation. Also deemed to be satisfactory, especially in Germany and Europe, are the issues of confidentiality protection, product liability and standardisation.



3. The law as an enabler – what do companies want?

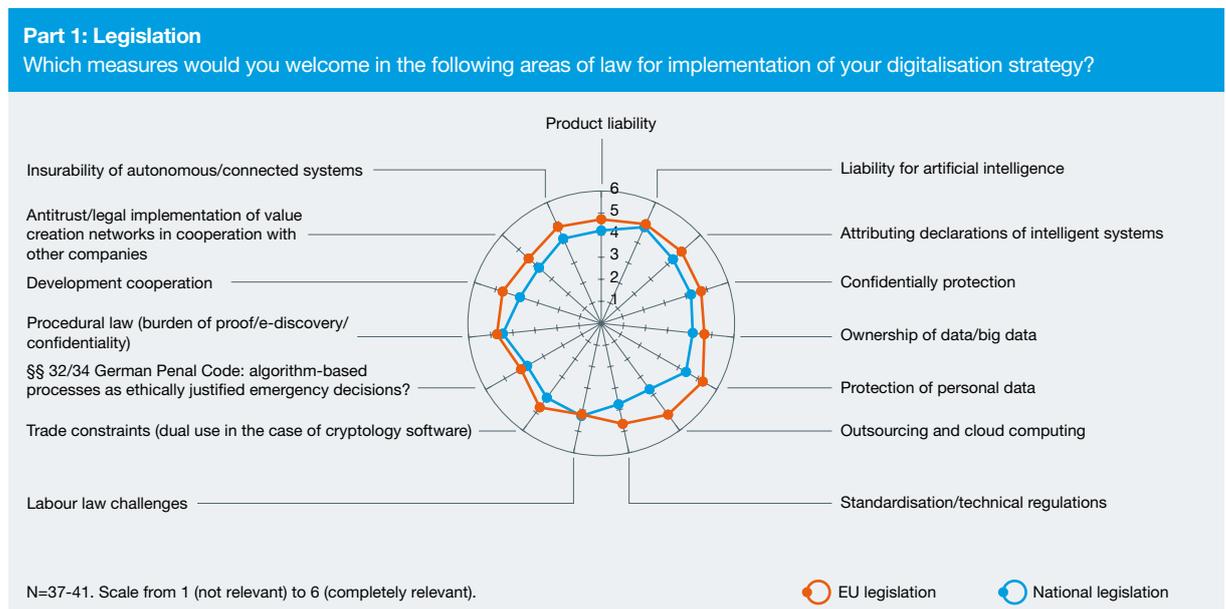
3.1 EU legislation rather than national legislation

Our graphic shows impressively that companies favour EU legislation over unilateral national action in all legislative areas linked to digitalisation (with the exception of labour law). Digitalisation and connectivity are global challenges which have to be addressed internationally, or at the very least at European level.

Thus, great weight is attached to European legislation and European initiatives. Mention can be made of the existing data protection directive and upcoming general data protection regulation in the area of data protection, the upcoming directive on protection of trade secrets in the area of know-how protection and parts of the European Commission’s Digital Agenda in the area of IP law. A great role for ensuring a level playing field is assigned to EU antitrust law which comprises sufficiently abstractly formulated provisions to come to grips with the challenges of digitisation (e.g. free provision of many Internet services or their dynamic development in different markets). The discussion on EU-wide harmonisation of regulatory practice in the area of

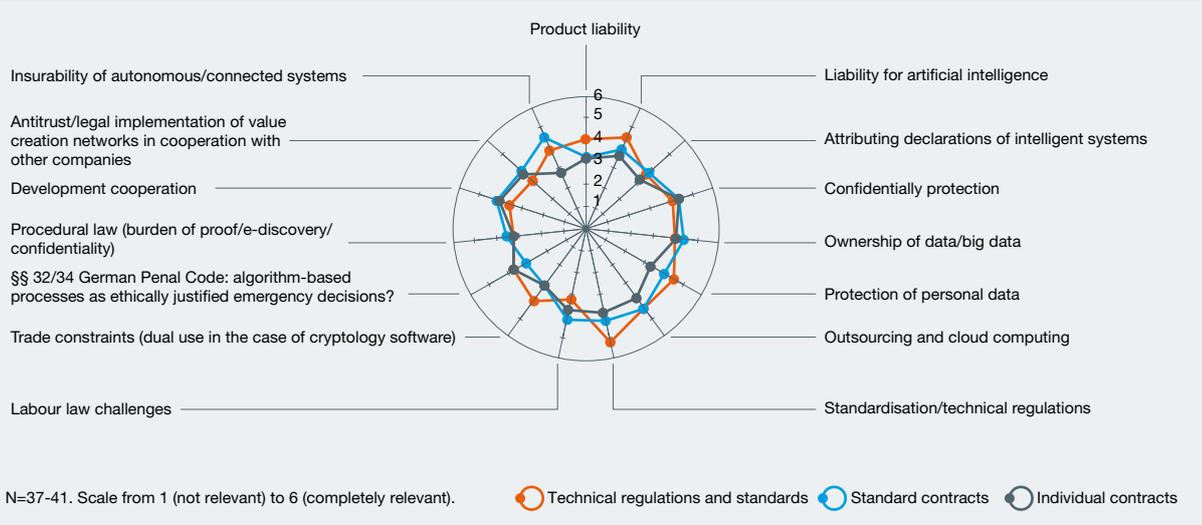
telecommunications and network development should also be seen in this connection, e.g. for connected cars and other application clusters which will be important in the digital world.

Nevertheless, European legislation must not lose sight of the needs of businesses and be drafted in a balanced way. The surveyed in-house lawyers want to see less new legislation but rather stronger harmonisation of existing national legislation. In subsectors such as health-care in particular, European standardisation initiatives currently also play a major role, for instance the medical products directive in the area of classifying mobile health apps, the green paper on mobile health services and the action plan for electronic health services 2012-2020. In the area of IT security, a European harmonisation of national IT security provisions can be expected through the EU’s NIS directive. To flank this, it should be assessed to what extent trade restrictions on the encryption of the necessary cryptography technology imposed by the European dual-use regulation may be hampering the transition to Industrie 4.0.



Part 2: Standards and contracts

Which measures would you welcome in the following areas of law for implementation of your digitalisation strategy?



Source: BDI, Noerr



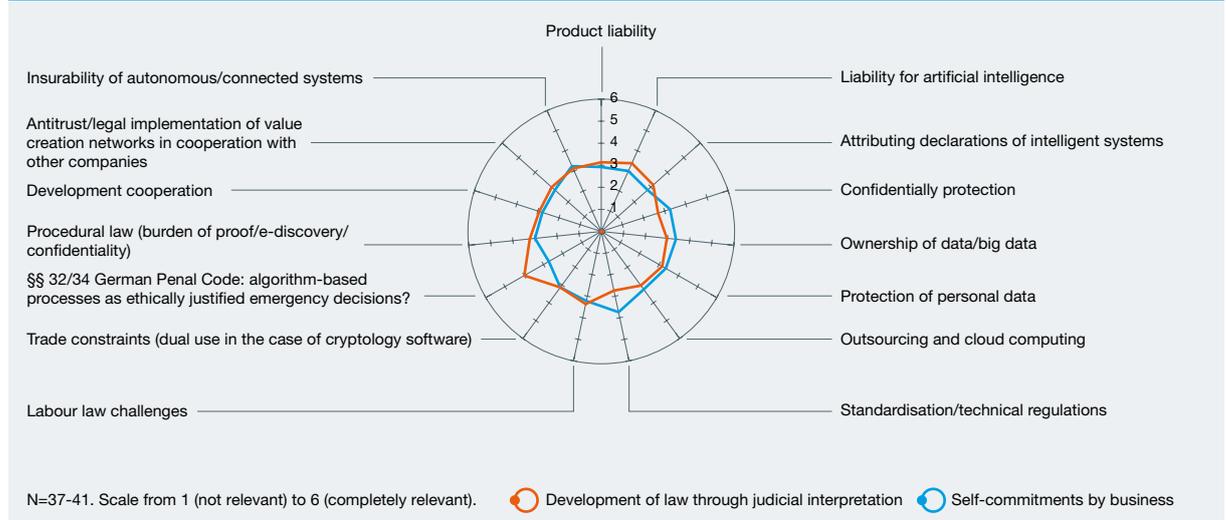
3.2 Standards and contracts – how companies take their fate into their own hands

Standards and contracts play an important role in the management of the legal problems of digitalisation among those surveyed. For instance, this relates to all fields in which workable solutions can be found in a private and autonomous structure.

Worth mentioning here are protection of secrets, outsourcing and cloud computing, development cooperation ventures and insurance solutions. It is also noticeable that the surveyed lawyers see the solution more in individual contracts than in standard contracts.

Part 3: Judicial interpretation and self-regulation

Which measures would you welcome in the following areas of law for implementation your digitalisation strategy?



Source: BDI, Noerr



3.3 Not the first port of call: development of law through judicial interpretation and self-regulation

The in-house lawyers surveyed are not very keen on development of law through jurisprudence or self-commitments by business when it comes to solutions of legal issues in the digital economy. The absence of confidence in this kind of development of law can probably be explained by the fact that development of legislation

in the highest courts takes time. Yet the dynamic and rapidly evolving digital economy cannot afford years of legal uncertainty. In turn, the lack of sympathy for self-regulation may lie in the fact that a self-commitment is based on voluntary action and therefore does not apply seamlessly for all. But it is also possible that, on the basis of experience, self-commitments are perceived as a halfway house to statutory regulation which can be leapfrogged in this area.

4. Recommendations for action and solutions

4.1 Data protection

An important step towards harmonisation of the legislative framework has been taken with the upcoming general data protection regulation. A uniform data protection law will then apply across the entire EU. Furthermore, companies which are not based in the EU but which offer goods or services to persons in the EU will also be covered thanks to the principle of market location. However, an ambitious reform of EU data protection legislation needs to go even further: it is essential to develop data protection law further to take account of the forward march of digitalisation. Alongside anonymisation and pseudonymisation, the principle of linkage to purpose must be appropriately designed and shaped – not least in the light of big data processes. Approaches which ensure data protection through technical means (e.g. “privacy by design”) will move further into the foreground. Considering the recent safe harbour ruling of the ECJ, it is now important to establish dependable rules for international data transfer. Recommendations from authorities can also adapt data protection to current challenges and ensure legal clarity. This relates in particular to recommendations from the Article 29 Group at EU level and national recommendations such as the “Düsseldorfer Kreis” or the Conference of German National and Regional Data Protection Authorities. Positive examples include the “Cloud computing orientation guide” which is now available in a revised second version. It offers companies reliable guidance on the implementation of statutory requirements. A further possibility of cooperation with data protection authorities is opened up by codes of conduct which can be presented by national data protection authorities or the Article 29 Group. Lastly, the data protection framework can be rendered more concrete in a few special areas: key concepts are employee data protection, implementation of the new energy law (law on digitalisation of the energy transition) and adoption of the e-health law.

4.2 “Ownership” of data?

Data, and even individual data elements, have long been regarded as a central economic good. Data are produced exponentially in the digital economy and society. They have become a new raw material with macroeconomic relevance. Non-personal data in particular, which are produced by machines and objects, and which do not comprise any information about persons, are largely unregulated by law. Whereas there is already

legal protection in some areas (in particular the database copyright as stipulated in § 4 paragraph 2 of the German Copyright Act (UrhG) and protection of database producers as stipulated in § 87 et seq. UrhG). In the area of trade secrets, protection is also partly flanked by the confidentiality stipulated in §§ 17, 18 of the German Unfair Competition Act (UWG). Nevertheless, it is still important to refrain from overhasty statutory rules which classify along the lines of ownership. There is a great deal to be said for allowing companies to continue to deal with rights to the use of data through contractual vehicles. Even if no right comparable to ownership with absolute (“in-rem”) effect vis-à-vis everybody can be conferred on individual data elements themselves through contracts, it is currently premature to entrench the existing allocation, which exists de facto through storage, with overhasty statutory provisions. If the distribution of data use through private and autonomous instruments were to prove inadequate, the situation can always be fine-tuned through legislation at a later stage. In addition, tendencies towards monopolisation could also be countered using the existing legislative framework – namely through antitrust law.

4.3 IT security

IT security is a core theme of the digital economy. With the IT Security Act which entered into force on 27 July 2015, Germany has taken a decisive step towards addressing this theme in a general way. It would be desirable for this approach to give positive incentives for a robust IT security concept instead of imposing a notification obligation punishable by law. Sanctions must be effective in a way that neither leads to a fear of making mistakes prompts an excess of notifications to the Federal Office for Information Security (BSI) nor allows an infringement of the IT Security Act on the basis of trifling errors. The planned EU network and information security directive (NIS directive) will give further impetus for Europe. Overall, the approach should be further developed with an orientation on the future, inter alia through the enactment of concepts which operate more technically than legally such as a legal obligation to take IT security into account when software, products and systems are being designed (“security by design”).

4.4 IP law

With the advance of digitalisation and connectivity, the risks of losing trade secrets will increase. The proposal for a directive on protection of undisclosed know-how and business information makes decisive changes to the economically relevant area of know-how protection. For instance, if in the future companies want to take legal action against the illicit loss of trade secrets in the event of industrial espionage, they will have to prove that they have taken adequate, i.e. effective, measures to protect their know-how.

This has direct implications for the structure of contracts: with regard to work contracts, companies should increasingly ensure that they conclude effective confidentiality clauses and competition bans with specially identified employees. Existing work contracts need to be reviewed since they often contain outdated or ineffective clauses. In various other constellations of business practice such as a cooperative R&D venture or the conclusion of standardised transactions via general terms and conditions, businesses will now increasingly have to ask themselves questions about the effectiveness of confidentiality provisions. Only information which enjoys appropriate protection enshrined in a contract can justify protection and claims against third parties in the event of an illicit loss.

Standard essential patents (SEP) will have a lasting influence on Industrie 4.0. The development of standards and the associated creation of interoperability is indispensable for the area of high technology. It must be ensured that all market players retain access to standards – subject to appropriate conditions.

Great expectations for the development of IP law in the digital world are placed on the European Commission's Digital Agenda. In this regard, it will be particularly important to tackle the conflict between the interest of users and companies in a common Digital Single Market on the one hand and the interests of the national cultural industry (especially film) on the other.

4.5 Standards and contracts

In many areas, it is up to companies themselves to come to grips with the challenges of digitalisation (in individual contracts). This applies in particular for protection of know-how, for the “licensing” of data as an economic good as well as for regulating the allocation of rights to open innovations, collaborative ventures and results which emerge from automated processes. It is precisely in the latter cases that a private and autonomous (broadly standardised) structure should be preferred over vague alternative concepts such as the introduction of a network-oriented definition of ownership. In order to widen the possibilities for structuring contracts with regard to the challenges of digitalisation, it is necessary to review existing rules such as restrictions in the area of general terms and conditions in B2B transactions or the provision of § 203 of the German Penal Code (StGB) which largely ignores processes linked to the division of labour. An amendment of this provision is needed not least to open up the cloud service offers of professional host providers which are important in the framework of IT security for professions which are entrusted with secrets (such as life assurance and health insurance providers as well as doctors and lawyers). To enable competitive cloud contracts, but also to promote innovation in software development and licensing, particular thought should be given to whether the restriction on the possibility of liability limitation between companies in German legislation on general terms and conditions is scrapped in this area.

There is a particular need for model contract provisions with the content elements addressed above in smaller companies.

Lastly, future European and international standards are of essential importance and there is an adequate legal basis for their creation. A prominent example of this are the standards for smart mobility.

4.6 Liability/product liability law

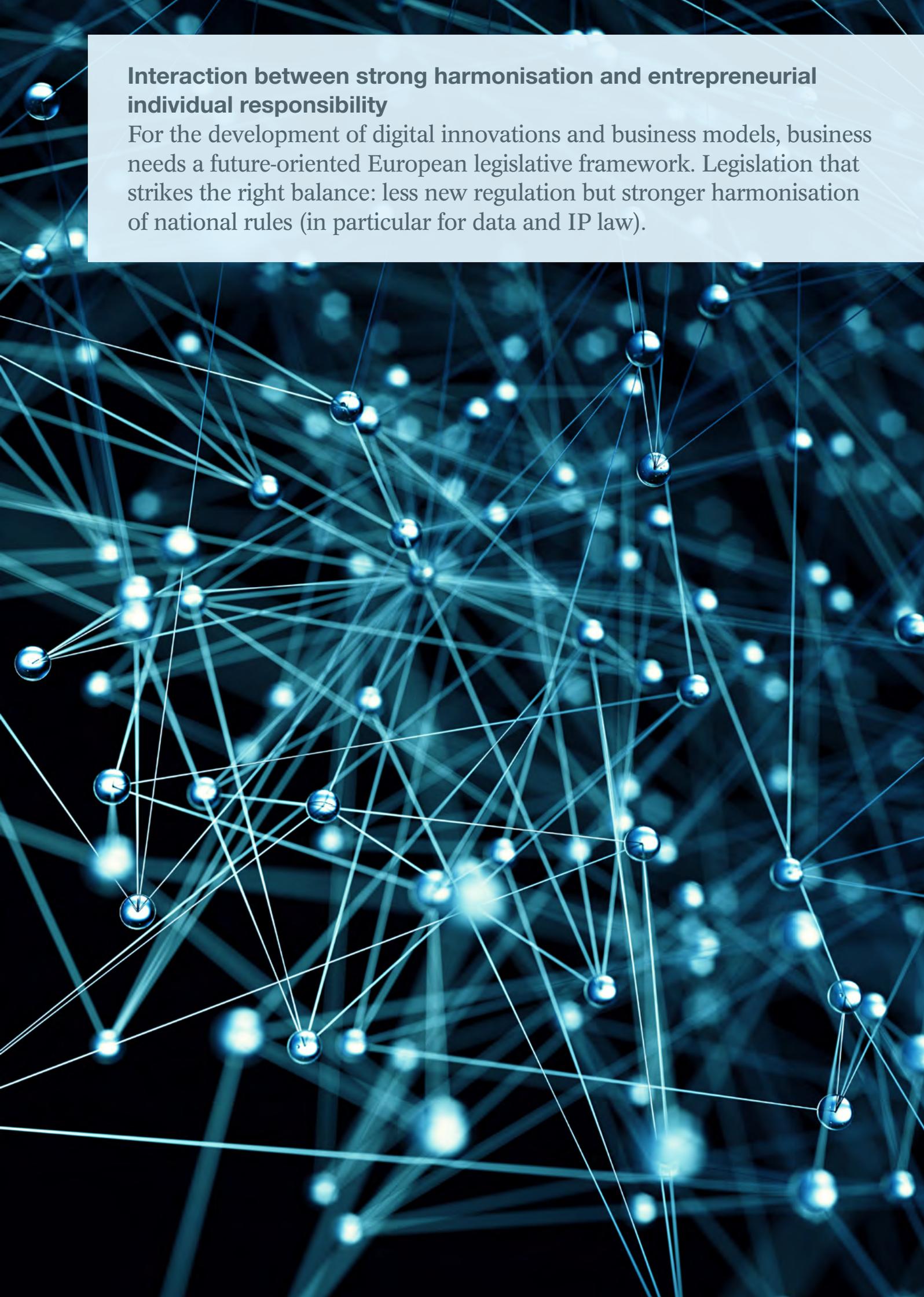
As long as actions can be traced to individuals and product defects can be assigned to identifiable areas of incorrect human behaviour in the production and supply chain, the delimitation of risk spheres under case law can be left to existing legislation. In particular, the tort law in the German Civil Code (BGB) has proved to be sufficiently flexible to adjust to current developments in business life thanks to decades of jurisprudence. Clearly, the limit will be reached in cases where a person is no longer responsible for decisions and has no possibility to intervene.

4.7 Autonomous systems – responsibility, assignment and insurability

In the case of completely autonomous systems such as self-learning industrial robots in a smart factory, one runs up against the limits of the current legal system. A classification of responsibility on the basis of causality and assignment principles is not then possible.

Broadly speaking, thought could be given to an extension of the owner liability applicable for motor vehicles, § 7 of the German Road Traffic Act (StVG) to cover all types of completely autonomous systems. However, the problematic aspect of this is that the owner or operator would have to assume responsibility for a risk imposed from outside in the case of systems which cannot be overridden. If necessary, a further development of the German Liability Act could be considered for these cases of completely autonomous systems. Such strict liability enacted with clear maximum liability limits would smooth the path for adequately and comprehensively insuring this new societal risk brought about by digitalisation.

A parallel issue arises from the explanatory documentation issued by autonomous systems such as autonomous ex-post orders by industrial robots. In line with existing civil law, there is the possibility of assigning subsequent explanatory documentation issued by autonomous systems to the person who operates the autonomous system. Errors in the explanation and their consequences then become not a problem of assignment but should once more be managed via new liability concepts (see above). Against this background, the introduction of a new “e-person” as a stand-alone perpetrator for liability purposes in connection with smart systems does not seem appropriate.



Interaction between strong harmonisation and entrepreneurial individual responsibility

For the development of digital innovations and business models, business needs a future-oriented European legislative framework. Legislation that strikes the right balance: less new regulation but stronger harmonisation of national rules (in particular for data and IP law).

About the Federation of German Industries (BDI)

As the leading business organisation, BDI represents the interests of German industries and industrial service providers worldwide. It speaks on behalf of 36 sectoral associations and represents more than 100,000 large, medium-sized and small companies with well over 8 million employees vis-à-vis policy-makers and the public.

We are players in the democratic process

Pluralistic democracy only functions if different views among civil society are articulated in the development of political opinion and decision-making. Because the best solutions for our common good can only be identified in competition between ideas. BDI is therefore an indispensable civil society actor – and an important power for reform of societal policy. Industry and industrial service providers see themselves as part of society and want to help shape the necessary societal policy discussions.

We mediate between business and policy-makers

BDI conveys the interests of German industries to policy-makers on Germany, Europe and worldwide. In the opposite direction, it evaluates policy decisions for and with its member associations. BDI regards itself not only as representing the policy interests of German industries but also as a discussion partner and expertise centre for the discourse on industrial policy in Germany and Europe.

We mediate between business and society

BDI represents the positions of the most diverse industrial sectors and industrial service providers vis-à-vis NGOs, civil society and academia. As a champion of business, it sets out what consequences business policy has for society. Our guiding idea is: BDI is there for business – and business is there for people.

We promote international competitiveness

Industry constitutes the foundation of the German economy – and is decisive for the competitiveness of our country. Prosperity in Germany depends to a large extent on growth in the global economy. Internationally competitive companies provide a surety that the industrial country that is Germany benefits from globalisation.

Our industry is the future

German industries are a pioneer in research and development, in innovations and exports. This is how companies and Germany as a business location assert their position in global competition. Europeanisation, internationalisation, digitalisation accelerate the myriad economic developments to which an attractive location such as Germany must also adjust.

We strive for higher and sustainable growth

The German economy remains well below its possibilities in the area of growth potential. Investments in education, research, innovation and jobs are the key, not only for higher but also for more sustainable growth. In this regard, we strive for ecological and social standards in the global supply chain.

We promote the social market economy

The social market economy is BDI's model for regulatory policy – with open markets, functioning competition as well as equality of opportunity. The State must not overregulate. Its task is to make our business location more attractive with favourable economic policy framework conditions.

We drive Industrie 4.0 and digitisation forward

Digitalisation is changing almost all areas of society. It is precisely business that is driving this change. To remain competitive internationally, European industry must develop innovative solutions. Because the large Internet businesses, the most visited websites, the producers of IT hardware, PCs and smartphones with the highest turnover are all based in the USA and Asia. Yet it is clear: Europe has the potential to be a leading player. For this, industry must follow new paths and create opportunities together with others. Not least German industry with its technological excellence can develop digitally based innovations and business models with the world's best.



BDI

The Voice of
German Industry

About Noerr

Noerr is one of the top European law firms with more than 500 professionals in Germany, Europe and the USA. The firm delivers real value to clients by devising and handling the right solutions to complex and sophisticated legal matters. The Noerr difference is its unique combination of legal excellence, creative thinking, international experience and in-depth industry knowledge. Listed groups and multinational companies, large and medium-sized family businesses as well as financial institutions and international investors rely on Noerr.

Interdisciplinary solutions

Together with its tax advisers, auditors and management consultants, the firm also develops sustainable solutions for finance and management by devising integrated solutions tailored to the specific requirements of its clients. This interdisciplinary approach offers clients seamless, efficient and comprehensive solutions.

Industry know-how

The professionals at Noerr understand their clients' business: besides their excellent professional knowledge, the experts also have extensive experience in the industries they advise. Sector groups range from automotive, energy, banking, finance and insurance, to healthcare, real estate and retail.

International network

The firm guarantees top-level international advice with its own offices in eleven jurisdictions and a network of top-ranked "best friends" all over the world. Noerr is also the exclusive German member firm for Lex Mundi, the leading network of independent law firms with in-depth experience in 100+ countries worldwide.

Competence in Central and Eastern Europe

Noerr is present with its own offices in all major capitals in Central and Eastern Europe. As one of the first Western law firms to open offices in the region, the firm has continuously built on this lead and regularly advises on greenfield investments, joint ventures, acquisitions and divestments in Central and Eastern Europe. With 100 professionals, Noerr is one of the top law firms in the region.

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Noerr Group

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