Artificial Intelligence
Standardization helps create innovation-friendly framework conditions for the technology of the future

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- An innovation-friendly political framework is necessary for artificial intelligence to evolve.

- Because standards help promote technology transfer, they should be integrated into all funding programmes for artificial intelligence technology.

- Researchers, businesses and policymakers need to come together, allowing their standards work to be coordinated by the national standardization organization.

- The work of German stakeholders in European and international standardization is essential and should be supported.

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From the smart home to chatbots to AI-based medical devices, artificial intelligence (AI)[1] is encroaching upon all walks of life. AI encompasses a wide range of topics and is often associated with big data and big data analytics. It not only presents numerous opportunities, but also many challenges.

Standards ensure interoperability and security

General interest in the basic structuring of the AI landscape is steadily growing. In response, representatives of German small and mid-sized enterprises (SMEs), start-up companies, large corporations, universities, research organizations, certification bodies, the German Federal Office for Information Security (BSI) and ethics experts joined together at the start of 2018 to found the interdisciplinary DIN Working Committee "Artificial Intelligence". The remit of the Committee includes consolidating the standpoint of German experts and representing Germany in international standards bodies such as ISO/IEC JTC 1/SC 42. The Committee is also working hard to rapidly develop open standards[2] laying down an interdisciplinary understanding of AI. They will ensure wide-spread interoperability among the various disciplines that work with AI, and will specify requirements for dealing with AI, for instance in terms of risk and configuration management.

AI needs an innovation-friendly political framework

Recognizing the significance of AI technology, the German Bundestag has set up its own parliamentary "Enquête Commission" (commission of inquiry) on artificial intelligence. It is advisable that the Commission's specific working groups and the DIN Working Committee "Artificial Intelligence" share technical information in order to take each other's work results into account.

In its "Artificial Intelligence Strategy", the German federal government has identified standardization as being one of the 12 central fields of action, making it an essential building block for this vital topic of the future.

DIN, the national standards organization supported by German industry, welcomes the AI strategy and is supporting the government in its efforts to implement the initiatives contained within it in order to strengthen Germany's competitive role on the international AI market with high quality AI solutions and products. A roadmap, sponsored by the German Federal Ministry for Economic Affairs and Energy (BMWi), is currently being developed on ethical aspects in standardization in the area of AI to be used in autonomous machinery and vehicles. The next step will be to commission the roadmap mentioned in the AI strategy on all aspects of AI and to review existing standards as to whether they are AI-compatible.

It is now the task of policymakers to define concrete framework conditions that are innovation-friendly and enhance the applicability of AI for industry and society as a whole, while at the same time ensuring planning and legal certainty. As described in the AI strategy, standardization helps to uphold the appropriateness and flexibility of this regulatory framework.

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[1]Defined in ISO/IEC 2382 as the: "capability of a functional unit to perform functions that are generally associated with human intelligence such as reasoning and learning."

[2] An "open standard" is a document, format or protocol made available to the general public in a manner equally available to all parties. It is developed or approved through a consensus-driven, transparent and rule-based process with the participation of stakeholders. Open standards are easily accessible to all market participants, can be further developed at any time with the participation of stakeholders, and are to be reviewed at regular intervals and updated if necessary. If supported by a recognized organization, an open standard will become widely accepted in the public domain.

It provides a unique platform for advising on technical issues, in which all stakeholders are already represented and whose expertise can be called upon by lawmakers. However, scepticism towards the technology must not be the driver for regulation. An assessment of possible technological consequences should build on existing standards, and must be made with the close cooperation of industry and science, accompanied by a dialogue among all members of society that has been initiated by policymakers.

Standardization is a catalyst for innovation and should be integrated into all AI funding programmes

Over the past decades, breakthrough innovations have been developed in Germany that only reached market maturity outside Germany through application-oriented research projects or prototype developments. Economic experts, including the Commission of Experts for Research and Innovation (EFI), who advise the German federal government, warn that long-term growth in productivity requires the use of radical innovations which are quickly diffused.[3] Our support for research in AI must thus place a greater focus on translating scientific results into marketable products. Standardization is the ideal method for this purpose.

Standardization at the R&D phase reduces costs, increases investment security, and gives providers of innovative solutions an information lead over future competitors, helping them place their products on markets more effectively; for example, by networking with the relevant actors during the standards-setting process. In this way, standardization functions as a catalyst for innovation by enhancing market access and market penetration, and by internationalizing new technological developments.

The results of standardization activities are made publicly available, which promotes dissemination and broad application. Futhermore, standardization helps prevent the fragmentation of markets - which inhibits growth - and mutually incompatible solutions are avoided. Standardization should be integrated into AI technology funding programmes at both Federal and Länder level to enhance these economically positive effects.

Whoever sets the standard controls the market. Researchers, businesses and policymakers need to come together, and have their AI standards work coordinated by the responsible standardization organizations.

All AI applications require a standardized approach that is widely accepted. It is the power of the possible and the endless variety that make AI standardization imperative. Only standards can define the often highly complex processes in a way that is useful for all manufacturers and all sectors. In this way standards provide the acceptance needed for AI technologies in different applications, ranging from self-driving cars to smart cities, from Industrie 4.0 to public administration. Every day sees the creation of new start-ups whose business models are based on AI. Standardized interfaces help them enter markets and give them greater investment security.

To define these interfaces as quickly as innovations are developed, it will be necessary for stakeholders from research, business and politics to join forces under the coordination of a neutral, national standards organization such as DIN. The "German Standardization Strategy" gives DIN - and DKE, for electrotechnical standardization - the task of setting up open platforms

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[3]See, for example the EFI 2018 Report "Research, Innovation and Technological Performance in Germany".

for moderation and coordination[4]. The "Standardization Council Industrie 4.0 (SCI4.0)" is responsible for identifying the standards necessary to promote Industrie 4.0 technology, especially in the interest of SMEs. The Council also supports the standardization of results gained in research and development. A similar coordination is needed for the AI sector.

The work of German stakeholders in European and international standardization is essential and should be supported.

In its AI strategy, the German federal government recognizes its responsibility to advocate for the development of standards and specifications by the acknowledged national standards body at national, European and international level. The active participation of German experts in European and international standardization, including experts from government agencies, is essential in achieving this objective and should be supported. This will allow them to take part in shaping AI standardization from the very beginning, taking German interests into account. Their early participation will also help to dismantle existing market barriers for German AI providers and prevent their creation in the first place. Providing important services to German industry and business, and being Germany's official representative in the non-governmental international standards organizations CEN and ISO[5], DIN plays an important role in coordinating the representation of German interests in standards work. Governments at all levels in Germany are responsible for ensuring that representatives of the public sector fulfil their obligation to actively take part in standardization[6].

Participation in standards work can, however, mean time constraints and extra costs for start-ups and small businesses, especially at international level. For this reason, as of 1 January 2018, DIN provides its members with one to five vouchers (depending on company size) for free seats in DIN standards committees. As stated in the AI strategy, policymakers must develop concrete tools that support the participation of start-ups and small businesses in standards work, with a particular focus on the participation in European and international standards committee meetings.

About DIN

DIN, the German Institute for Standardization, is the independent platform for standardization in Germany and worldwide. As a partner for industry, research and society as a whole, DIN plays a major role in paving the way for innovations to reach the market and advancing progress in innovative areas such as Industrie 4.0 and Smart Cities. More than 33,500 experts from industry, research, consumer protection and the public sector bring their expertise to work on standardization projects managed by DIN. The results of these efforts are market-oriented standards and specifications that promote global trade, encouraging rationalization, quality assurance and environmental protection as well as improving security and communication. For more information go to www.din.de/en

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[4]See, for example, Goal 3 of the German Standardization Strategy: "Germany is at the forefront in bringing future-oriented topics into standardization on a worldwide scale through the networking of stakeholders and the establishment of new processes and open platforms for coordination. DIN and DKE provide the world's leading moderation platform for standardization. They organize standardization topics and coordinate teamwork beyond the borders of their own organizations, including for fora and consortia and other standards development organizations.

[5]See the Standards Agreement between DIN and the Federal Republic of Germany signed in 1975.

[6]See Article 7 of the EU Regulation No 1025/2012 on European standardization: "Participation of public authorities in European standardisation: Member States shall, where appropriate, encourage participation of public authorities, including market surveillance authorities, in national standardisation activities aimed at the development or revision of standards requested by the Commission in accordance with Article 10."