

5 POINT PLAN FOR THE NEXT GERMAN FEDERAL LEGISLATURE

Data Spaces & Sustainable Technology “Made in Germany” for Germany’s Global Leadership in Industrie 4.0

Proposals submitted by the companies, associations, trade unions and scientific organisations represented by the Plattform Industrie 4.0 to the new Federal Government.

Germany must maintain its leading position in Industrie 4.0 and rapidly expand Industrie 4.0 applications into digital ecosystems – to achieve higher productivity and sustainable competitiveness. The foundation for this has been laid: The basic technology of the Digital Twin, the Gaia-X project and the emerging IPCEI-Industrial Cloud offer every opportunity to successfully shape the decisive phase of Industrie 4.0. We want to set international standards for value creation in data-based ecosystems with European data spaces and become the leading global providers and users for climate-neutral and socially sustainable production.

As a network of companies, associations, trade unions, science, and policymakers, Plattform Industrie 4.0 has laid the global foundations for Industrie 4.0 in recent years. In the next legislative period, these are now to be transferred into broad applications. To this end, we ask the future Federal Government to continue to support the Plattform and concrete project ideas in this new and decisive phase. We propose five specific courses of action.

5 Point plan of the Plattform Industrie 4.0

1. Become a global pioneer in climate protection technologies “Made in Germany”.

- In flagship projects, the Plattform Industrie 4.0 points towards climate-neutral, circular and networked production and a global leading position with climate protection technologies “Made in Germany”
- We are conducting a strategy dialogue with stakeholders on sustainability and Industrie 4.0 with the aim of making Germany the leading provider and user of sustainable Industrie 4.0. We will contribute the results to the public discourse.
- We ask the Federal Government to strengthen the link between Industrie 4.0 and sustainability with funding opportunities in the R&D sector, among others.

2. Helping to shape the rules of the data economy in European data spaces

- In cooperation with our partners, we are shaping an Industrie 4.0 data space at both the European and international levels. We are creating a coherent, pre-competitive set of technical, legal and business rules for multilateral cooperation in Industrie 4.0 ecosystems.
- We ask the Federal Government to support the creation of European and global Industrie 4.0 data spaces on the basis of Gaia-X.

3. Use Industrie 4.0 for a more resilient economy in global supply chains

- Plattform Industrie 4.0 will advance the strategic concept of “Digital Resilience by Design” and incorporate it into overarching strategies. The resilience of digital ecosystems must always be considered in the development and realization of digital solutions.

4. Bringing ready-to-use and scalable Industrie 4.0 solutions to SMEs.

- As a central network, we will contribute to the emergence of coherent and scalable solutions for SMEs. Successful examples of this are the Industrial Digital Twin Association (IDTA) of the Labs Network Industrie 4.0 (LNI 4.0). In addition, the recently launched Industrie 4.0 lighthouse project Catena-X Automotive Network will help to implement the concepts of the Plattform Industrie 4.0, such as the digital type plate.
- We ask the Federal Government to continue support offerings, to provide targeted funding with consulting vouchers, to initiate and moderate qualification and cooperation networks between companies, and to strengthen investment and research funding, especially for SMEs.

5. Making work and education fit for the future

- We are shaping innovative work design and qualification for a competitive industry in a dialogue between social partners.
- We ask the Federal Government to continue the “Digital Education Initiative”.

The five points in detail:

1. Become a global pioneer in climate protection technologies “Made in Germany”

Industrie 4.0 can make a decisive contribution to the ecological transformation and thus to the future competitiveness of the economy. With the digital twin (based on the Asset Administration Shell), Plattform Industrie 4.0 has developed an important basic technology for sustainable Industrie 4.0 and successfully introduced it into international standardization via the Standardisation Council Industrie 4.0 (SCI 4.0). The digital twin is the virtual image of a hardware or software component in production, for example a machine, and contains all released data of the component. It creates the technical prerequisites for interoperability, i.e., seamless communication and the cooperative use of industrial data. The basis for this are the industry-specific sub-models that the digital twin links. For intelligently networked production, the Plattform Industrie 4.0 focuses on OPC UA technology with the support of the BMWi project “II4IP” (Interoperable Interfaces for Intelligent Production).

The Industrial Digital Twin Association (IDTA), which arose out of the Plattform, now brings the recognized IEC standard into broad application. Through the interaction of the digital twin and integrated sub models (OPC UA Companion Specifications in the shop floor), a new level of transparency and control capability is achieved in value creation networks, which can be used in the sense of ecological sustainability: the digital twins become “green twins” that help to minimise the use of energy and materials as well as to manage materials and products in cycles (for example via a “digital product passport”).

In comprehensive flagship projects, the Plattform Industrie 4.0 demonstrates how networked production can be transformed into a networked, climate-neutral circular economy and a global top position with climate protection technologies “Made in Germany”. In doing so, we rely on the exchange with civil society actors and the analysis of existing application examples of our industrial companies in order to combine Industrie 4.0 approaches and sustainability.

With the support of the Plattform Industrie 4.0, a dialogue is being conducted with all stakeholders on sustainability and Industrie 4.0. The aim is to make Germany the leading provider and user for sustainable Industrie 4.0. The results are to be incorporated into the public discourse on climate protection and sustainability. We ask the Federal Government to act as a promoter of digital innovations for sustainability and to provide incentives for sustainable digital solutions in companies through measures such as the acceptance of the digital nameplate. The Plattform Industrie 4.0 can be the central point of contact for defining such innovation projects.

2. Helping to shape the rules of the data economy of the future in European data spaces

Industrie 4.0 applications are already part of everyday life in many German factories. But new business models and industrial AI applications can only fully develop with German, European and global networking into digital ecosystems. Modular production as a service, highly adaptive logistics or circular economies will only become possible with the multilateral sharing of data. The Gaia-X initiative developed by Plattform Industrie 4.0 forms an important basis for this as a federated cloud edge infrastructure, but it is not enough on its own. Data spaces with concrete and domain-specific rules for multilateral cooperation and data sharing are needed.

The Plattform Industrie 4.0 will shape an Industrie 4.0 data space in cooperation with its partners at European and international level. We will create a coherent, pre-competitive set of technical, legal and business rules for multilateral collaboration in Industrie 4.0 ecosystems. We will demonstrate and optimise the economic, environmental, and societal benefits of collaborative data sharing. As an international leader in data spaces, we also orchestrate the interplay of data spaces from different domains, e.g. from the automotive or chemical industries.

We ask the German government to support the creation of European and global Industrie 4.0 data spaces based on Gaia-X.

3. Using Industrie 4.0 for a more resilient economy in global supply chains

The Coronavirus pandemic has shown the contribution that Industrie 4.0 solutions can make to the resilience of the entire economy. Digital, transparent supply chains, modular production and remote control of plants make it possible to minimise or even avoid the consequences of disruption, conserve resources and return to a growth path more quickly. The prerequisite for this is the secure and sovereign sharing of data in digital ecosystems.

Through the Gaia-X project, the IPCEI on “Industrial Cloud” and the Industrie 4.0 Data Space, Plattform Industrie 4.0 plays a decisive role in creating the conditions for digital sovereignty and a secure Industrie 4.0 that can unleash its full potential for a pandemic-resilient and sustainable economy. We will advance the strategic concept of “Digital Resilience by Design”, according to which digital solutions in development and realization are always tested on a voluntary basis for their impact on the resilience of the digital ecosystem – especially technical resilience against cyber-attacks.

4. Bringing ready-to-use and scalable Industrie 4.0 solutions to SMEs

Industrie 4.0 is on the threshold of broad implementation and scaling. The availability and high market penetration of digital infrastructures, digital production technology and qualified employees are the basic prerequisites for unleashing the economic potential of digital ecosystems. The focus here is on small and medium-sized enterprises. It is essential to accelerate the digital transformation of these companies in particular.

The Plattform Industrie 4.0 works closely with the automotive industry and the Catena-X project. As a central network, we will in future promote the transfer of results from the recently launched Catena-X Automotive Network project and other projects of the 35c funding program to the manufacturing SMEs of various user industries, such as the chemical and food industries. We also accompany possible further implementation projects in these industries. We make the international standardisation successes of the digital twin and its productive use in practice visible and thus encourage other companies to use the digital twin.

We expect the Federal Government to consolidate and expand the existing support services for SMEs. The goal must be to accelerate the speed of change in the ecosystems as a whole. To this end, the necessary IT systems and digital skills must be built up quickly in the companies and the networks between the value creation partners must be supported. Policymakers should specifically promote access to support services with consultancy vouchers, qualification and cooperation networks between.

5. Making work and education fit for the future

People are at the heart of Industrie 4.0. Without the active participation of employees, the digital transformation, and the transition to sustainable business practices in companies cannot succeed. Only through high-quality, customised and inclusive vocational training and further qualification will employees be able to generate the innovation and productivity returns of Industrie 4.0 and shape the sustainability transition through the use of new technologies. This requires high-quality offerings for employees, which are not yet sufficiently available.

With the Charter for Work and Learning in Industrie 4.0, the Plattform Industrie 4.0 has created a set of shared values for the sustainable design of work, vocational education, and further training. Now we are shaping the innovative design of work for a competitive industry in a dialogue between the social partners.

We ask the Federal Government to continue the “Digital Education Initiative”. The aim should be to guarantee access to the digital education space for all employable persons in order to secure their professional participation and employability. Flexible school and out-of-school curricula as well as standardised validation procedures for upgrading informally and non-formally acquired job-related competences should be supported by funding instruments. Lifelong vocational education and training that places the interaction of technology, organisation and people in real company processes and digital working environments must be designed and promoted in a sustainable and resilient manner.

Digital-savvy regulation

All in all, we ask the Federal Government to design regulations in a digital-friendly way. We hope that the next legislative period will see the urgently needed flexibilisation of the law on general terms and conditions for digital business models. Likewise, the development of the digital nameplate should be flanked by legislation in

which machine information only has to be made available in digital form in the future. In addition, a simplification of data protection regulations in B2B business should be discussed. The Plattform Industrie 4.0 continuously develops legal assessments on certain aspects of Industrie 4.0 and is happy to make its expertise available.