ZVEI:
Die Elektroindustrie

Position Paper

Digitising European Industry

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German Electrical and Electronic Manufacturers´ Association

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The European Commission's Digital Industrial Leadership Initiative

The European Commission proposed its comprehensive initiative for Digitising the European Industry on April 191h this year. In line with the Digital Single Market Strategy presented in May 2015, this package contains different concrete measures within five key areas: 1. mobilisation and network cooperation, 2. innovation incentives and investments in digital innovation hubs, 3. prioritising standardisation, 4. reviewing legislation, 5. introducing education and skills as essentials for Europe's digital readiness. With respect to the electrical and electronic industry, this package has the potential to generate additional economic growth to Europe's economy, create new jobs and prepare the eco-system environment for SMEs to improve their digital performance.

Over the next five years, this initiative aims at a balanced European legislative framework to make full advantage of this potential. The fact of converting our European industry into a digital and innovative leader world-wide asks for the full attention of our political decision makers at all levels both European and national. As a strong partner of our globally engaged companies, ZVEI highlights the importance and significant contributions of the manufacturing industry within this transformation process. ZVEI member companies are holding front running position as providers of components and users of smart industrial solutions. Taking this package as an opportunity, ZVEI encourages political stakeholders to consider core interests and contributions of our European manufacturing industry in order to create an added value for our economy and society as a whole.

In this context, Europe will have the chance to take off to a fourth industrial revolution at high speed and will hold its pole position on a global scale. ZVEI member companies are representing all key technologies of digitisation in the five lead markets industry, energy, mobility, health and building. Therefore the scope and density of legislation must be carefully evaluated before decisions will be taken. This is why politicians and industry need a regular, sustainable and transparent dialogue. Without this important dialogue, future-proof legislation will not be implemented whereas unnecessary and short-sighted regulations could jeopardise Europe's competitive position in the world.

Content

Preparing the Ground for Europe's Digital Future – The Role of the Electrical Engineering Industry

The German Electrical and Electronic Manufacturers' Association represents the interests of more than 1,600 companies active in the electrical engineering industry in Germany. Among its members are corporate groups as well as small and medium-sized family enterprises. Out of a turnover of almost 172 billion Euros, these companies realise 79 percent with industrial goods, 11 percent with electronic components and 10 percent with consumer goods. In total, the sector has 849,000 domestic employees and 692,000 workers outside Germany. Member companies are the pacemaker of technological progress and advanced manufacturing. Thus it is highly appreciated by ZVEI that the EU Commission has recently published an ambitious and encompassing package with the objective to digitise European industry. According to a study, the potential for Europe's industry is huge as it could capitalise €110 billion of revenue per annum (Boston Consulting Group, 2015). Europe's manufacturing industry is a unique backbone of our economic strengths and international competitiveness. Product quality and European standards are at high level. The electrical engineering industry in particular is a trendsetter for technological progress and innovation. But only in a fully harmonised digital single market, this potential can be sufficiently reaped. This is why we think that our industry needs to be heard in the political process as a strong partner and reliable source of expertise for decision makers and politicians at all levels.

Smart Solutions Need Smart Government – What Do We Need?

1. Mobilising stakeholders

The risk of fragmentation of existing and planned national initiatives needs to be addressed in an efficient and effective manner. The Commission should address this challenge via short, medium and long run supportive activities. ZVEI welcomes the proposed actions by the Commission to install a High-Level Stakeholder Forum, which will be hold twice a year bringing together representatives of member states initiatives, industry leaders and from society. The accompanying working group will be a helpful tool to prioritise and structure the work of the Forum. With respect to the selection of participants, the Commission should recognise the importance of Europe's manufacturing and engineering industry as the key enabler of the digital transformation. The implementation of an additional European Stakeholder Forum for wider consultations with a broader audience could contribute to different aspects and perspectives about digitisation. ZVEI welcomes the €500 million investments out of H2020 funding foreseen to a better collaboration between competence centres, industry users, suppliers, technology experts and investors. In general, the EU has to evolve a clear vision about these coordinating action plans and should limit the number of additional boards or institutions to a minimum as it is more effective to foster coordination and information exchange between existing structures. Coordination has to be cross European and cross-sectoral in order to create a sustainable network between competence centres, digital innovation hubs, academia, industries and political decision makers. Only by pooling and sharing public resources, private investments are able to raise and flourish. ZVEI also encourages the Commission to move on with its plan of creating a thematic smart specialisation platform for industrial modernisation.

2. Innovation & investment

ZVEI member companies are frontrunners when it comes to innovation and market implementation of new technologies. With a total investment of €17.6 billion in research and development (June 2016), ZVEI members are highly innovative and key enablers for smart solutions in their five lead markets industry, mobility, energy, building and health.

Concerning innovation, the EU's potential should be managed more efficiently and market-driven. The access to the latest technology as well as the bottom-up approach towards innovation in all industries in order to bridge discrepancies across regional levels and industrial sectors, are the right objectives. Nevertheless, the Commission should not dilute the correct meaning of innovation. Innovation should be market-driven, while the right experimental environments are providing

pre-competitive testing opportunities. This could support start-ups and SMEs in order to cross the “valley of death” in innovation, which generally hamper the market implementation of innovative ideas, products and services.

The Commission’s announcement that public and private investments are able to raise up to 50 billion over the next five years reflects the ambition of this initiative. However these investments need pre-defined objectives and clear results. This is where the political and industrial dialogue could bring added value. In general, ZVEI strongly supports the existing structure and mechanism of Public Private Partnerships and Joint Technology Initiatives on Innovation and strategic R&D such as Factories of the Future.

3. Standardisation

The Commission pointed out quite rightly the urgent need for common ICT standards as a prerequisite of the Digital Single Market. The seamless and secure communication between processes, products and services calls for appropriate standards and norms ensuring interoperability. Common standards are needed not only on European but also on international levels. Within the Commission’s Communication on ICT Standardization five key priorities have been identified such as 5G, cloud computing, IoT, data technologies and cybersecurity. This strategic selection is appreciated by ZVEI. Especially we welcome that smart manufacturing is also addressed. International standardisation fora and consortia are the right place where standards have to be developed in a cooperative manner. Members of ZVEI need market-led, open, demand-driven and bottom-up standardisation procedures. Furthermore, reference architectures are an essential basis for Industrie 4.0 applications and standardisation. The German “Plattform Industrie 4.0” has adopted RAMI 4.0, which has been developed by ZVEI and its members. This reference architecture model is the first step of making digital products, processes, services and entire businesses comprehensible and combinable with each other. It consists of a three-dimensional coordinate system that describes all crucial aspects of Industrie 4.0. In this way, complex interrelations can be broken down into smaller and simpler clusters. Exemplary use-cases are already existing and will roll out first best practises of interoperability. ZVEI promotes the application of RAMI 4.0 also on European and international levels as it is the most elaborated and widely-used reference architecture model so far.

4. Legislative framework & data

A continuing review of European and national legislation is needed more than ever before because of the speed in advancing digital technology. Only by managing the right balance between legislative flexibility and clarity, industries will invest in digital technologies and innovation. The instruments of impact assessments, consultations, stakeholder meeting and the REFIT-approach are proven instruments of this reviewing process. However, members of ZVEI are concerned about pushing regulatory frameworks into a risky direction in certain policy fields such as the free flow of data, data ownership, data mining and access of data, liability and safety. We urge the EU Commission to treat industrial data separately as they have particular features and need specific regulatory flexibility. With respect to the speed of technological advance in our industries, ZVEI promotes the creation of an Industrie 4.0-Check for all legislative initiatives on European levels based on business and consumer friendly principles. This would prevent the rise of unexpected regulatory burdens and barriers for our industries at the very beginning. For example, this Industrie 4.0-Check could be implemented at the European REFIT-Platform as an adequate forum of exchange between relevant stakeholders.

5. Cybersecurity

One of the most important prerequisites of the digital transformation is trust. Only by addressing security in a serious way we will be able to gain the needed trust in order to make full use of Europe's digital potentials. There is no digitisation without security. For this reason ZVEI stresses the urgency of creating an encompassing European cybersecurity architecture, which contains a combination of IT-security and industrial security. Especially the industrial context displays special circumstances such as device and machine lifecycle, environment, safety requirements that shape security concepts accordingly. To address cybersecurity adequately three concepts are paramount across sectors:

- security-by-design
- identities for devices, machines, and people
- security capabilities for cross company communication

On an EU level, initiatives should focus on this basic understanding of industrial cybersecurity, which has not been heard yet and its specific requirements regarding PPP-cooperation, support and security regulation. One can find best practises in the ongoing European Energy Cybersecurity Platform (EECSP) process. The well-tuned and goal driven political dialogue on security is encouraging. ZVEI is directly involved in this process. Security certification based on national or EU laws should be avoided. Instead, a non-law based international

harmonized voluntary scheme (IECEE CB Scheme INDA) should be supported as it leads to international competitive security solutions.

6. Infrastructure

The need for boosting Europe's digital infrastructure capacities has not yet been addressed sufficiently. Discrepancies across European countries in terms of broadband supply and high-speed wireless internet are strong barriers that must be overcome soon. Although the Commission's plan to create a world class cloud infrastructure by the European Cloud Initiative and the installation of high performance computing systems will bring benefits to R&D, the manufacturers however also advocate high-speed and high-quality internet technologies in the up-load and down-load stream, anywhere across the EU.

Without expanding a secure and real-time-capable broadband network (fixed and mobile) in Europe, it will not be possible to implement Industrie 4.0 and critical infrastructures like Smart Grid. Ensuring further investments in a high-performance IT infrastructure in 5G focused on vertical industries (bandwidth, latencies, and semantics). This is the most important infrastructure prerequisite.

Like classical infrastructure, sufficient and high-quality cyber infrastructure guarantees a flourishing Digital Single Market. In the near future, the EU should address the work ahead on digital infrastructure more ambitiously in order to achieve a real Digital Single Market built on sufficient high-tech broadband internet. Under the requirement of net neutrality, it must be possible to provide communi-cation services of different quality levels. This is especially important for applications where security and/or real-time performance is critical (e.g. network connection of an emergency cut-off switch). This means for example, that the data for an industrial order should be carried faster over the network than the data for a computer game.

7. Platforms

Online Platforms can facilitate fundamental and basic activities such as buying, selling, creative expression, and access to tools and resources. They are an important driver of economic activity and growth in Europe.

Platforms benefit from the network effect and tend to lead to oligopolistic or monopolistic market structures. For B2C platforms there is a case for regulating platforms in order to protect individual consumers' rights (e.g. data privacy) from abuse by powerful platform operators. For B2B platforms, the need for regulations is much less urgent, because platform users will have more market power relative

to platform operators (unless faced with a true monopoly), and will be more conscious of the value of their data.

In the B2B domain, platforms are disrupting conventional business relations, making processes between companies faster and more efficient. Europe's business models are – mainly the B2C area – often mostly disrupted by extra-European online platforms. European industry has noticed the strong dominance of globally active ICT companies providing Europe with modern and competitive online services and platforms. Nevertheless the EU should ensure a level-playing field between extra-EU suppliers of platforms and their Europe-based smaller counterparts. Alongside an efficient market surveillance EU-local regulation is quite limited, harmonisation of targeted regulatory approaches and enforcement should be addressed globally. For European policy makers concerned about the digitization of the European economy, fostering the creation and growth of commercial digital platforms in Europe should have high priority. Policy makers can help by creating adequate conditions, mainly through:

- Finalizing the Digital Single Market with harmonized rules for the digital economy in order to allow digital platforms to scale to European dimensions
- Refraining from ex ante regulating commercial platforms with new regulation where existing regulation is sufficient
- Refraining from directly intervening and sponsoring the creation of specific commercial digital platforms
- Fostering a more active European venture capital industry and improving framework conditions (taxation and regulation) in order to support the foundation of platform-based start-up companies

8. Digital skills

The forthcoming New Skills Agenda is strongly appreciated by our industry. However ZVEI stresses that education and vocational training remains a core competency of EU member states. ZVEI companies are already engaged in upskilling the existing workforce and have initiated campaigns in order to attract young people to STEM-oriented education. Here it is crucial that the curricula at all levels of the education system address new skills and competencies. It is of high importance that coordinated action and a regularly dialogue will take place between the Commission and industry to stimulating a fruitful exchange on all social and educational dimensions. This includes cardinal questions about the definition and meaning of Work 4.0 and the role of human beings in the digital age principally. All of these aspects need a broad participation of stakeholders to find answers and practical solutions.

Summary

The fourth industrial revolution embodies both great opportunities and demanding challenges to our society and economy. The German electrical and electronic industry is highly aware of its vital role of helping to capitalise the opportunities and work together with involved stakeholders on all challenges. The EU Commission's Initiative addresses relevant and important issues concerning the digitisation of Europe's industries. In general, ZVEI and member companies support the various policy instruments exposed by this package. At the same time, our members are concerned about misguided and insufficiently reflected policy decisions which could risk Europe's industrial leadership globally. Therefore, we need:

- A European vision and roadmap of tackling national fragmentation of digitalisation.
- A close-to-the-market innovation EU policy, which makes fully use of the potential of industry-led innovation across Europe.
- A bottom-up and demand-driven standardisation process, which applies to the global scale standardisation.
- The continuous back-checking of current and future legislation, especially on handling industrial data. We need an Industrie 4.0-Check, which could give guidance to all policy fields at stake.
- A pan-European cybersecurity architecture based on a security-by-design approach is seriously needed. Our global active industries are highly dependent on best performance of cybersecurity concepts.
- Europe's digital infrastructure is lagging behind and thus needs to be developed more ambitiously. We need fast and high-quality internet anywhere and future communication infrastructures that meet the needs of industrial applications.
- A real level-playing field between European and non-European ICT platform providers is needed. Fostering the creation and growth of commercial digital platforms in Europe should have high priority.
- The EU should support member states in setting the right priorities in digital skills and education in order to support Europe's future competitiveness and to avoid increasing discrepancies across Europe.

About ZVEI

The "ZVEI - German Electrical and Electronic Manufacturers' Association" promotes the industry's joint economic, technological and environmental policy interests on a national, European and global level. The ZVEI represents more than 1,600 companies, mostly SMEs.

The sector has round about 850,000 employees in Germany plus almost 680,000 employees all over the world. In 2015 the turnover was Euro 179 billion.

The electrical and electronics industry is the most innovative industry sector in Germany. One-third of the industries sales are based on new products. Every third innovation in Germany´s manufacturing sector stems from solutions of this sector. More than 20 percent of all industrial R+D spending comes from this industry.

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