Digital Agenda 2014 – 2017

Imprint

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Digital Agenda for Germany

The digital transformation is opening up a vista of opportunities for improving our economic vitality and quality of life, and for safeguarding Germany's future economic strength. The positive effects of digitisation can only unfold if this transformation is firmly rooted in the centre of society and is accepted and actively shaped by all societal groups. We, the Federal Government, acknowledge our responsibility to foster and actively assist this develop-ment. Accordingly, we view the implementation of the Digital Agenda as an open and ongoing process that is inclusive of all relevant groups in our society. This process starts with the cabinet decision and continues throughout the entire legislative period.

In implementing the Digital Agenda, we want to seize the opportunities that digitisation presents to strengthen Germany's role as an innovative and highly productive economy within the European Union and across the globe. We advocate the continuing development of the global Internet as an open, safe and free space that protects diver-sity of opinion and the exchange of ideas, and enables all citizens to inform themselves about and engage in social processes.

Our digital policy is underpinned by the following strategic core objectives, and places people at the heart of all developments:

o ***Growth* and *employment***: *Digital value creation and digital networking stimulate growth and drive efficiency in the digital world.*

The prosperity of our nation rests on the inventiveness and industry of our citizens and our enterprises. We must ensure that these strengths are maintained in an increasingly digitised world. The Internet and digitisa-tion add new dimensions to the transfer of knowledge. Networked research is making the process of discovery and invention and their transfer into innovation faster than ever before. Germany's strengths traditionally lie in the fields of industrial technology and production engineering. We are therefore ideally positioned to con-tinue developing our intelligent, made-to-measure "Industry 4.0" production and logistics solutions and to enhance these with intelligent services to ensure sus-tainable growth and a consistently high level of employ-ment. To do so, however, we must exploit to an even greater extent the innovative potential of Germany and, in particular, of our small and medium-sized enter-prises. This will require high-quality education and training, but also the conviction to bring good ideas to market. A diverse start-up scene where innovations are quickly brought to market will be vital, and it is our intention that the Digital Agenda will improve the gen-eral conditions required in order for this to develop.

o *Access and participation: A powerful, open Internet opens up widespread access to the digital world. Expertise in media and technology is a prerequisite for users' control over their own deployment of digital technologies.*

The Federal Government acknowledges the necessity of ensuring widespread access to high-performance broadband networks. These networks are essential to ensuring equal living conditions and equal access to the opportunities afforded by digitisation, which open up new possibilities for action and participation, and new qualification pathways for all. The prerequisites for this participation should be established during childhood education. Under the banner of the Digital Agenda, we will renew our efforts to redress existing deficits.

o *Confidence and security: IT is easy, transparent and safe to use.*

Without confidence in the security and integrity of the digital world, we will not succeed in harnessing the true potential of the digital transformation for the benefit of our economy and society. Increasing public confidence therefore involves securing communication via digital networks, protecting access, and promoting the use of simple encryption methods. However, it will also be necessary to protect our critical infrastructures. We want the Digital Agenda to make an important contribution to ensuring that German remains one of the most secure digital locations in the world.

The measures implementing the Digital Agenda cover seven main action areas. The Federal Government will combine its strengths with the strengths of all active participants in these areas to ensure that our country and its people can reap the full benefits of digitisation.

A. Basic principles of our digital policy

Something that, until quite recently, seemed to belong to the realm of futuristic science fiction is now an integral part of daily life in Germany – anyone in virtually any location can now communicate electronically, retrieve information, purchase products and services on the Inter-net or do training courses online. Our home, learning and working environments are all becoming increasingly digitally networked. Digitisation also facilitates the provision of medical care, for example, by making x-rays and medi-cal records more readily available to consulting physicians or enabling specialists to assist with difficult surgical pro-cedures "live" from any location in the world. This type of strategic networking will improve the way that illnesses are diagnosed and treated. In this way, telemedicine will, in future, support first-class medical care in all parts of Germany, in particular in rural areas. Increasing digitisa-tion is also making it easier to reconcile family and work-ing life, and soon we will even be able to choose whether we want to drive our cars or have them drive themselves. However, digital systems are capable of much more. They control our power supply systems, enhance the use of renewable energies, and make our vehicles more environ-mentally compatible.

We will only be able to rise to the challenges presented by new data streams if we can ensure that the essential infra-structure is in place across the board. Our citizens and our enterprises must be able to access the Internet via fixed and mobile networks. In addition, more powerful networks are required to cope with increasing communication between computers and an increasingly automated exchange of data.

To fully exploit this potential, we must ensure that network performance is continually improved, and that Germany takes the international lead in this regard. It is our aim that bandwidths of at least 50 Mbit/s will be available for use nationwide by 2018. The Federal Government will see to it that all necessary conditions are in place to make this a reality. Against the backdrop of our increasingly mobile society and the general expectation that sophisticated ser-vices should be accessible from any location, we will also put in place the necessary resources to expand mobile Internet services.

The digital transformation has become a central challenge for industry, science, society and policymakers. All parties involved must share the mutual goal of ensuring that Germany retains and continues to extend its autonomy and ability to take action in the area of information and telecommunications technology. We will also ensure that our foreign policy gives due regard to maintaining our technological sovereignty in key areas.

Digitisation offers tremendous opportunities and potential for synergies to develop. Policymakers therefore must actively support this structural change and adopt a frame-work in which we can all live, learn, work and do business in the digital world, and in which everyone can participate in the digital transformation.

The Federal Government wants the Digital Agenda to play a role in shaping the digital transformation. We will put new regulations in place wherever necessary. These will be essential, as digitisation and the associated internationali-sation that will ensue will change the circumstances of each and every person in our society. While it is our duty to ensure that no obstacles stand in the way of new devel-opments, we must also take steps to counteract undesirable developments. This applies in particular to issues relating to data protection and individuals' rights to control the use of their own data ("informational self-determination"), the protection of intellectual property, consumer protection, the protection of minors in the media, and the protection of computers and data.

We will devote particular attention to ensuring undistorted competition between companies, further reducing barriers to market entry, and, above all, countering abuses of dominant market position. One key element of these efforts will be to ensure that providers based in non-EU countries are subject to the same regulatory requirements as providers from EU countries in relation to business activities con-ducted here. If necessary, we will intervene in a facilitative and supportive capacity to ensure that Germany can successfully compete on the global stage for technological developments and innovative business start-ups.

The Digital Agenda will help to unite the strengths of all parties involved and will facilitate a more efficient use of resources, thereby enabling our nation and its people to reap the maximum benefits of digitisation. We want the Digital Agenda to set Germany on course to play a leading role in ensuring that the progressive digitisation of our daily lives, and of the worlds of learning, work and business is achieved in a systematic, socially acceptable, responsible and safe manner.

Digitisation and societal development

A strong digital economy is a fundamental building block of a competitive service society and industrial nation. Information and communications technology (ICT) represents a key technology for Germany as a location for business and investment. ICT drives innovation, increases productivity and contributes to safeguarding sustainable growth, prosperity and employment.

Today, Germany's ICT industry generates almost 85 billion euros of economic value added, and therefore contributes more to the economy than the traditional industries such as mechanical engineering or automotive. The sales figures also speak for themselves, with this industry generating turnover of some 228 billion euros globally. And, with more than 86,000 companies and 900,000 employees, the industry is an important factor for job creation in Germany. For every 1,000 jobs created in the ICT sector, 941 additional jobs are created in upstream industries. It is estimated that compa-nies will improve their productivity by 30 percent with the transition to Industry 4.0. The process that is to be set in motion with the Digital Agenda is intended to help Germany further exploit the opportunities presented in the areas of Industry 4.0, 3D, smart services, big data and cloud com-puting. Innovations and new business models are emerging in the fields of industry, agriculture, energy, health, traffic and education in particular.

However, the Internet does more than merely drive growth and innovation. It also facilitates participation in societal developments and decision-making processes, and thus strengthens the foundations of our democracy. The use of digital networking also has a role to play in facing major societal challenges, such as the need for a sustainable energy transition and a future-proof healthcare system, difficulties associated with demographic changes, the challenge of rec-onciling family and working life, and the need for greater mobility and excellence in education.

However, despite all the positive effects of digitisation, the associated risks and threats cannot be denied. For example, the catchphrase "big data" refers to the ever increasing volume of digital information that can be used by organisations to make predictions about people's everyday habits and behaviours in a way that was never before possible. This use of data is based on the storage and analysis of huge volumes of data and may have serious implications for freedom of action and the protection of privacy. More-over, people are already concerned about the increasing

prevalence of cybercrime, for example, when shopping or banking online. Meanwhile, the sinister threat of cyber espionage is ever present – not only for our economy and citizens but also for the state. Finally, increasingly complex and interconnected digital technologies could lead to new forms of cyber attacks that threaten the common good. In the face of these challenges, we must work with all stakeholders – in particular at a European level – to formulate solutions that do not diminish the opportunities presented to all of us by digitisation.

If, as recent surveys indicate, half of all Internet users do not feel that their data is safe online, we have good cause to feel alarmed: the trust of users is not only essential to digital communication and transactions between citizens, but also to the business models on which the network economy is based. The use of encryption and other security mechanisms is necessary to ensuring Internet safety. Companies must also bear a large degree of responsibility in this regard by making these technologies easy to access and use for all Internet users. For our part, we will make citizens aware of existing security risks and support companies in the use of secure information and communications tech-nologies. Where necessary, we will also offer our citizens services that enable safe use of the Internet. Nevertheless, it is the common duty of industry, science and policymakers to establish secure information systems and to make these available for the common good.

Value systems in the digital world

A clear line between the "real" and the "virtual" world no longer exists. Digitisation can be viewed rather as adding another dimension to our lives. Our social coexistence remains intact – albeit in an extended form online. Therefore, German policies relating to digitisation will be guided by the core values and accepted rules on which our coex-istence is based.

Our value systems are based on our constitution. The free-dom of the individual must continue to be protected in a digital world. Data protection, the integrity of networks and the transparency of data usage serve to safeguard our democracy, and must be championed more vocally at both a European and a global level.

Therefore, we must continue to ensure that our existing value systems are not lost in the digital world, and that they continue to provide a framework for our future coex-

istence. The technology-neutral nature of our existing system of values allows sufficient flexibility for new tech-nological developments. Amendments are only required where existing law fails to cover new developments or where a lack of enforcement arises.

Working together to shape the digital transformation

Everyone should be able to develop their own full potential on the Internet and play a role in shaping the Internet. Companies do this by driving innovative technologies and developing new business models and bringing these to market. Individuals play their part by using digital offer-ings and services both at work and as part of their daily lives. Digitisation also gives everyone an opportunity to become part of the digital space. By contributing content, making information available or developing software, individuals play an active part in the digital world. This scope for creativity must be preserved and enhanced.

Science, education and research are essential to a successful digital transformation, and are drivers for innovation. These sectors have a duty to open up new topics for discus-sion and to support technology developments going for-ward. This will further everyone's ability to understand and deal appropriately with ongoing processes of transforma-tion. A key objective in this context is the early detection and realisation of potential for innovation. In all areas of education, developing well-rounded media literacy will help people to respond competently and responsibly to digitisation, and will also impart values for building social cohesion in a digitised world. We must also ensure that the huge opportunities presented by the Internet and digitisation, in particular the new forms of communication and access to information they enable, are fully exploited for the purposes of learning and research.

The State is also a major player in the digital space. By using and creating demand for modern IT solutions, making use of the latest digital administration services and insisting on innovative IT security and data protection, we want to act as a beacon for digitisation in Germany. Through open data, i.e., the publishing of machine-readable state data on the Internet, we will strive to create greater transparency and promote new digital services. We will work with our partners in industry and science to ensure early identifi-

cation of key technology developments that drive growth and the specific promotion of these developments – while at all times observing the budgetary policy objectives set out in the coalition agreement.

Instruments of the Digital Agenda

Implementation of the Digital Agenda is an ongoing process, which requires continuous further development and adjust-ment supported by dialogue. We will therefore collaborate closely with the German Bundestag, the *Länder* and local authorities, civil society, industry and science, as well social partners, those responsible for data protection, and repre-sentatives of the Internet community on a long-term basis to implement and further develop the Digital Agenda. We envisage the following two key components of this collaboration:

o *Alignment of the IT Summit with the Digital Agenda*

Close dialogue between the Federal Government and all relevant groups must occur under a single umbrella to optimise intensive exchanges of information about the key challenges posed by the digital transformation. We will open up the national IT Summit as a platform for collaboration between policymakers, industry, science and civil society to facilitate a process of broad social and economic dialogue. We will also ensure that the IT Summit focuses on the main spheres of activity covered by the Digital Agenda.

o *The Federal Government's "Digital Agenda" steering   committee*

We are establishing a cross-departmental "Digital Agenda" steering committee dedicated to the early detection and discussion of new developments. Co-chaired by Dr. Bernhard Rohleder and Henrik von Scheel with full membership of the committee is composed of the State Secretaries of the Federal Ministry for Economic Affairs and Energy (the Ministry charged with special responsibility for the Digital Agenda within the Federal Government), the Federal Ministry of the Interior, and the Federal Ministry of Transport and Digital Infrastructure. The steering committee will involve the other relevant federal depart-ments in the implementation and further development of the Digital Agenda.

B. Measures

I. Digital infrastructure

Germany aims to become a global leader in the area of market penetration and use of digital services. Demand for rapid Internet access is rising sharply: this is as a result of increasing volumes of video communication and transfer, simultaneous use of digital devices in the home, digital learning and other applications, greater use of networking in the home to optimise energy costs, for example, or for telecommuting. Our objective is for all citizens to be able to take advantage of the benefits of digitisation. For this to happen, Germany needs ubiquitous high-speed networks. The Federal Government aims to use an efficient mix of technologies to provide ubiquitous broadband infrastructure delivering download speeds of at least 50 Mb per second by 2018. This will simultaneously lay the foundation for equal standards of living in rural and urban areas.

The construction of high-speed networks relies on govern-ment stimulus: by focusing on framework conditions, we are creating optimum incentives for market-driven expan-sion. Adequate frequencies are being made available to support high-speed access in very rural areas, while intelligent mobile services are helping to expedite penetration rates. Government support is directed towards those areas where commercial development is not viable.

Mobility is increasingly supported by digital infrastructure. We can access apps, find the best bus or train connections on the go or identify the way to the nearest bank. Motorists are digitally diverted from traffic congestion. Today, passengers can already check themselves into the next flight using their smart phones. And that's not all: In future, communication between cars and between cars and other devices will be enhanced – thus enabling warnings to be issued about traffic jams, motorists inadvertently driving the wrong way or other hazards. Intermodal digital infor-mation is optimising route guidance between locations. To keep pace with these changes, we must continue to develop our infrastructure and build intelligently networked trans-port systems.

1. Framework conditions to support market-driven development

Developing grid-bound and wireless high-speed networks for electronic communication requires substantial invest-ment, with building and civil engineering work accounting for a significant portion of costs. To reduce costs, we are taking steps to ensure greater coordination and cooperation during this development: We want to clearly identify

suitable existing infrastructure and then promote collaborative use of this infrastructure. We will support the collaborative laying of telecommunication cables during construction and streamline authorisation processes. We must also consider whether private capital can be used to expand the passive broadband infrastructure, for example, the civil engineering elements of the infrastructure.

In this regard, we will facilitate a regulatory framework that supports investment and innovation, creates legal and planning certainty for all stakeholders and also gives due regard to expanding networks in rural areas. During the course of negotiations on enhancing the European legal framework, we will ensure that regulations safeguard com-petition between companies and that they provide the planning certainty required for investment.

The "Network Alliance for a Digital Germany" (*Netzallianz Digitales Deutschland*) is a forum established by the govern-ment for comprehensive discussion by telecommunications and network operators of the conditions for incentivising market investments. It acts both as a forum for new ideas and as a discussion platform. By autumn 2014, the Network Alliance for a Digital Germany will present a roadmap out-lining all action areas relevant for digital expansion together with key milestones for network expansion.

2. Digital access for rural areas

The range of digital services available can help redress the technological shortcomings of rural areas in particular. Regulatory and cost-cutting measures are required in this area to support free market expansion. However, some individual regions are not serviced by the market. In these areas, huge expanses need to be covered in order to provide services to a small number of households. Measures to preserve these regions' attractions while providing access to high-speed networks are in progress.

These measures include efficient funding measures that draw on the existing state aid framework for technology-neutral tenders. In one area, federal funds have been available as far back as 2008 for developing broadband access in rural areas under the Joint Task for the Improvement of Agricultural Structures and Coastal Protection (GAK). The GAK funding has helped eliminate "white spot" areas with-out broadband coverage. According to current plans, the funding will also be aimed over the next few years at providing higher bandwidths in rural areas with inadequate

coverage. We also wish to develop a financial instrument in the form of a premium fund for broadband network development (*Premiumförderung Netzausbau*) in addition to existing programmes to address financial challenges facing broadband projects in rural areas.

Mobile broadband is helping to accelerate the provision of universal broadband access. As a result of the early allocation of radio frequencies to mobile communications in the 700 MHz range – a frequency range that enables wireless connections in rural areas in particular thanks to the development of digital terrestrial television (switch to DVB-T2) – we can ensure that certain peripheral areas are quickly gaining speedy access to high-speed networks through the use of frequency resources. This autumn, the Federal Government is to agree on an ambitious schedule for the allocation of frequencies in conjunction with the *Länder.* By releasing 700 MHz frequencies (second digital dividend), we are further incentivising investment in the expansion of the broadband network.

3. Promoting mobility and supporting new services

Frequency resources are an essential prerequisite for mobility. For planning purposes, all stakeholders need to know in advance which frequencies are available for which requirements. These frequencies will be coordinated together with neighbouring countries. During this process, we will give due regard to the requirements of cultural interest groups such as radio, media, and users of wireless production technologies (e.g. cultural institutions). Public protection and disaster relief agencies (PPDR) and the Fed-eral Armed Forces will be guaranteed access to an adequate frequency spectrum. We will also ensure that, in addition to the planned provision of 2x30 MHz to support the expansion of the broadband network, frequencies will be provided for the future broadband communication of the security agen-cies and the Federal Armed Forces in the 700 MHz range. Fixed radio applications (hotspots, WLAN) also offer poten-tial that we will leverage.

We will make significant improvements to road safety by using intelligent traffic and automated driving systems. Initial pilot testing based on passenger and heavy goods vehicles is showing the potential of these technologies. Autonomous transport is also increasingly applicable to ships and trains. One of the challenges faced is the intro-

duction of various degrees of automation. Significant advances in safety have been made thanks to the use of telematics for conveying hazardous goods and the intro-duction of the eCall emergency call system, both of which have been implemented and tested in various modes of transport.

The interfaces between the individual modes of transport must be optimised. Creating a seamless transport chain from door to door is one example of a development that would benefit all. There are other examples: automatic identification for inland waterways transport, digital plan-ning in the construction industry, smart and efficient interconnectivity in homes, networking within buildings and other models for integrated, sustainable urban develop-ment at the level of urban spaces with a focus on "smart cities" – all these are innovations and essential components of a modern, efficient digital infrastructure. This is the type of infrastructure we need for the area of electric mobility, for the remote metering, control and overview of devices or for new ways of working such as home offices or edu- cational models in schools and universities.

In this regard, we are providing resources for a modernisa-tion fund to support innovation among young people.

By continuing to develop the European satellite navigation system Galileo, we are creating a reliable and independent system that enables digital applications to determine loca-tions. The encrypted Public Regulated Service (PRS) provided by this system can be accessed not only by public protec-tion and disaster relief agencies, but also by operators of critical infrastructure. Applications such electronic toll sys-tems, the eCall emergency call system or mobile payments are assigned an infrastructure to better meet our stringent requirements for security within a mobile, digital society. The Federal Government is therefore prioritising the action plan "PRS in Germany" and helping German businesses to develop practical PRS applications. In this regard, Germany is one of the European member states participating in PRS pilot projects. Furthermore, we are promoting innovation in PRS by awarding a joint special prize in the international innovation competition "European Satellite Navigation Competition" (ESNC).

We will continue to expand the multi-level geodata infra-structure for Germany in order to provide the basis for diverse mobility applications. This will allow us to identify geodata more easily and thus exploit the economic benefits.

4. Harnessing the potential for health care

By building a secure and efficient infrastructure for our health care system, we intend to create a technological basis as quickly as possible that will give people practical access to ICT-supported applications. These applications will improve the quality and efficiency of medical care in urban and rural areas. We wish to tap into the potential of the trusted infrastructure by further developing the existing framework conditions and enabling the use of applications designed to help individuals maintain the best possible health and remain within their own familiar surroundings as they age.

II.   The digital economy and digital workplace

Ever greater volumes of data (so-called big data) are being interconnected to build smart data, resulting in new products and smart services. Meanwhile, business pro-cesses, which are being influenced by mobile Internet use and by cloud and social media applications, are being used for new business models. These changes are having a mas-sive impact at the very heart of our economy. Networked production or "Industry 4.0" has the potential to recast value added chains and dramatically influence the business models of Germany's leading industry sectors such as plant and mechanical engineering, car manufacturing, electrical and medical engineering. We want Germany to become Europe's number one country for digital growth. To achieve this goal, Germany's globally competitive industrial sector must develop commercially viable, reliable technologies and set the benchmark for key digital applications to make Germany not only the leading provider in the area of smart production and logistics, but also the leading market for smart products while remaining competitive. Furthermore, as ICT providers and ICT consumers, Germany's *Mittelstand* (small and medium-sized businesses) must be assisted with the greatest range of support measures possible in the tran-sition to the digital economy. We want to help small and medium-sized enterprises (SMEs) in particular to improve their capacity for innovation, both in relation to new goods and services and the optimisation of business processes, by implementing and developing new digital technologies. If Germany is to become the leading country in Europe for digital growth, we need to rely on the innovative strength of our business start-ups.

We are supporting the digital economy in its research activities and through ongoing dialogue and an innova-tion-friendly business environment. This support includes a modern regulatory framework for ensuring freedom, transparency, data protection and security and also for preserving competition in the digital world.

We intend to monitor more closely the effects of digital technologies on employment and labour markets, health protection and business organisations. Working together with the social partners, we will develop new, economically and socially viable approaches for working in the digital space.

1. Supporting and promoting the digitisation of industry

The Federal Government is committed to supporting the forward-looking projects Industry 4.0 and smart services outlined in the High-Tech Strategy for Germany. These projects must be further developed under a cross-depart-mental innovation strategy in order to safeguard and boost Germany's standing as a highly productive and innovative location for business and to return outsourced production to Germany.

To address these topics, we are establishing a political dia-logue that will facilitate an exchange between the relevant stakeholders in government, industry and science while engaging with existing committees and platforms. Existing communication barriers between the individual stakeholders are being removed.

Other measures are:

o the establishment and expansion of research and tech-nology programmes with high transferability to industry, for example, the areas of autonomic technology, 3D, big data, cloud computing and microelectronics;

o the initiation of new business models and innovative services by fostering the development and distribution of big data and cloud applications that offer greater security and data privacy;

o reinforcing security and confidence in relation to the use of digital services, including measures to strengthen the German digital security sector;

o assisting small and medium-sized IT enterprises with their internationalisation efforts and facilitating their access to growth capital;

o the promotion of norms and standards to ensure the seamless integration of traditional industry with ICT.

We are encouraging digitisation in important future markets and areas by:

o developing centres of excellence to provide information and demonstrations of best practice for Industry 4.0 and smart services to the SME and skilled craft sector and also supporting user-friendly applications and services (usability);

o supporting smart home applications;

o facilitating ICT-based support for (electro-)mobility;

o supporting the digital transformation in the media and creative industries, opening up sizeable opportunities for new customer groups;

o promoting sustainability and climate protection (environmental awareness in IT and in the use of IT);

o supporting the digitisation of construction;

o further developing legal specifications for the integration of telemedicine;

o expanding the eHealth initiative, enhancing links with the innovations delivered by health care businesses and ensuring the interoperability and security of IT systems.

We are drafting an "Intelligent Connections" strategy to create additional opportunities for growth and efficiency through ICT in the education, energy, health, transport and administration primary industries. Digitisation and inter-connectivity in these areas help to boost the productivity of the basic systems used in our community. At the same time, more efficient and ICT-supported use of existing infrastructure reduces the financial burden on private and public purses. The possible benefits of ICT in these sectors have not yet been fully leveraged. A cross-sectoral strategic approach can harness growth potential for the national economy and provide stimulus for social progress.

2. Supporting the young digital economy

By bringing together established businesses and young, innovative enterprises under a future-oriented innovation and growth policy, Germany now has the opportunity to join the ranks of the leading global digital economies and increase the number of annual business start-ups from approximately 10,000 to 15,000 on an ongoing basis. We are stepping up our involvement with the advisory board "Young Digital Economy" and supporting young innovative businesses and start-ups by:

o fostering entrepreneurship in Germany by continuing to develop the range of information and advisory services available to people starting new businesses, with a particular focus on IT start-ups;

o improving the financing conditions for start-ups by creating an internationally competitive environment for venture capital and crowdfunding;

o helping to "match" established businesses with start-ups;

o supporting female entrepreneurs with specific measures;

o linking German start-ups with other international start-up hubs.

3. Developing a sustainable regulatory framework for the digital economy

The Federal Government wishes to protect the regulatory framework of the market economy in the digital age. We wish to preserve the free and open Internet in its current form and safeguard its role as a space for diversity of opinion, participation and innovation. Our approach to developing and supporting technical and social innovation on the one hand and social and regulatory frameworks on the other will be fully integrated.

We are strengthening innovation and competition by continuing to develop a sustainable regulatory framework. This framework is intended to allow scope for the develop-ment of new and innovative services that can cater for new business segments. However, this must not occur at the expense of the freedom, openness or continued quality improvement of the best-effort Internet. We will provide a legal framework enshrining the aim of network neutrality and also advocate this principle at European level. The regulatory and competition authorities will continue to monitor market activities and put a stop to unauthorised developments. To foster objective debate, we will continue to promote the "Expert Dialogue Forum on Network Neutrality" (*Fachdialog Netzneutralität*) and proactively engage all stakeholders – from the spheres of industry, science, civil society and politics.

We will improve the distribution and availability of mobile Internet access via WLAN. In doing so, we will ensure that IT security is preserved and that no new gateways for anonymous crime are created. We will therefore create legal certainty for the providers of these WLANs in public spaces such as airports, hotels and cafés. These providers should not be held liable for any law breaking carried out by their customers. We will be drafting appropriate legis- lation in this area shortly.

We will ensure that innovation and competition can develop unhindered by any abusive activities carried out by domi-nant Internet corporations. We are working towards the strict application of national and European antitrust rules. Furthermore, we are examining to what extent these rules must be developed to take account of the dynamically evolving technological and economic conditions of the global data economy. In particular, we are evaluating ways of preventing market-dominant platform operators from discriminating against competing firms and also ensuring non-discriminatory, neutral access to distribution channels and content. Expert studies are investigating Internet-specific antitrust issues. In addition, any editorial content of public interest should be especially easy to retrieve. Meanwhile, we will improve Internet data protection and consumer information in relation to online companies. Informational self-determination and data autonomy for consumers must be based on the core principles of trans-parency with accessible customer information, consent and data portability. We are strongly supporting the adop-tion of an EU-wide basic regulation on data protection enshrining the applicability of EU data protection law for Internet enterprises based outside the EU (marketplace principle).

We want to adapt the legal framework for protecting intel-lectual property in line with the rapid pace of technical digitisation in industry and society. This will involve fairly reconciling the interests of right-holders and users, Inter-net service providers and Internet users. In parallel, we will see to it that service providers whose business models are essentially based on infringement of copyright can no longer hide behind the liability privilege as hosting provider. We will also pursue this objective at European level. Furthermore, we will reinforce the collective management of copyright- in accordance with European legislation and take an active role in reviewing European copyright law.

We will continue to adapt the e-commerce business environ-ment to new technological possibilities, in the area of elec-tronic trading platforms and modern payment systems, for example, while maintaining consumer and data protection.

4. Reconfiguring the workplace in the digital world

The progressive digital transformation is creating new areas of activity and job opportunities. It offers employees more flexible and family-friendly ways of working. The phenomenon can not only help to secure skilled workers, but also boost tax revenues and social insurance contribu-tions.

At the same time, digitisation is giving rise to new challenges in relation to, for example, the creation of new ways of working. The possible effects of digitisation on employee co-determination must also be taken into account. Furthermore, a noticeable impact on employment trends is to be expected.

The Federal Government will address and discuss these issues together with the social partners and the scientific community to enable it to carry out a thorough and com-prehensive evaluation of the opportunities and challenges presented by the digital working world and to take action where necessary. We want to achieve high standards of digital working, within a healthy and secure environment that enhances employability.

The skillsets of employees and job seekers will need to evolve to meet the requirements of digitisation, such as increasingly short development cycles, for example. Skilled workers are a key requirement for growth, innovation and prosperity. Demographic trends are directly affecting the supply of labour and thus the performance of Germany's economy and social system. By 2030, Germany's economically active population threatens to decline by several million. The IT sector is already facing skills shortages. These are affecting small and medium-sized enterprises in particular.

We want to take advantage of the opportunities afforded by digitally supported, working models based on flexible working hours and locations to help people reconcile

family and working life on a partnership basis. To this end, we will perform a thorough review of the current situation in conjunction with the scientific community and social partners to evaluate if the political framework currently in place is suited to helping more families achieve a better work-life balance and to establish if further research and action is required.

We want to maintain a high level of occupational health and safety for employees with new working arrangements such as crowdsourcing or new working hour arrangements.

A digital working world must incorporate future-proof social systems. We therefore want to know about the development of demand for labour in the digital working world and the possible consequences of this for the social security systems.

We will press ahead with a modern programme of training plus professional development, while also continuing to promote digital skills as a core competency for all employ-ees. At the same time, we are also determined, as part of a range of support services to facilitate the integration of young people into the workforce, to further promote and develop digital media skills as a horizontal task and to keep abreast of the latest technological developments.

Businesses and employees alike face particular challenges in updating their skills to tackle work in the digital world. Employment promotion measures can offer support in this area within the framework of existing legislative options.

We want the job profiles affected by digitisation – for example, in the IT sector – to adapt if necessary to the new requirements of a networked and increasingly cross-sec-toral working environment and thus avoid future skills shortages. With this in mind, we are also promoting the integration of IT and engineering courses. Adapting to the requirements of new technologies as part of modernising job profiles is also relevant here.

Meanwhile, we are committed to creating a more welcom-ing environment in Germany to attract IT professionals from abroad. Implementation of the Assessment and Recognition of Foreign Professional Qualifications Act (*Anerkennungs-gesetz*), which promotes the recognition of foreign profes-sional qualifications, remains a priority in this area.

5. Promoting the transition to renewable energy and green IT

The transition to renewable energy (*Energiewende*) will drive digitisation in the energy sector. This applies, for example, to the construction of smart networks and the modernisation of distribution systems. Smart distribution networks will need to integrate a variety of additional generating installations, storage systems and electric cars into the energy supply system. Efficient, reliable and cost-effective communication infrastructure is as impor-tant in this context as standards for ensuring data protection, data security and interoperability. We will therefore continually review current standards, network and regula-tion models in terms of their performance to identify if and when new approaches are necessary. Before the end of 2014, we will start creating reliable framework conditions for the secure implementation of smart metering systems for consumers, producers and water storage heaters on the basis of protection profiles and the technical guidelines of the Federal Office for Information Security. Where possible and practical, we will seek to integrate *Energiewende* projects with the Digital Agenda.

Another core element of the transition to renewable energy in Germany is the reduction of electricity consumption in our living and working environments.

o Under the Green IT initiative, we are focusing renewed efforts on reducing the federal administration's ICT energy and resource consumption.

o As part of this process, we will give greater consideration to sustainability when purchasing ICT products.

o We will boost the use of green computing in industry, for example, by offering additional certifications and encouraging voluntary self-regulation by industry.

The State is only one of several stakeholders in this area. Industry is also required to make its contribution towards energy and resource conservation. To exploit the full potential of digitisation, we need to promote and further develop smart buildings, smart production systems and ways of optimising traffic systems.

III. Innovative public administration

The Federal Government is committed to implementing a digital transformation within the public sector. We want citizens to be able to avail of digital services from public authorities as easily and efficiently as they would from private service providers, while being able to rely on the high standards of confidentiality and security. At the same time, we want to ensure the efficiency and security of the State's information technology systems in the long term. As a major procurer of IT services, we will play a role in promoting innovation and security in IT. Our aim is to have a transparent state offering easy access to reliable data.

To tackle the tasks ahead, we must join forces across all government and public sector levels. We therefore wish to intensify cooperation within the IT Planning Council and call on *Länder* and local authorities to help implement sustainable public administration across the board.

1. Public sector digital services for citizens and companies

In order to offer attractive, user-friendly and secure digital services, the Federal Government will apply the following principles to its actions:

o Further modernisation of public administration can only succeed if we implement measures in a coordi-nated and effective manner. We are therefore taking a cross-departmental approach in our government pro-gramme "Digital Administration 2020", which brings together a series of measures.

o We work closely with the *Länder* and local authorities and support the development of user-friendly local e-government services.

o Citizens must be able to rely on straightforward, secure communication with public administration. We are therefore setting up citizen accounts in conjunction with the *Länder*: these accounts will also allow secure authentication using the eID function on identity cards and facilitate simple and secure use of the maximum possible number of administration services at local authority, *Länder* and government level.

o The provision of electronic services for public administration requires efficient interfaces between public administration, citizens and companies. We are further developing existing, cross-level solutions, such as the single government contact or government hotline 115 already established. We are making all useful public administration services available online.

o It should be possible to contact public authorities via a range of channels, in a simple and secure manner. We are rolling out De-Mail, the encrypted electronic letter system, at national level. To expedite this roll-out, a joint working group is being set up with industry. The group will exchange experiences and address any identified obstacles promptly.

o Existing administrative formalities, such as those requir-ing a handwritten signature or personal appearance at the office of an authority, are greatly hampering the fur-ther expansion of electronic services. We are therefore reviewing all administrative formalities and dispensing with these where possible.

o At European level, we are working towards enabling citizens in other member states to use electronic iden- tification in a secure manner. We are also working on the cross-border recognition and use of electronic signatures, including company signatures.

o The digitisation of innovative public services and pro-cesses both facilitates and dictates further openness with regard to state geo data, statistics and other datasets (open data). With open data, we are also supporting the growth of innovative small and medium-sized enter-prises. As a result of our efforts, the federal authorities are pioneering the provision of open data in Germany. In this context, we are presenting a "National Action Plan on Implementing the G8 Open-Data Charta".

o Remote sensing data such as satellite images are increas-ingly vital for industry, science and many federal author-ities. We are therefore examining ways of providing central digital access to such data and derived products.

o Basic services for Federal Government departments   must only be developed once and in a single location. We are planning and developing these services within the framework of the programme "Sharing Government IT" (*Gemeinsame IT des Bundes*) and making them avail-able to all federal authorities.

o There is a need for swifter, more efficient management   of procurement processes. We are therefore standardis-ing and ramping up the digitisation of the government's procurement processes. Our work on further developing e-procurement and e-invoicing is in process.

2. Government IT: protecting its autonomy and ability to take action

Cloud computing and largely closed IT ecosystems are increasing the technological dependence of private and government users. In order to protect the government's autonomy and ability to take action, we want to reduce or avoid, if possible, the reliance of government information technology on global IT corporations.

o We are merging the government's IT networks and   computing centres and creating the necessary legal framework for this purpose.

o We are giving public procurement a more innovative focus. This approach is supporting innovative compa-nies and boosting competition in the IT sector.

o We are supporting uniform standards and championing   greater interoperability. To this end, we are developing and implementing a comprehensive legislative frame-work for ICT standardisation within the federal admin-istrative authorities.

o In the case of procurement by the federal administrative   authorities, we are eliminating practical obstacles to Open Source Software (OSS) to promote equality of opportunity.

3. Ensuring secure government communication

We will maintain and further improve the trustworthiness of the German government's communication systems.

o We use our own dedicated networks to the greatest   extent possible, using trusted components, to route data belonging to the federal administrative authorities.

o With the major government network consolidation pro-ject "*Netze des Bundes*", we are providing a cross-depart-mental communication infrastructure offering high-level security. The three cross-departmental or Federal and *Länder* networks (IVBB & IVBV/BVN and DOI) are being fully migrated to this infrastructure, which can act as an integration platform for all of the federal adminis-tration's wide area networks. Agreements on integrating cross-departmental networks are to follow from 2018.

o In the area of information security, we are working   closely together with representatives at all government and public administration levels. Where possible and practical in this process, we are drawing on the standar- disation expertise of the IT Planning Council arising from the Interstate Agreement on IT.

IV. Shaping digital environments in society

Our daily lives are in a constant state of flux. Skills that we have acquired in the past, such as particular ways of communicating with each other, operating machinery and devices or sourcing information, are becoming less impor-tant as a result of digitisation. In the meantime, new skills must be acquired. Many people consider the changes affect-ing their daily lives to be a source of great enrichment. Others lack the confidence or the necessary skills to embrace the opportunities offered by these changes.

We will therefore engage in debate with the greatest possi-ble number of demographic groups to discuss how we want to live together with the digital transformation. Further-more, we want to empower all those living in our country, whether young or old, male or female, with or without disabilities, to control their own access to and engagement with the digital daily environment. Many of our citizens are already involved in non-profit making activities for the common good during their spare time. Digitisation also offers new opportunities in this area. The Federal Govern-ment will support new ways of allowing citizens to become involved in helping each other using digital technology.

1. Engaging in greater dialogue with social groups

Previously, discussions on the social issues related to digitisation have only been held intermittently and within a small group of interested parties.

We want to include in the discussion those who have not yet voiced their opinion, for whatever reason. Peoples' con-cerns and particular requirements will be noted and used constructively to shape the Digital Agenda. We plan to hold the discussions using several different formats, including online and offline events.

2. Strengthening digital media skills for all generations

It is our aim that all individuals should be able to develop their full potential in the digital society in a secure, informed and proactive manner.

o   The Federal Government is working to enhance the   media and information skills of German citizens, in their various adopted roles. Increasingly, these same citizens are not just users but also creators of media content and data or developers of software. We will set up information platforms with this goal in mind.

o   We want to help children and young people grow up   with a positive experience of digital media. We are supporting media education in families by providing information and advice, by promoting age-appropriate media environments and by developing and implementing a coherent and up-to-date policy on protecting minors in the media. To provide this type of up-to-date protection of minors in the media, we are also holding a dialogue with businesses about options for safer default settings (safety by default). In addition, we are inviting young people to become involved in suitable structures for peer support.

o   We are continuing the "An Internet for children" (*Ein   Netz für Kinder*) initiative, which is designed to support interesting, age-appropriate digital services for children.

o   Among older social groups, many people remain scep-   tical of digital developments and their consequences. For this reason, we are reviewing ways of improving the digital media skills of older people in particular and also boosting their confidence in digital developments.

3. Making digital participation a reality

Democracy cannot exist without participation. Digital services play an important role in this regard by fostering enhanced dialogue in the democratic environment, while also providing to information that was often previously difficult to access.

o   We are improving our citizens' opportunities to partici-pate online. For this purpose, we are supporting public participation platforms based on real-life models and opportunities to participate and become empowered at local authority level, in industry associations, in volun-tary

and youth work, for men and women, people with
disabilities and for all generations.

o   To become empowered and participate in processes,   citizens require equal access to information and services. We therefore demand accessibility in digital media. In addition, we are reviewing the relevant standards in the government sector and continuing to develop these further. In this way, we are enhancing the focus on citizens, quality of service and knowledge networking.

4. Shaping digital environments: supporting family life and equal opportunities

Digitisation is already helping us to achieve a more flexible balance between work, family lives and leisure. Technical advances will allow even greater flexibility in this area. The Federal Government wants to ensure that as many people as possible can avail of this flexibility.

o   We are therefore assessing how family support services   contracted on the Internet can be better targeted towards helping parents reconcile family and working life on a partnership basis and how, in this process, new and secure family support digital services can be enabled. As part of this examination, we need to establish the extent to which qualifications and quality assurance can help build more trust in the online environment.

o   Everyday family life is also facing new opportunities   and challenges as a result of the digital transformation. The digital transformation is affecting everything from questions concerning responsibility for education to the everyday organisational issues involved in running a family. Our aim is to support parents in creating a positive family environment in the digital age while encouraging them to be critical and sovereign consumers of what the Internet has to offer.

o   The flexibility of digital environments also offers huge   potential in the area of equal opportunities policy. It offers, for example, opportunities for better reconciling family and working lives on a partnership basis, new forms of political participation and fresh opportunities for men and women to enter atypical gender areas of activity and thus break with gender role stereotypes. We want to address this challenge and advance online equality as a topic in its own right.

5. Fostering digital engagement

With the Internet becoming ever more important in our daily lives, the focus of civic work and engagement is increasingly shifting online. At the same time, there is a great need for social engagement in the digital space, for example in the areas of youth protection or providing assistance to the elderly.

o   We are fostering existing voluntary work by promoting   digital options that can be used to improve the organi-sation of voluntary work, for example, in recruiting new members or deploying volunteers in the event of a catastrophe.

o   We are expanding digital resources that can be used to   take greater advantage of the digital options for provid-ing civic education and raising interest in politics and social engagement.

o   We are strengthening voluntary, intergenerational   engagement to promote media skills in the area of the Internet and other new media.

We plan to implement a pilot project under the heading of "Digital Voluntary Social Service Year" (FSJ-digital). As part of this project, we wish to gather and summarise best-practice experience about how young people can offer their skills and talent in managing and applying new media to help non-profit organisations.

V. Education, science, research, culture and media

The areas of education, science, research, culture and media are key deployment areas for new digital advances and in themselves act as crucial drivers and facilitators of further digital development. This development means that all citi-zens can availing of tremendous opportunities in the above areas for learning, further training, continuing education, progression and participation in economic and social life.

Scientists need to be able to communicate scientific infor-mation easily and cooperate across national borders. Research results should be able to make their way from basic research to implementation along an essentially unbroken path, thus accelerating their transfer into inno-vative applications and helping to boost new levels prosperity and secure jobs for the future. For those working in the media and the cultural sectors, the Internet not only offers an almost inexhaustible source of inspiration but also opens up new potential applications, business models and means of dissemination. In order to exploit the new opportunities for development and participation created by digitisation, the government, business sector and society must make concerted efforts to invest sustainably in educa-tion, science and infrastructure and ensure that the appro-priate framework is put in place. Scientists must conduct more research on the subject of digitisation itself. This is the only way that they can make the necessary contribution to the social and political debate surrounding the relationship between freedom and security and the private and the public sphere.

1. Accelerating the digital transformation in science

To ensure broad-based, interdisciplinary and inter-orga-nisational access to digital information and usability thereof, the scientific information infrastructures are being strengthened, expanded and networked more effectively.

o A new digital transformation strategy in the scientific community will make a crucial contribution to the further development of information infrastructures, such as archives, libraries and research and publication databases.

o The Council for Information Infrastructure (*Rat für Informationsinfrastrukturen*) set up by the Federal Government and the Länder will act as a superordinate coordinating and advisory committee to support the science and research information infrastructure, e.g. by making recommendations.

o We want to promote the networking of research data-bases, repositories and virtual research environments and to support this networking by means of strategic projects with vital leverage**.**

2. Safeguarding access to knowledge as a basis for innovation

We will improve the framework conditions for an unre-stricted flow of information, particularly within the scientific sector. This will include a comprehensive open access strategy designed to enhance incentives and ensure more efficient, ongoing access to publicly funded research publi-cations and data.

To fully exploit the potential for science, research and edu-cation, we will improve the use of protected content for these purposes in a way that does not infringe copyright. More specifically, a copyright limitation for education and science is to be introduced.

3. Education campaign for the digital knowledge society

Our education system needs to better equip people to meet the requirements of the digital working environment and the knowledge society. It must also enhance media literacy.

o The Federal Government will therefore work with the *Länder* and other stakeholders in the education sector to support greater use of digital media in education and over the entire lifetime of the individual. Together with the *Länder* and all education stakeholders, the Federal Government will develop a digital learning strategy that will systematically use, enhance and implement digital media opportunities to deliver high-quality education.

o To be prepared for the main challenges posed by digiti-sation in the working world, we need to analyse more effectively training needs for initial training, further training and continuing education and – where neces-sary – develop and/or enhance measures to implement them.

o With the "Digital Media in Vocational Education and Training" support programme *(Digitale Medien in der beruflichen Bildung)*, we are strengthening vocational education and initiating structural changes with the aim of significantly increasing the use of digital tools for initial and continuing training in vocational educa-tion. The Digitisation University Forum *(Hochschul- forum Digitalisierung)* identifies opportunities for digi- tisation in universities and drafts recommendations for action.

4. Exploiting digitisation's potential for innovation

To help innovations enjoy market success, we are focusing on a continuous value chain from basic research to transfer and commercialisation.

o We are developing our High-Tech Strategy into a com-prehensive, government-wide innovation strategy for Germany and thus giving fresh impetus to the key areas of research outlined by Industry 4.0: IT security research, microelectronics and service research.

o We are increasing innovation support for the area of big data to exploit its inherent potential for business (e.g. Industry 4.0), science (e.g. life sciences) and the health service. Two centres of excellence for big data are to be established in Berlin and Dresden.

o The Federal Government is boosting high-performance computing as a basis for scientific excellence and added value in business. Its aim is to be a leader in this area.

o We are also increasing research on digitisation in medi-cine, for example, with a focus on medical informatics.

5. Understanding the digital transformation through research

First-class research is essential for underpinning society's debate around digitisation, which focuses on the protection of the private sphere and the right to privacy, self-determi-nation and transparency. Research findings are an impor-tant foundation for policymakers and society to shape the transformation in a responsible way and making people more accepting and trusting of a digital world.

o The interdisciplinary research forum on "Privacy – Empowered living in the digital world" *(Privatheit – selbstbestimmtes Leben in der Digitalen Welt)* investigates new, cross-disciplinary approaches to protecting privacy in an increasingly digitised world.

o Research on the future of work in a digital world helps to facilitate a beneficial coevolution of technology and social factors such as skills development, (work) process innovations and prevention strategies in health so that the focus will continue to be on the person.

o Using an interdisciplinary approach, a publicly funded research institute will investigate the ethical, legal, eco-nomic and participatory aspects of the Internet and digi-tisation. The focus is on harnessing and targeting the existing potential of the German research landscape.

⌘⌘ Studies to carry out scientific analyses of the opportuni-ties and risks of future developments in digitisation will be funded as part of the innovation and technology analysis.

6. Culture and media

Digital technologies and distribution via the Internet have revolutionised and democratised the creation of and access to cultural assets and media content on the one hand and the opportunities for shaping and expressing opinions on the other. The online provision of digital content and imagery reinforces the basis for culture, science, research and social participation.

It is on this basis that we will transform Germany into a country that embraces digital culture. High-quality digital content is a prerequisite for this transformation. To this end, we will further improve conditions for content pro-viders. We will also continue to drive the digitisation of cultural assets and improve accessibility to our cultural and scientific heritage in archives, libraries and museums.

Our society's collective knowledge will be increasingly stored in digital form. We will be able to access this know- ledge anywhere, at any time. The exponential growth in data offers great opportunities for our knowledge society, but also presents us with new challenges for preserving this data. Public digital content is also available in a wide vari-ety of media and formats. There is a risk of this content becoming unreadable and therefore being lost in the long term due to changes in technology.

o We are developing a comprehensive strategy and action plans with suitable technical solutions and standards for the digitisation of cultural assets (including digital cinema and film digitisation) and for the long-term preservation of knowledge, information and cultural assets in digital form. We are also creating the legal framework required to do this.

o We will make digitised cultural assets and their meta-data openly available, free of charge wherever possible, in a way that does not infringe copyright.

o We are building and expanding the German Digital Library.

The current media regime originated in an analogue world. We will adapt this regime to the conditions of the digital age. Regulations must allow for the convergence of media, new technological developments and changing usage habits. Different regulation of content depending on the distribu-tion channel can lead to competitive imbalances.

o We are therefore supporting the establishment of a Federal and *Länder* Commission as soon as possible to create a compatible media regime and to adapt this regime more effectively to digitisation and convergence of media in the relevant areas of media supervision, telecommunications law and competition law.

o We are also advocating a review of the Audiovisual Media Services Directive.

VI. Building security, protection and trust within society and the economy

The Federal Government has set itself the task of ensuring that the network is secure in order to reap the full benefits of digitisation for German society and its economy. People will not trust new digital services and offerings unless their data is protected and they can operate with maximum security on the Internet. Consumers will not trust online shops, email services and social networks unless their data is secure and not misused. Companies will not trust new business models unless they can be sure that the hardware and software used guarantees the confidentiality of their trade secrets and the integrity and availability of their IT systems. System security and data protection are the key cross-cutting issues of digitisation and are incorporated into all areas of activity in the Digital Agenda.

1. Greater online protection for citizens and companies

Our aim is to protect the privacy of individuals and their communication on the Internet. We are creating the conditions to ensure that every individual is in a position to protect themselves and their data online.

o We support and demand simple security technologies. Internet providers must also take responsibility for ensuring that users can operate securely online. We are making industry and business more accountable for developing and offering trustworthy hardware and software products and services that users can deploy to increase their online security.

o We are providing secure infrastructures so that users can protect their own identity online and communicate securely. Use of the new identity card will be simplified and its applications will be extended. We support the use of more and better encryption and aim to be the world's leading country in this area. To achieve this goal, the encryption of private communication must be adopted as standard across the board. We are expanding the use of security technologies such as De-Mail.

o We are carrying out research relating to the security of users and implementing the findings in practice. The "Safe, secure and empowered in the digital world" research programme *(Selbstbestimmt und sicher in der digitalen Welt)* will deal with the IT security of new technologies and the protection of data in tomorrow's world. The programme will also focus on the development of user-friendly solutions.

o We are helping people to increase their awareness and knowledge of online security. Caution and know-how on the part of users are crucial to online protection and security. We are stepping up our cooperation with the Germany Secure Online association (*Deutschland sicher im Netz, DSiN).*

o We promote business models that use anonymisation and pseudonymisation measures. We help companies improve their IT security. Small and medium-sized enterprises (SMEs), in particular, often do not have the necessary resources. The complementary initiatives "IT security in business" *(IT-Sicherheit in der Wirtschaft)* and "Alliance for cyber security" *(Allianz für Cybersicherheit)* are being expanded.

2. Modern data protection for the information age

We are committed to a high level of data protection that continues to guarantee the freedom and right to privacy of citizens. At the same time, we want to optimise the opportunities offered by digitisation for our society and economy.

o We will modernise and harmonise European data protection law in the digital internal market in order to strengthen the rights of citizens in the networked world and recognise the importance of data protection as a crucial factor in a business location. The most important step to achieving this goal will be the adoption of the General Data Protection Regulation by 2015 at the latest. We also want to have a high level of data protection to respond to issues arising from the new technologies or types of data processing such as big data, profiling, web tracking or cloud computing to protect privacy.

o In response to global networking and revelations about the misuse of personal data, we want to be in the vanguard of the development of international data protection principles. To this end, we are engaging in dialogue with partners around the world.

3. Consumer protection in the digital world

Consumer sovereignty on the digital markets must be restored and safeguarded.

o   With this goal in mind, we are strengthening consumer confidence in digital products and services. We support the establishment of an Internet arbitration board.

o In order to identify shortcomings in digital products and services at an early stage, we are setting up a market watchdog to monitor the digital world *(Digitale Welt)*.

o We are introducing a right of associations to take legal action to improve data protection.

o High standards of data protection and data security are essential to maintain trust in digital services and products. We are therefore supporting and demanding technology-based data protection (privacy by design) and privacy-friendly default settings (privacy by default).

o To prevent infringements of the law, we will improve the media literacy of users and ensure they are better equipped to distinguish between legal and illegal activi-ties on the Internet.

o We will clarify the future status and role of the Data Protection Foundation (*Stiftung Datenschutz).*

4. Strengthening digital infrastructures to create a trusted space

Users' trust in secure digital infrastructures must be con-stantly reinforced. IT security is an important driver of innovation and growth in Germany. We are committed to ensuring that our country remains one of the most secure digital locations in the world.

As the digital transformation takes place, we also want to ensure a high level of security by means of legal require-ments or generally binding standards. To do this, we need to take the necessary measures to safeguard the trustworthiness of our digital infrastructures, expand our technological system expertise and reduce our dependencies. It is important to promote the use of German and European IT products and their manufacturers. To achieve these objec-tives, business, civil society, science and government must work together closely.

o We are improving IT security by developing partner-ships with operators of critical infrastructures; through legal guidelines for minimum security standards; and by introducing mandatory reporting for serious IT security incidents as part of an IT security law.

o We support and demand the use of trustworthy IT secu-rity technologies, especially the use of more and better encryption in electronic communication. This will also lead to a more robust market for IT security solutions.

o We investing greater efforts into the certification and recognition of expert agencies as this generates trust in IT products.

o We support the design of new technologies that are secure and trustworthy. To this end, we are expanding standardisation activities that apply in particular to the international context.

o We are empowering the Federal Network Agency *(BNetzA)* to meet the needs of telecommunications security and the European regulation on electronic identification and trust services for electronic transactions in the internal market. The improved provision of resources is also part of this process.

o Together with the business community we want to improve German technology expertise in trustworthy IT and safeguard this expertise over the long term. To do this, we are setting up a „Trusted IT" *(Vertrauens-würdige IT)* platform.

o We will safeguard the strategic capability of German companies and authorities to operate and monitor digital infrastructures and to gain technical mastery of hardware and software components.

5. More security in cyberspace

As in the offline world, the government also has a responsibility in the networked world to avert risks and criminal-ity. We acknowledge this responsibility for public IT secu-rity and want to play our part in protecting society and the economy in the digital age. This requires a strategic realignment of the cyber security architecture and better resources for security authorities in terms of technology and staffing.

o We are strengthening the Federal Office for Information   Security (BSI). Improving the resources made available to the BSI will be part of this process.

o The National Cyber Response Centre is a platform that   we are using to improve cooperation between special-ised authorities. The Centre will be assigned a greater coordination role in the operational handling of cyber security incidents.

o We are improving technical and staffing resources for   the security authorities and providing them with the technical and legal capacities they need to perform their role.

o We are strengthening the expertise of the Federal Crimi-nal Police Office and the Federal Police in the areas of cyber crime, cyber espionage and cyber security. This means that we will expand the Cyber Crime Centre, which analyses and investigates incidents in these areas, in the Federal Criminal Police Office. We will thus house the processing of all Internet activities relating to these incidents under one roof.

o We will adapt the criminal law to the digital age and in   particular close any loopholes in criminal law relating to the handling of stolen data.

o   In the area of cyber espionage, we will reinforce meas-ures implemented by the Federal Office for the Protec-tion of the Constitution to raise awareness of business security.

o We will strengthen the Federal Office for the Protection   of the Constitution strategically and organisationally to enable a better response to changes in the types of communication and the communication behaviour of terrorists and extremists.

o To do this, we will also provide the Federal Office for   the Protection of the Constitution with the appropriate infrastructure and technical analysis tools to improve the analysis of existing data and to make communica-tion patterns much more visible.

o   We will expand the expertise in the Federal Office for   Civil Protection in the area of impact analysis of cyber attacks on critical infrastructures.

o   We will bolster international cooperation in this area, e.g. with ENISA (European Network and Information Security Agency) and Europol's European Cybercrime Centre.

VII. European and international dimensions of the Digital Agenda

We want to protect and expand an open, free and secure global Internet as a space for diversity of opinion, partici-pation, innovation and as an engine for economic growth and work. Rules and conditions for the global network can-not be created solely at national level, but must be rooted and supported at European and international level. Some of the basic issues surrounding management of the Inter-net (such as the assignment and coordination of critical Internet resources) are decided at a global level. Germany will participate even more actively than before at interna-tional and European level in the relevant negotiations and discussions .

1. Integration of the Digital Agenda for Germany in the European context

Issues like network development, network neutrality, completion of the digital single market, data protection, the protection of intellectual property on the Internet, IT security and research funding involve not just German, but also important European considerations. We therefore act as advocates for the Digital Agenda for Germany on the relevant European committees and actively support the ongoing processes. This helps us to initiate and con-tinue a wide-ranging strategic debate with our European partners, covering issues such as future measures to be taken at European level. We will take an active part in the preparations for the review of the European regulatory framework for electronic communication and copyright announced by the European Commission.

Regular discussion and comparison of national considera-tions with EU initiatives also help to achieve these goals. With the appointment of an independent Digital Cham-pion (an Internet ambassador for Germany) to the Euro-pean Commission, we can present established national measures to our partners. In parallel, we can learn about best practice models used by other Member States and drive the debate between Member States, on the one hand, and European institutions on the other.

2. Integration of the Digital Agenda for Germany in the international context

We also represent the Digital Agenda for Germany in the relevant international organisations. Multi-stakeholder processes, in which stakeholders from industry and busi-ness, science, government and civil society work together transparently within the framework of their respective responsibilities, are particularly important in this regard. We are also broadening our strategic bilateral and multi- lateral consultations.

These consultations include government consultations with key countries on issues covered by the Digital Agenda, such as the ICT consultations between Germany and the US. Within this framework, we will also continue the trans-atlantic cyber dialogue as an example of a stronger multi-stakeholder focus.

We are opposed to a ‚cyber arms race‘ but instead favour a peaceful alignment of international cyber security policy.

We will continue to actively follow discussions on the sub-ject of the Internet, among other issues, within the Interna-tional Telecommunication Union (ITU) and debate them with interested experts. We are coordinating and partici-pating in decision-making processes in the ITU‘s radio sec-tor and standardisation sector, which form the basis for a successful implementation of the objectives for the digital infrastructures. We will also actively help to shape the debate on digital issues in the OECD.

3. Cooperation on Internet management pro-cesses (Internet governance)

We participate actively in discussions on the follow-up process to the two world summits on the information society (WSIS+10) including the Internet Governance Forum (IGF) and its preparatory meeting (EuroDIG, IGF-Deutschland). Our aim is to ensure the participation of all stakeholders (multi-stakeholder approach).

We actively participate in discussions conducted under the auspices of the Internet Corporation for Assigned Names and Numbers (ICANN) on the reorganisation of control over the assignment and coordination of critical Internet resources (domain name systems, IP addresses). At the same time, we are committed to the recognition of public interests (public policy issues) in ICANN's government advisory committee (GAC). To ensure recognition of our interests at ICANN, we will continue to regularly discuss our positions on issues relating to Internet governance with German stakeholders.

We also support the development of the Sao Paolo Process for creating universal Internet principles. We will coordinate our positions on issues relating to Internet governance at European level.

4. Developing „international network law" and the protection of human rights

We want to establish clarity about the applicable „international network law" to protect the prevailing fundamental rights and civil liberties in the digital world and augment opportunities for democratic participation in the global communications network. The right to privacy, freedom of information and free speech must also be enforced in the digital age. To this end, we are embarking on a multi-stage process to create recommendations for elements of an „international network law". Important elements include the report presented by the UN High Commissioner for Human Rights and the fourth round of the government experts process at UN level.

Moreover:

o We are actively supporting the discussion processes in the UN Human Rights Council and the UN General Assembly (including a German-Brazilian initiative entitled „The right to privacy in the digital age").

o We are increasing German involvement in www.freedomonlinecoalition.com.

o We are continuing the „Internet and human rights round table" with the involvement of civil society and the private sector.

5. Digitisation in development cooperation

We are using digitisation as an important element of development cooperation. This includes:

o Driving cyber capacity building and, in a narrower sense, cyber security capacity building.

o Expanding the digital aspect of the Federal Government's Africa strategy. We are systematically examining and supporting the potential of a digital Africa and in turn learning from the progress made in this area by our partners on the neighbouring continent.

o Digitisation is increasingly seen as a cross-cutting issue in German development cooperation. We examine its feasibility in sectoral and regional programmes.

o Within the area of governance, digitisation is seen and promoted as a means of transparent, efficient govern-ance and administration in the partner countries of German development cooperation.

o We regularly supply raw data on ongoing development projects to the International Aid Transparency Initiative (IATI), thus contributing to greater effectiveness and transparency in international development cooperation.

www.digitale-agenda.de