



Joint Declaration on digitisation within the maritime industry

Preamble

The maritime economy is one of the key sectors driving Germany's competitiveness as an industrial hub. Around 95 percent of the intercontinental trade in goods is conducted by sea. In Germany, around 400,000 people work in the maritime industry. Taken together, the companies operating in this industry – most of which are medium-sized businesses – generate around 50 billion euros in annual turnover. Innovation, quality and a technological edge – that is what Germany's modern shipbuilding industry, its shipbuilding supply industry and offshore wind industry, its globally leading shipping companies, its high-performance port and logistics industries and its innovative marine technology industry and training facilities stand for.

Just like other industries, the maritime industry is undergoing profound change: all parts of the shipping, shipbuilding and marine technology value chains are becoming digitised at an unprecedented pace. New development and production procedures and new ways of operating facilities, ships and ports are likely to lead to a considerable increase in efficiency. At the same time, companies need to make their production, logistics and control processes more efficient so that they can continue to face up to competitors from around the world. In addition to this, digitisation helps to more effectively protect marine environments and meet our climate mitigation targets in new and innovative ways.

The key to success, however, will remain the workforce. This means that we need to continue to focus on education and needs-based training as digitisation moves forward, and make sure that we adapt these to new requirements. As digitisation takes hold, active social partnership – which includes adhering to collective bargaining agreements and giving employees the right of codetermination via the works councils – plays a key role for maintaining and expanding skilled jobs in Germany.

In the Maritime Agenda 2025, the Federal Government has set out digitisation as a key field of action. In December 2016, the Federal Government Coordinator for the Maritime Industry at the Federal Ministry for Economic Affairs and Energy and the Federal Ministry of Transport and Digital Infrastructure jointly organised a sectoral forum on digitisation within the maritime industry in order to bring together all the relevant industry players to define goals and recommendations for action on *Maritim 4.0*.

The measures set down below have been identified as priorities by all the signatories involved and are based on the outcomes of the sectoral forums. These measures are to be put into practice as soon as possible, and the extent to which they have been implemented is to be regularly reviewed. The measures to be carried out by the Federal Government will be financed based on the funds made available in the relevant budgetary and financial planning.

1. Expanding digital infrastructure

As our world becomes more digitised and interconnected, the volume of data that is transferred and the number of connected machines and devices that exist will grow. This means that Germany needs to create digital infrastructure that is capable of high-speed data transfers and that ensures data security and reliability, not least in the maritime industry. Being able to transfer data in real time will become increasingly important. Consequently, we need to not only expand our optical fibre network, but also to use 5G technology – the next-generation mobile internet standard – which will be a key-enabling technology for this.

Speeding up the digitisation of maritime supply chains is in the interest of all signatories. Key transport routes are to be equipped with broadband, particularly mobile broadband. Taking into account the budgetary funds available, the Federal Government will continue to expand digital infrastructure – not least as part of its successful broadband funding programme which is worth four billion euros. Of these 4 billion euros, 350 million will be used for rolling out state-of-the-art symmetrical gigabit-capable fibre optic cables and wifi to underserved commercial and industrial areas and to ports. At the initiative of the Federal Government, all publicly-funded construction work now follows a ‘dig-once’ policy, which means that passive network infrastructure is installed and equipped with optic fibre cables any time traffic infrastructure is built.

The Federal Government’s IHATEC funding programme helps ports develop and conduct research on digital port technologies. In addition, the government is engaging in dialogue with the industry and research institutions in order to enhance the 5G initiative and turn it into a comprehensive Federal Government 5G strategy.

2. Digitising supply chains

High-performance maritime supply chains are key for the maritime industry to be successful. In some parts of the maritime industry, digitisation has long been part of daily practice. This includes, for example, using smart technology to connect with suppliers and freight forwarders in the hinterland. We need to build on these practices and provide the German maritime industry with a new and strong competitive edge.

If all the stakeholders involved in the transport of goods transfer data in an intelligent manner, the maritime value chain will be considerably enhanced. At the same time, improving the way information is shared in global maritime shipping will help improve maritime security, increase the efficiency of maritime transport and reduce the harmful impact it has on the environment.

Digitisation also helps the shipping and port industry to offer a wider range of products and services in the maritime supply chain and therefore become more competitive. Ports can become more competitive by serving as digital data hubs for the supply chains.

Under the mFUND programme, the Federal Government provides funding for the development of digital, data-driven business ideas that are based on mobility, geographic and meteorological data. The mCLOUD programme provides fast, easy and free-of-charge access to all kinds of mobility-related data of the Federal Government. The signatories seek to use mCLOUD to make available additional open data from the fields of academia and industry.

4. Taking a targeted approach to strengthening research, development and innovation

In order to ensure that the maritime industry continues to lead on digital technology, not least in a difficult market environment, companies need to keep making considerable investments in research and development. The Federal Government will strengthen demand-based research, development and innovation activities in the area of *Industrie 4.0* by placing a strong focus on these activities in its maritime funding programmes and by providing targeted funding for collaborative projects. The take-up rate of the maritime R&D budget is already high, so the Federal Government will verify as part of its budgetary and financial planning whether it can be increased.

In order to raise the profile of the maritime industry as a high-tech sector that has a high potential for creating spill-over for many other areas, it makes sense to establish a number of flagship projects that focus on enhancing key-enabling technologies and thus on strengthening Germany as a maritime hub. Maritime security, for example, could be a field where different industries could bring in and combine their individual knowledge and technology. Global demand for integrated digital civil maritime security solutions and products is growing rapidly. These solutions are crucial for making maritime infrastructures and supply and logistics chains more secure, for ensuring that maritime transport remains secure in the long term, for contributing to meeting the sustainability goals in the shipping industry, and for implementing the energy transition which is based on the use of offshore wind energy in a secure manner. The autonomous systems, artificial intelligence and robots used in shipbuilding and marine engineering – for example for building an autonomous vessel – also play a key role here.

In manufacturing, a particular focus is placed on distributed production – for example on additive manufacturing – and on the increased use of ‘augmented reality’ and ‘wearables’ technology.

In the future, work between different partners in these fields should be coordinated and pooled to focus even more strongly on creating benefit for the whole of the maritime industry. We want to drive forward connected testbeds that are deemed suitable for testing particular products or processes. The maritime industry will work with the research institutes to present a number of proposals that focus on cross-sectoral solutions for addressing current challenges.

Start-ups and medium-sized companies are a key driving force for the digital transformation, not least in the maritime industry. This is why the Federal Government will further improve the framework for funding start-ups and promoting efficient cooperation under its Digital Strategy 2025.

3. Driving forward the introduction of international industrial standards

As a globalised sector, the maritime industry requires the development of international IT standards. Standardisation helps create unified parameters for manufacturing products and running processes. Using IT to link up design, manufacturing, logistics and operation, and using digital lifecycle management and customised systems solutions will help open up new areas of business within the maritime industry. This means that we need to put a secure legal framework in place and that we need to closely work on and coordinate standardisation processes from the beginning, both at European and international level. A good example for this is the cooperation that is taking place between the German maritime and shipping industry and the Federal Government on ‘e-navigation’.

It will be key for the maritime industry to work with industrial partners from other countries to address issues linked to Industrie 4.0 / digitisation early on. In the context of *Plattform Industrie 4.0*, a number of important cooperation projects have been launched, for example with the US, Japan, China and France. These can serve as a starting point for undertaking cooperation projects within the maritime industry.

The Federal Government seeks to ensure that German interests are fed in and are taken into account as far as possible in the negotiation and implementation of international agreements and in standardisation processes, particularly by the IMO (International Maritime Organization) and the ISO (International Organization for Standardization), the IEC (International Electrotechnical Commission) and the ILO (International Labor Organization).

5. Bringing Germany's *Maritim 4.0* expertise to foreign markets

As part of its digitisation campaign, the Federal Government seeks to set up a number of large regional 'digital hubs' and to market these hubs abroad in a strategic way by working with 'Germany Trade and Invest' – the country's foreign business promotion agency. Maritime networks and industry clusters can also benefit from the establishment of digital hubs and from the Federal Government's efforts to raise the profile of these hubs abroad. The maritime industry is called upon to submit proposals and therefore play an active role in this process.

6. Strengthening IT

As ships, shipping companies, port operators, offshore facilities, authorities and other onshore communication partners exchange ever larger amounts of data, the risk of being hit by cyber attacks grows. Stakeholders at all levels of the maritime supply chain need to be able to trust that the IT systems they use are protected as much as possible against cyber attacks.

The shipping and port industry companies will drive forward the implementation of the Federal Government's 2016 cyber security strategy and comply with the provisions set out in the IT Security Act. Security strategies have been developed so that critical infrastructures can be better protected. It needs to be assessed whether an intermodal approach should be taken to defining a particular facility as critical infrastructure.

7. Adapting the legal framework

In the context of digitisation, all industries are currently facing a number of legal issues that need to be resolved. There already is a dedicated working group on this subject at the level of *Plattform Industrie 4.0* – working group 4 – which deals with the 'legal framework'. The issues that the working group deals with and the recommendations for action it provides in the areas of civil law, law on civil procedures, IT and data protection law, product liability law and intellectual property law as well as on data sovereignty need to be further pursued and implemented in a technologically-coherent manner. We invite the maritime industry to become involved in this working group and to feed in its ideas and contributions and express its demands.

8. Strengthening digital skills, optimising training by working with the social partners and developing new employment models that are based on *Maritim 4.0*

Digitisation is massively changing the way we work, not least in the maritime industry. Skilled employees will continue to be a key element for success. Maritime companies will need to accompany technological progress by placing an even stronger focus on skilling employees and on implementing specific projects at company level. This means that companies will need to work closely with the social partners. Companies need to train employees and provide them with the skills they need, particularly when it comes to developing and using big data mining methods, neural networks and artificial intelligence.

Companies and training establishments will define the digital skills that need to be taught or developed when it comes to training and reskilling employees that work on ships, in logistics and in the port industries, as well as managers and industrial experts.

As technological progress picks up pace, changing the working environment and traditional job roles, it is also essential to implement 'life-long learning' strategies as a key element of professional development. One important future task for companies and educational establishments is to continually train and develop employees.

The consequences that the ongoing processes of digitisation and automation will have on how our working environments will be organised and on the future demand for employees within the maritime industry are to be further analysed in cooperation with the Federal Government. This is to be done by looking at the opportunities and the potential that digitisation will create for those working in the maritime industry, but also at potential risks and negative effects.

As digitisation takes hold and more and more parts of the industry are being automated, job roles will change as well. At the same time, new jobs that require employees to take on new job roles are being created, for example new jobs in fleet management as ships become further automated. In addition, digitisation will lead to working environments and employment models being transformed. Here, we need to ensure that we have fair labour relations and working conditions in place by working with the social partners.

In principle, cargo securing services should always be provided by qualified port workers in compliance with the public bargaining agreements in place and with German law.*

The social partners have long been engaged in intensive dialogue on the consequences that demographic change is having on the industry. The objective that all the parties to collective bargaining have signed up to is to develop measures that are geared towards the procedures employed at the level of individual companies in order to provide employees with the skills they need and make their training shipshape for the future. A key element here is the establishment of a 'fund for demographic change' that the social partners will have joint responsibility for and which is to be used to provide funding for measures to be implemented at company level.

The signatories have made it their common goal to help generate opportunities for professional training and employment within Germany's maritime cluster.

* The Association of German Shipowners (VDR) and the German Shipbrokers' Association (ZVDS) have not subscribed to this clause.

10. Developing e-government

Digitisation also plays a key role within the administration. Public authorities are a major market player and must ensure that administrative procedures within the supply chain run smoothly.

The 2013 Act to Promote Electronic Government (E-Government Act) seeks to continuously streamline and speed up administrative procedures and methods. It is to enter into force gradually by 1 January 2020. Submitting applications electronically is already permissible under German law. The German flag state administration is currently working on creating the technical standards necessary for electronically managing flagging in and flagging out procedures and for electronically issuing ship, liability and capability certificates. Electronic forms can be directly filled and submitted. In March 2017, the IMO was notified about Germany's plan to change to electronic safe Manning documents. The database necessary for issuing electronic safe Manning documents – which includes a web service – will be set up by 2018. By 2020, all procedures are to be handled electronically, with several intermediate steps to be fulfilled along the way.

9. Fostering dialogue among the stakeholders – creating stronger networks

One of the key challenges that we are facing in the context of digitisation is pooling the expertise from various areas such as shipbuilding and marine engineering, machinery and equipment, shipping and port industries, logistics, information and communications technologies, and innovative environmental technologies.

By working with industry and by involving the scientific community and the social partners, the Federal Government has set up *Plattform Industrie 4.0* – a pre-competitive network that serves to develop suitable recommendations for action and practical guidelines on standardisation, IT security, research and innovation, labour and training, and to work on the legal framework that needs to be created in the context of *Industrie 4.0*. Now, adequate dialogue formats need to be put in place on how the *Plattform's* outcomes can be used to address maritime-specific issues, for the benefit of all.

In addition, the Federal Government will further expand its support instruments for SMEs, not least by establishing *Mittelstand 4.0* centres of excellence across Germany.

The Federal Government is currently examining whether a round table on 'digital communication within the maritime industry' should be set up. Such a round table could serve as a platform where representatives from all parts of the maritime industry could engage in dialogue with freight forwarders, telecommunications businesses, producers, shippers, transport operators in the hinterland and public authorities, by also involving the Federal Government. Existing initiatives such as the 5G dialogue forum should be actively supported.

Within the scope of their responsibilities and possibilities, the German *Länder* support the implementation of the goals and measures geared towards driving forward digitisation within the maritime industry.

Hamburg, 4 April 2017

Business associations



Trade unions



German coastal Länder

