

Danish cases on the importance of free flows of data across borders

Introduction: Cross-border data flows - a precondition for trade and innovation

The fourth industrial revolution is ongoing and digital tools have become a cornerstone of modern business. Consequently, data is about to cross borders to the same extent as goods and services. Today, companies utilise data flows for a wide range of functions, including selling goods and services, promoting new solutions, providing support services, optimising production and innovating products and services. Especially, SMEs are benefitting from the possibility of digital trade which saves resources and help them reach customers globally. Moreover, data has also become a resource in itself. The tech-industry is in these years investing heavily in new digital infrastructure in order to facilitate collection and analyses of data with the aim to assist companies to innovate their business models.

Despite the huge growth and innovation potential from data flows, the world has seen a significant rise in digital protectionism the last decade. According to the think tank ECIPE the number of implemented digital trade barriers worldwide increased from 31 in 2006 to 84 in 2016. Digital protectionism mainly refers to requirements to store and process data locally and thus heavy constraints on the possibility to transfer data out of the country. Such requirements make it difficult for companies to realise the potential of digitalisation.

DI is concerned about the upward tendency in digital protectionism. Therefore, we have collected cases from member companies representing different sectors in order to exemplify how crucial cross-border data flows affect companies' production and business operations. Moreover, DI would like to address the current debate on protection of personal data. DI perceives privacy as a fundamental right and key element in the confidence between companies and consumers. However, the respect for privacy should not be misused as an excuse to impose measures that prevent legitimate movements of business-related data. As the cases emphasise, companies almost only transfer non-personal data, including:

- 1) Machine data (production activity, precision of machinery, state of repair etc.)
- 2) Research data (construction projects, product development, laboratory tests etc.)
- 3) Anonymised personal data (scans of ears, utilisation of building facilities, consumption etc.)

On this basis, DI strongly encourages the EU to guarantee free flows of business-related as well as personal data across borders. To the extent data flows contain personal information, it is important to ensure that data is transferred and stored under safe conditions. So far, the Council of Ministers made a crucial decision to support the Commission's proposal to prohibit digital trade barriers within the EU's single market. The next step is to ensure free flows of data between the EU and third countries. DI believes that the EU should take leadership on digital trade. To start with, the EU should partner up with like-minded countries. For example, the EU-Japan EPA provides a great opportunity to set an example internationally due to Japan's pro-active position on digital trade.

It is our hope that the following cases will lead to a better understanding of the character and potential of digital trade and serve as empirical input for the EU's coming trade negotiations.

Wind turbine industry

Manufacturers of wind turbines operate on markets all around the globe. Therefore, free data flows across borders are crucial for their ongoing effort to improve efficiency in their global production processes.

Firstly, from their headquarters wind turbine manufacturers are able use data from turbines to maintain and optimise wind energy parks in foreign countries. If a country decides to impose data localisation requirements, it becomes expensive for wind turbine manufacturers to provide services to the wind energy parks located in this country. The reason is that data localisation requirements will force wind turbine manufacturers to pay for a local data server. Depending on the extent of the data localisation requirements, wind turbine manufacturers will also have to process data locally. Such requirements provide local manufacturers with a significant competitive advantage since their data servers are already located in the country. Hence, data localisation requirements distort competition which leads to higher prices on wind energy.

Secondly, free flows of data are important to improve productivity of wind systems. The fact that wind turbine manufacturers operate on global markets means that they in principle are able to conduct big data analyses in which they collect data from all of their machines in order to advance production of electricity. Such mechanisms are only possible to apply if wind turbine manufacturers are allowed to collect and store data from their foreign production on their main server. Thus, data localisation requirements are a serious obstacle to improve productivity.

Hearing aid manufacturers

Data flows are important for hearing aid manufacturers to improve the functionality of their products. To be specific, data are necessary to fit the device to precisely match the ears of the individual consumer, which involves pre- and post-purchase customisation for the customer. Before the product is purchased, the customer's ear channels are scanned, so that a precise 3D-model of the inner ear can be printed to ensure that the hearing aid fits precisely to the proportions of the customer's ears. To make the 3D print, data has to be transmitted from the consumers' country to another country, where 3D printing takes place in a specialised factory. When the hearing aid has been produced, it is shipped to the customer.

Before the customer can use the hearing aid, it is often necessary to adjust the technical functionalities of the hearing aid so that it is calibrated to match the customer's ear. This technical fitting can be done remotely by transmitting data to the hearing aid to ensure that it is customised to match the inner-workings of the consumer's ear. Consequently, this will involve transmitting data from a central data centre to the consumer in another country. As the example illustrates, transmission of data across borders plays an integral part in the company's ability to supply the optimal product to the consumer. The type of data that is transmitted could be characterised as personal data, even health related data, which creates challenges if the transmission of these data types are prevented in an effort to protect personal data under data protection regulation.

FLSmidth - Supplier for minerals and cement industries

FLSmidth is the market-leading supplier of productivity to the global mining and cement industries. Headquartered in Copenhagen and with offices in more than 50 countries, FLSmidth delivers engineering, equipment and service solutions to customers worldwide. Productivity, sustainability, and quality are focus areas for FLSmidth and its 12,000 employees working from offices around the globe. For a company with a global business structure, free data flows are essential to working processes between national offices. Hence, FLSmidth transfers a great amount of data every day.

At the moment, FLSmidth is able to organise data flows between their local offices from their headquarters in Denmark. Moreover, FLSmidth's main data centre is located in Denmark. From this FLSmidth can guarantee back up for its data worldwide. Such centralised and cost-efficient organisation of data flows will be challenged if countries increasingly introduce data localisation requirements. Consequently, digital barriers will create burdens to FLSmidth in their working processes. For example, a central part of FLSmidth's product portfolio is to produce and process cement plants. Such projects are carried out by working groups consisting of architects, engineers and entrepreneurs from different national offices. These working groups depend on the possibility to transfer data freely. If barriers are imposed, it will be complicated for members of working groups to work from the same point of reference e.g. documents and spreadsheets.

FOSS - Manufacturer of analysis instruments for the food industry

FOSS is a worldwide engineering company providing analysis instruments and connected support services for food manufacturers in order to optimise production and improve food safety. Main production, research and development facilities are located in Denmark and China. In addition, FOSS carries out its solutions through sales and service companies in 30 countries and by more than 75 distributors. With the aim to innovate their products and to be in connection with costumers, FOSS transfers large amounts of machine data across borders every single day. To put it simply, FOSS would not be able to run its global business without free movement of data.

For example, analysis instruments manufactured by FOSS are designed to guarantee that agricultural goods are valued on the basis of objective quality criteria such as the amount of protein in grains, fat and protein in milk and milk free of bacteria. This is to ensure that farmers obtain a fair price for their products. The accuracy of such analyses of food products depends on the opportunity to do calibrations based on reference data handled by offices all the over world. These calibrations need to be updated continuously. Therefore, daily transfer of data between countries is essential to FOSS.

Moreover, FOSS is currently implementing a digital transformation of its production and support services. The new digital solutions are founded on Internet of Things (IoT), which basically refers to technologies that enable machine-to-machine communication. IoT provides FOSS with a capacity to help their customers worldwide much better and faster. When analysis instruments are connected to the internet, FOSS gains access to update software and calibrations. Furthermore, through IoT FOSS is able to monitor the hardware of analysis instruments and the utilised calibrations in order to optimise measurement precisions. Thus, cross-border data flows are not only necessary when customers buy and install analysis instruments, it is also a tool for FOSS to support the operation of their products. The online connection between FOSS and their customers – made possible through cross-border data flows – ensures full utilisation of their analysis instruments and lower risk since customers are provided with data that enable them to take the right decisions in real time. In addition, FOSS' customer support has become more cost-efficient - which seems obvious as digital support is much less costly than visiting customers when instruments need to be updated.

IBM - Facilitator of data flows

IBM is a multinational technology company manufacturing hardware and software and providing IT-related consultancy services. For decades, cross-border data flows have been an integrated part of IBM's product development as well as customer services. In recent years, transfer and management of data worldwide has become a service itself. Through its Watson Internet of Things (IoT) platform, IBM facilitates flows and collections of data for 6,000 clients in 170 countries. Free

Confederation of Danish Industry

movements of data is a precondition for such business services since the value of big data and analytics depend on the amount of data that is collected at common platforms. Therefore, data localisation requirements are especially a disadvantage to small countries like Denmark from which it will typically not be possible to collect enough data to provide insightful analyses and forecasts.

In order to boost its global IoT services, IBM opened its Global Watson IoT Headquarters in Munich in 2017. The headquarters employs 1,000 researchers, engineers, developers and business experts, who collaborate with companies worldwide to develop IoT solutions and innovate business models. Currently, most clients are within automotive, electronics, energy, manufacturing, healthcare and insurance industries, but as production processes and business operations are digitalised, IoT services will become relevant to more companies across different sectors.

One of the major client of IBM's Watson IoT platform is the Danish facility services company ISS, which operates in 77 different countries. ISS is mainly providing integrated facility management solutions in which it seeks to optimise synergies between related services including cleaning, catering, property administration and security, in order to improve cost-efficiency and quality. To advance its services, ISS started a cooperation with IBM aiming at integrating and analysing data from millions of devices and sensors embedded into buildings including doors, windows, chairs, meeting rooms. The IBM's IoT platform enables ISS to upload and process large amounts of data with the purpose to obtain a better understanding of how people use buildings and thus how to organise services more efficiently.

Another Danish client is the global shipping company Maersk, which in January 2018 announced a joint venture with IBM with the intention of digitalising and improving efficiency in shipping administration. Currently, required trade documentation is mainly conducted via manual processes that are estimated to reach one-fifth of the transportation costs. Through the new digital platform, which Maersk and IBM will establish, trading partners around the world will be able to submit, validate and approve transport documents. Moreover, the platform will be based on blockchain technology in order to enhance security of cross border digital transfers of confidential information.

SMEs - Digitalisation of business models based on cloud computing

It is not only multinational companies and the tech-industry that benefit from free movements of data internationally. Cross-border data flows are also a key driver for growth of SME's and entrepreneurship. This is due to the fact that digital channels have made it possible for SMEs to enter export markets that used to be out of their reach. To be specific, SMEs are able to sell and promote their products and services through online trading platforms. Companies which produce digital solutions are also able to deliver their products directly through such platforms. In addition, SMEs can use digital tools to provide customer services and to keep their products and services in good order. Hence, the absence of a local office is no longer an obstacle for SMEs to obtain a position on distant export markets.

Another important feature of cross-border data flows is that it enabled SMEs to enhance cost-efficiency of their business operations. The reason is the growing market for cloud computing, which refers to information technology that provides delivery of computing services over the internet. Cloud computing allows SMEs to outsource data storage as well as operation and development of software solutions and henceforth to focus on their core business. Since cloud computing rely on sharing of resources and economies of scale, it prerequisites free movements of data. Therefore, data localisation requirements will harm the opportunity for SMEs to improve their resource allocation and competitiveness.