



SERVICES TRADE AND MANUFACTURING





WHO ARE WE ?

BusinessEurope is the leading advocate for growth and competitiveness at the European level, standing up for companies across the continent and campaigning on the issues that most influence their performance.

A recognised social partner, we speak for all-sized enterprises in 35 European countries whose national business federations are our direct members.

For further information:

International Relations Department

Luisa Santos, Director

or Benedikt Wiedenhofer, Adviser

Tel: +32 (0)2 237 65 60

E-mail: a.aivali@businessseurope.eu

BUSINESSEUROPE

Av. de Cortenbergh 168 – 1000 Brussels

Photos and icons credits: shutterstock.com, pixabay.com, freepik.com

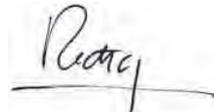
FOREWORD

Globalisation and technological progress have blurred the distinction between goods and services companies: services are not only key enablers of the global production networks that many manufacturing companies rely on but they are also increasingly embodied in or supplied alongside manufactured products. As a result, trade in goods and trade in services can no longer be treated separately. Only in this way can we tackle the barriers to the cross-border supply of the integrated solutions that are key for the competitiveness of the European industry.

But how do services intervene concretely in the operations of manufacturing companies and why does the liberalisation of services trade matter to them? This publication seeks to answer this question through examples from the ground. Based on input received from both small and large companies, nine case studies illustrate the role that services and services trade play across different manufacturing sectors. Although the cases are anonymised, all of them are real-life examples of individual companies.

We hope that the cases presented in this brochure will help raise awareness of the close interconnection between trade in goods and trade in services and make a useful contribution to developing a trade policy that is fit for the realities of 21st-century trade.

Pierre Gattaz
President



Markus J. Beyrer
Director General





TABLE OF CONTENT

FOREWORD	3
----------------	---

SERVICES IN MANUFACTURING.....	6
--------------------------------	---

Relevant data	6
---------------------	---

The role of services in manufacturing	8
---	---

Services as trade enablers	10
----------------------------------	----

The relevance of services chapters in FTAs for manufacturers.....	10
---	----

EXAMPLES

Industrial goods	13
------------------------	----

Process technologies and automation solutions	15
---	----

Medical products.....	18
-----------------------	----

Powerplants and marine engines	21
--------------------------------------	----

Dental equipment.....	24
-----------------------	----

Cranes and lifting equipment.....	26
-----------------------------------	----

Automotive industry	29
---------------------------	----

Wind turbines.....	31
--------------------	----

Chemicals	33
-----------------	----



EXECUTIVE SUMMARY

Services account for 34.2% of the value added in EU manufacturing exports and play a key role for companies across manufacturing sectors. These companies do not only rely on services to manage their international production networks but increasingly provide integrated solutions, consisting of goods and services, to their customers. The servicification of manufacturing also has implications for trade policy as goods trade and services trade can no longer be treated separately. On the one hand, manufacturers benefit indirectly from liberal provisions in the services chapters of free-trade agreements (FTAs) as these enable them to work with world-class service suppliers globally. On the other hand, services trade liberalisation brings down obstacles to the delivery of manufacturers' own increasingly integrated solutions. Consequently, FTA provisions on all four modes of services supply matter for manufacturers

Provisions relating to cross-border trade in services (Mode 1), particularly cross-border data flows, are critical for the digital transformation of the economy. For example, they allow companies to optimise product performance, reduce downtime by detecting problems early or help customers to fix problems remotely. However, data localisation requirements limit the provision of these services in some countries. Moreover, the uncertainty created by the lack of clear international rules deters companies from fully exploiting the opportunities offered by the fourth industrial revolution.

Provisions relating to consumption abroad (Mode 2) make it easier for EU-based companies to repair products and train staff in their headquarters. While repair is a service, it also involves customs procedures resulting from the repeated cross-border movement of the defective/repaired products. Regarding training, the procedures to get a visa allowing non-EU staff to come to the EU can be cumbersome and lengthy.

Provisions relating to the commercial presence abroad (Mode 3) make establishment in third countries easier for manufacturers and service providers. Many manufacturers have a commercial presence in third countries where they do not manufacture as the services staff present there enables them to better respond to market-specific customer needs. They face many of the same barriers to their activity as service providers, and regulatory differences across markets (e.g. on the use of refurbished spare parts) make it difficult to deliver the same service everywhere. It is thus important that FTAs liberalise establishment for services highly relevant to manufacturers (e.g. rental/leasing, engineering, maintenance and repair, marketing etc.).

Finally, **provisions on the temporary movement of natural persons (Mode 4)** are highly relevant to manufacturing companies: the delivery of services, such as marketing and sales, customer training and technical consulting, plant optimisation, unit installation, commissioning, supervisory or maintenance and repair, often requires the temporary presence in third countries of EU-based staff with an educational background in e.g. engineering, technology, chemistry, IT or economics. FTAs can foster the mutual recognition of the relevant professional qualifications and make it easier for companies to get short-term visas and work permits.

This brochure illustrates the importance of services trade for manufacturers with nine non-fictional examples of concrete companies active in different manufacturing sectors.





SERVICES IN MANUFACTURING

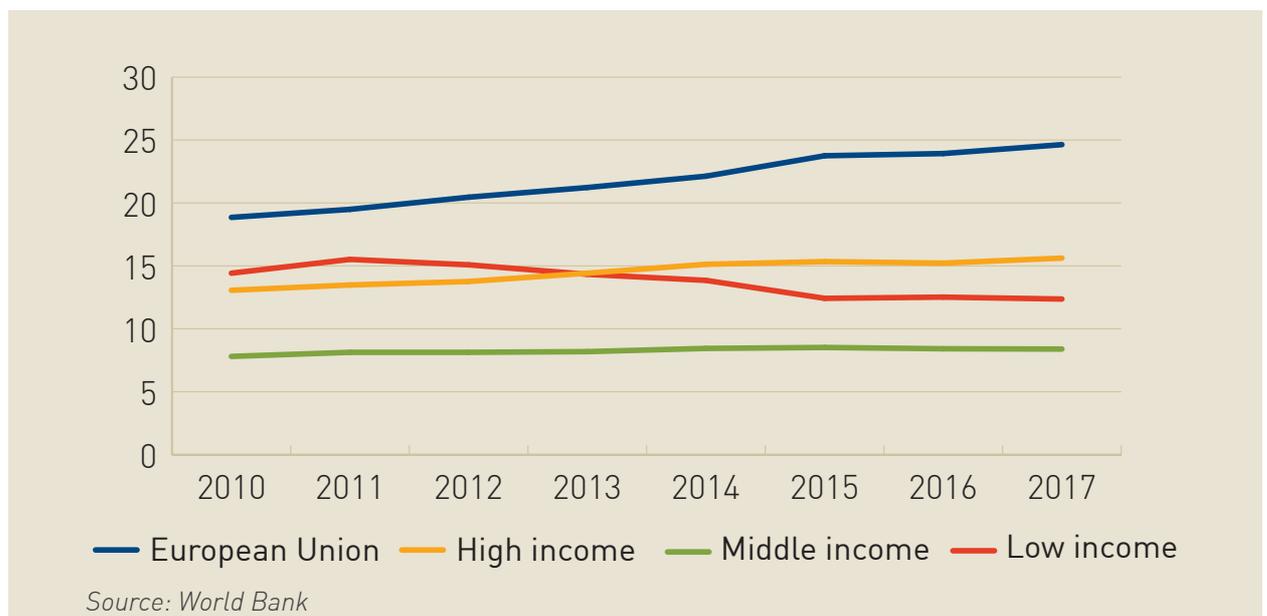
RELEVANT DATA

While services have always been indispensable for manufacturers producing and trading their products across borders, the rise of international production networks has made them key to the operations of an ever-growing number of businesses. With the fourth industrial revolution in full swing, awareness of the close connection between goods trade and services trade in modern international value chains has increased. It has become abundantly clear that trade barriers to goods trade negatively impact the services embedded in them or supplied along with them and vice versa¹.

For the EU, this is highly relevant: overall, services account for over 70% of EU GDP, and the value of EU trade in services amounts to 24.9% of EU GDP – a value that has doubled since the late 1990s². As Chart 1 shows, the importance of services trade is significantly higher for EU Member States than for high-income countries in general, for which the average was merely 15.6% in 2017.

Chart 1

Trade in services - Percentage of GDP

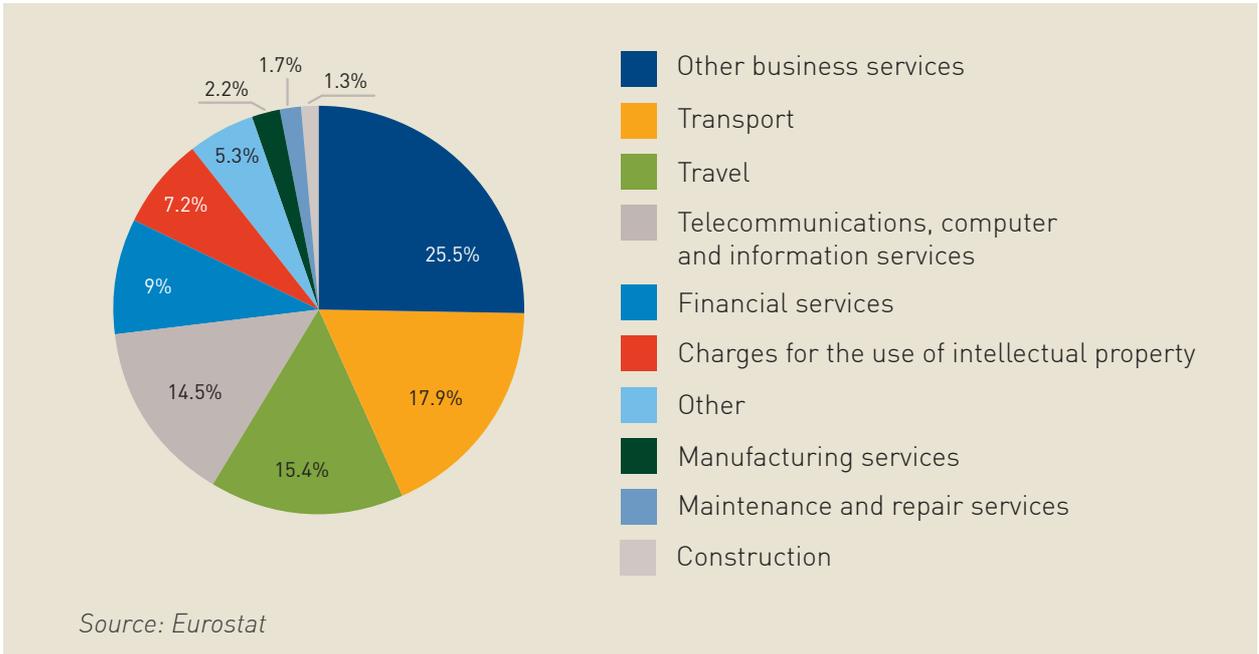


Other business services, which comprise mainly research and development (R&D), professional and management consulting services as well as technical and trade-related services, are the EU's largest services export category, accounting for 25.5% in 2018. Transport services, travel services and telecommunication, computer and information services follow, making up 17.9%, 15.4% and 14.5%, respectively. Due to the overall size of EU services exports, even the value of smaller categories, such as maintenance and repair services, is non-negligible: while they account for merely 1.7% of total EU services exports, exports under this category were worth €20.4 billion in 2018 (see Chart 2).

1 <https://www.fdfa.be/sites/default/files/atoms/files/Brexit%20impact%20study%202019.pdf>

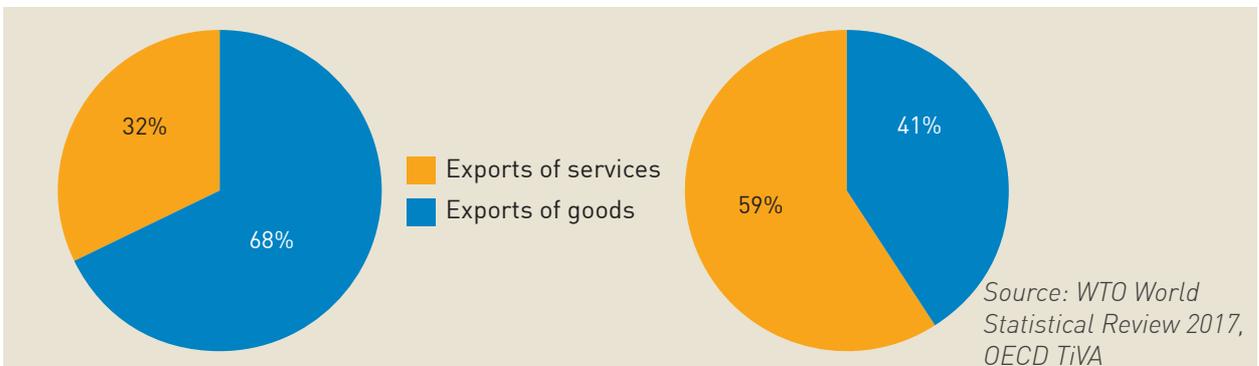
2 [ILOSTAT](#) and [World Bank](#)

Chart 2
Composition of EU services exports in 2018



In total, 32.2% of extra-EU exports were services in 2016³, in terms of balance of payments (BoP)⁴. Yet, BoP statistics tend to largely underestimate the real weight of services trade as they do not consider services that are included in the value of exported goods: in OECD countries, an average of one third of the total value added in manufactured goods exports is generated by services. In the EU, services account for 34.2% of the value added in EU manufacturing exports. As a result, if we measure EU trade in value-added terms (TiVA), 58.5% of total EU exports were services exports in 2016. Of these, domestic services made up 90% and foreign services 10% of the value added. Chart 3 juxtaposes the two ways of measuring trade in services. With these numbers in mind, it is not surprising that, in value-added terms, the EU’s services exports make up 61% of the 36 million jobs supported by EU exports⁵.

Chart 3
EU exports in BoP, 2016 **EU exports in TiVA, 2016**



3 2016 was chosen to ensure comparability as this is the latest year for which OECD TiVA data is available.

4 WTO, *World Trade Statistical Review 2017*

5 European Commission, *“EU exports to the world: effects on employment”*, 2018



THE ROLE OF SERVICES IN MANUFACTURING

Services play an increasingly important role in manufacturing exports. While they often contribute directly to the value chain (e.g. financial services, telecommunication, logistics, IT) a substantial and increasing share of services is either embodied in manufacturing products, forming part of the value of the good (e.g. intellectual property, software, design), or supplied in connection with the product as embedded services (e.g. after-sale or customer care services). This phenomenon is linked to the growing servicification of manufacturing: manufacturing firms purchase, produce and sell more and more services at all stages along the value chain and, as a result of technological advances, they increasingly offer integrated solutions, combining goods and services. The reasons for this are manifold: inter alia, services can help manufacturers to differentiate their products from those of competitors or to generate increased revenue through additional sales to customers. Manufacturing firms use services when they:

- ◆ develop new products (e.g. engineering services, R&D, design services, consulting);
- ◆ produce products (e.g. management consulting, technical testing, software);
- ◆ distribute products (e.g. transportation, logistics, warehousing, wholesale/retail services);
- ◆ sell products (e.g. retail services, branding, advertising, leasing services); and
- ◆ provide aftermarket services (e.g. maintenance services, installation of industrial equipment, after-sales services).

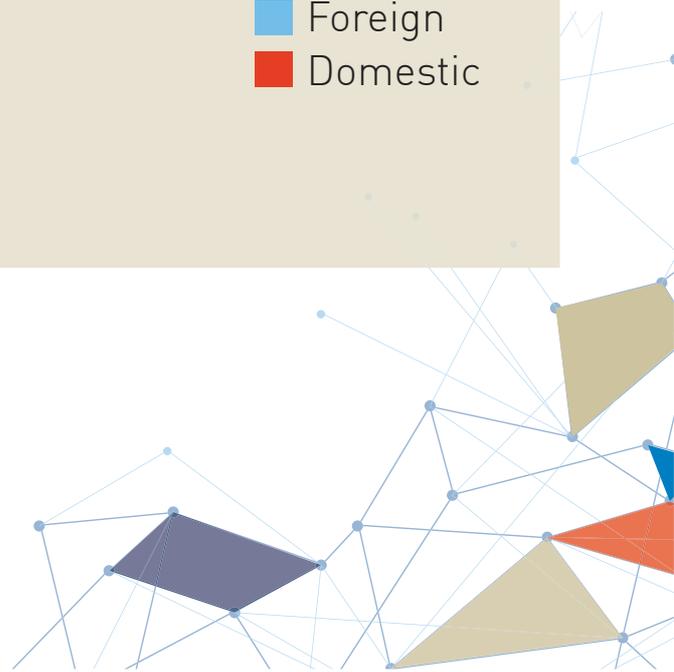
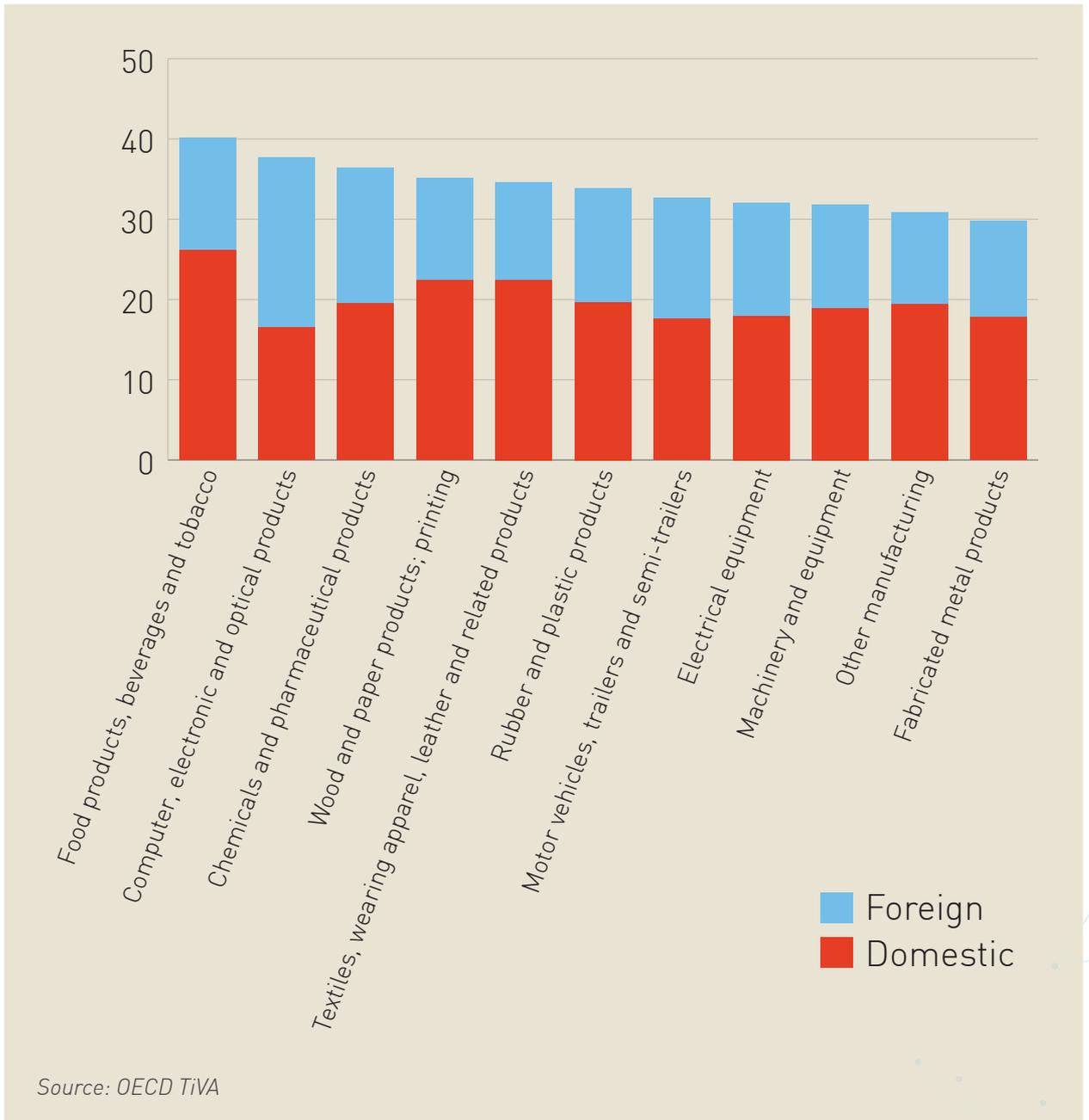
As services account for an increasing share of the value added in manufactured products, the distinction between industry and services companies is becoming blurry. Even more so as, in many manufacturing sectors, the activities along the value chain that generate most value are services activities. Chart 4 illustrates the percentage of value added by services, either domestic or imported, in the value of EU manufacturing exports in different sectors. With 40.2% of value added, food products and beverages are the category for which services play the greatest role. Computer, electronic and optical products come second. There, services account for 37.8% of the value added and it is interesting to note that imported services represent more than half of this share. With shares of between 36.4% and 34.6% of the value added, chemicals, wood and paper products and textiles and apparel are also located in the upper half. The 32.7% that services make up in the value added in motor vehicles are almost equally composed of domestic and foreign services.

While the servicification of manufacturing is a general trend, it is more pronounced in some EU countries than in others. In Denmark, for example, the percentage of manufacturing companies that add services to their physical products tripled between 2007 and 2017 – from approximately 20% to 60%⁶. With digitalisation, fragmentation of the production and disruptive technologies, such as the Internet of Things or 3-D printing, this trend is likely to accelerate in the coming years.

6 DI Analyse, *Upward tendency for adding services to physical products*, 2019

Chart 4

Services value added in EU manufacturing exports across industries



SERVICES AS TRADE ENABLERS

Services are also key enablers of the global production networks many manufacturers rely on. Services promote trade integration by providing basic infrastructure on which goods trade relies and act as the glue that connects the fragmented and dispersed production stages typical of today's global value chains. In this way, they assist companies in entering foreign markets by reducing transaction costs or adapting and marketing products. Some examples:

- ◆ Financial, legal and professional services help exporters reach new markets;
- ◆ Transportation, logistics and distribution services move intermediate products to assembly lines and final ones to consumers;
- ◆ Digital networks established by telecommunications and computer services transmit knowledge, design and content.

For manufacturing companies present in several countries it is more efficient to work with the same services providers in all the countries where they are present (e.g. banking, insurance, telecommunication, etc.). Therefore, manufacturing companies also benefit indirectly from liberal provisions in the services chapters of free-trade agreements (FTAs) as these enable services companies to deliver the same service for them globally.

THE RELEVANCE OF SERVICES CHAPTERS IN FTAs FOR MANUFACTURERS

All this makes the services-related chapters of FTAs, which account for around half of the pages of recent FTAs (e.g. CETA), highly relevant to manufacturing companies as they increase legal certainty for all sectors of the economy:

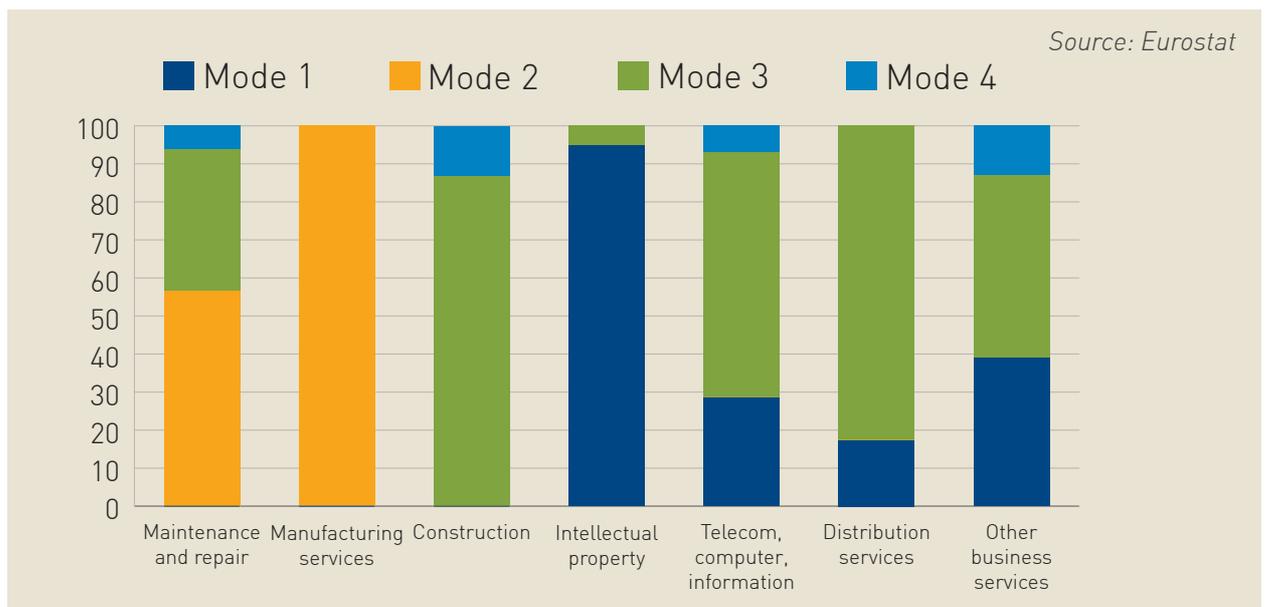
- ◆ **Provisions relating to cross-border trade in services (Mode 1)** are critical for the digital transformation of the economy (e.g. machine-to-machine communications, 3-D printing, Internet of Things, etc.). In this context, ambitious provisions on cross-border data flows will be necessary for trade rules to be fit for the so-called fourth industrial revolution.
- ◆ **Provisions relating to consumption abroad (Mode 2)** make it easier for EU-based companies to repair products that were sold to customers in non-EU countries or to have staff employed in non-EU countries attend trainings and seminars in their EU headquarters.
- ◆ **Provisions relating to the commercial presence abroad (Mode 3)** do not only cover services but all sectors, including manufacturing (e.g. manufacture of textiles, manufacture of chemicals and chemical products, manufacture of rubber and plastics products, manufacture of machinery, etc.). They also cover services highly relevant to manufacturers (e.g. rental/leasing services, engineering services, maintenance and repair services, marketing etc.). If the industries that would benefit from the possibility to establish freely in a partner country do not pay

attention to the technical aspects of this part of services negotiations, opportunities may be forgone with these sectors remaining comparatively closed.

- ◆ Finally, **provisions on the temporary entry and stay of natural persons (Mode 4)** also cover professions relevant to manufacturing companies (e.g. managers or technicians and engineers who travel for installation, maintenance, repair or after-sales services).

Chart 5 illustrates this point by showing the importance of different modes of supply in the EU's exports of services that are important for manufacturing companies. As closeness to the customer is important for services, commercial presence abroad (mode 3) is unsurprisingly the most dominant mode of supply for most of the services listed. Interestingly, with around 57%, the major part of maintenance and repair services are supplied across borders (Mode 1). This reflects the trend among companies to increasingly solve problems remotely making use of modern information and communication technologies, e.g. by exploiting data supplied by sensors installed on their products. Company staff physically travelling to a customer's site makes up for 6% of EU exports under this category, while cases where the faulty product is sent back to the EU for maintenance and repair (mode 2) account for 37%. For construction services (including installation of machinery, production lines, etc.) the large majority of services are delivered through local presence. Yet, with Mode 4 making up for over 13%, also the possibility to send staff abroad plays an important role. Other business services⁷ are delivered mainly via commercial presence abroad (48%) but also cross-border supply (39%) and temporary presence of natural persons (13%) play significant roles. Finally, as telecommunication, computer and information services and distribution services are delivered mainly via Modes 3 and 1, the possibility for service suppliers in this sector to establish commercial presence abroad is important for manufacturers to have access to world-class ICT and distribution services.

Chart 5
EU services exports by modes of supply



⁷ These comprise mainly R&D, professional and management consulting services as well as technical and trade-related services.



Chart 5 clearly shows that for many services, different modes of supply are complementary. At the same time, in many areas tariff liberalisation and services liberalisation need to go hand in hand to achieve outcomes that really facilitate the operations for manufacturers. Modern maintenance and repair services, for example, require the free flow of data and the temporary cross-border movement of staff but also the facilitation of trade and use of different kinds of spare parts in third countries. If trade in goods and trade in services are treated separately in trade negotiations and the focus remains on tariff liberalisation, some services vital for the operations of manufacturing companies may be neglected. These include maintenance and repair services, services incidental to manufacturing, which are central for e.g. the installation and fitting and maintenance of machinery. Other examples are R&D services, technical testing and analysis services or rental and leasing services. Moreover, lack of mutual recognition of professional qualifications relevant to manufacturers and restrictive provisions on the temporary entry and stay of natural persons present obstacles to business operations in third countries.



This brochure aims at shedding more light on the increasingly important role that services and particularly the liberalisation of trade in services play for manufacturing companies by providing some concrete examples. Based on a questionnaire sent to companies in different manufacturing sectors, it presents a number of illustrative cases showing more clearly why services liberalisation matters for manufacturing companies and which barriers need to be addressed better in the future.



EXAMPLE: INDUSTRIAL GOODS

This company produces glass fibre tissue and glass fibre and carbon fibre-based fabrics. Its glass fibre tissues are typically used as carrier layer in vinyl flooring, as wall liner material or as surface layer in composite panels for truck trailers and recreational vehicles. The fabrics it produces are used mainly as reinforcements in windmill blades or boat hulls, or as anticorrosive in e.g. pipes.

THE ROLE OF SERVICES IN THE COMPANY'S OPERATIONS

Services are key for almost all the company's activities. Besides more obvious functions, such as transportation of its products and maintenance of its assets, the company draws on engineering services when it invests in new assets or production processes and hires external management consultants to coach and develop its staff. Furthermore, its R&D services are crucial for maintaining its leading position on the market: while about 70% of its R&D activities focus on developing new products, 30% aim to enhance existing products to better meet the needs of customers.

The company also provides its customers with value-adding services that complement its product offer: these help customers reduce their end-product's time to market, co-develop and test new products, and fill gaps in their production capabilities. For example, the company's technical customer service staff works together with clients to develop solutions that help them minimize their raw material usage, improve efficiency of their processes or solve possible issues related to raw materials in their processes.

While the company mainly works with external service providers for engineering, training, transportation or consulting activities, about 20% of its employees have services-related jobs within the company. The services provided in-house include management and back-office support, R&D, warehousing, sales and after-sales services, such as its technical customer service.



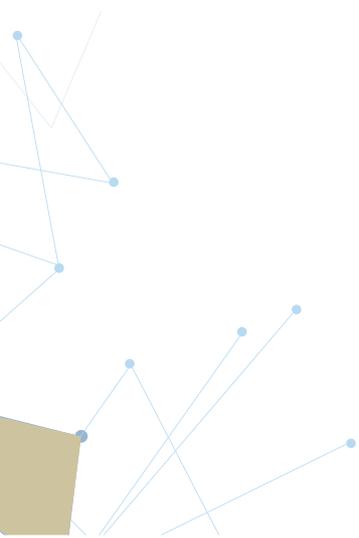
SERVICES TRADE AND EU FTAs

The company's main markets outside the EU are North America and China. On both markets, additional costs challenge the company's competitiveness: in North America, freight costs and customs duties have a significant impact on its prices, forcing the company to focus on selling high-priced specialised products to be able to compete. In addition to these factors, the company faces fierce price competition, intellectual property theft in its operations in China. As the company cannot compete on price on these markets, its comprehensive services offer helps it differentiate its products and sell solutions for which customers are willing to pay a premium.

To increase sales and ensure the highest levels of customer satisfaction, the company's sales and technical customer services staff frequently travel to non-EU countries where the company is active. While the former help to market products and contract clients, the latter form part of the after-sales services the company offers. Amongst other things, they help customers encountering technical issues and support the customer with how to use the company's products optimally. Typically, the staff sent abroad has an educational background in chemistry, economics or technology-related disciplines. Provisions facilitating the temporary stay of these professionals in non-EU countries, including the recognition of their qualifications, are key for the company to deliver its comprehensive solutions, particularly because it does not have offices or production facilities in any country outside the EU.

As the company provides tailor-made solutions to its customers globally, it needs to be able to transmit and process the data necessary for its product specification rapidly across borders to adapt its products accordingly. The free flow of personal and non-personal data between the EU and other countries in which it is active is therefore highly important for the company.

For the services the company does not deliver in-house, it typically works with the same external services providers in its operations all around the world to reduce transaction costs and optimise results. For example, it has global contracts with insurance providers, IT vendors, banks and logistics companies. In this way, it indirectly benefits from liberal services provisions in EU FTAs as these make it easier for European services providers to offer the same solutions in different countries.





EXAMPLE:



PROCESS TECHNOLOGIES AND AUTOMATION SOLUTIONS

This company is a leading developer and supplier of process technologies, automation solutions and services for the pulp, paper and energy industries. Its technology offer includes pulp mills, tissue, board and paper production lines, as well as power plants for bioenergy production. In addition, the company's advanced services and automation solutions improve the reliability and performance of its customer processes and enhance the effective utilisation of raw materials and energy.

THE ROLE OF SERVICES IN THE COMPANY'S OPERATIONS

Services play a key role in the company's operations, both in the development, production and delivery of its products and as a means to help customers make optimal use of its products and solutions. Its products are not "off-the-shelf" items. Rather, the company modifies and adapts its products and technologies to meet the specific requirements of each customer. A new paper-drying section, for example, needs to fit with the rest of the customer's paper production line. Even if the customer buys the entire production line from the company, it must be tailored to the customer's needs. It goes without saying that this adaptation of products and solutions is very services-intensive.

Besides helping its customers to identify suitable products and processes and adapting them to their needs, the company provides its customers with a wide range of aftermarket services, ranging from maintenance to performance monitoring and optimisation. The individually tailored services its experts provide on-site or remotely include monitoring and repairing equipment, performing studies and audits, planning, executing and managing development and maintenance actions or holding trainings and seminars for its clients' staff.

While the company has its own in-house personnel for most of the above-mentioned support functions as well as for its digital services, it largely relies on external suppliers for transportation, logistics, IT, security and cleaning services and, to some extent, it also outsources its maintenance services. For its process technology projects (e.g. adaption, delivery and installation of machinery/production lines), for example, it partly uses:

- ◆ outsourced engineering and design services to adapt its solutions to individual customers;
- ◆ outsourced logistics and transportation services for delivery; and
- ◆ it works with external installation service firms for the on-site installation of its products.



As a result, only between 25% and 35% of the cost of the company's process technology projects result from in-house operations while the remaining cost results from outsourced services.

Due to the vast variety of services the company offers to its customers, around 48% of its staff work in services-related jobs: more specifically, 44% of its employees work in providing aftermarket services to the customer while 4% are tasked with management and in-house support functions.

SERVICES TRADE AND EU FTAs

Outside the EU, the company's main markets are the USA, Canada, Japan, China, Russia, Indonesia, Brazil and Chile, which together make up around half of its revenue. While the company's R&D and engineering functions are mainly located in Europe, it manufactures close to its customers, including by using subcontractors in non-EU countries. One of its three main manufacturing sites is located in China.

The company has subsidiaries in all its main markets, with sales and maintenance personnel present on the ground. While its subsidiaries are mostly treated equally to local companies by the respective governments, in some cases the company chose to enter into joint ventures with a local enterprise. Moreover, the company faces local content requirements in some regions.

Some of the operations related to the company's projects outside the EU, such as sales, installation and maintenance services, require the temporary presence of EU staff in non-EU countries. The professionals concerned are mostly project managers, technical experts and engineers. Getting the relevant work permits can be challenging at times, which is why liberal provisions on the temporary entry and stay of relevant professionals as well as the mutual recognition of their professional skills in EU FTAs are key.

Example: Industrial Internet services

The company's machinery is equipped with sensors and measurement devices that gather data that allows its experts to monitor and optimise its performance. This allows the company to offer a wide array of services based on the Industrial Internet. Experts in specialised EU-based performance centres support customers through remote connections and tools, including:

- ◆ Continuous remote monitoring, controls, fine-tuning and optimisation;
- ◆ Real-time remote support;
- ◆ Big-data analysis services based on agreed targets, e.g. for defining root causes for process variations.

If remote support is not enough, the centers send local experts or, in the case of more complicated issues, experts from the headquarters to the customer's site to fix problems.

To coordinate activities between its subsidiaries in many countries around the world and provide tailored services to its clients no matter where they are, the cross-border flow of data, including customer data, is important to ensure smooth operations. To be able to monitor and optimise the performance of its customers' machinery as part of its Industrial Internet services, particularly the free flow of non-personal data plays an important role. Even more so as it relies on cloud services to store and evaluate data collected at the production sites of different customers to offer superior performance and analysis. Data localisation requirements, which the company encounters in some regions, are therefore a challenge to its work and limit the scope of the services it can offer to clients. Moreover, due to the lack of clear international rules, including on data ownership and the distinction between personal and non-personal data, clients often hesitate to allow access to their data.

To make its operations more reliable and efficient, the company works with the same global transportation and financial services providers in its operations around the world. Thereby, it benefits indirectly from the liberalisation of trade in services in these sectors. To some degree, the company also imports engineering and design services from emerging countries, such as India, for its projects. While this works rather smoothly when the services are delivered across borders (Mode 1), the company faces significant challenges, e.g. concerning work permits, when these same service providers need to send staff to the EU as part of their assignment.





EXAMPLE: MEDICAL PRODUCTS

This company develops, produces and sells medical products, services and solutions connected to healthy living, prevention, diagnosis, treatment and home care. Its main products include:

- ◆ Large medical imaging equipment (e.g. X-ray machines) and related software (e.g. to support precision diagnosis of medical conditions);
- ◆ Image guidance systems and devices to support minimally invasive treatments in the area of, amongst others, cardiology (e.g. catheterisation laboratories);
- ◆ Connected care solutions including patient monitoring and analytics to improve clinical outcomes and reduce the length of hospitalisation;
- ◆ Healthy living solutions (e.g. electronic toothbrushes, healthy cooking solutions).

While most of its products and services are typically sold to healthcare providers, its personal health solutions are mostly for private consumers.

THE ROLE OF SERVICES IN THE COMPANY'S OPERATIONS

Within the company, services are used extensively along the entire value chain. A few examples include:

- ◆ Management consulting services to identify market potential and possible customer appeal for new solutions;
- ◆ Logistics services to manage and operate its global supply chain of intermediate products, spare parts and finished goods;
- ◆ Distribution services to sell and deliver solutions on market with limited local presence;
- ◆ Financial services to support customers with major purchases;
- ◆ Maintenance services, including repair services;
- ◆ Tailor-made lifecycle services that help customers enhance and extend the useful life of a product and keep the product up to the newest standard throughout its lifetime (e.g. software updates for equipment);
- ◆ Performance services using technology and data insights to help customers better use their equipment and maximise asset utilisation.