2022

ECONOMIC REPORT

Evolution of
the European graphic industry

INTERGRAF

Introduction

PRESENTATION OF INTERGRAF

Intergraf is the European Federation for Print and Digital Communication. It represents 20 national printing federations in 19 countries in Europe. Intergraf's main task is to promote and protect the interests of the graphic industry and to enhance the sector's competitiveness through lobbying, informing and networking.

Intergraf covers a wide range of European policies related to the graphic industry and interacts with the European institutions. Moreover, Intergraf is the source of information for its members regarding the different policies of the European Union affecting the graphic industry. Intergraf provides its members with contacts to other federations across Europe through meetings and conferences as well as expert working groups which ensure a close participation of its members in the process of European policy making and on market issues. Intergraf has also a comprehensive network at European level covering the entire print value chain as well as at international level. It is active on several platforms and represented in different bodies in order to defend the interests of the graphic industry.

For more information on Intergraf and its member federations, please visit the Intergraf website: www.intergraf.eu

PRESENTATION OF THE REPORT

This report provides an overview of available data on the European graphic industry, as well as highlights about the economic development of sectors which are relevant to the graphic industry, including supplying industries and print buyers. Data cover when available EU-27, the UK, Switzerland and Norway. For trade information, EU-27 data are provided.

Chapter 1 covers the historical review of the European print market and chapter 2 features information on the paper disruptions in 2021 and 2022 as well as an outlook of the print market beyond 2021.

For the general economic situation (chapter 1.1), the report is based on information from the OECD and the European Commission (DG Economic and Financial Affairs). The descriptions and economic data are from both institutions.

Official statistics made available by Eurostat are the main source of information for the chapter on the European graphic industry (chapter 1.2). Data have been processed by Intergraf. Data are collected from a very large base, which include all sizes of companies including one-person companies. Since 2008, the key indicators extracted from the structural business statistics of the Eurostat database are being compiled on the new classification, NACE Rev. 2. Comparisons with older figures can still highlight significant breaks in some historical series. Classifications (NACE Rev. 2, PRODCOM and Combined Nomenclature) applicable to the data provided in the reported are explained at the beginning of each relevant chapter.

We are thankful to Smithers for their contribution in chapter 2.2. Information in the market reports (chapter 1.3) is from Eurostat and from recognised European trade associations (CEPI, EUROGRAPH, EUPIA, FEP).

We are grateful to our member federations who contribute with qualitative and quantitative data to the country reports (chapter 1.4).

Annexes (chapter 3) includes the supporting data used in the different chapters.

1. HISTORICAL PRINT MARKET REVIEW

Sources
1.1:
Economic outlook, OECD annual projections, March 2022
International Monetary Fund database, April 2022

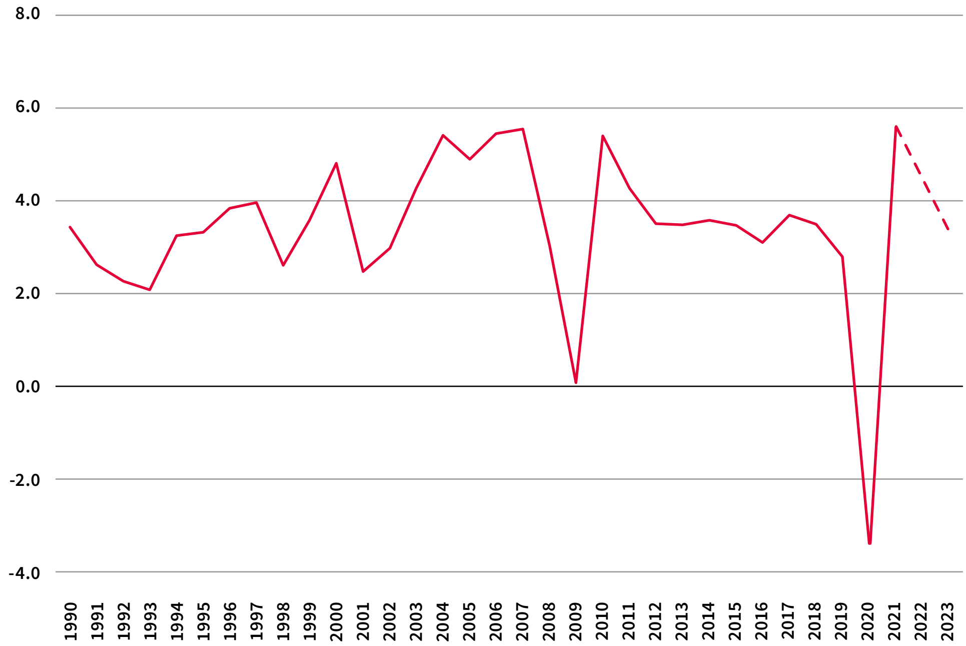
1.2:
OECD database
Winter forecast 2021, European Commission, Economic and Financial Affairs, February 2022

1.3:
DG Economic and Financial Affairs

Note
: = data not available

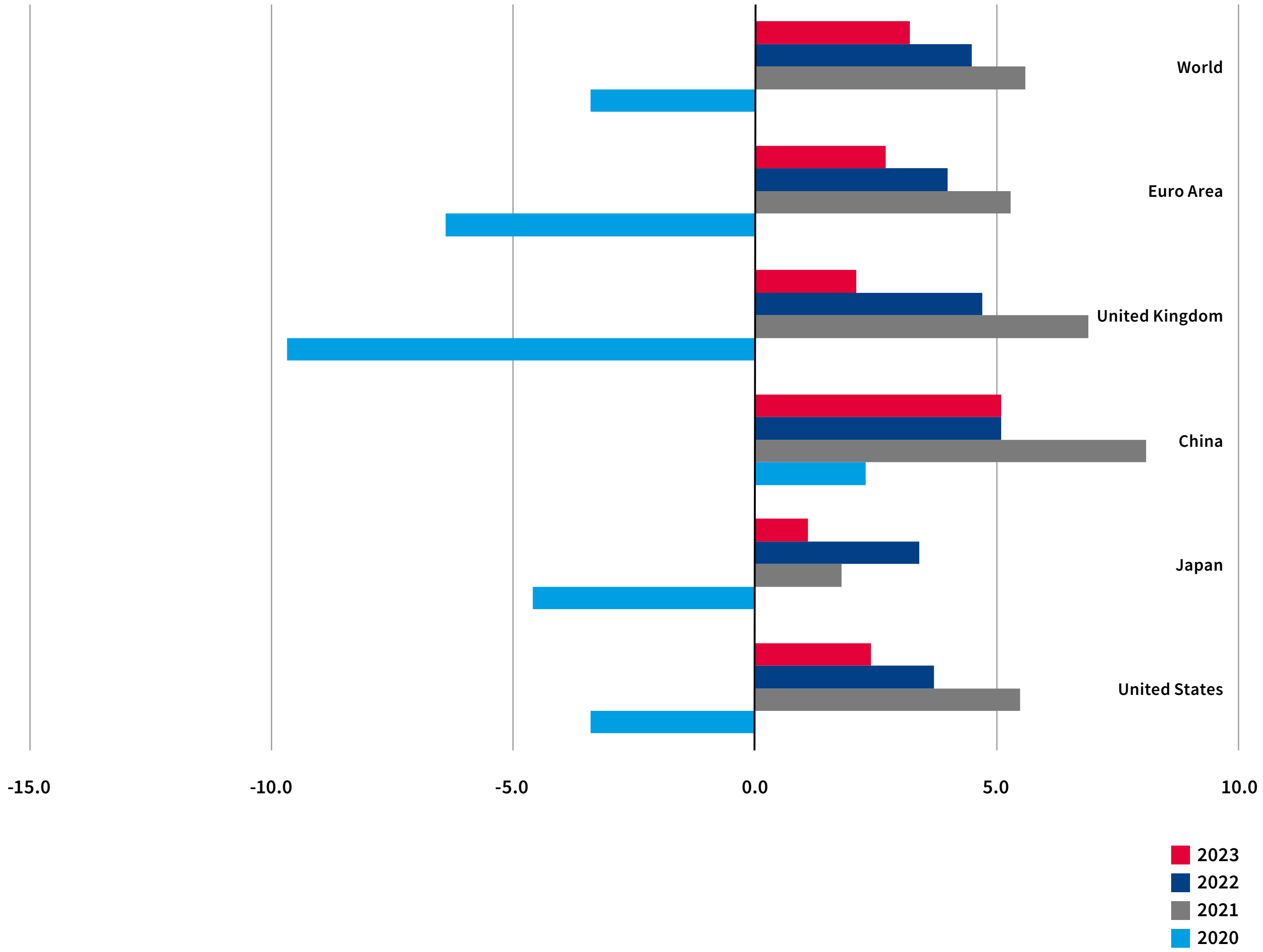
1.1.1 Global economic situation

World gross domestic product, in %-change, constant prices, 1990-2023



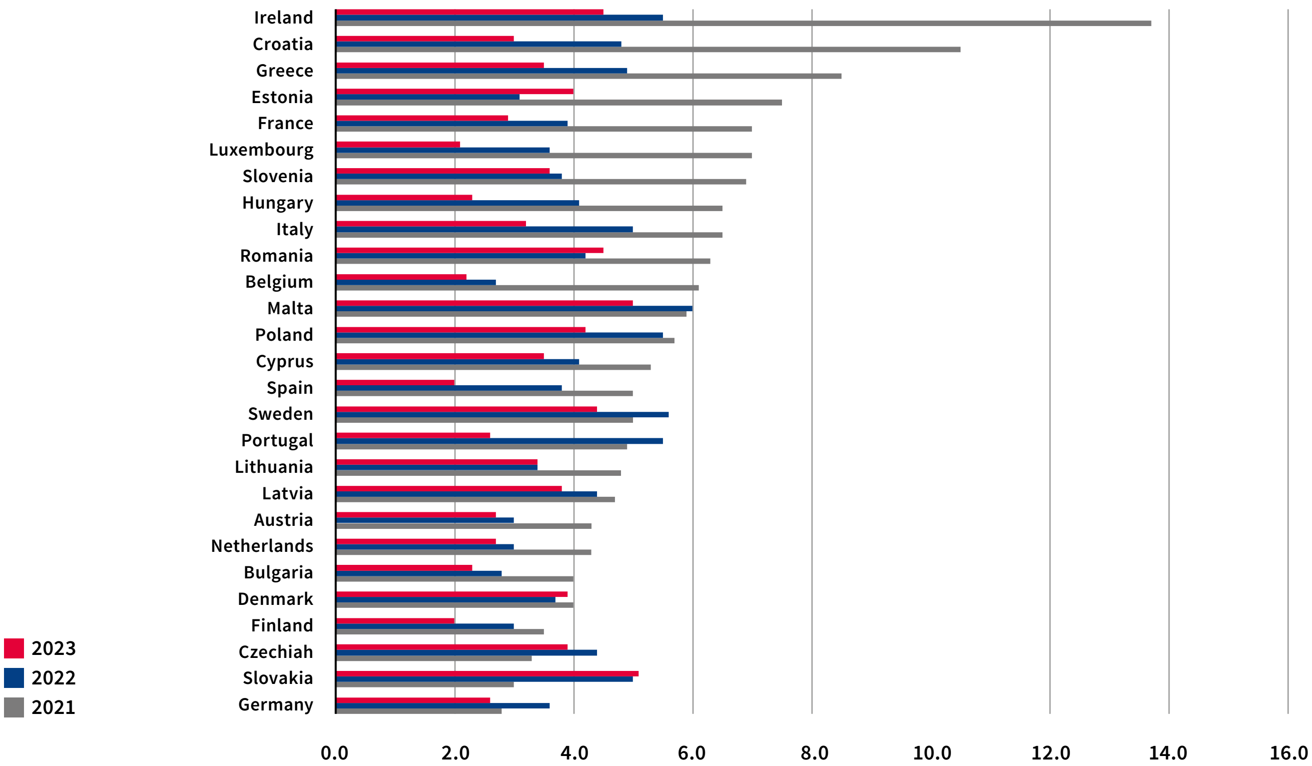
- Prior to the Russian invasion of Ukraine, the global recovery from the pandemic was expected to continue in 2022 and 2023.
- Although Russia and Ukraine are relatively small in output terms, they are large producers and exporters of key food items, minerals and energy. The war results in sizeable economic and financial shocks, particularly in commodity markets, with the prices of oil, gas and wheat soaring.
- The war in Ukraine has created a new negative supply shock for the world economy, just when some of the supply-chain challenges seen since the beginning of the pandemic appeared to be starting to fade.
- The world GDP growth is expected to reach 4.5% in 2022 and 3.2% in 2023.

Projections in real GDP growth, OECD Economic Outlook, March 2022

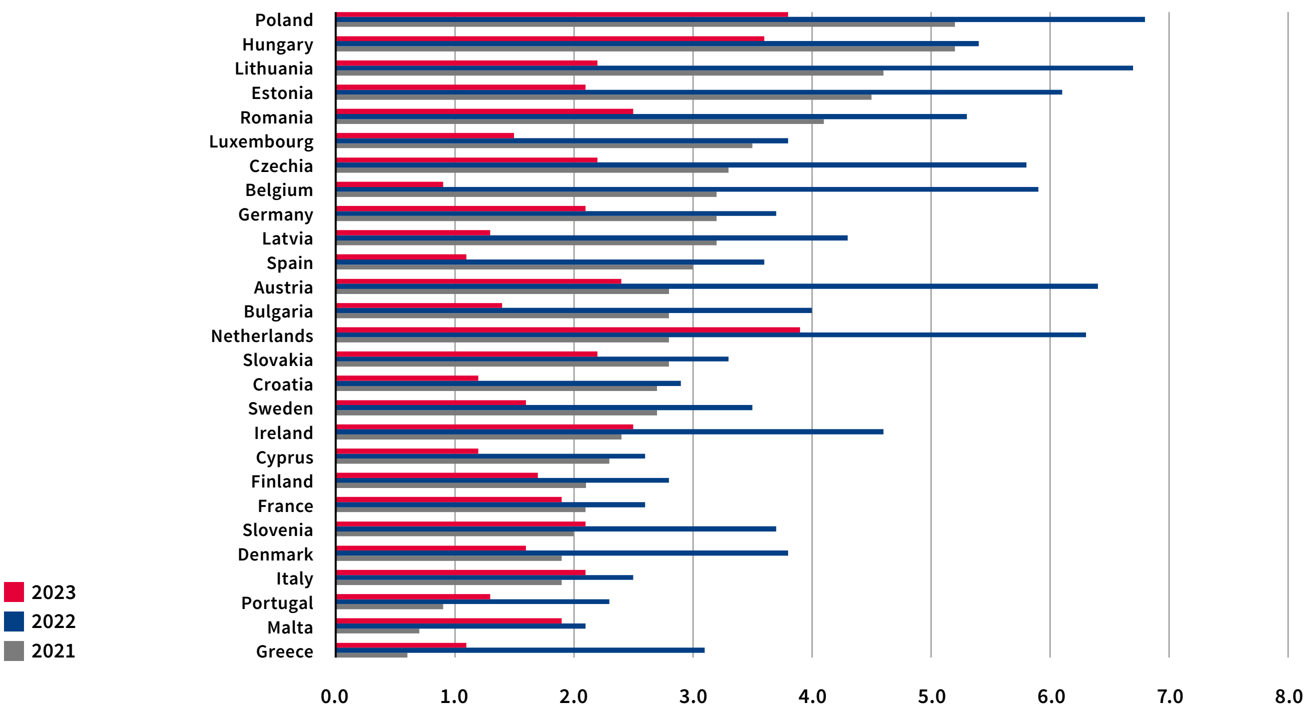


1.1.2 European economic situation

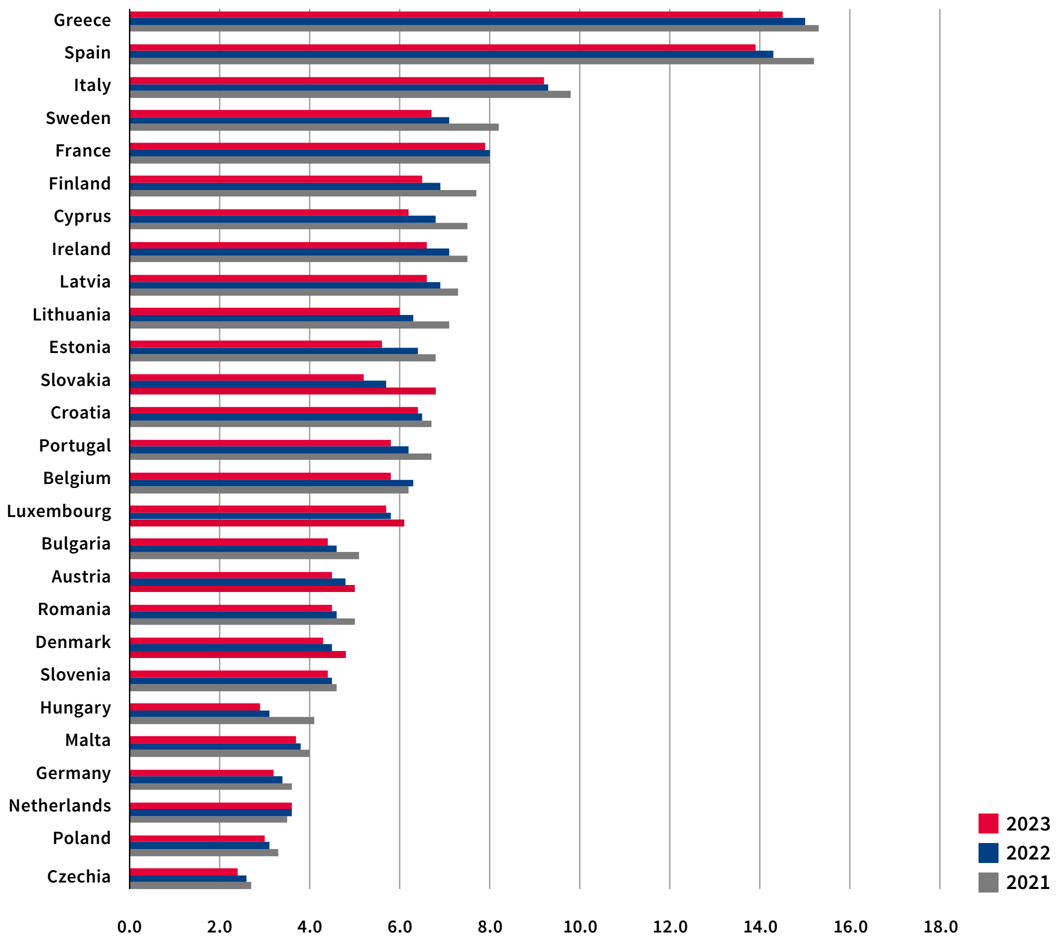
GDP growth rate, 2021-2023, in %



Inflation rate, 2021-2023, in %

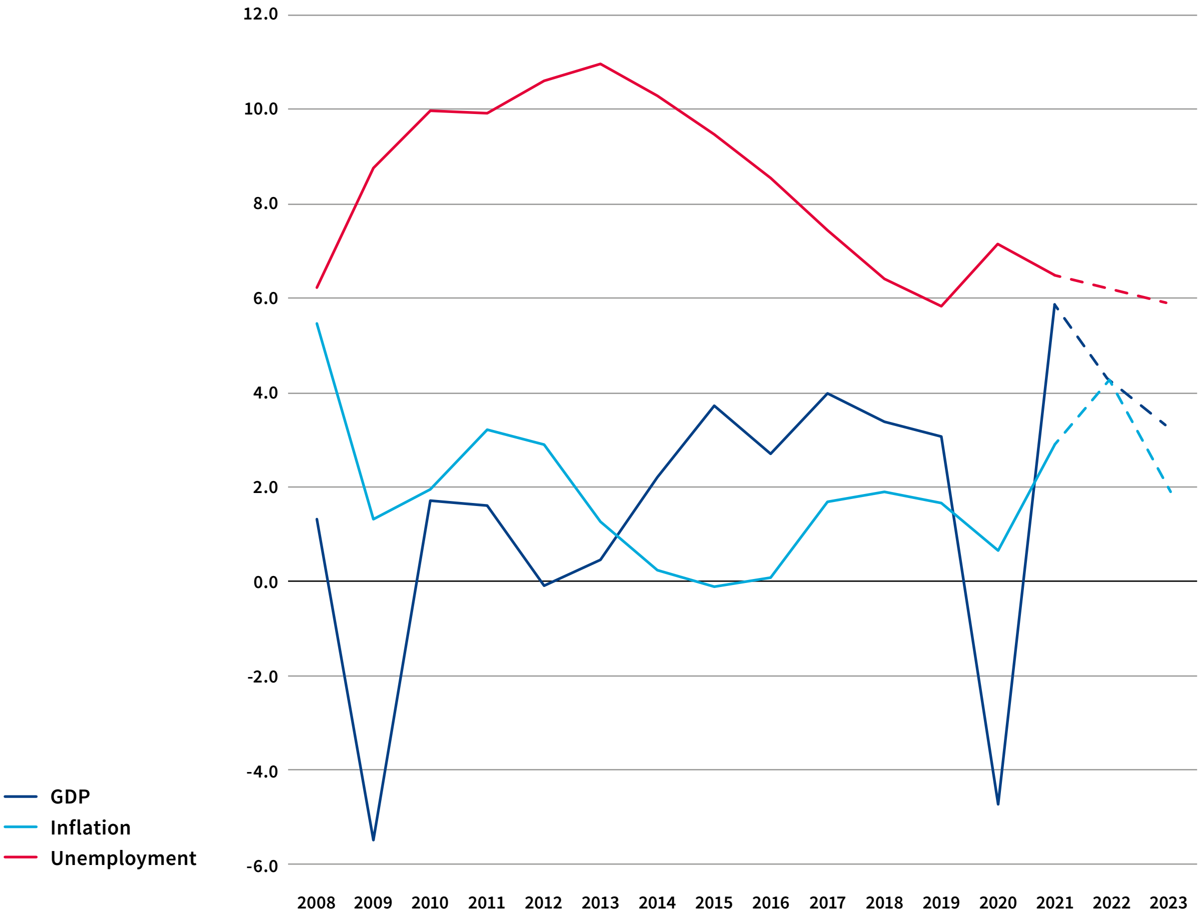


Unemployment rate, 2021-2023, in %



- The EU economy entered the new year on a weaker note than previously projected.
- In 2021, all European countries registered a positive GDP growth. Forecasts for 2022 and 2023 are all positive, however to a lesser extent than in 2021.
- Stronger than expected, inflationary pressures hit all European countries and weigh on households' purchasing power. Further inflation growths are expected in 2022 due to projected continuous high energy prices. Price pressures are broadening to several categories of goods and services.
- Unemployment rates across countries are expected to fall in 2022 and 2023.

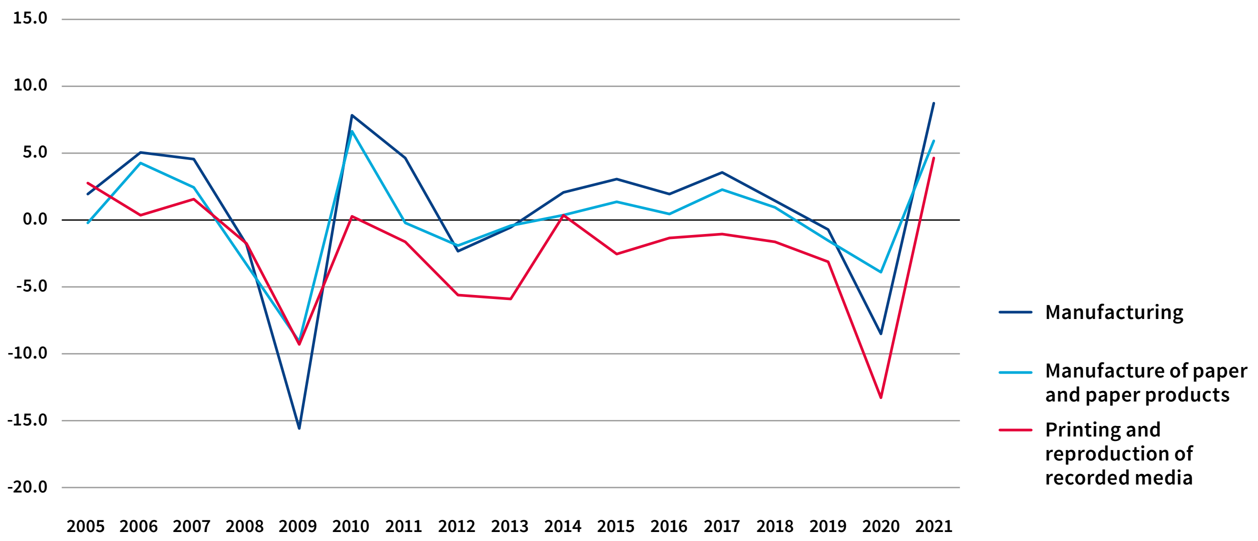
GDP growth, inflation rate, unemployment rate, Europe (EU27), in %, 2008-2023



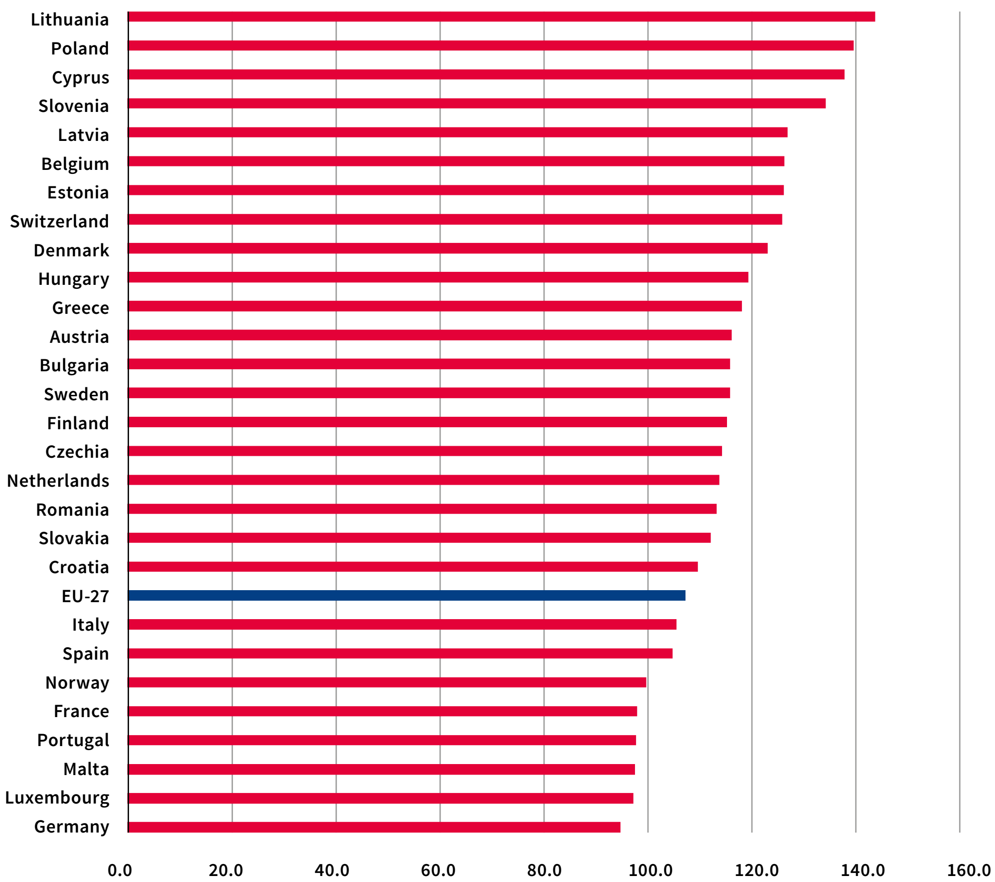
- The GDP growth was at 5.8% in 2021 2020. The GDP growth is expected to slow down at 4.2% in 2022 and at 3.3% in 2023.
- The inflation rate reached 2.8% in 2021 and is expected to reach 4.2% in 2022.
- The unemployment rate was 6.6% in 2021 and should reach 6.1% in 2022.

1.1.3 European manufacturing industry

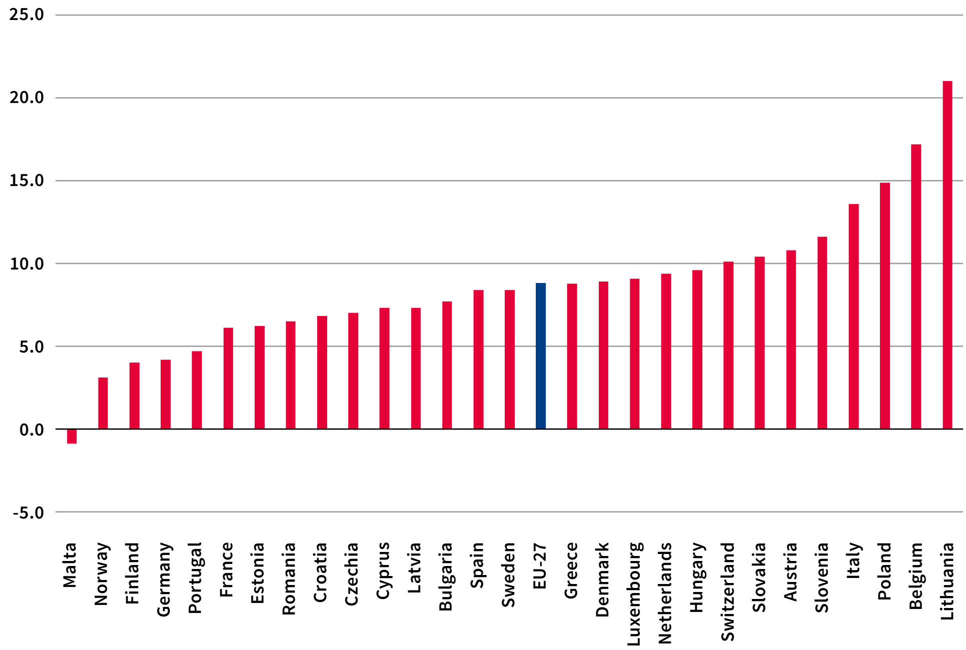
Industrial production, % change compared to the previous year, 2005-2021, EU-27



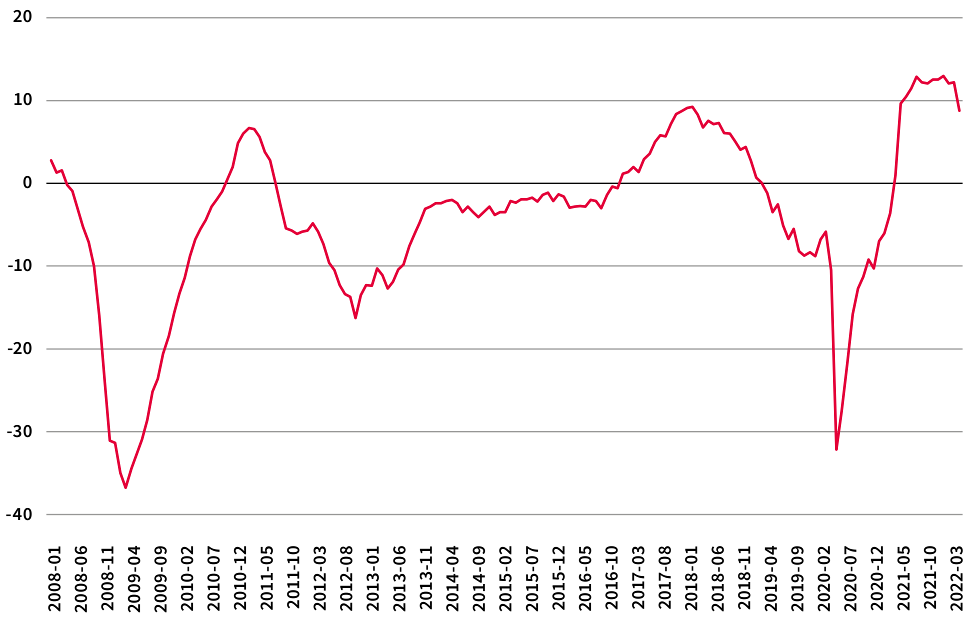
Industrial production index, European manufacturing sector, EU-27+NO+CH, 2021, 2015=100



Industrial production index, European manufacturing sector, EU-27+NO+CH, 2021, calendar adjusted data, % comparison with previous year



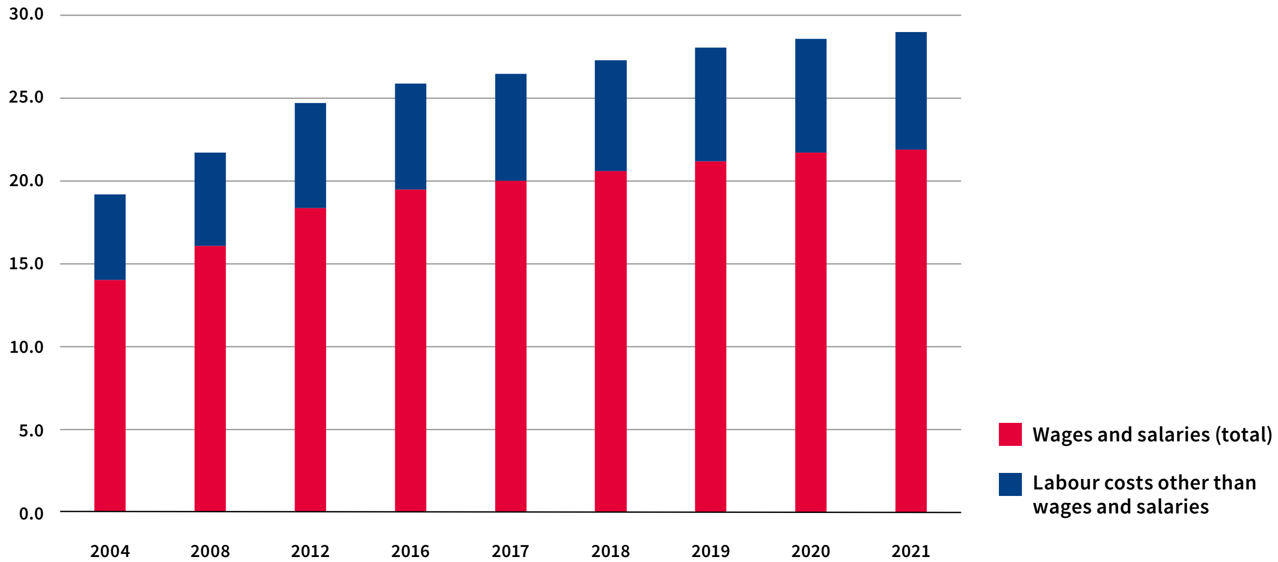
Industrial confidence, 2008 - 2022



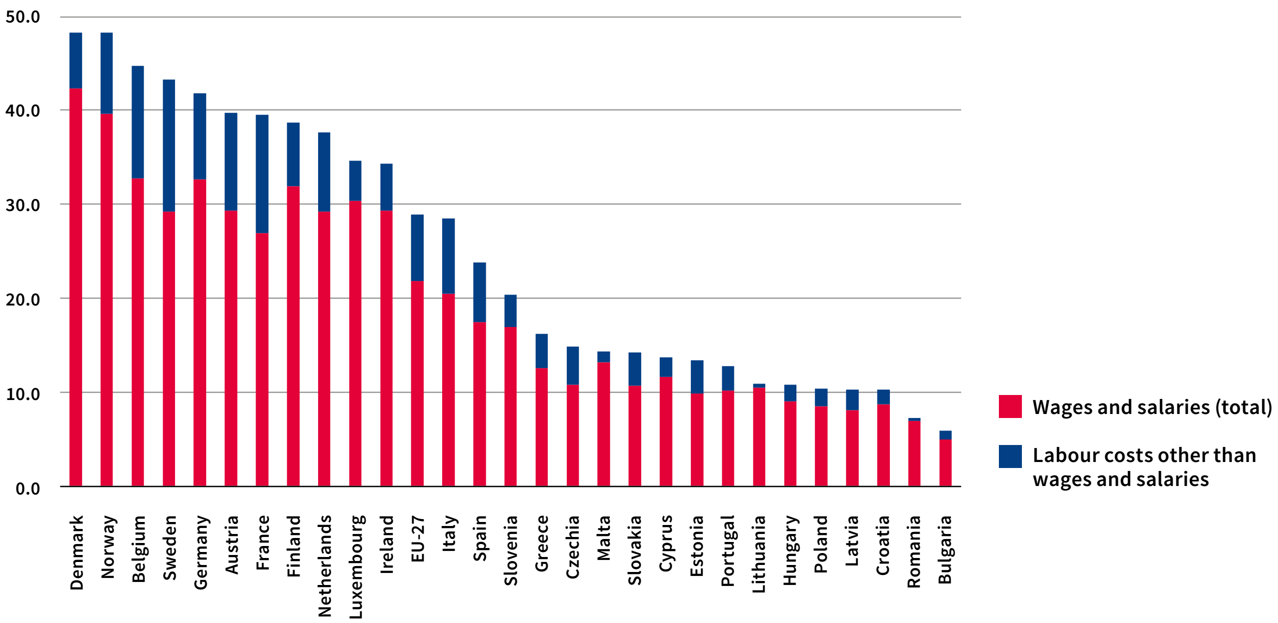
- Industrial production in the European manufacturing industry increased by 8.8% in 2021 compared to 2020. In the printing and recorded media industry, industrial production increased by 4.7%.

- From mid-2020 until mid-2021, industrial confidence continuously increased until mid-2021. Industrial confidence started to decrease beginning of 2022.

Hourly average labour costs in the European manufacturing industry, in €, 2004-2021



Hourly labour costs for the European manufacturing industry, 2021



- The hourly labour costs in the European manufacturing industry have increased by 1.4% in 2021 compared to 2020 and by 33% compared to 2008.
- The average hourly labour cost in the manufacturing industry in 2021 reached 29 € (21.9 € of wages and salaries and 7.1 € of other labour costs) and ranged from 4.9 € to 42.5 € across Europe.
- The highest total labour costs in the manufacturing industry in 2021 have been registered in Denmark, Norway, Belgium and Germany. The lowest labour costs are registered in Bulgaria and Romania.

1. HISTORICAL PRINT MARKET REVIEW

Sources
Eurostat

Note
: = data not available
italic = Intergraf calculation

1.2.1 Profile of the European graphic industry

Classification: NACE Rev 2

18 PRINTING AND REPRODUCTION OF RECORDED MEDIA

This division includes printing of products, such as newspapers, books, periodicals, business forms, greeting cards, and other materials, and associated support activities, such as bookbinding, plate-making services, and data imaging. The support activities included here are an integral part of the printing industry, and a product (a printing plate, a bound book, or a computer disk or file) that is an integral part of the printing industry is almost always provided by these operations.

Processes used in printing include a variety of methods for transferring an image from a plate, screen or computer file to a medium, such as paper, plastics, metal, textile articles, or wood. The most prominent of these methods entails the transfer of the image from a plate or screen to the medium through lithographic, gravure, screen or flexographic printing. Often a computer file is used to directly ''drive'' the printing mechanism to create the image or electrostatic and other types of equipment (digital or non-impact printing).

Though printing and publishing can be carried out by the same unit (a newspaper, for example), it is less and less the case that these distinct activities are carried out in the same physical location.

This item also includes: This division also includes the reproduction of recorded media, such as compact discs, video recordings, software on discs or tapes, records etc.

This item excludes: This division excludes publishing activities

18.1 Printing and service activities related to printing

This group includes printing of products, such as newspapers, books, periodicals, business forms, greeting cards, and other materials, and associated support activities, such as bookbinding, plate-making services, and data imaging. Printing can be done using various techniques and on different materials.

18.11 Printing of newspapers

- printing of other periodicals, appearing at least four times a week

This class excludes:
- publishing of printed matter, see 58.1
- photocopying of documents, see 82.19

18.12 Other printing

This class includes:
- printing of magazines and other periodicals, appearing less than four times a week
- printing of books and brochures, music and music manuscripts, maps, atlases, posters, advertising catalogues, prospectuses and other printed advertising, postage stamps, taxation stamps, documents of title, cheques and other security papers, smart cards, albums, diaries, calendars and other commercial printed matter, personal stationery and other printed matter by letterpress, offset, photogravure, flexographic, screen printing and other printing presses, duplication machines, computer printers, embossers etc., including quick printing
- printing directly onto textiles, plastic, glass, metal, wood and ceramics

The material printed is typically copyrighted.

This class also includes:
- printing on labels or tags (lithographic, gravure printing, flexographic printing, other)

This class excludes:
- manufacture of stationery (notebooks, binders, registers, accounting books, business forms etc.), when the printed information is not the main characteristic, see 17.23
- publishing of printed matter, see 58.1

18.13 Pre-press and pre-media services

This class includes:
- composing, typesetting, phototypesetting, pre-press data input including scanning and optical character recognition, electronic make-up
- preparation of data files for multi-media (printing on paper, CD-ROM, Internet) applications
- plate-making services including image setting and plate setting (for the printing processes letterpress and offset)
- cylinder preparation: engraving or etching of cylinders for gravure printing
- plate processing: "computer to plate" CTP (also photopolymer plates)
- preparation of plates and dies for relief stamping or printing
- preparation of:
  - artistic works of technical character, such as preparation of lithographic stones and wood blocks
  - presentation media, e.g. overhead foils and other forms of presentation
  - sketches, layouts, dummies, etc.
  - production of proofs

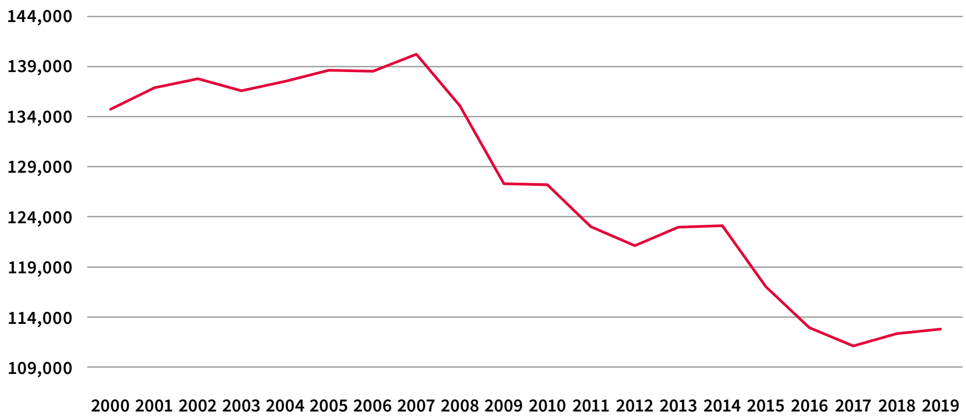
This class excludes:
- specialised design activities

18.14 Binding and related services

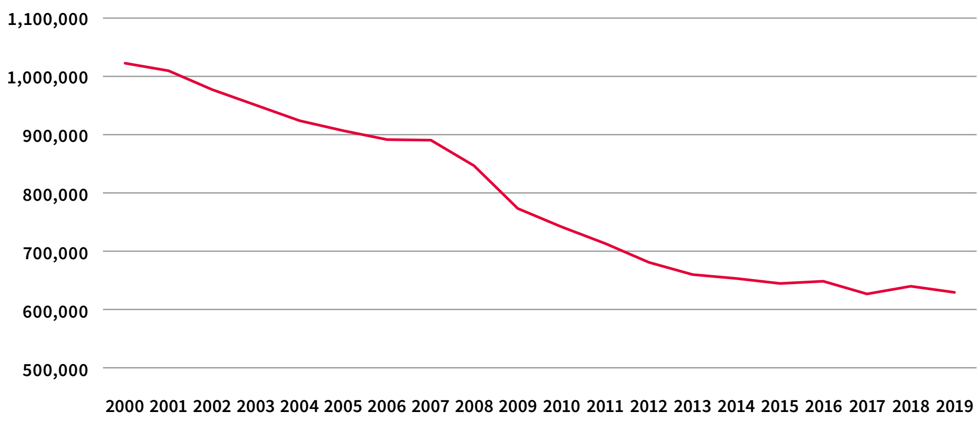
This class includes:
- trade binding, sample mounting and post press services in support of printing activities, e.g. trade binding and finishing of books, brochures, magazines, catalogues, etc., by folding, cutting and trimming, assembling, stitching, thread sewing, adhesive binding, cutting and cover laying, gluing, collating, basting, gold stamping; spiral binding and plastic wire binding
- binding and finishing of printed paper or printed cardboard, by folding, stamping, drilling, punching, perforating, embossing, sticking, gluing, laminating
- finishing services for CD-ROMs
- mailing finishing services such as customisation, envelope preparation
- other finishing activities such as die, sinking or stamping, Braille copying

Turnover, EU graphic industry, 2000-2019, in million €

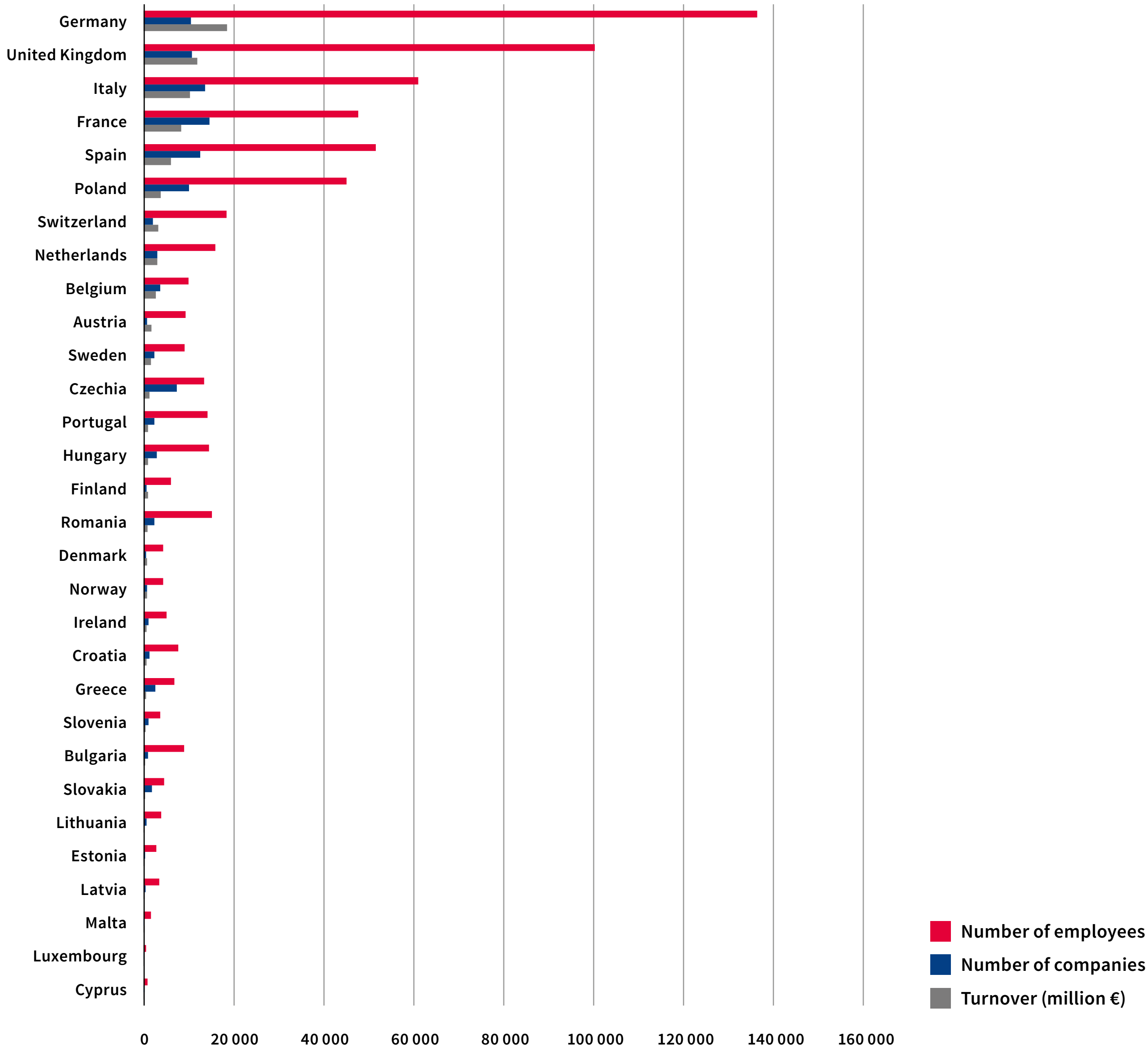
Number of EU graphic companies, 2000-2019



Number of employees in the EU graphic industry, 2000-2019

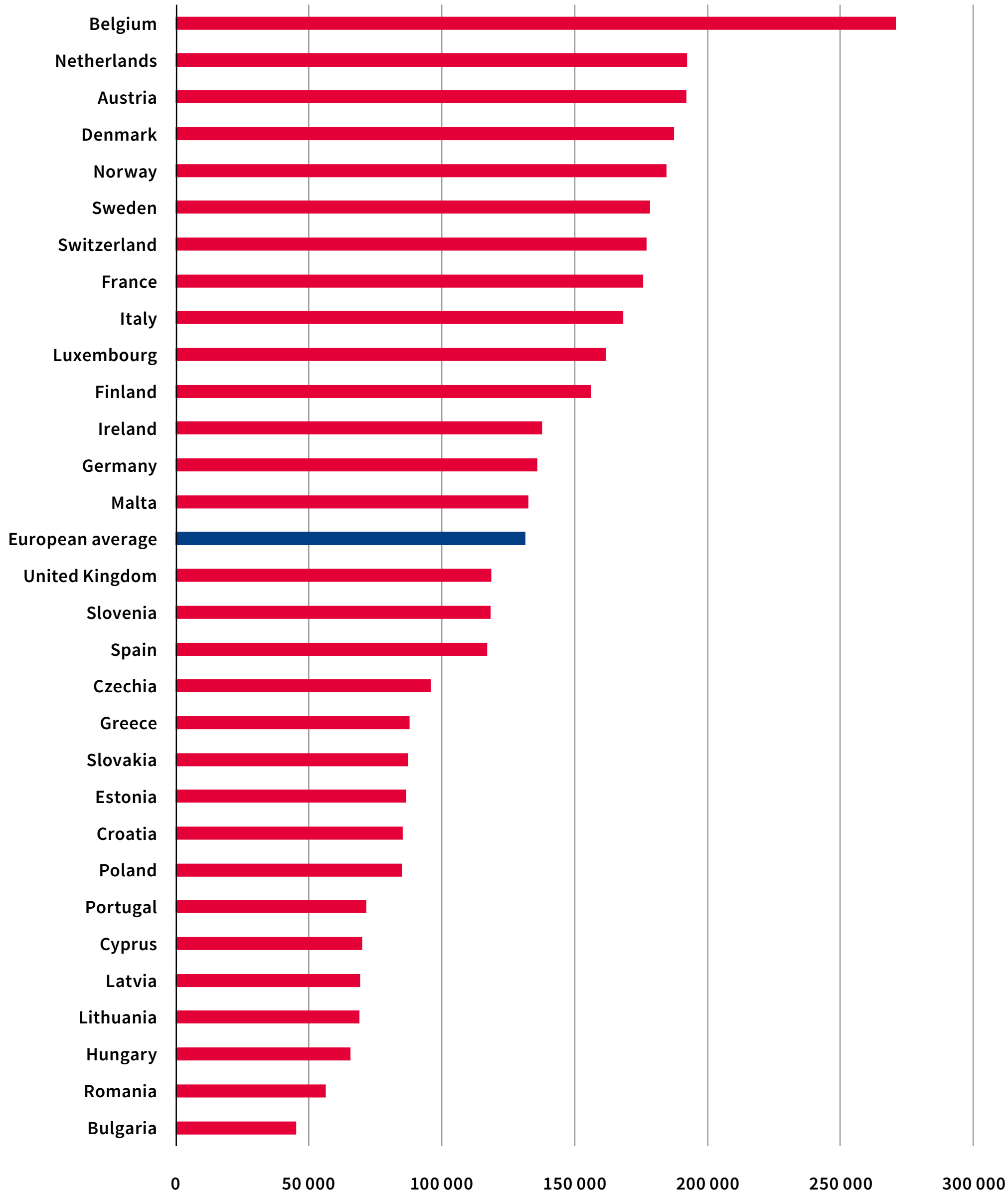


Profile of the European printing industry, EU-28, 2019



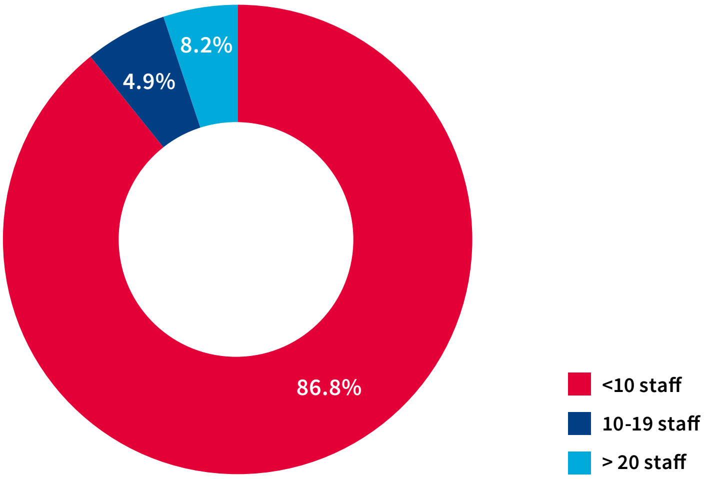
- Approximately 630,000 employees were working in the European printing industry in the EU-27, the UK, Switzerland and Norway in 2019.
- In 2019, the European printing industry counted approximately 112,000 companies, which generated a turnover of over € 82 billion.
- The turnover of the European printing industry decreased by approximately 20% over the last decade (2008-2019). The number of companies decreased by 16% and the number of employees by 26% over that period.
- Germany, the UK and Italy generate the largest turnover and register the highest number of employees in Europe whereas France, Italy and Spain have the highest number of printing companies in Europe.

Turnover per employee, in euros, 2019



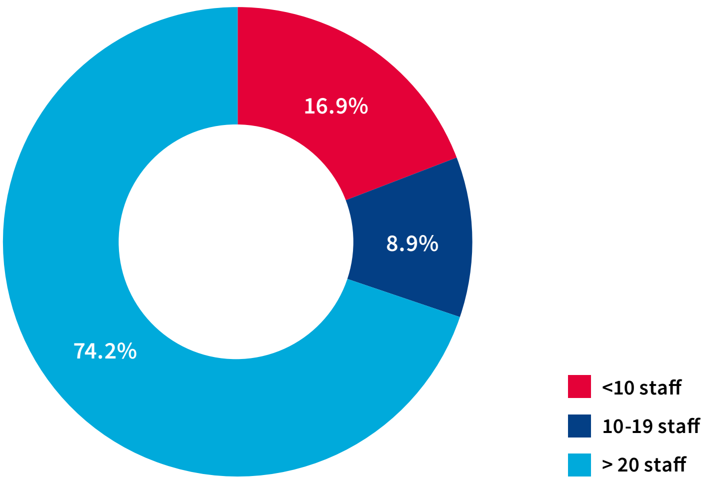
- Belgium, the Netherlands, Austria and Denmark registered the highest turnover per employee in 2019.
- The European average turnover per employee was approximately € 131.000.

Size of the EU printing industry by number of employees, Europe (EU-27), 2019



- 87% of European printing companies have fewer than 10 employees.
- 93% of European printing companies are SMEs employing fewer than 20 employees.
- 8% of European printing companies have more than 20 employees.

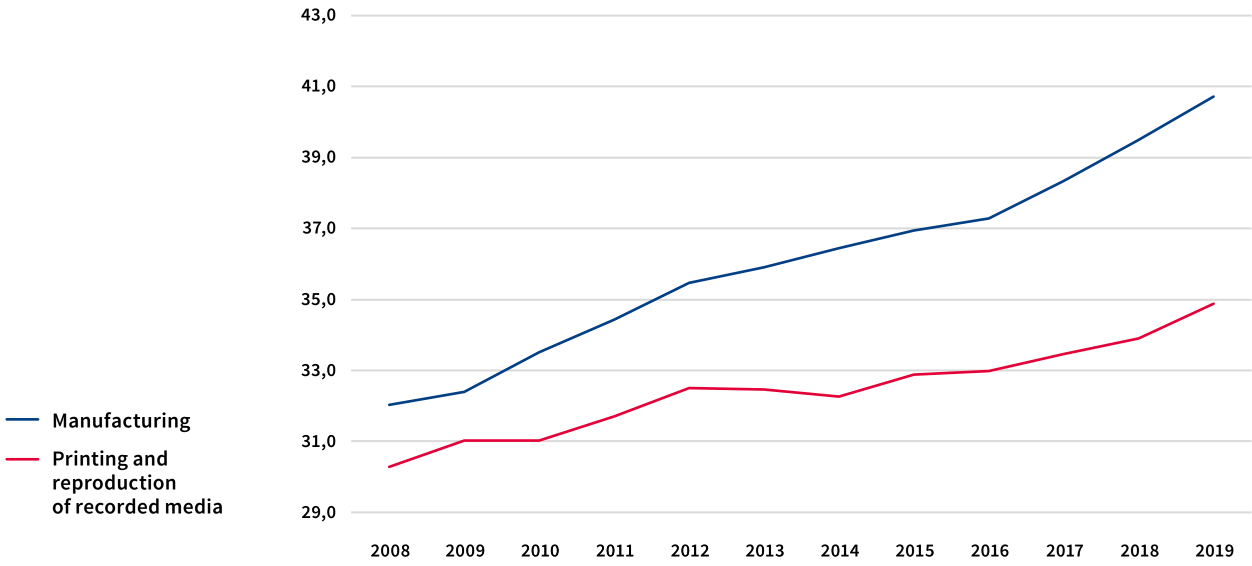
Size of the EU printing industry by number of employees, Europe (EU-27), 2019



- 87% of European printing companies having fewer than 10 employees generate 17% of the European printing industry turnover.
- 8% European printing companies employing more than 20 workers generate 74% of the total turnover.

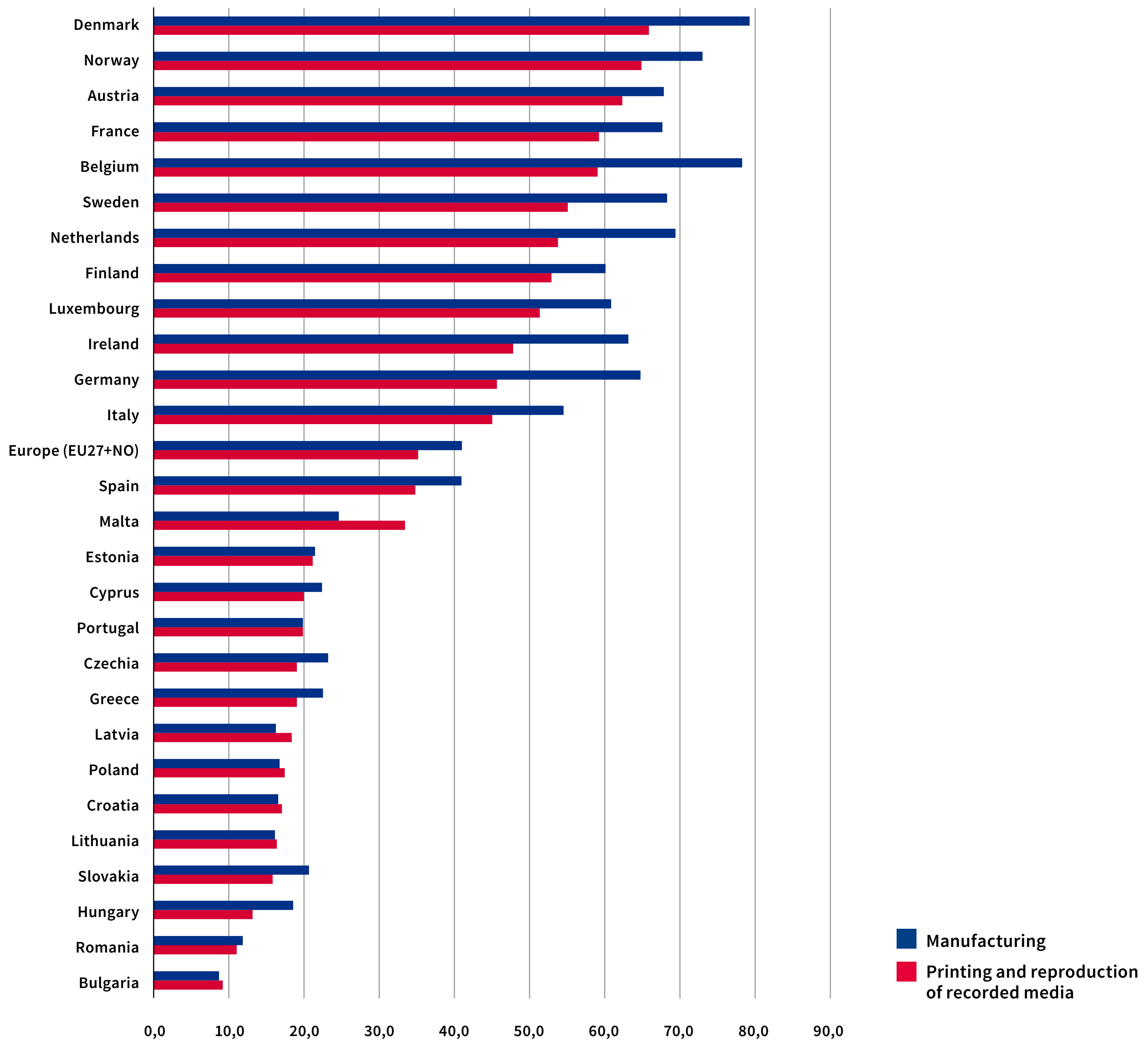
1.2.2 Labour costs

Labour cost per employee full time equivalent, EU-27+NO, in thousand €, 2008-2019



- Labour costs in the printing and recorded media industry have increased by 15% between 2008 and 2019, while labour costs increased by 27% in the overall manufacturing sector.

Labour cost per employee full time equivalent, in thousand €, 2019

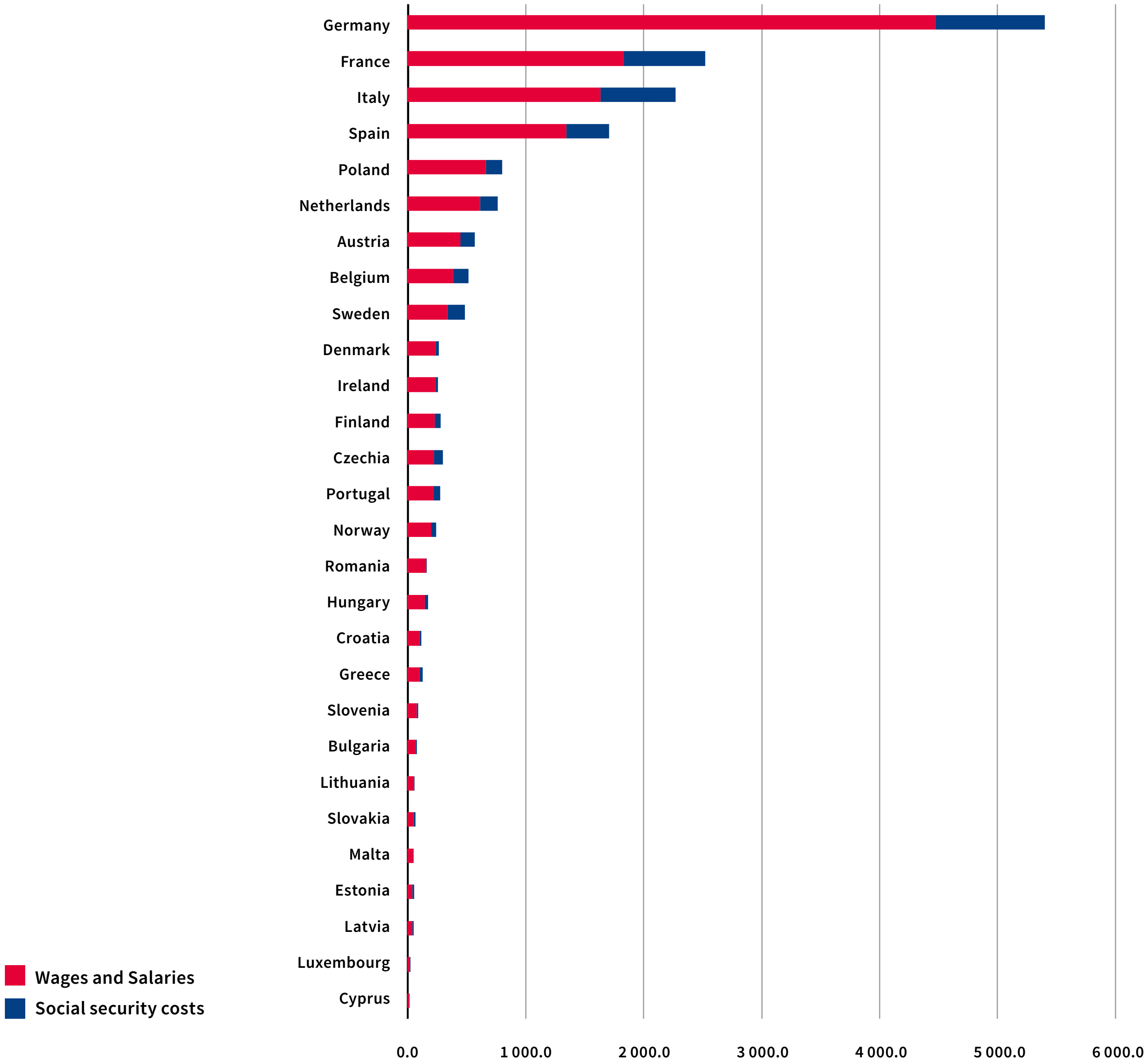


- In the printing and recorded media industry, Denmark, Norway and Austria have the highest labour cost per employee (full time equivalent). Bulgaria and Romania have the lowest labour costs, which are more than 7 times less than in Denmark, Norway or Austria.

- On average, labour costs in the printing and recorded media industry are 17% lower than in the whole manufacturing industry. The difference can reach over 40% in Hungary and Germany.

- The total personnel costs, which include the salaries and social security costs, in the printing industry were the highest in Germany, France and Italy.

Personnel costs, printing industry, in million euro, 2019



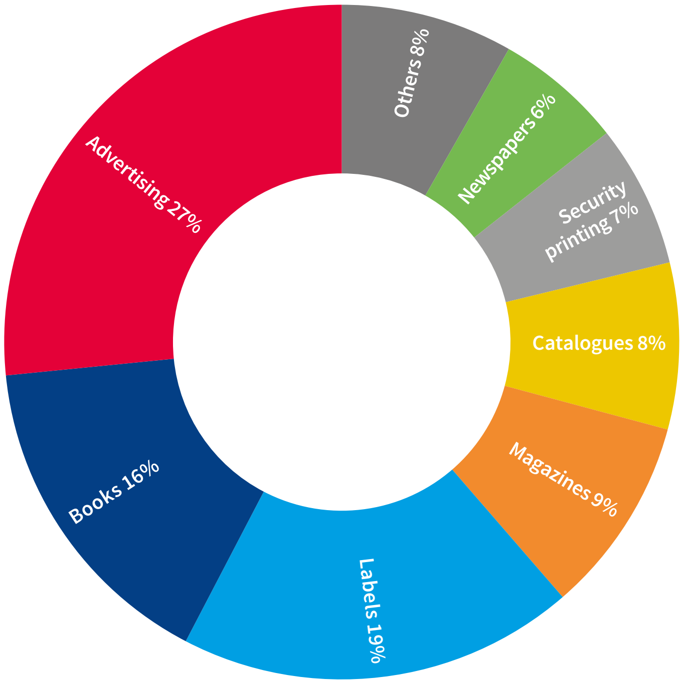
1.2.3 Production value

Classification: PRODCOM

Note books:	17231315 - Note books, letter pads, memorandum pads, of paper or paperboard
Diaries:	17231317 - Diaries, of paper or paperboard
Telephone books:	17231319 - Engagement books, address books, telephone number books and copy books, of paper or paperboard (excluding diaries)
Exercise books:	17231330 - Exercise books, of paper or paperboard
Blotting pads:	17231390 - Blotting pads and book covers, of paper or paperboard
Labels:	17291120 - Self-adhesive printed labels of paper or paperboard
	17291140 - Printed labels of paper or paperboard (excluding self-adhesive)
Newspapers:	18111000 - Printed newspapers, journals and periodicals, appearing at least four times a week
Security printing:	18121100 - Printed new stamps, stamp-impressed paper, cheque forms, banknotes, etc
Catalogues:	18121230 - Printed commercial catalogues
Advertising:	18121250 - Printed trade advertising material (excluding commercial catalogues)
Magazines:	18121300 - Printed newspapers, journals and periodicals, appearing less than four times a week
Books:	18121407 - Printed books, brochures, leaflets and similar printed matter, in single sheets
	18121414 - Printed books, brochures, leaflets and similar printed matter (excluding in single sheets)
Colouring books:	18121421 - Printed children's picture, drawing or colouring books
Dictionaries:	18121428 - Printed dictionaries and encyclopaedias, and serial instalments thereof
Maps:	18121435 - Printed maps, hydrographic or similar charts, in book-form
	18121442 - Printed maps, hydrographic or similar charts (excluding in book-form)
Postcards:	18121449 - Printed postcards, whether or not illustrated
Cards:	18121456 - Printed cards bearing personal greetings, messages or announcements, whether or not illustrated, with or without envelopes or trimmings
Photographs:	18121463 - Printed pictures, designs and photographs
Calendars:	18121910 - Printed calendars of any kind, including calendar blocks
Music:	18121920 - Printed music (including braille music)
Transfers:	18121930 - Printed transfers (decalcomanias)
Others:	18121990 - Other printed matter, n.e.c.

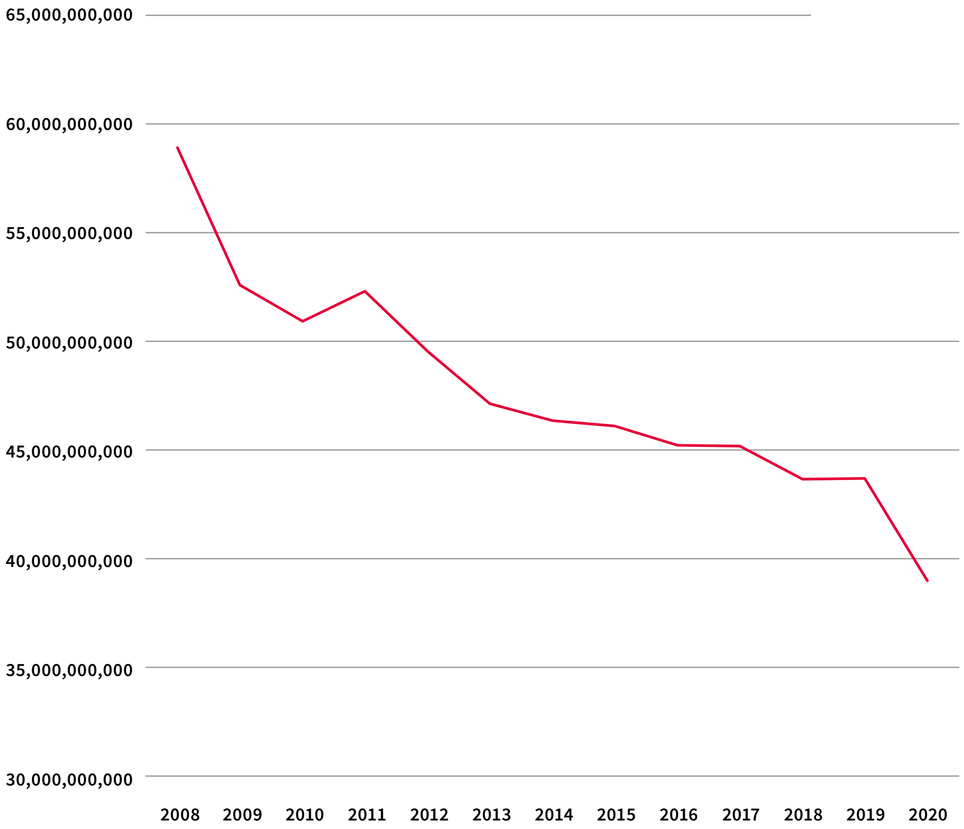
Sources
Eurostat (PRODCOM), figures are in €, by value of sold production

Share in production value, 2020, %



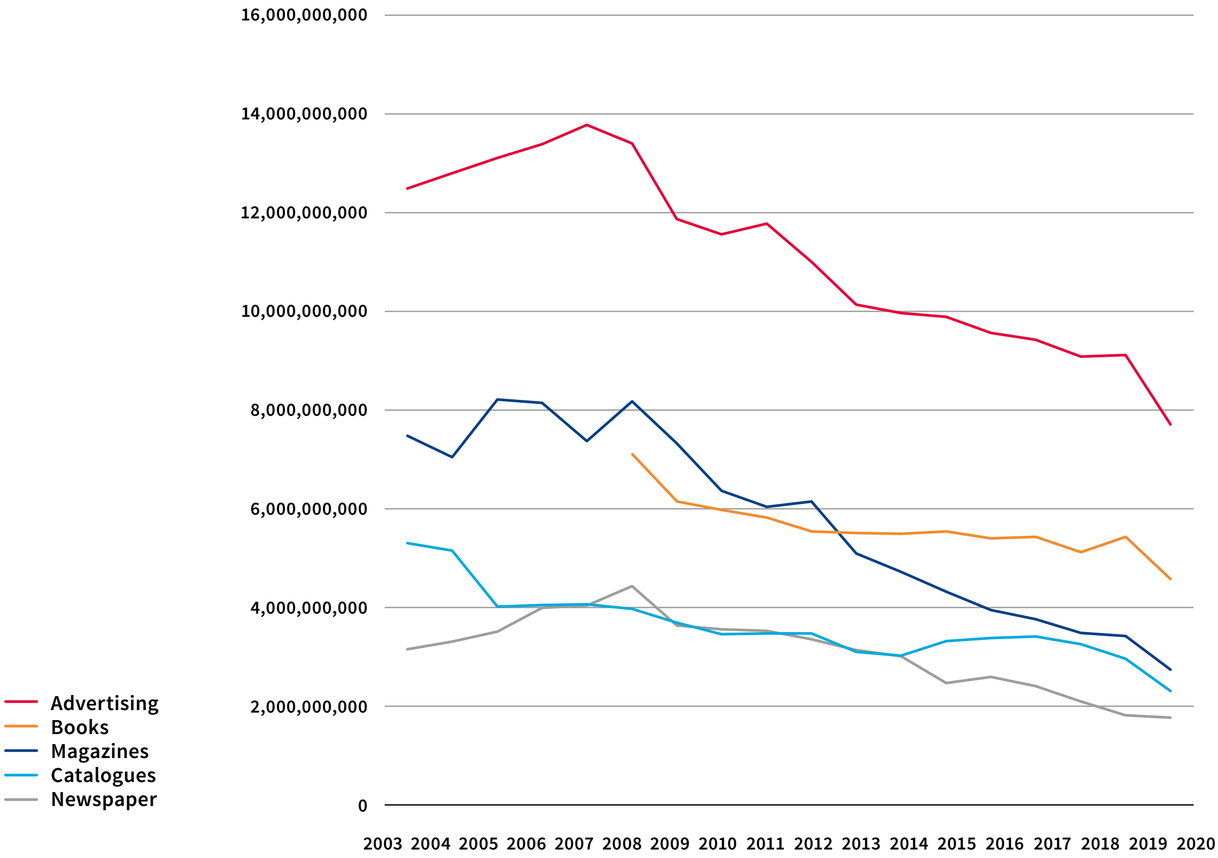
- In 2020, approximately €39 billion worth of printed products were produced in the European Union, UK and Norway.
- From the identified categories of printed products, 27% of European production in value is classified as advertising; this corresponds to approximately € 7.7billion. Catalogues represent 8% of European production of printed products.
- Magazines and newspapers represent respectively 19% (€ 2.7 billion) and 6% (€ 1.7 billion). Books have a share of 16%; € 4.5 billion worth of books are printed in Europe.
- 19% of the production in Europe belongs to the category of labels, i.e. € 5.5 billion. Security printed products represent 7% of the total production of printed products in Europe in 2019.

Evolution of production value of total printed products, 2008-2019, in €



- The total production of printed products in 2020 decreased by 10.7% compared to 2019.
- After a sharp fall from 2008 to 2010 of 13.4%, the European production of printed products steadily decreased, including sharp falls in 2011 and 2012.
- The total production of printed products overall decreased by 33.8% between 2008 and 2020.

Evolution of production value of selected printed products, 2003-2020, in €



- All printed products registered a significant decrease in 2020.
- Books decreased by 35.4%, newspapers by 59.8%, magazines by 66.4%, catalogues by 41.7% and advertising by 41.7%.

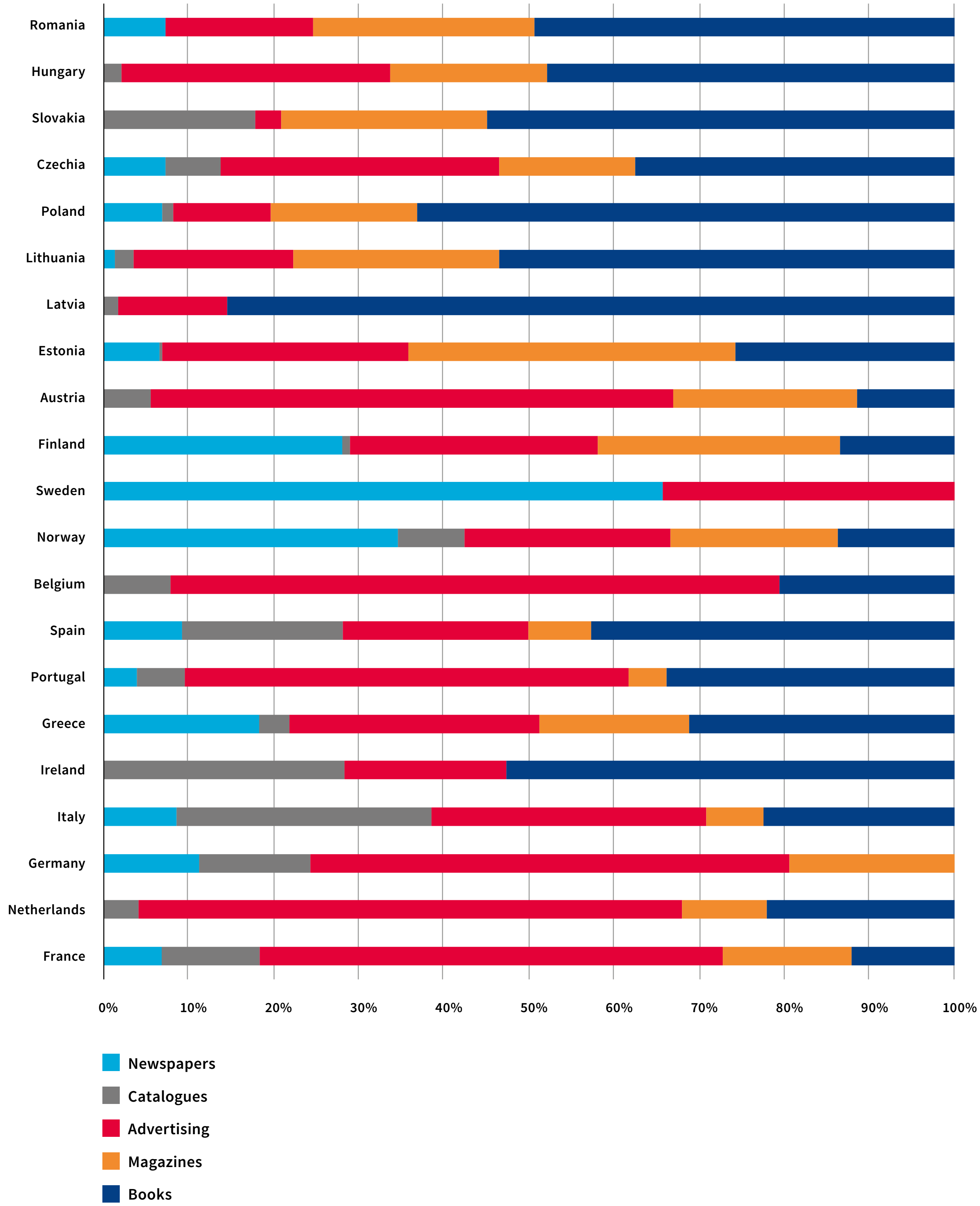
Production value of printed products, 2020, in %

- The main producer of printed products in Europe is Germany with a total production value of € 9.8 billion. This corresponds to a quarter of the total European production value. Germany is the largest producer of printed advertising (€ 3.2 billion), which represents one third of its print production. Germany is also the main producer of magazines (€ 1.1 billion).

- With a total production value of 6.1%, Italy is the second largest producer in Europe. This represents 16.8% of the total European production. Its production value is mainly allocated to catalogues, advertising and books.

- 16.5% of European printed products are produced in France; this is worth € 5.9 billion. More than a quarter of France's production is allocated to advertising material.

Production value of printed products, 2020, in %



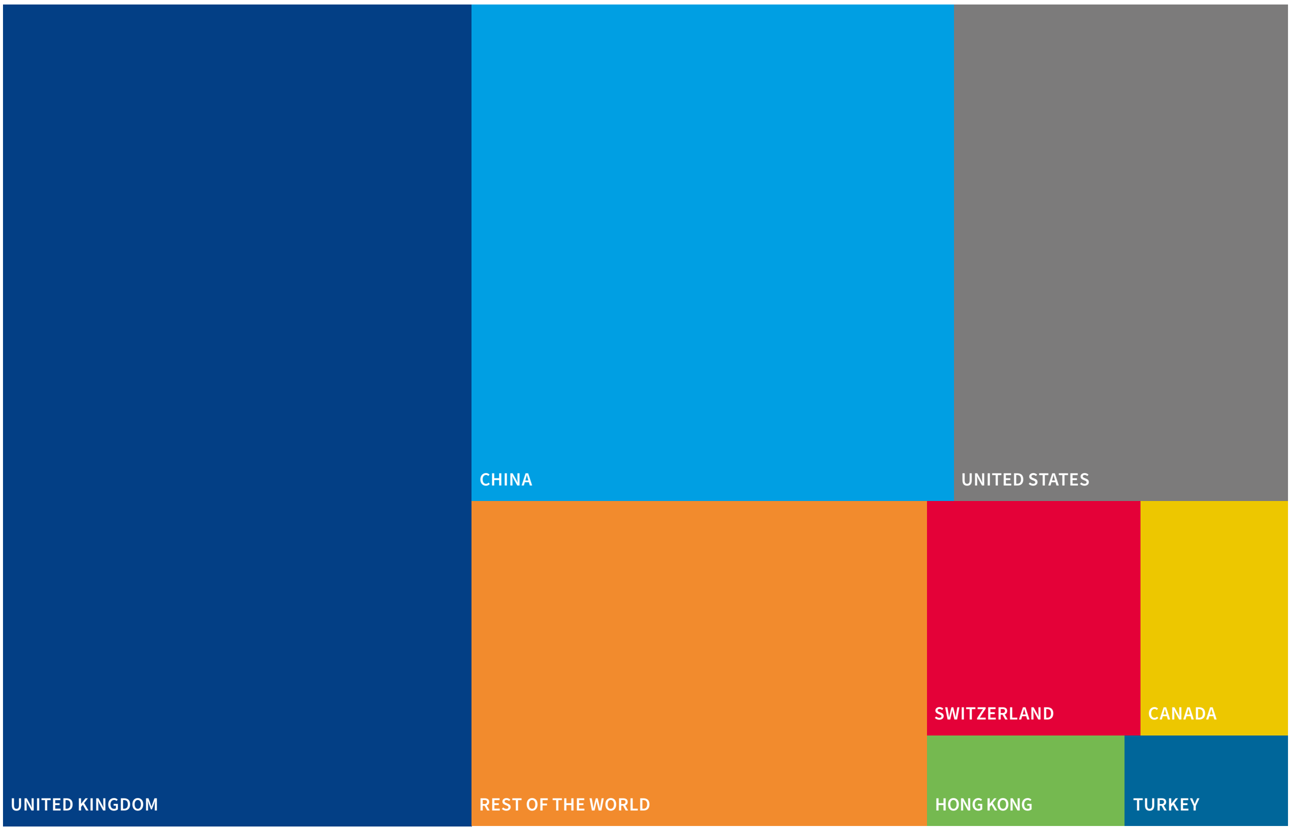
1.2.4 Trade figures

Classification: Combined nomenclature

49 PRINTED BOOKS, NEWSPAPERS, PICTURES AND OTHER PRODUCTS OF THE PRINTING INDUSTRY; MANUSCRIPTS, TYPESCRIPTS AND PLANS (printed products)

- **4901** Printed books, brochures, leaflets and similar printed matter, whether or not in single sheets **(books)**
- **4902** Newspapers, journals and periodicals, whether or not illustrated or containing advertising material **(newspapers)**
  - **4903 00 00** Children's picture, drawing or colouring books **(colouring books)**
  - **4909 00 00** Printed or illustrated postcards; printed cards bearing personal greetings, messages or announcements, whether or not illustrated, with or without envelopes or trimmings **(postcards)**
  - **4910 00 00** Calendars of any kind, printed, including calendar blocks **(calendars)**
  - **4911 10** Trade advertising material, commercial catalogues and the like **(advertising)**
  - **4911 91 00** Pictures, designs and photographs **(photographs)**

Trade partners, imports of printed products to the EU, 2021



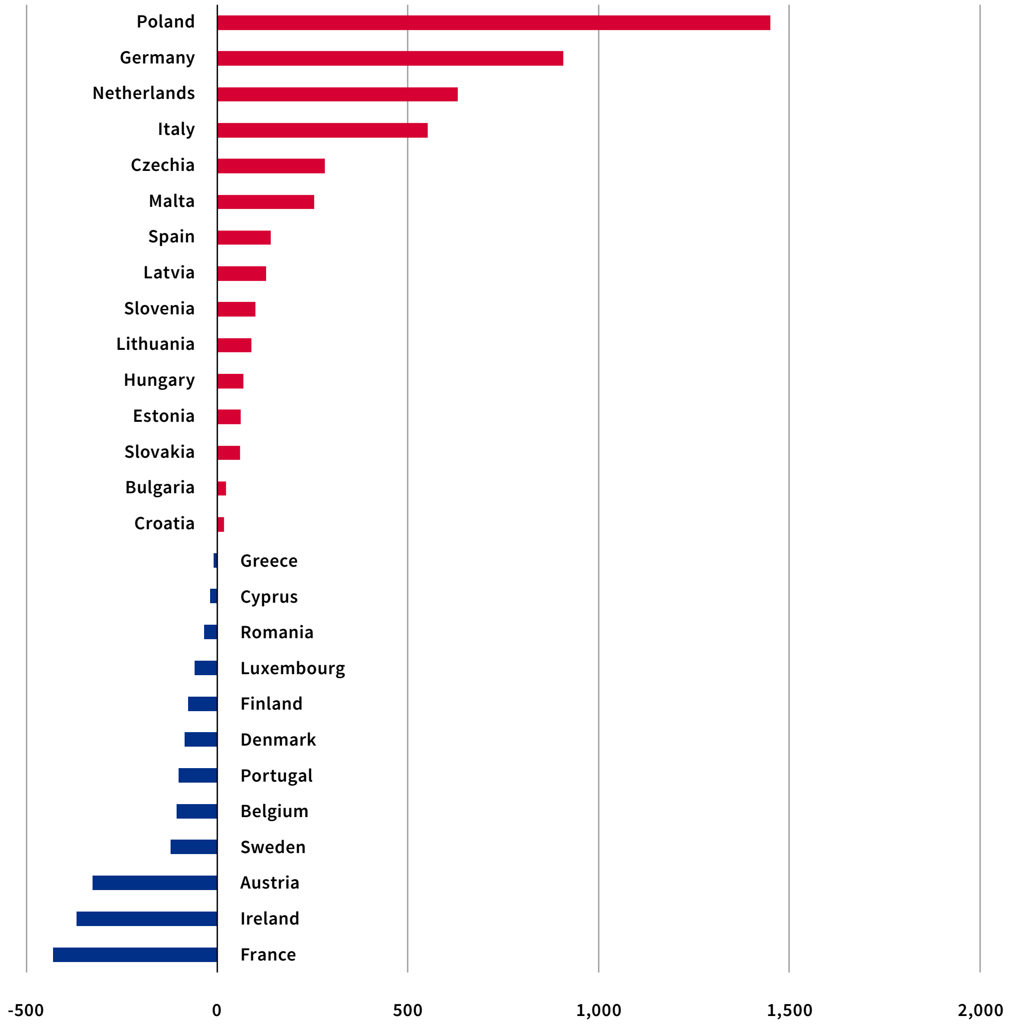
- In 2021, the European Union (EU-27) imported € 3.1 billion worth of printed products from non-EU countries. Half of these (€ 1.4 billion) are books.
- 47% of EU imports of printed products are now originating from the UK. 19% of EU imports originated from China and 11% came from the United States.
- The next largest importers in 2021 were Switzerland and Canada.

Sources
Eurostat, data are in €

Trade partners, exports of printed products from the EU, 2021

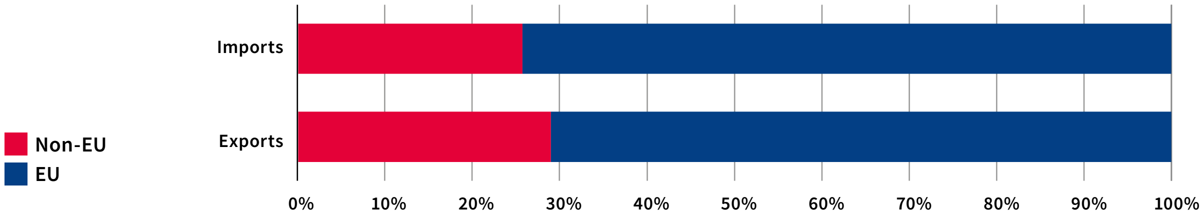
- The European Union exported in 2021 € 4.2 billion worth of printed products to non-EU countries.
- Half of the EU exports of printed products were books.
- The main benefiters of EU exports in 2021 were Switzerland (21.7%), the UK (17.1%) and the US (12.2%).

Trade balance, printed products, intra- and extra-EU, in million €, 2021



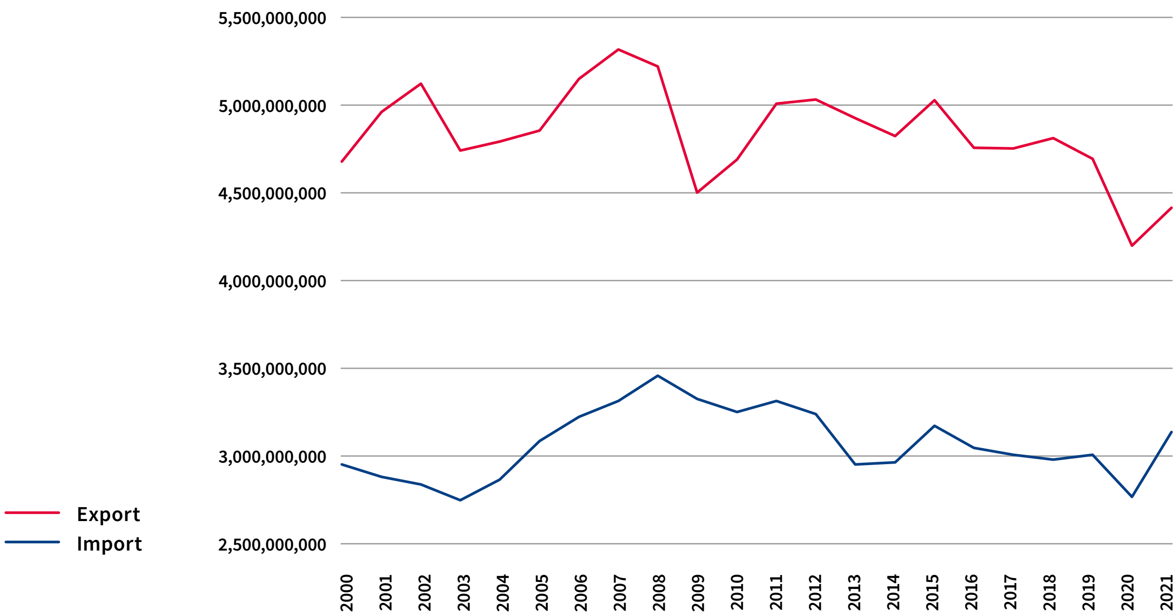
- Considering both intra- and extra-EU trade, the main net exporters of printed products in 2021 were Poland, Germany and the Netherlands.
- With € 1.4 billion, Poland had the largest trade surplus in the EU in 2021. It is mainly due to its exports of books and magazines.
- Germany surplus was € 0.9 billion. Germany is the largest exporter of printed advertising and catalogues.
- With a trade deficit of respectively € 0.43 and € 0.36 billion, France and Ireland were the largest net importers of printed products in 2021.

Share of EU and non-EU trade in exports and imports of printed products, in %, 2021



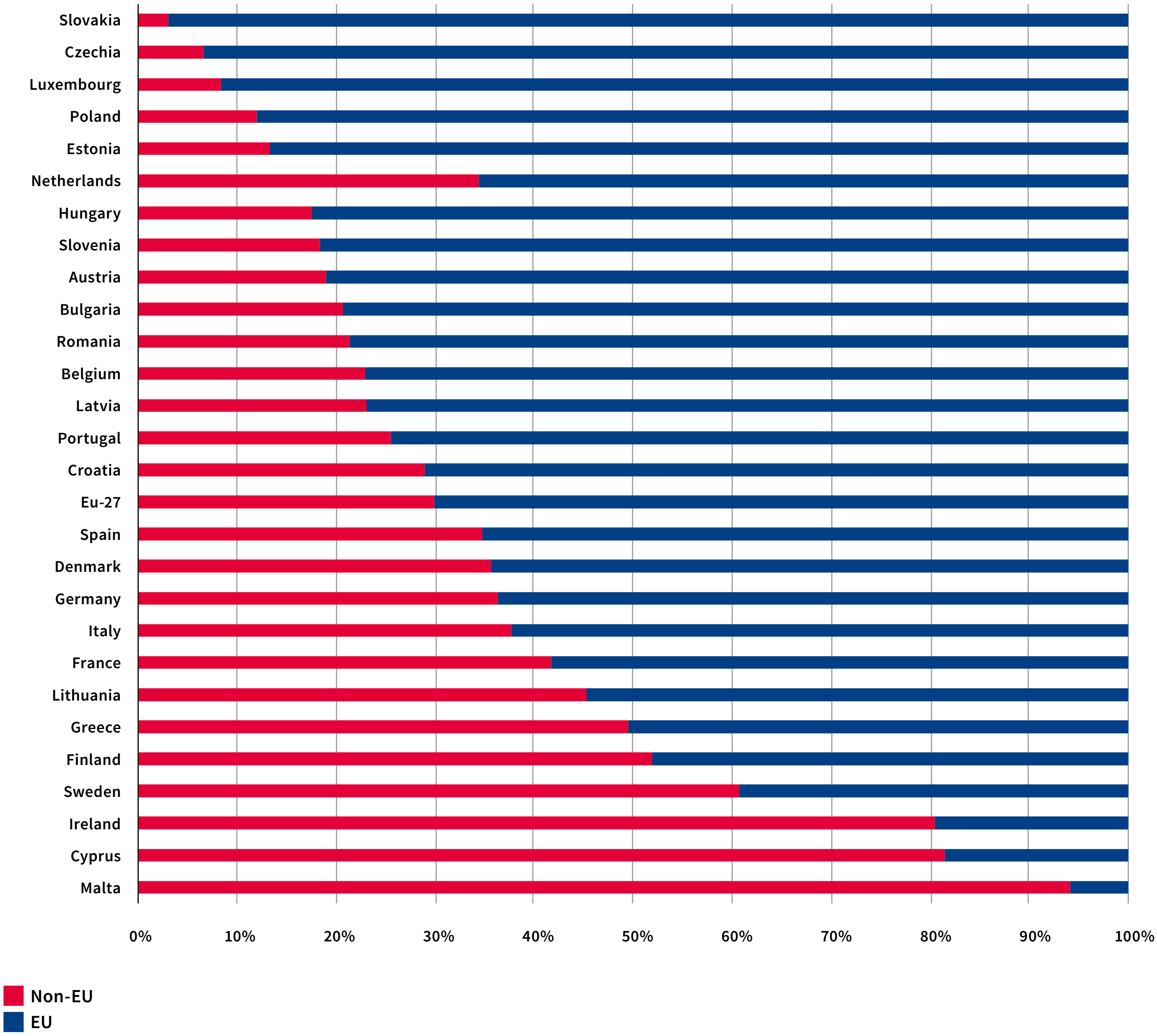
- On average, approximately 34% of the European exports of printed products are sent outside the EU.
- In Slovakia, Czech Republic and Luxembourg, less than 10% of their exports of printed products are shipped outside the EU.
- Malta has the largest share of exports of printed products outside the EU.
- On average, approximately a quarter of the European imports of printed products are from outside the EU.
- With its link to the UK, Ireland becomes the largest importer of printed products from outside the EU (91%).
- The share of non-EU imports of printed products is the lowest in Austria, Luxembourg and Slovekia.

EU trade of printed products to non-EU countries, 2000-2021, in €

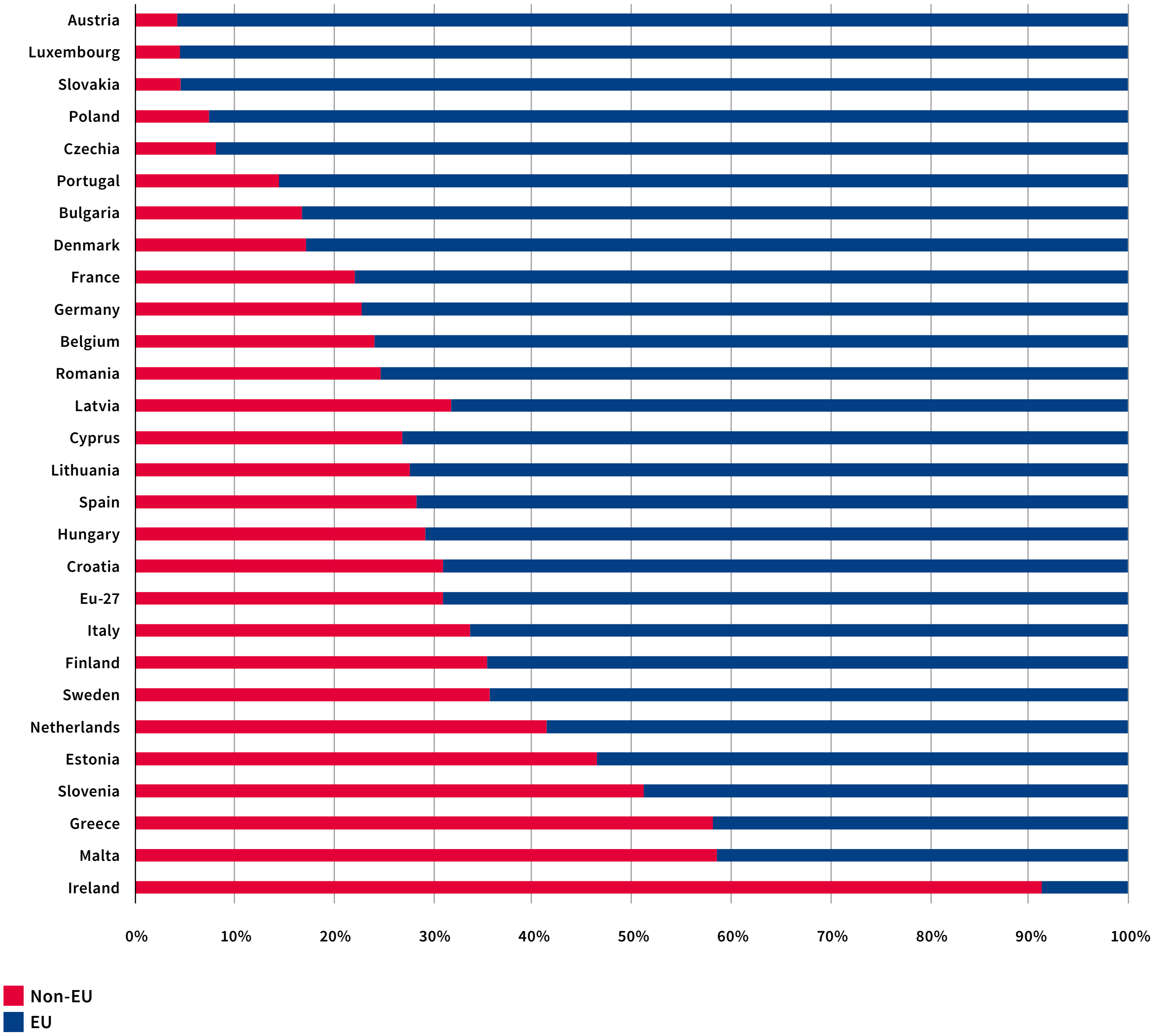


- Although the large majority of its trade is intra-EU, the European Union is a net exporter of printed products to non-EU countries with a trade surplus of € 1.2 billion. This is 10% less than in 2020.
- Due to Brexit, exports of printed products had significantly decreased in 2020.

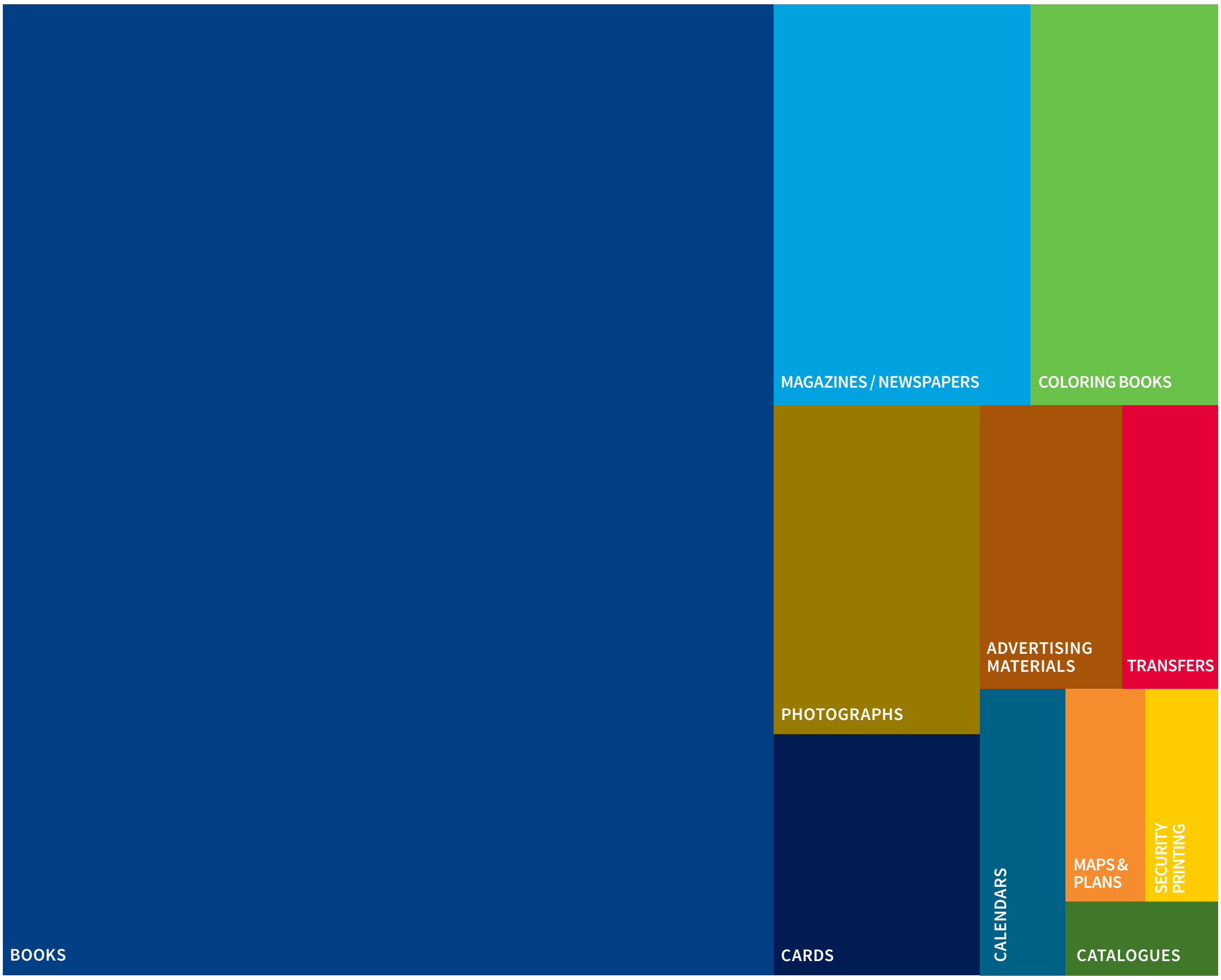
Share of EU and non-EU trade in exports of printed products, in %, 2021



Share of EU and non-EU trade in imports of printed products, in %, 2021



Imported printed products in the EU, 2021

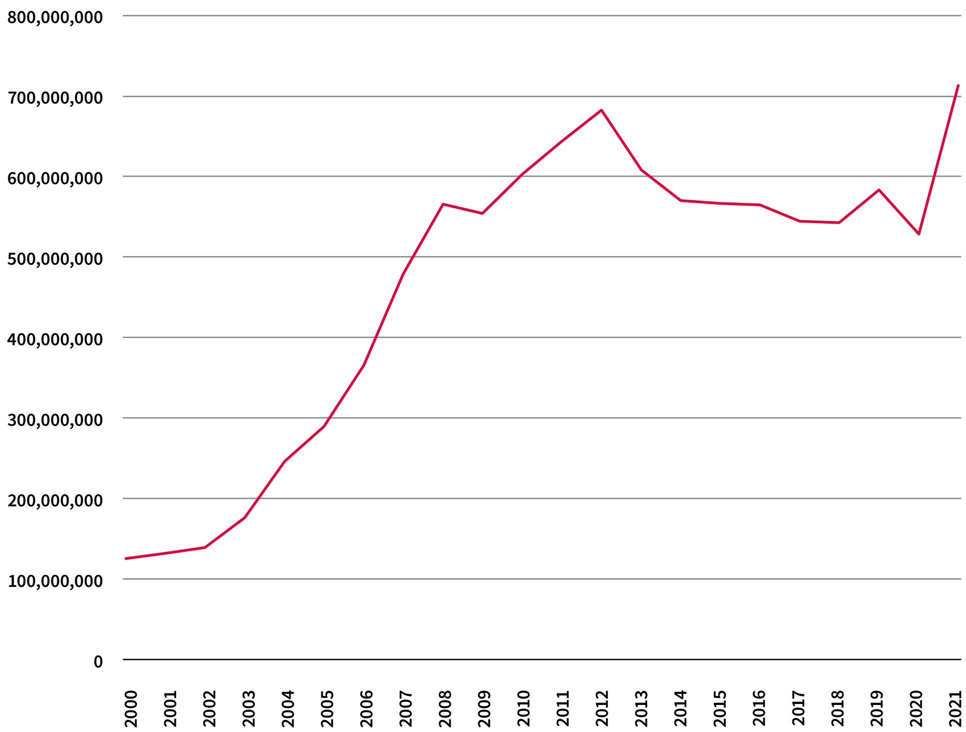


- Books are the most traded printed products.
- After books, magazines and newspapers, colouring books and photographs are the next most imported printed products
- Advertising material, security printing material and newspapers and magazines are the most exported printed products.

Exported printed products from the EU, 2021

1.2.5 Imports from China

Imports from China, 2000-2021, in €



- In 2021, the European Union (EU-27) imported € 712 million worth of printed products from China. This is 35% more than in 2020.
- Chinese imports were relatively steady since 2012. However, compared to 2000, Chinese imports have been multiplied by 6.

Main printed products imported from China to the EU, 2021

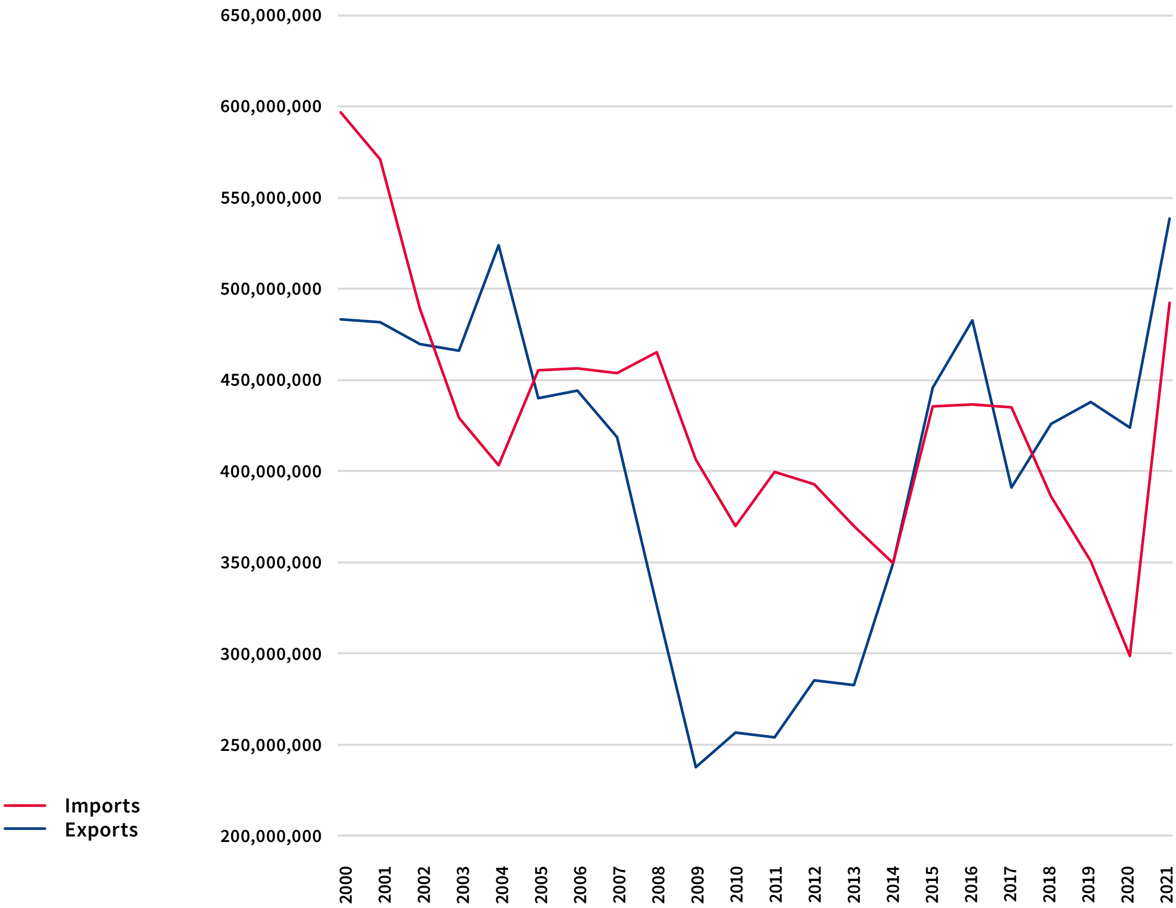
- Books accounted for 41% of the total imported printed products to the EU from China.
- Colouring books (20%) and postcards (11%) were the next most imported printed products from China in value terms.

Main EU importers of printed products from China, 2021

- In 2021, 19% of Chinese imports were directed to Germany, i.e. this corresponds to € 139 million worth of printed products. 18% went to France and 16% to the Netherlands.

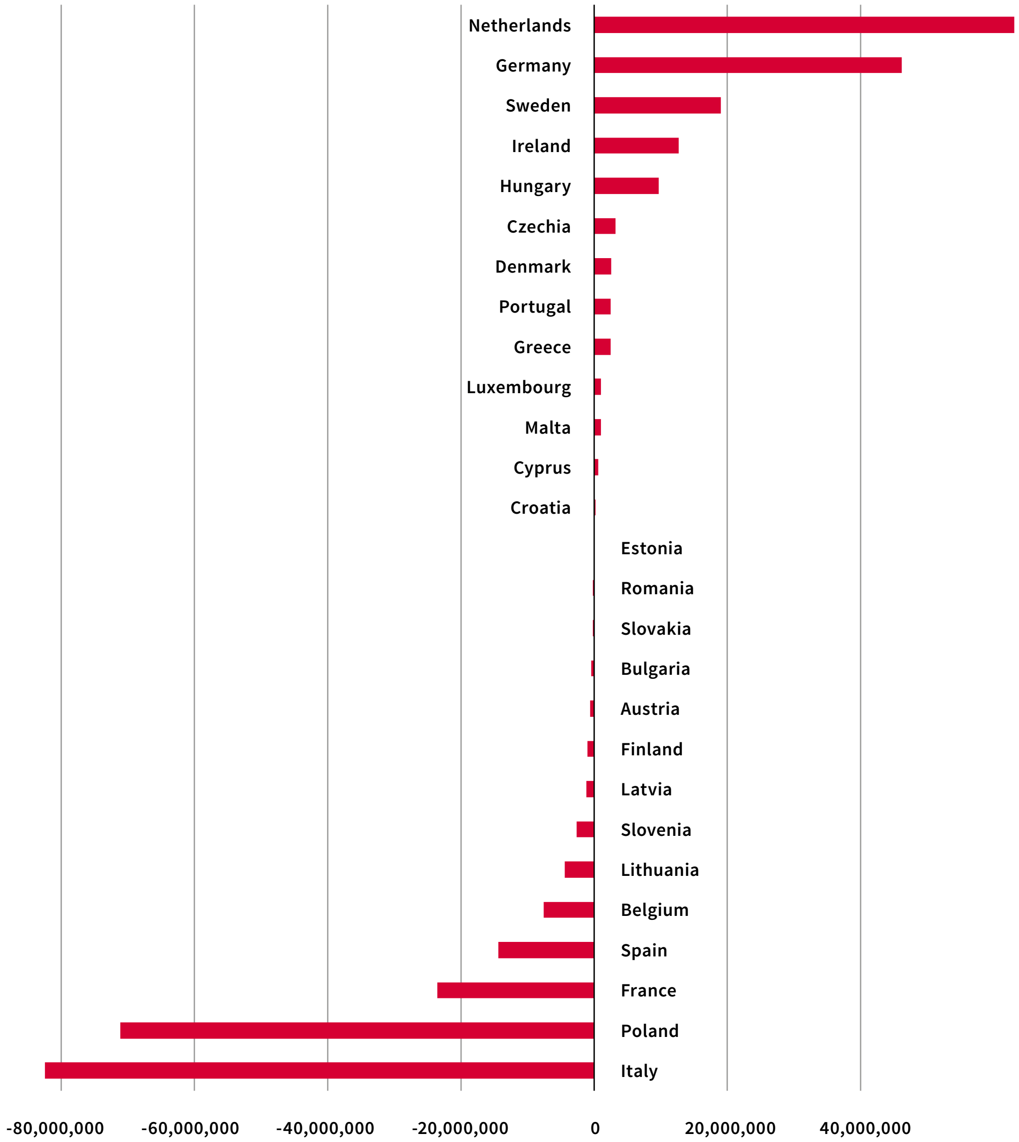
1.2.6 Trade with the US

EU-27 trade of printed products with the US, 2000-2021, in €



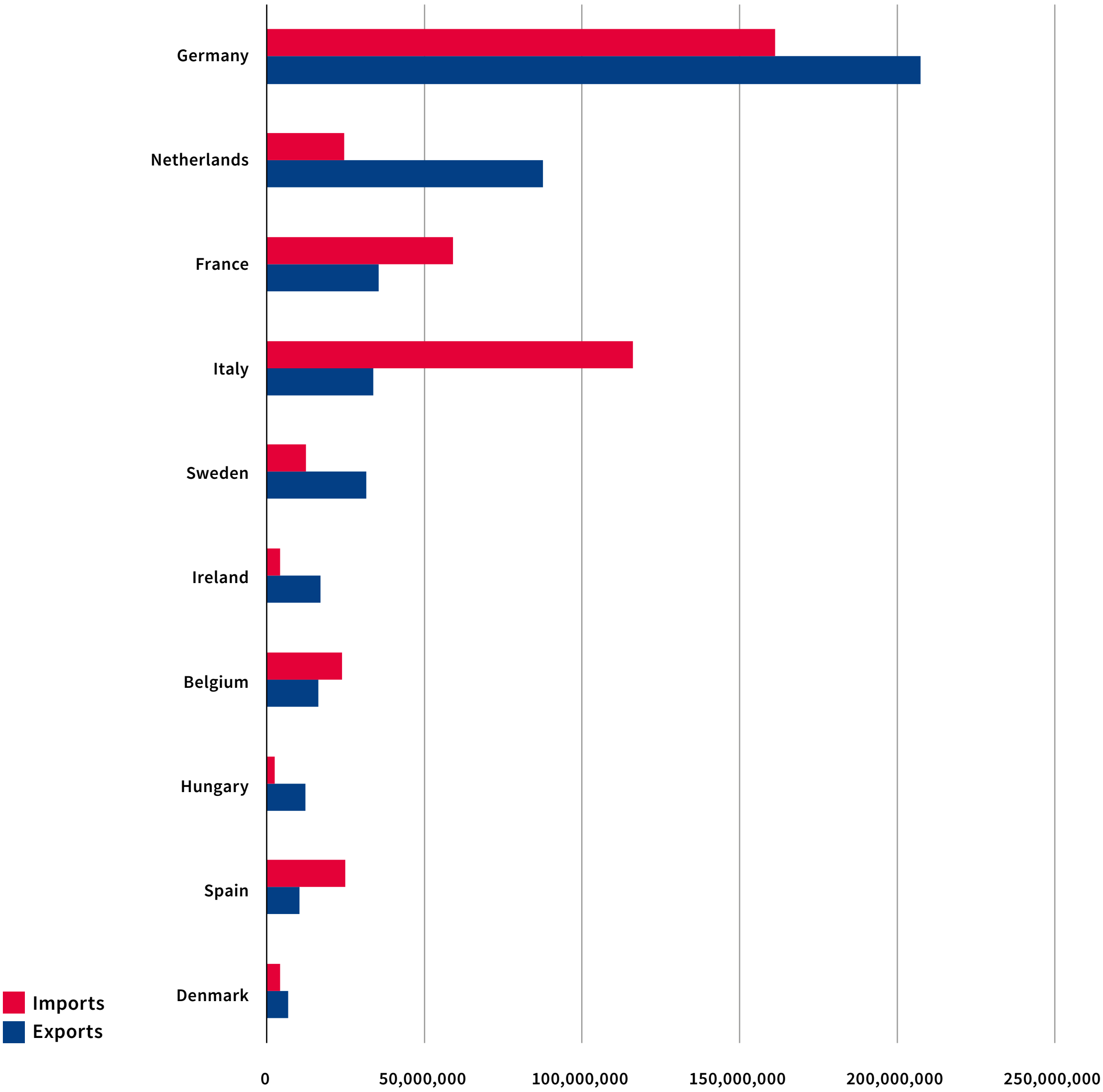
- The EU-27 had a positive trade balance of € 45 million with the US.
- The trade balance is positive since 2018. Between 2004 and 2018, the trade balance was negative.
- Exports of printed products to the US have steadily increased since 2009. Imports from the US were decreasing since 2017. Both imports and exports significantly increased in 2021.

Trade balances of EU countries with the US, 2021, in €



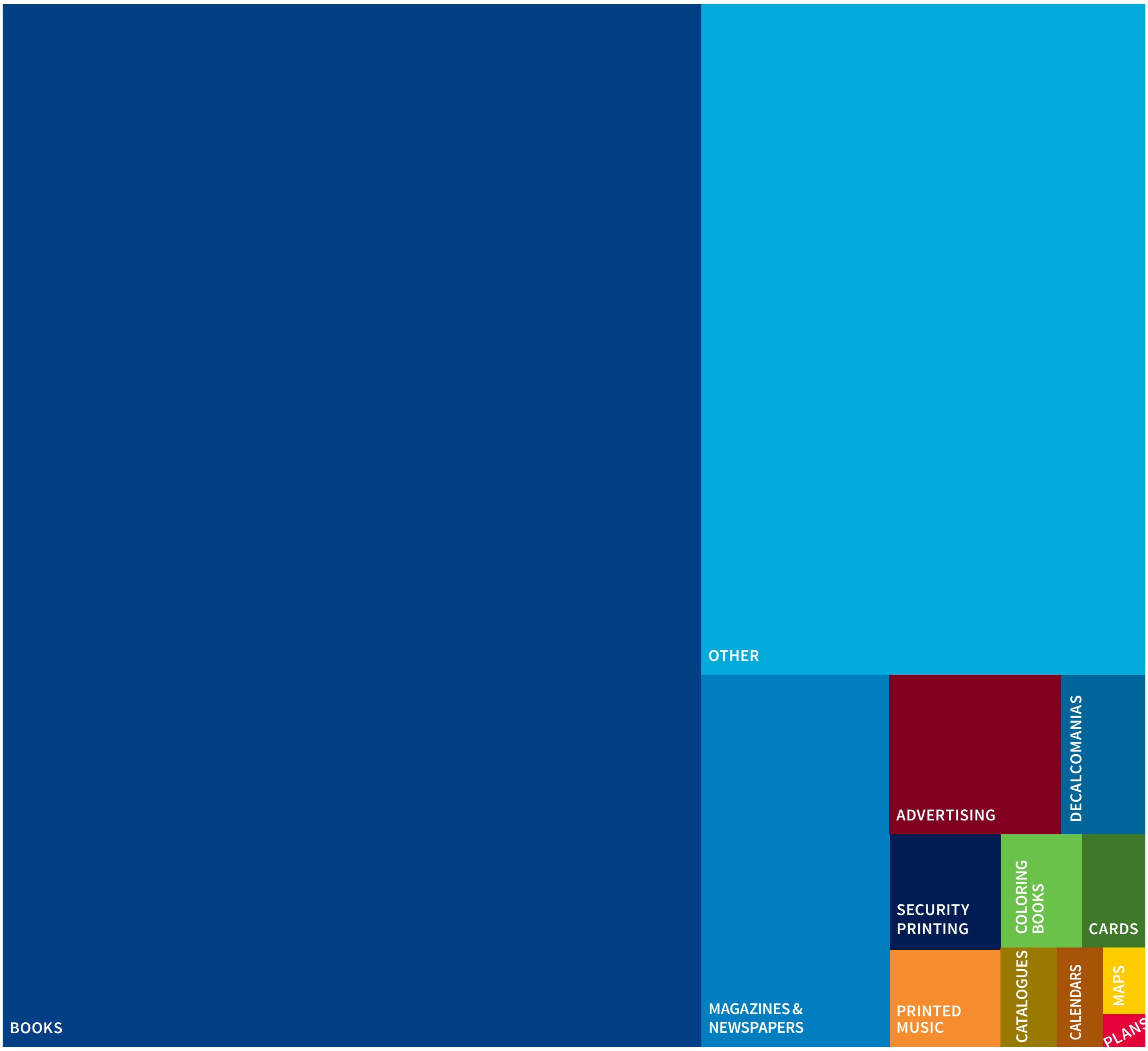
- The Netherlands and Germany were the main net exporters to the US market in 2021.
- In 2021, Italy and Poland were the main net importers of printed products from the US.

Main trade partners with the US, 2021, in €



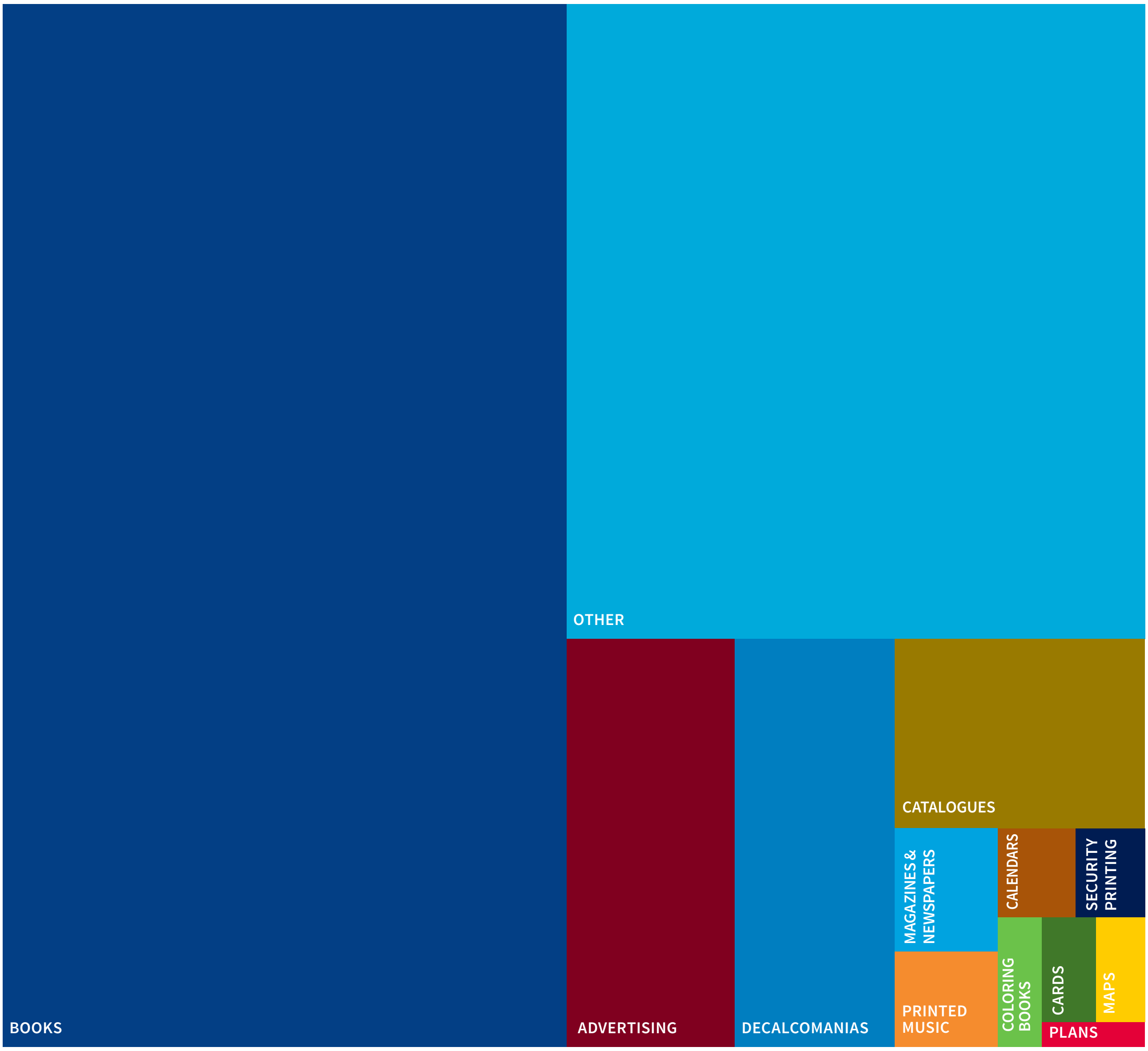
- In value terms, Germany is the main trade partner to the US for printed products.
- Italy, France and the Netherlands are the next main trade partners to the US.

Imported printed products from the US, 2021



- 61% of imported printed products from the US are books.
- Magazines and newspapers represent 6% of the total imported printed products from the US.

Exported printed products to the US, 2021



- 49% of exported printed products to the US are books.
- Advertising materials and decalcomanias represent respectively a share of 6% and 5.5% of the total exported printed products to the US.

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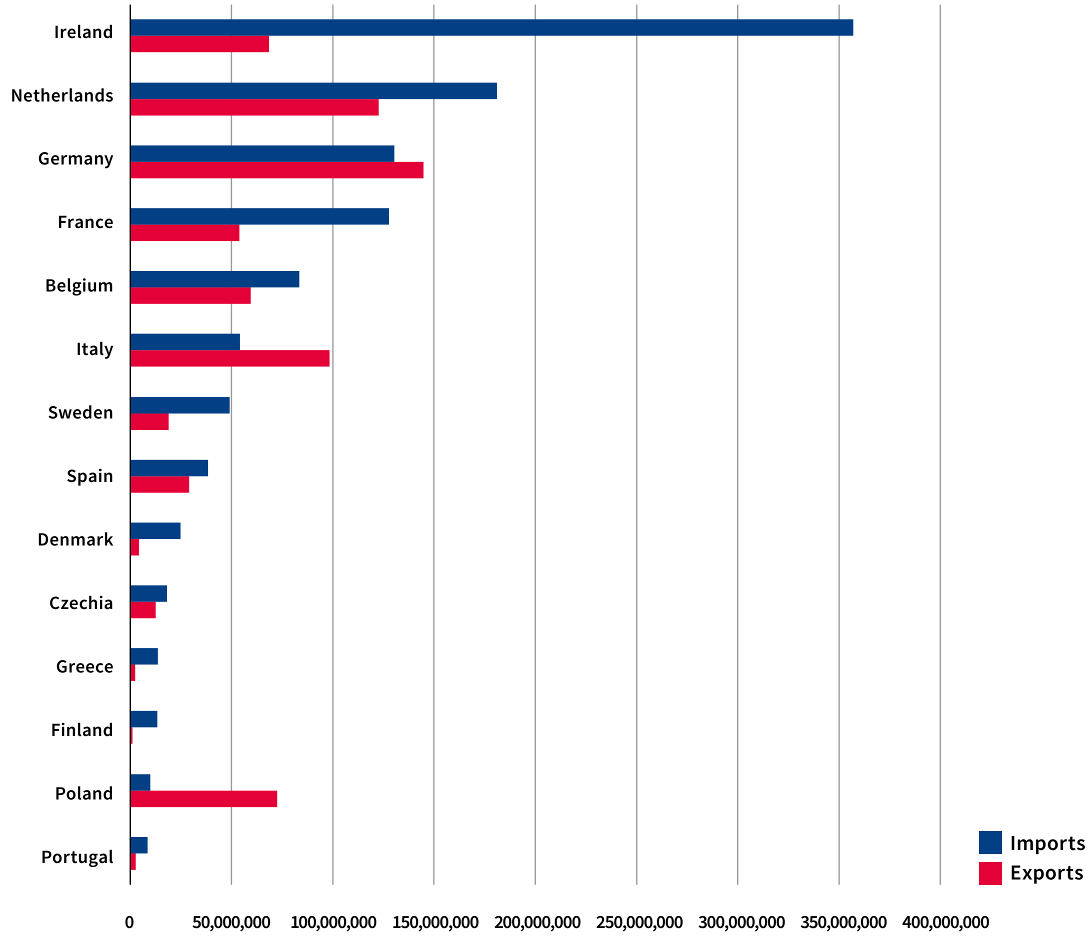
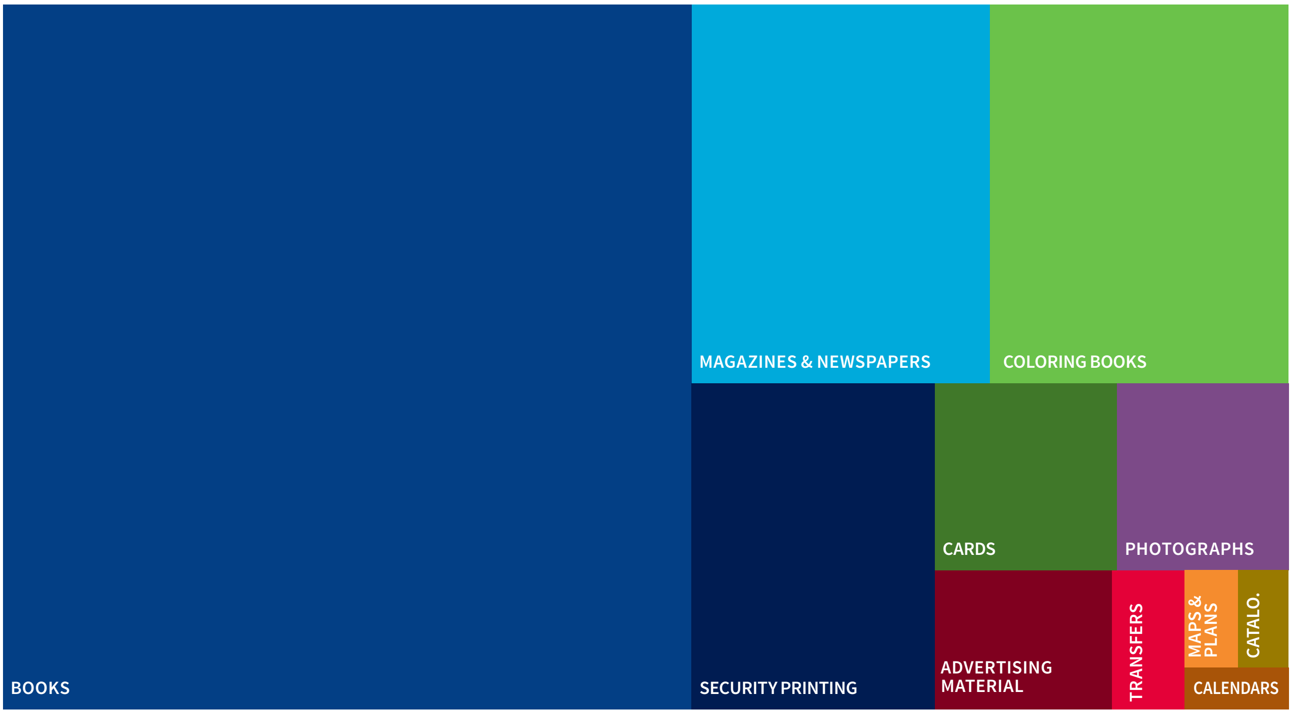
1.2.7 Trade with the UK

Trade of printed products with the UK, EU-27, 2021

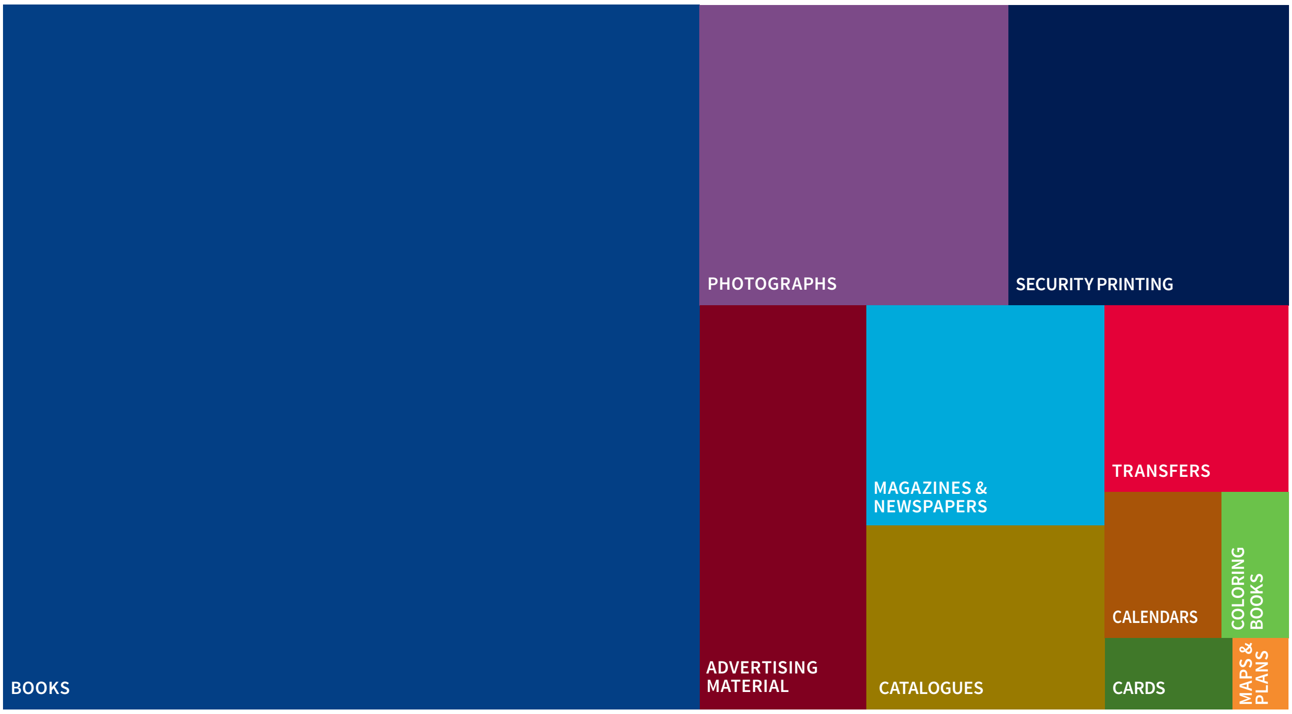


- The EU-27 has a negative trade balance of € 390 million with the UK. Ireland is the main net importer of printed products from the UK (€ 288million).
- Most EU-27 countries have a negative trade balance with the UK with the exception of Poland (€ +62 million), Italy (€ +44 million) and Germany (€ +14 million).
- Books are the main printed products imported from the UK and exported to the UK.

Main printed products imported from the UK, EU-27, 2021

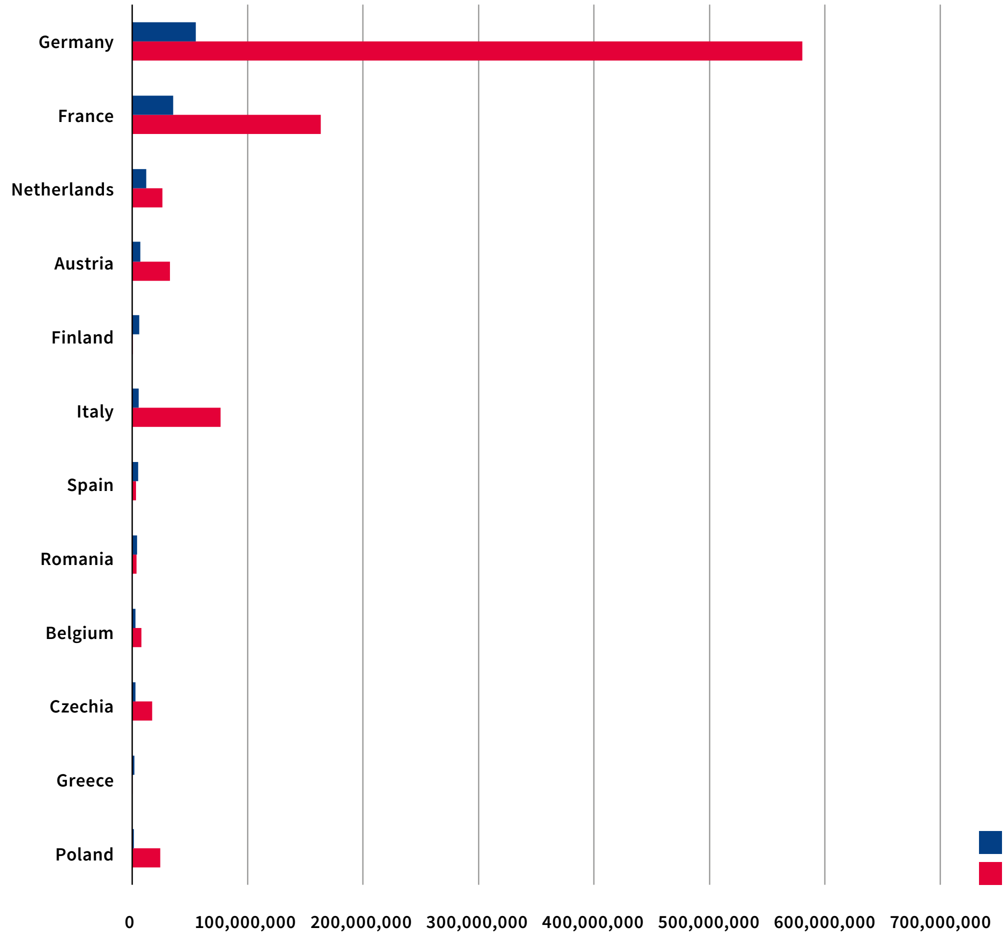


Main printed products exported to the UK, EU-27, 2021



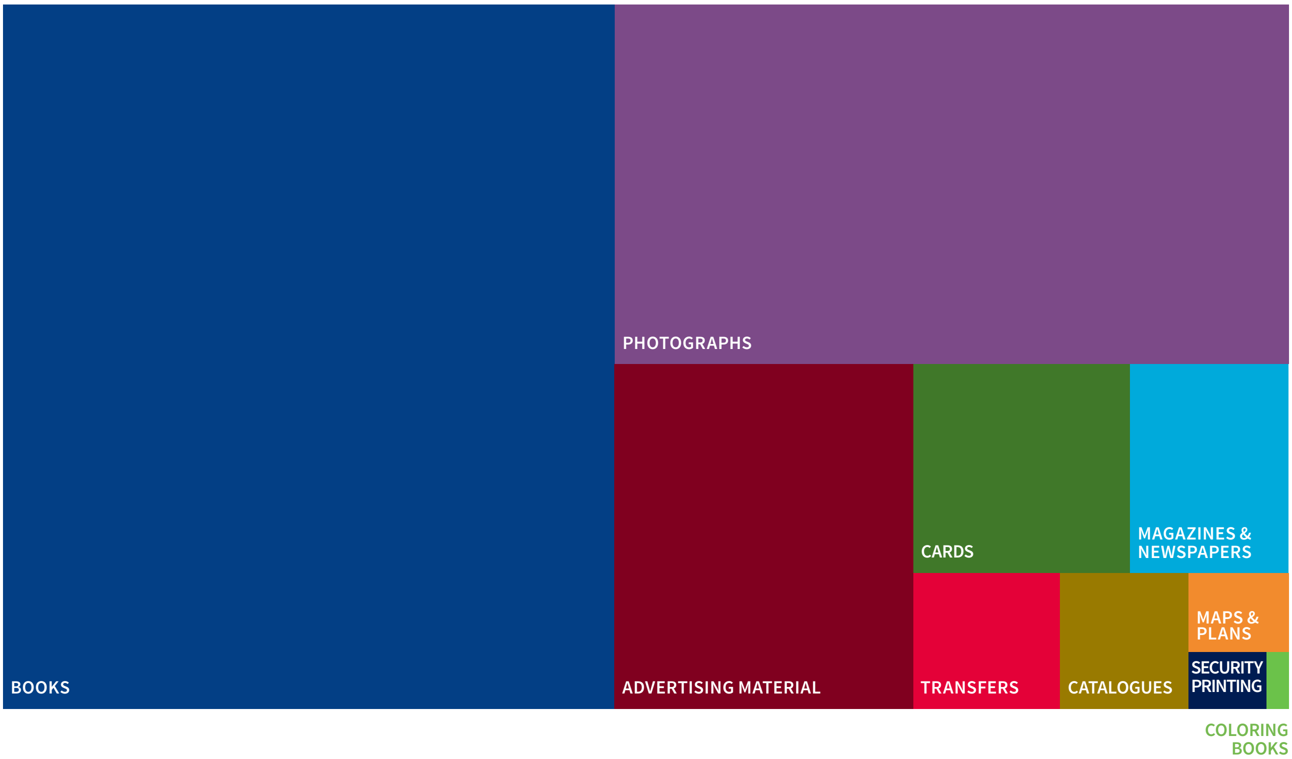
1.2.8 Trade with Switzerland

Trade of printed products with Switzerland, EU-27, 2021

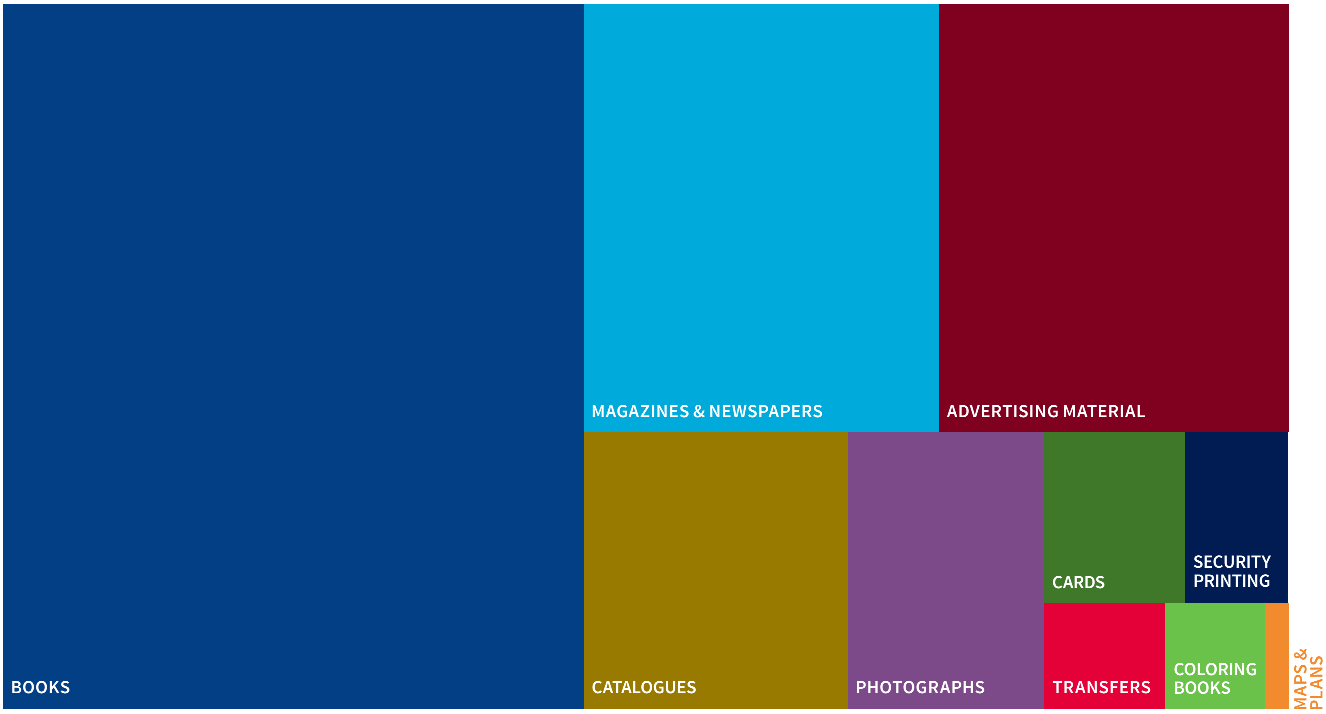


- The EU-27 has a positive trade balance of € 809 million with Switzerland. Germany is the main trade partner of Switzerland and has a positive trade balance of € 525 million.
- Most EU-27 countries have a positive trade balance with Switzerland.
- Books and photographs are the main printed products imported from Switzerland. Books, newspapers and magazines and advertising materials are the main printed products exported to Switzerland.

Main printed products imported from Switzerland, EU-27, 2021

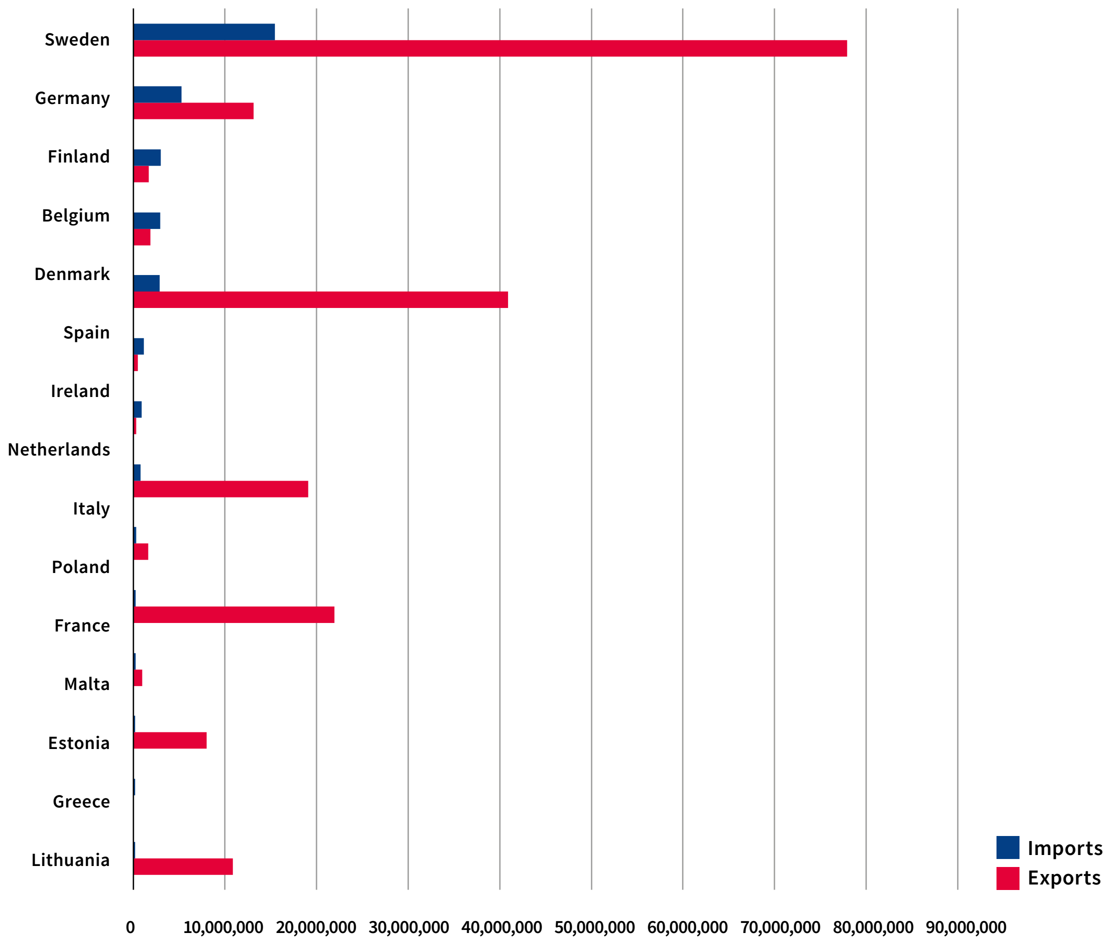


Main printed products exported to the UK, EU-27, 2021



1.2.9 Trade with Norway

Trade of printed products with Norway, EU-27, 2021

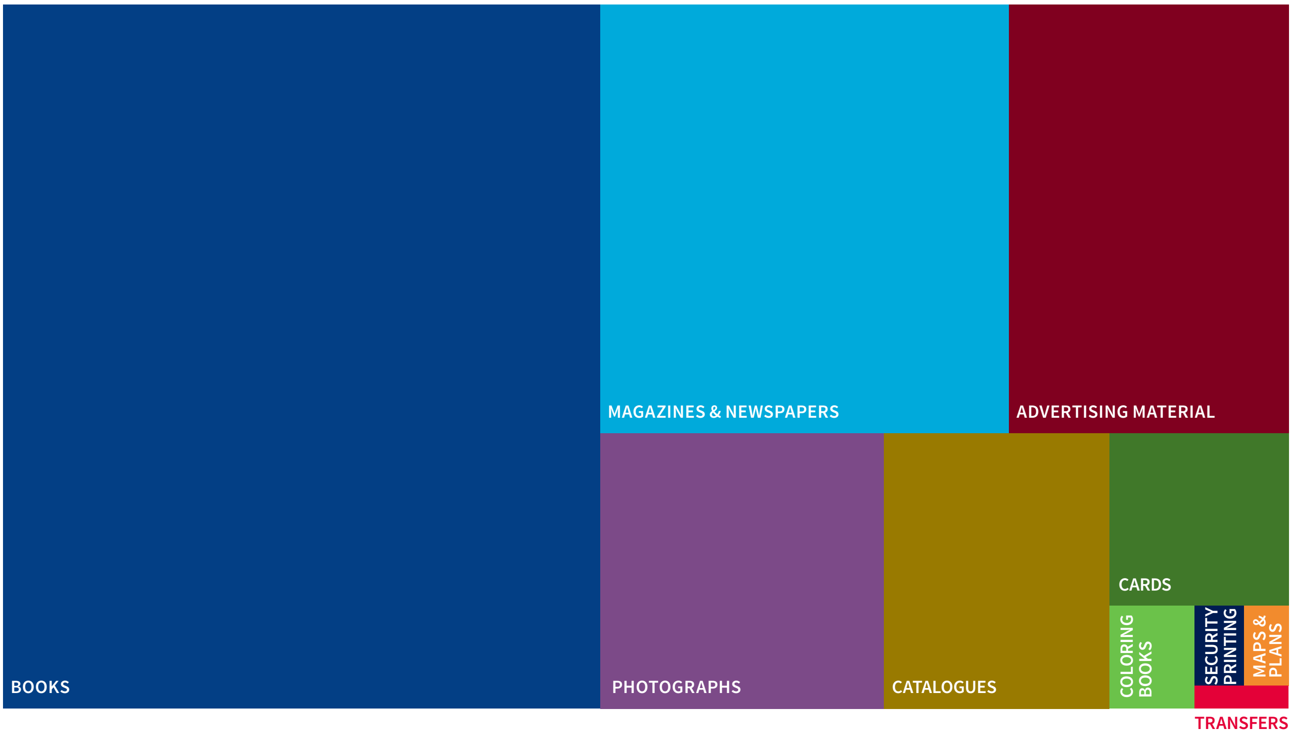


- The EU-27 has a positive trade balance of € 190 million with Norway. Sweden and Denmark are the main trade partners of Norway; they are net exporters of printed products with respectively € 62 million and € 38 million.

- Books are the main printed products imported from and exported to Norway.

Main printed products imported from Norway, EU-27, 2021

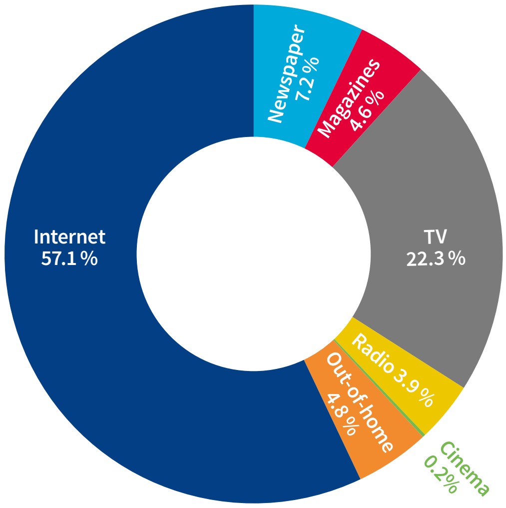
Main printed products exported to Norway, EU-27, 2021



1. HISTORICAL PRINT MARKET REVIEW

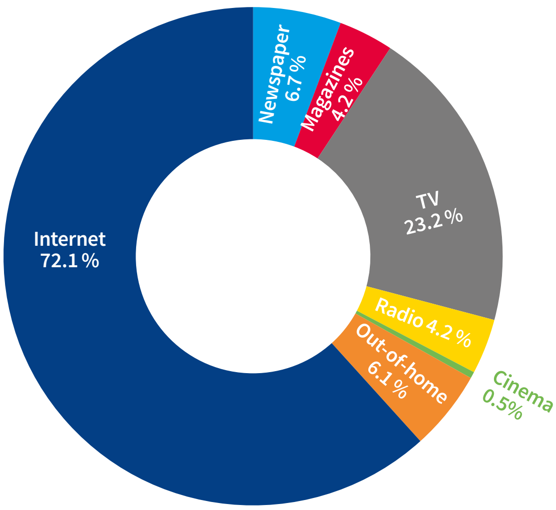
1.3.1 Advertising

Global adspend by medium, Western Europe, 2021



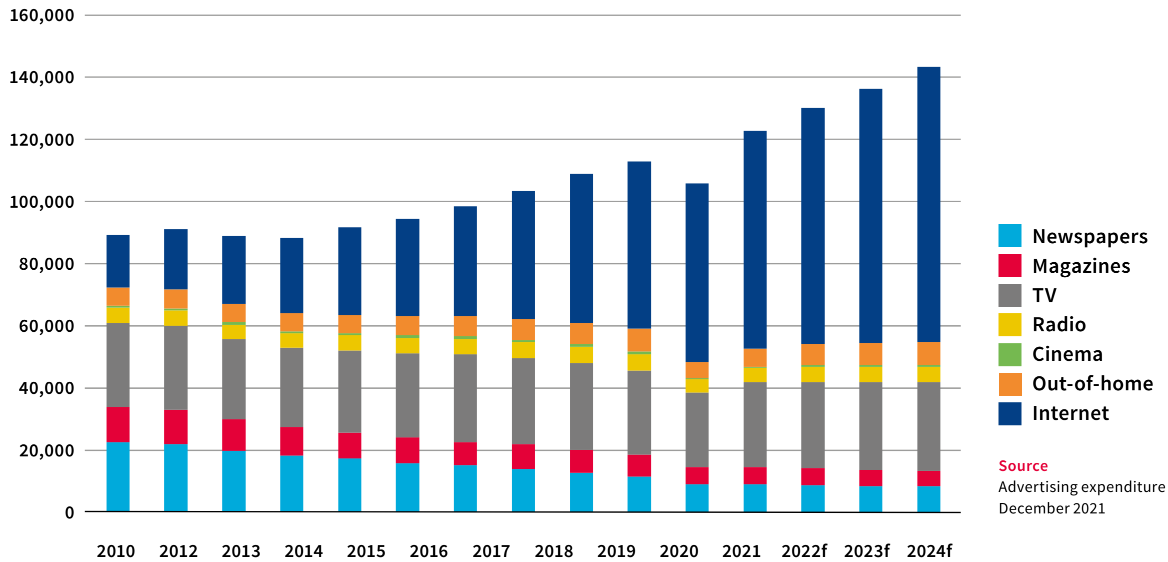
- In 2021, the share of printed advertising (newspapers, magazines and outdoor) in Western Europe represented 16.6% while internet advertising represented 57.1%.
- In 2010, printed advertising represented 44,2% while internet advertising represented 19%.

Global adspend by medium, Western Europe, 2024f



- The share of printed advertising (newspapers, magazines and outdoor) is expected to remain stable at 17% of the total adspend, while internet advertising is expected to further increase to reach 72.1% in 2024.

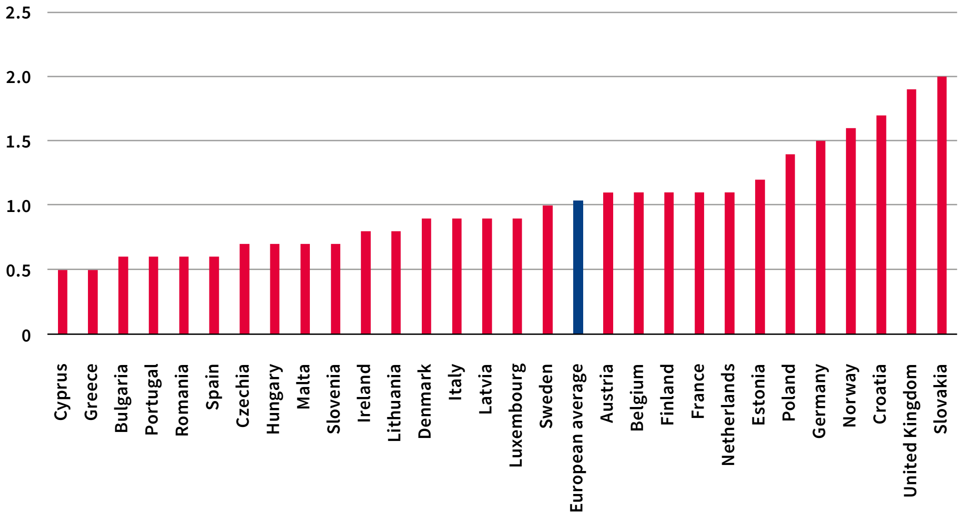
Western Europe adspend by medium, in $, 2010-2024f



Source
Advertising expenditure forecasts, Zenith, December 2021

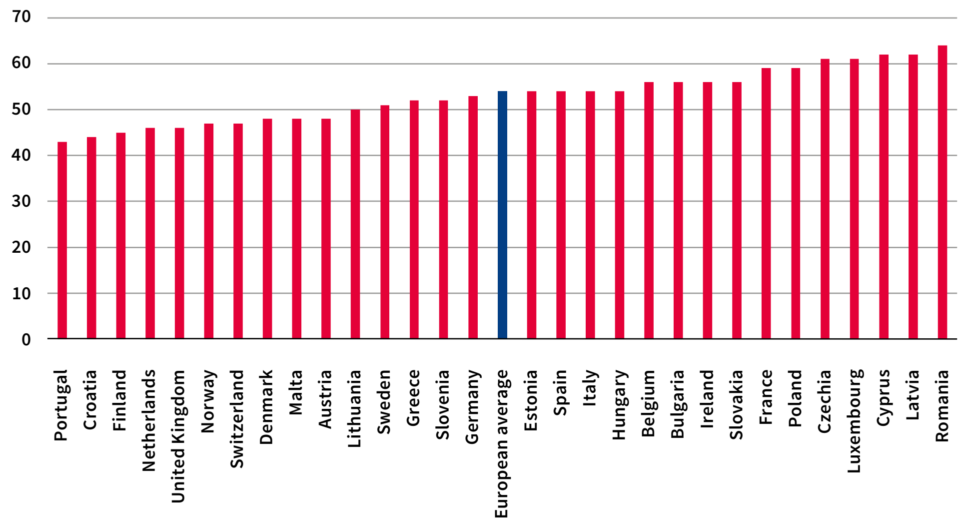
1.3.2 Socio-economic data

Share of newspapers, books and stationery in total household expenditure, in % of total expenditure, 2020



- In Europe, on average 1% of the total household expenditure was dedicated to newspapers, books and stationery in 2020.
- Slovakia registered the largest share, with more than 2%, in Europe.

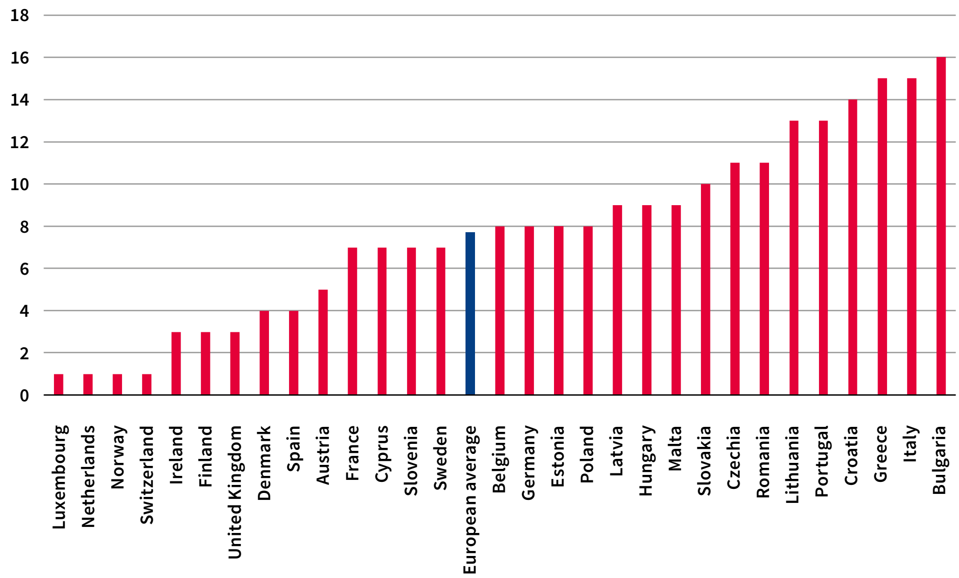
Individuals who have only basic, low or no digital skills, 2020



Source
European Commission, April 2021

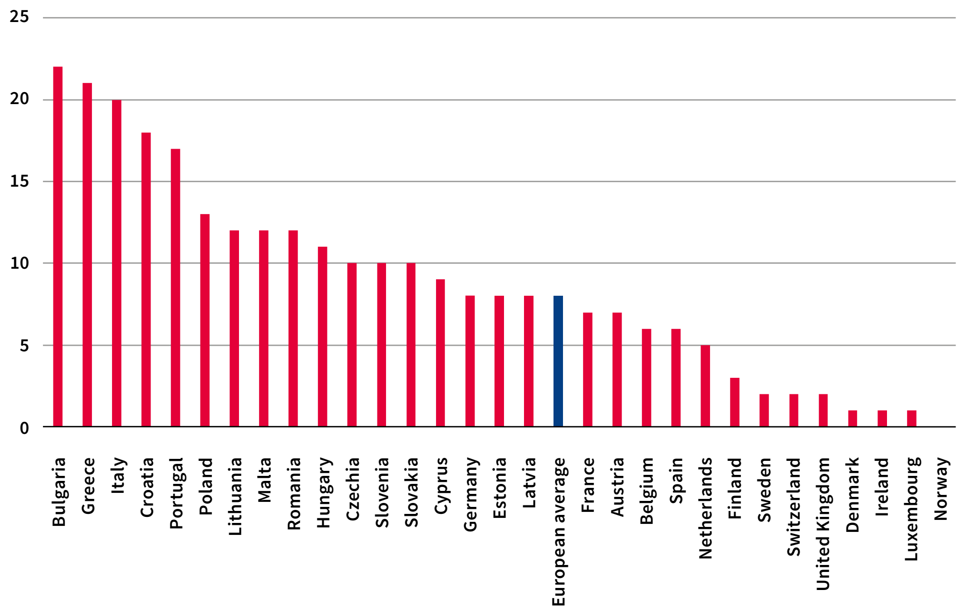
- On average, 54% of Europeans have only basic, low or no digital skills.
- In Romania, this is 64% of the population whereas Portugal, this is 43% of the population.

Households who have not an internet access, in %, 2021



- The share of households who do not have access to internet in Europe is on average 8%.
- In Bulgaria, the share reaches 16%.

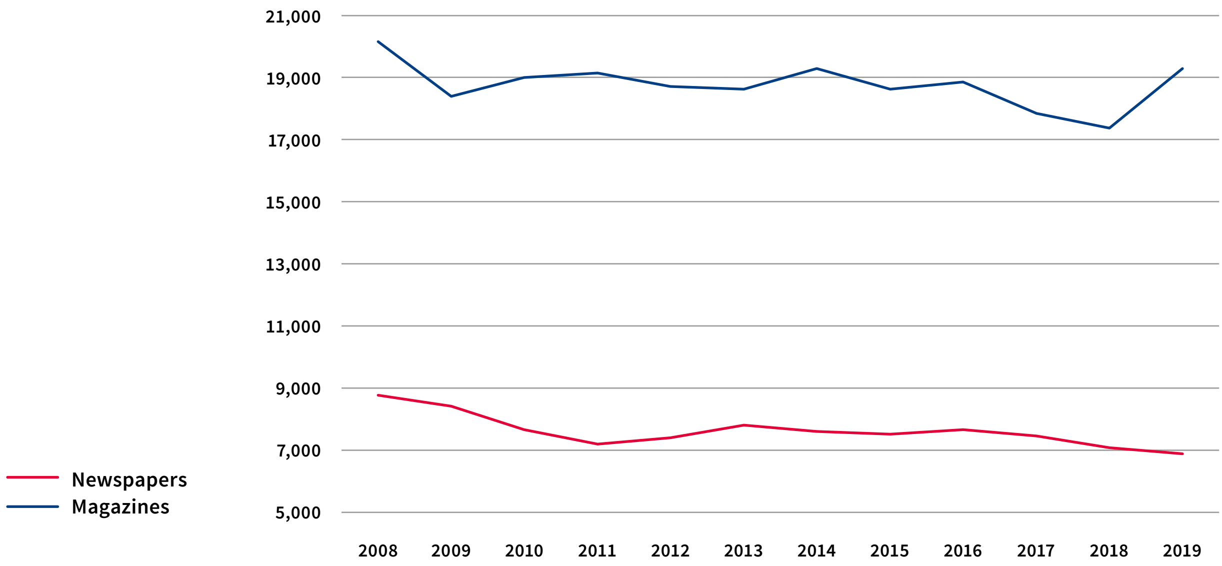
Individuals who used the internet more than a year ago or never used it, in %, 2021



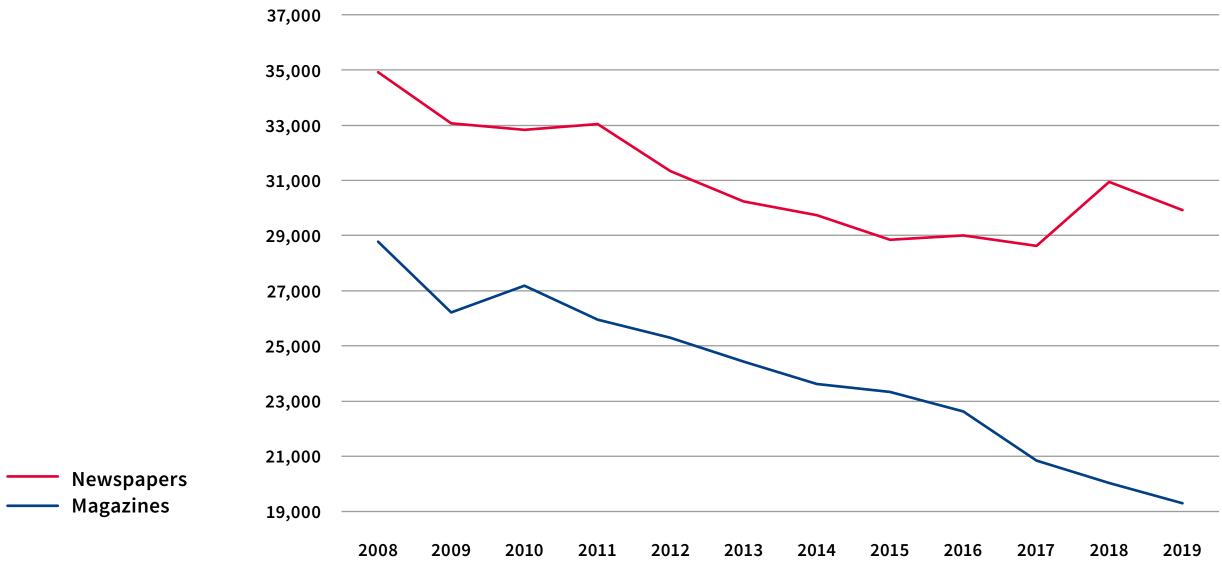
- On average, 8% of individuals have either never used the internet or used it more than one year ago.
- In Bulgaria, the share reaches 22%.

1.3.3 Press market

Number of publishing companies, EU27+Norway, 2008-2019

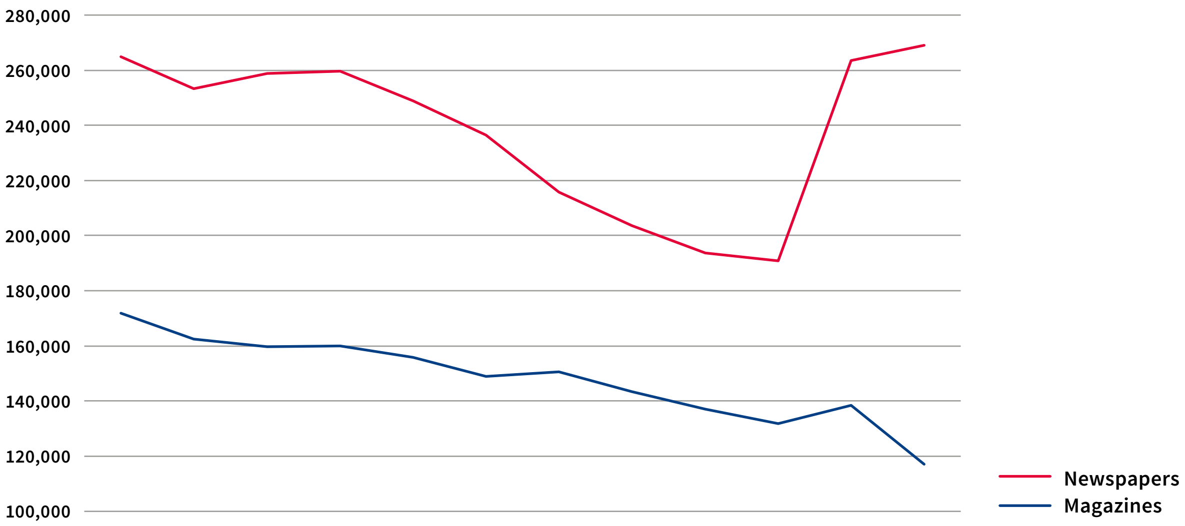


Turnover of the publishing industry, EU27+Norway+UK, 2008-2019, in million €



Source
Eurostat

Number of employees in the publishing industry, EU27+Norway, 2008-2019 (break in time series – Germany, 2017)

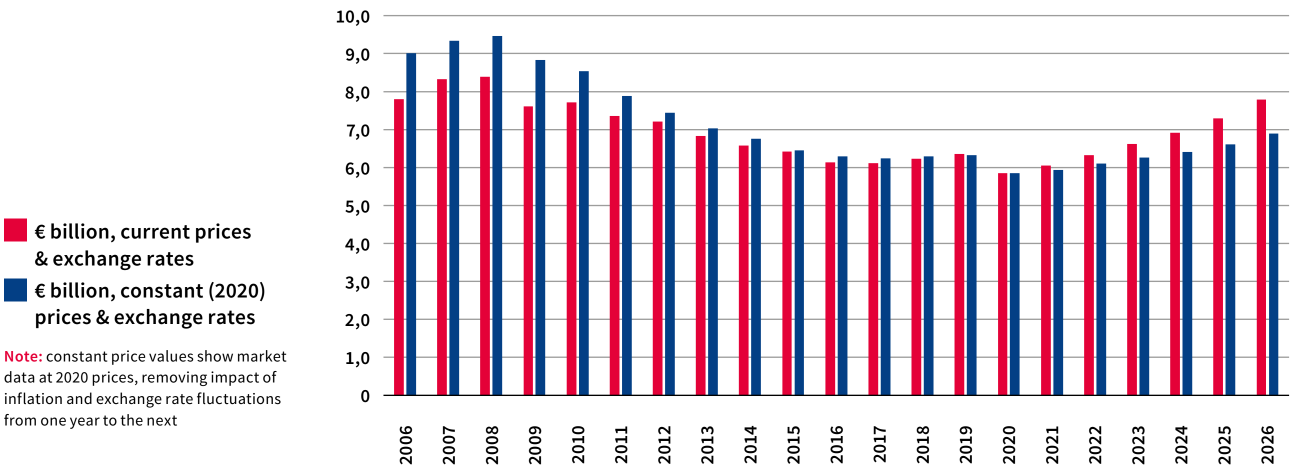


- In the European newspaper industry in 2018, there were approximately 6,900 companies employing 269,000 employees and generating a turnover of € 30 billion.

- In magazine publishing, there were 19,000 companies active in 2018, with 117,000 employees and a turnover reaching € 19 billion.

1.3.4 Book market

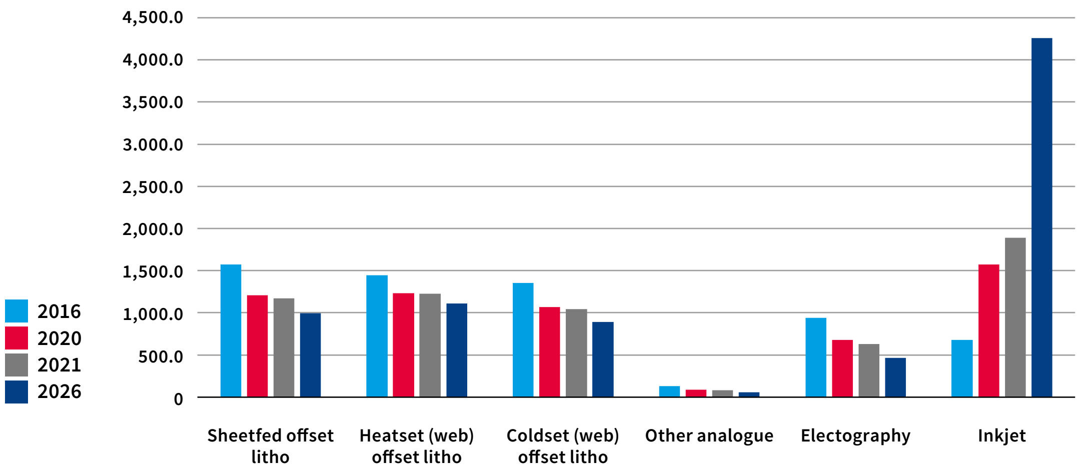
European Book Printing Output, 2006-2026f



Note: constant price values show market data at 2020 prices, removing impact of inflation and exchange rate fluctuations from one year to the next

- COVID-19 caused the most dramatic change to the market since the crisis in 2008. 2019 the total European market was valued at €6.32 billion, which saw a decline of 8% in just one year in 2020.
- Through the 2021-2026 period, book printing revenues are set to increase by 29% in current terms in Western Europe.

European Book Printing Output by Process, 2016-2026f (€ million, current prices & exchange rates)

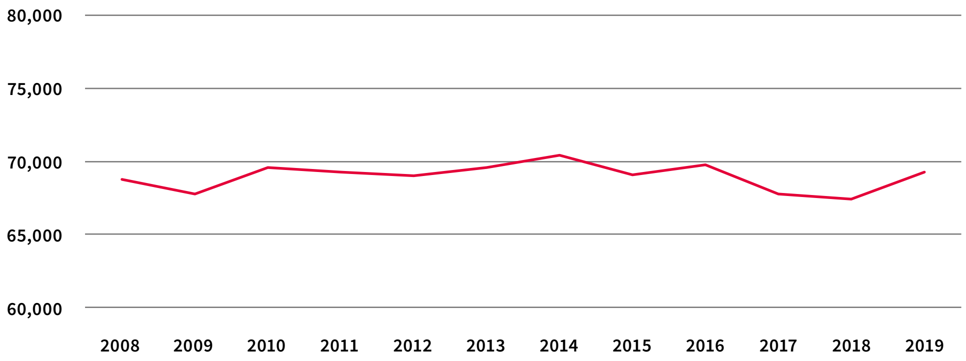


- The most common book printing process employed by book printing today is offset lithography; this includes three main variations, sheetfed, heatset (web), and coldest (web). Digital print is becoming more popular with a focused trend towards Inkjet. Other processes include flexo, gravure, and letterpress.
- The printing output of all three lithography processes is still greater than digital in terms of revenue. Yet over the next five years, Inkjet is projected to grow by 125% between 2021 and 2026, which will see it overtake the combined analogue print processes. However, in terms of volume of printed books, analogue processes will remain collectively greater than that of inkjet.

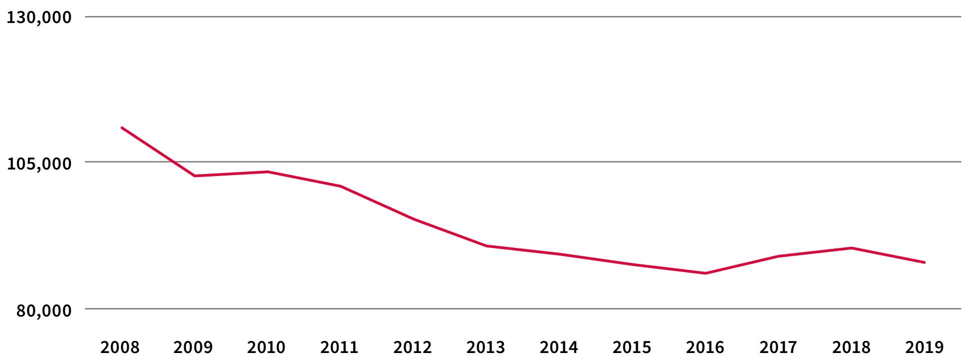
Source
Smithers
Abstract from Intergraf Book Market Report, 2021

1.3.5 Publishing market

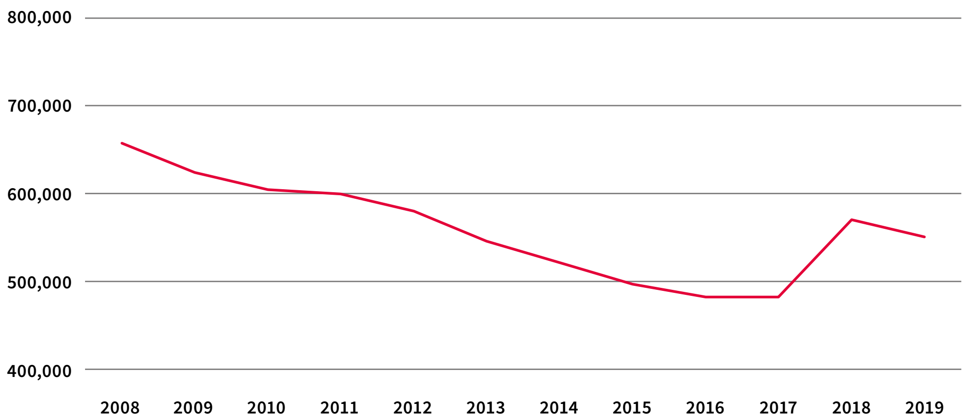
Number of companies in the publishing sector, Europe (EU-27+NO), 2008-2019



Turnover in the publishing sector, Europe (EU-27, NO), 2008-2019



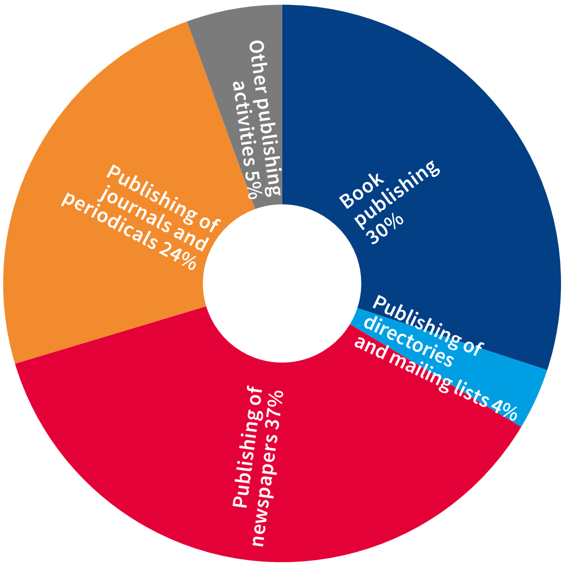
Number of employees in the publishing sector, Europe (EU-27+NO), 2008-2019



- The turnover of the European publishing industry (EU27 +NO) reached € 88 billion in 2019, this is 19% less than in 2009.
- In 2019, the publishing industry was composed of approximately 69,000 companies and 552,000 employees.

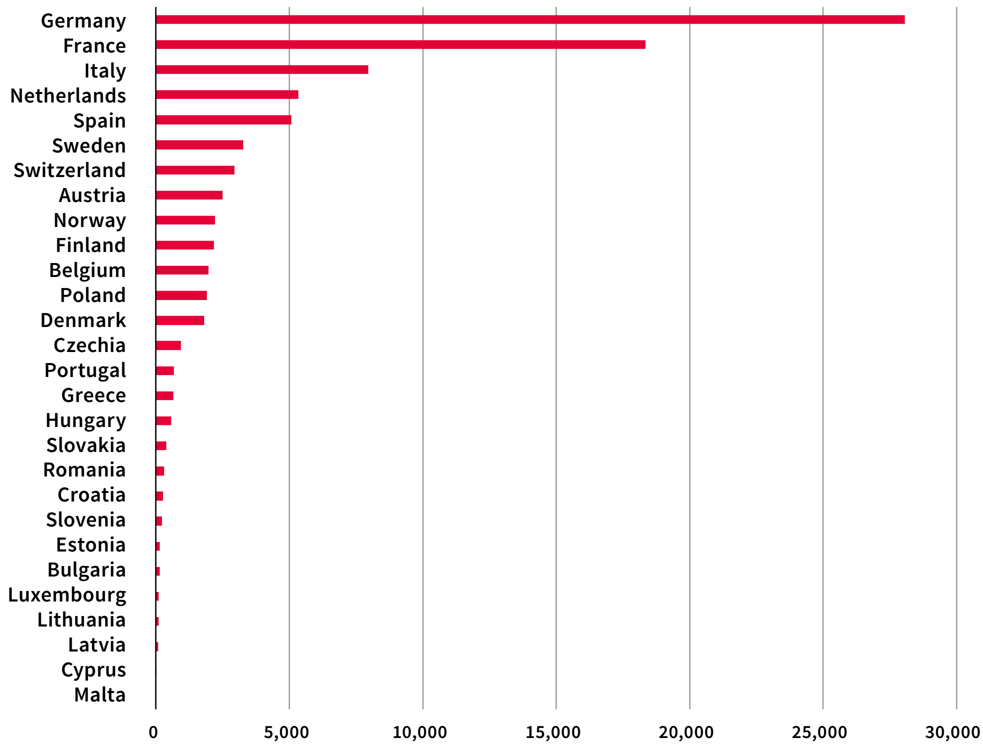
Sources
Eurostat
Book publishing (NACE 58.11) includes publishing in print, electronic (CD, electronic displays and so on) or audio form or on the internet.
The publishing of directories and mailing lists (NACE 58.12) includes the publishing of lists of facts/information that are protected in their form, but not in their content.
The publishing of newspapers (NACE 58.13) includes the activities of publishing newspapers, including advertising newspapers, appearing at least four times a week.
The publishing of journals and periodicals (NACE 58.14) includes the activities of publishing periodicals and other journals, appearing less than four times a week.
Directories and mailing lists, newspapers, journals and periodicals can be published in print or electronic form, including on the internet.
Other publishing activities (NACE 58.19) include publishing (including online) of catalogues, photos, engravings and postcards, greeting cards, forms, posters, reproduction of works of art, advertising material and other printed matter, online publishing of statistics and other information.

Distribution of turnover per publishing sector, 2019



- Over one third of the European publishing sector's turnover is generated by newspapers, another by a quarter by books and a further quarter by magazines.

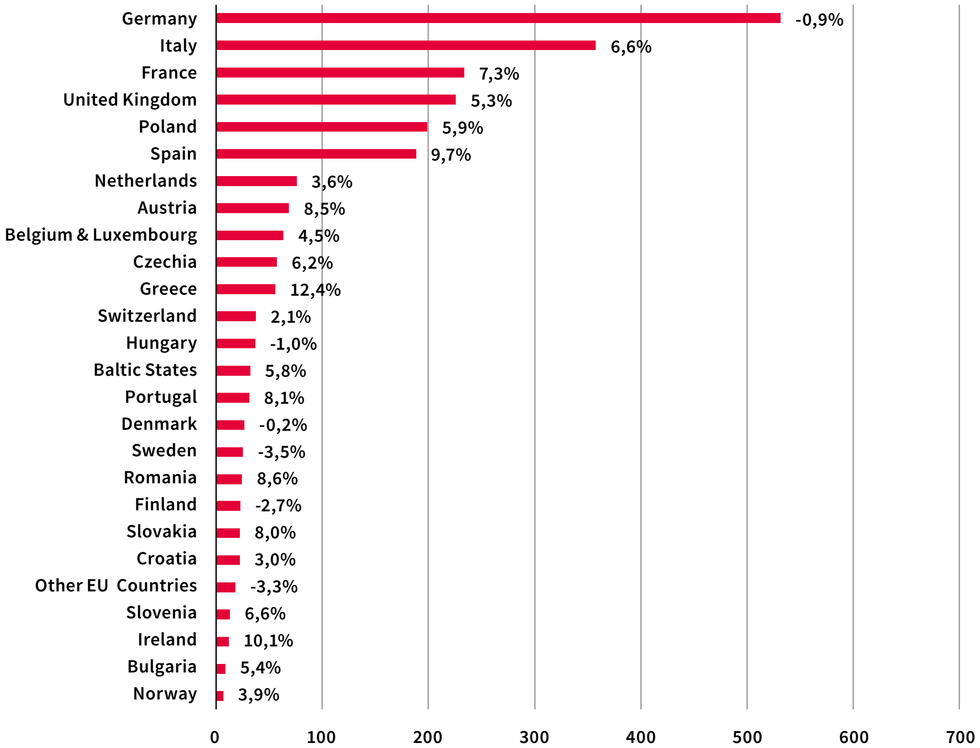
Turnover of the publishing industry per country, in million €, 2019



- Germany was the largest contributor to the turnover of the European publishing sector in 2019 with more than € 28 billion.

1.3.6 Ink market

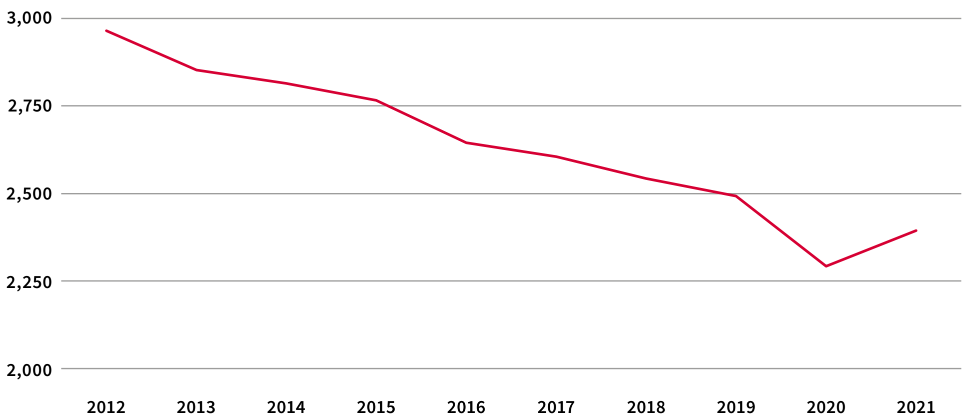
Printing inks sales value by country, 2021, in million € and comparison with previous year 2020



- Germany was the largest seller of printing inks in Europe with a total sales value of € 532 million in 2021. It is 0.9% less than in 2020 and 35% less than in 2012.

- Italy is the second largest seller of printing inks with a sales value of € 357 million in 2020.

Sales value of printing inks, Europe+Switzerland+Norway, 2012-2021, in million €



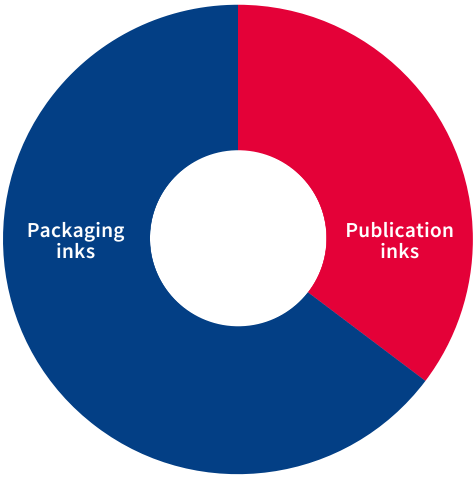
- In Europe, the sales value of printing inks reached € 2.4 billion in 2021. This is 8% less than in 2020 and 19% less than in 2012.

Sources
Eurostat

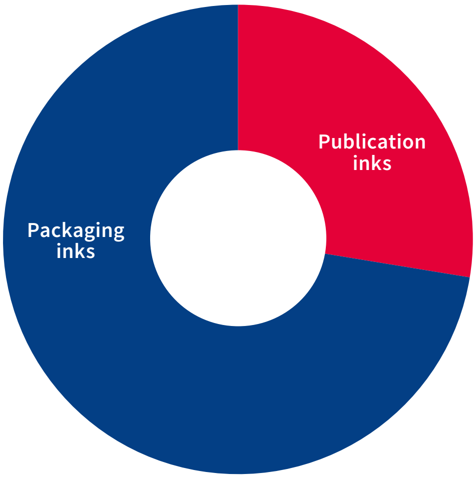
EuPIA (European Printing Ink Association)
EuPIA data are provided for the following global ink categories:
> Publication inks: they comprise web offset inks (coldset and heatset), sheetfed offset inks, publication gravure inks and related overprint varnishes.
> Packaging inks: they comprise flexographic inks, specialty gravure inks, energy curing inks and related varnishes.
It is estimated that the data represent overall more than 90% of the total European market.

Note
: = data not available

Sales volume, in tonnes, 2021

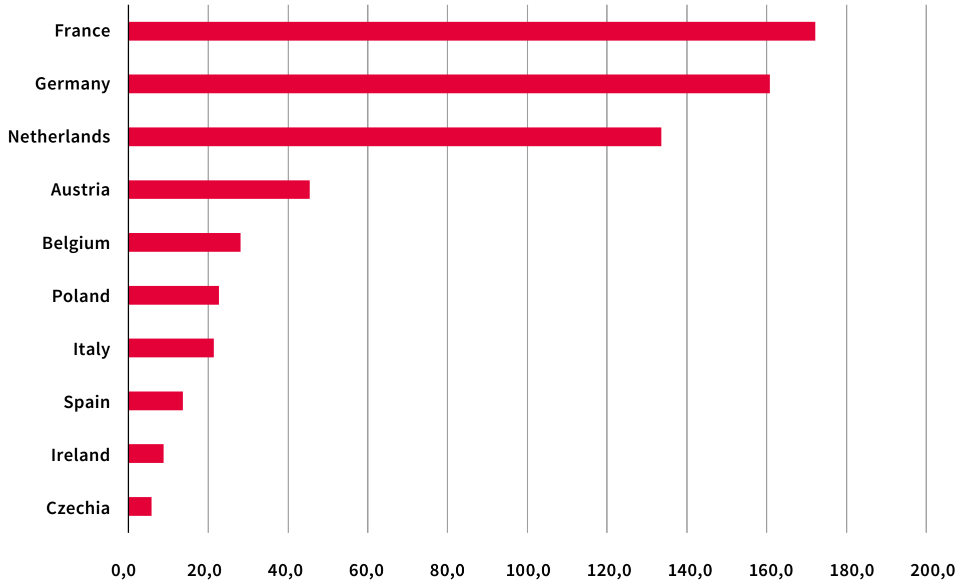


Sales value, in million €, 2021



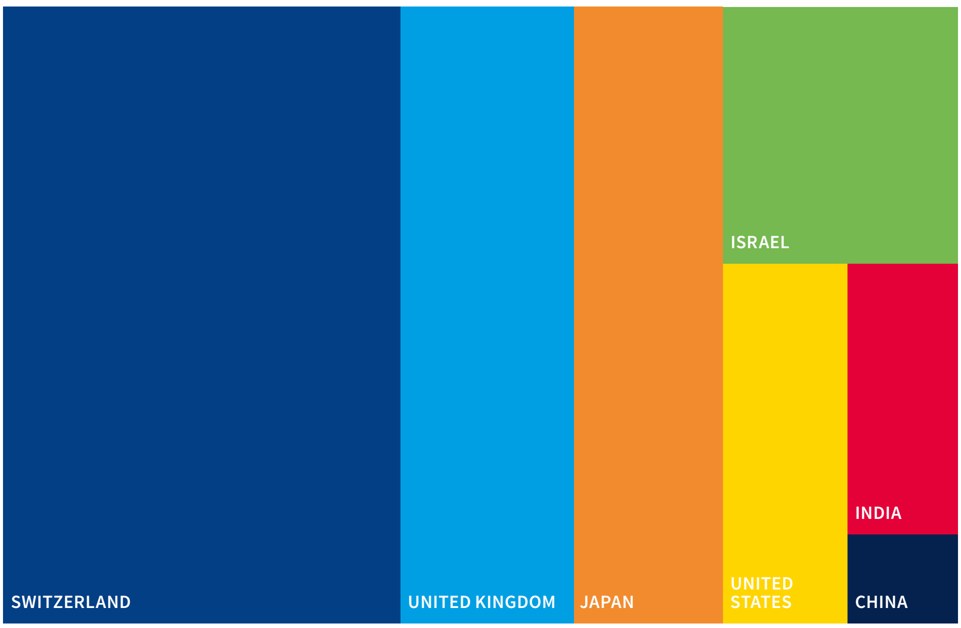
- Total European sales of printing inks were worth € 2.9 billion in 2021. In volume, 850,000 tonnes of printing inks were sold by European ink manufacturers in 2021.
- 300,000 tonnes of publication inks were sold (i.e. € 800 million in value). This is 0.6% less than in 2020.
- 550,000 tonnes of packaging inks were sold in 2021 (i.e. € 2.1 billion in value). The tonnage of packaging inks sales has decreased by 5.5% compared to 2020.

Main EU importers of printing inks from non-EU countries, 2021, in million €



- The European Union imported € 646 million worth of printing inks from non-EU countries in 2021.
- The main importers are France, Germany and the Netherlands.

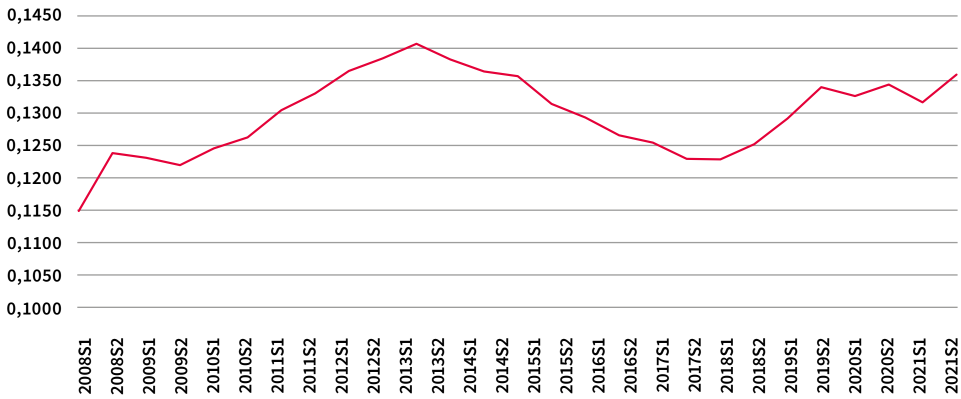
Main exporters of printing inks to the EU, 2021



- The main exporter of printing inks to the European Union in 2021 was Switzerland, followed by the UK, Israel and Japan.

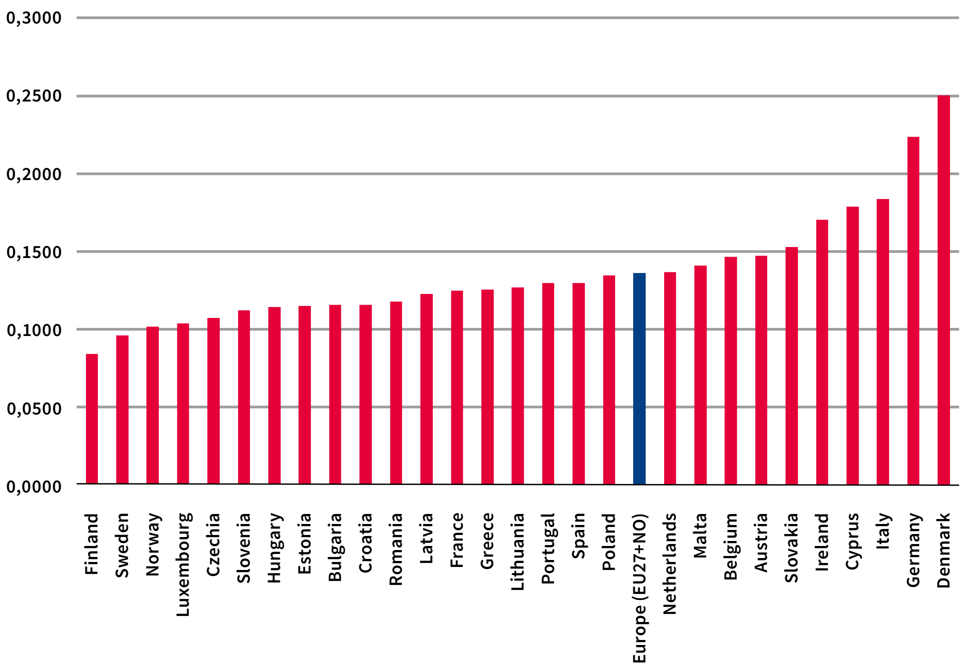
1.3.7 Energy market

EU electricity prices for industrial consumers, 2008-2021, in €/KWh



- European electricity prices for industrial consumers showed regular increases between 2008 and 2014. A steady decrease was registered as from 2014 until 2017.
- Electricity prices increased by 24% between 2008 and 2013 and decreased by 9% between 2014 and 2017. They increased by 10% since 2017.

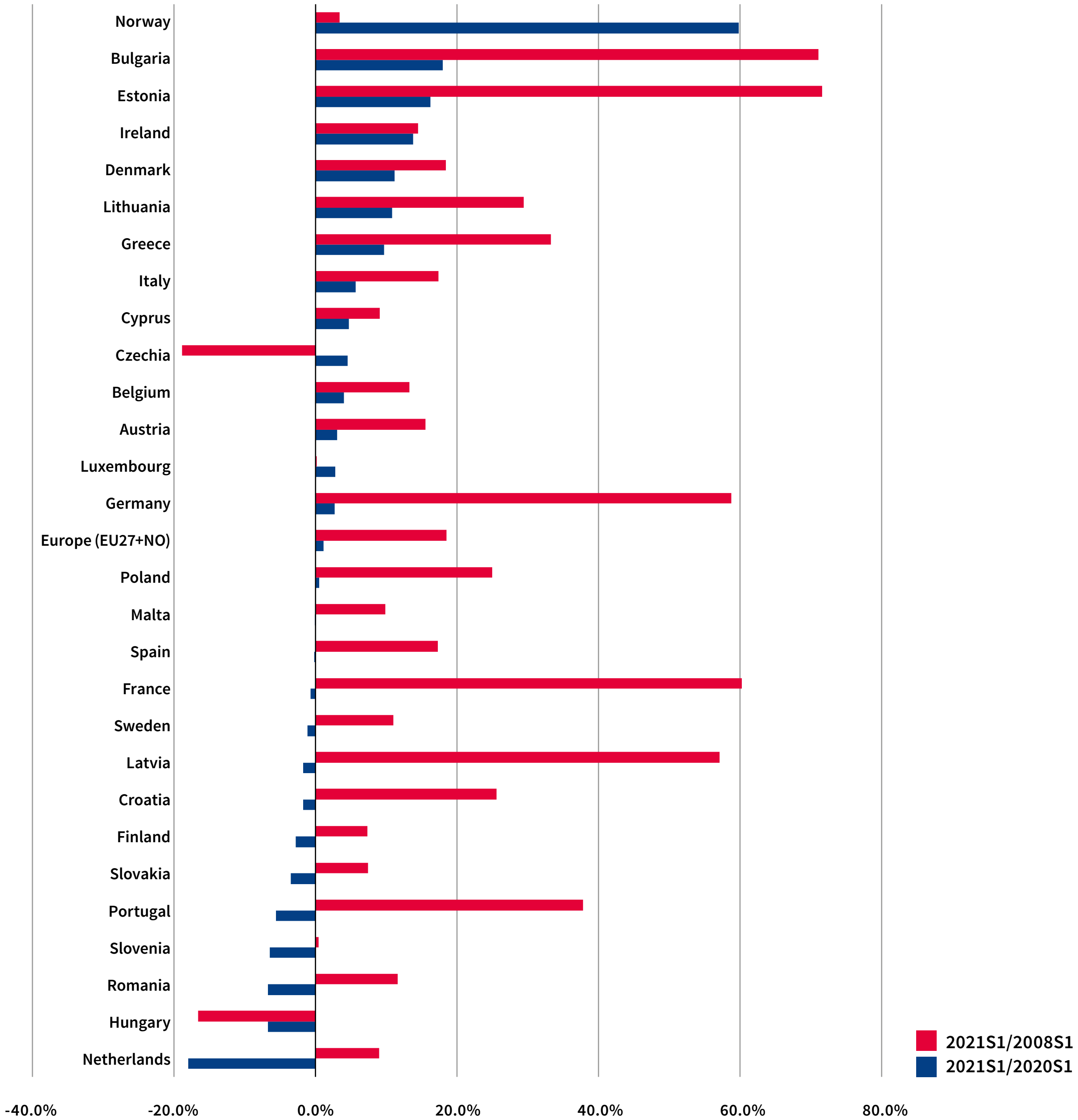
EU electricity prices for industrial consumers, 2021 (first semester), in €/KWh



- In 2021, Denmark registered the highest price whereas Finland registered the lowest in Europe.
- After Denmark, the highest prices are in Germany and Italy.

Sources
Eurostat
The prices mentioned refer to Electricity prices for industrial consumers (all taxes and levies included) in €/KWh, which correspond to medium standard industrial consump-tion band with an annual consumption of electricity between 500 and 2000 MWh.

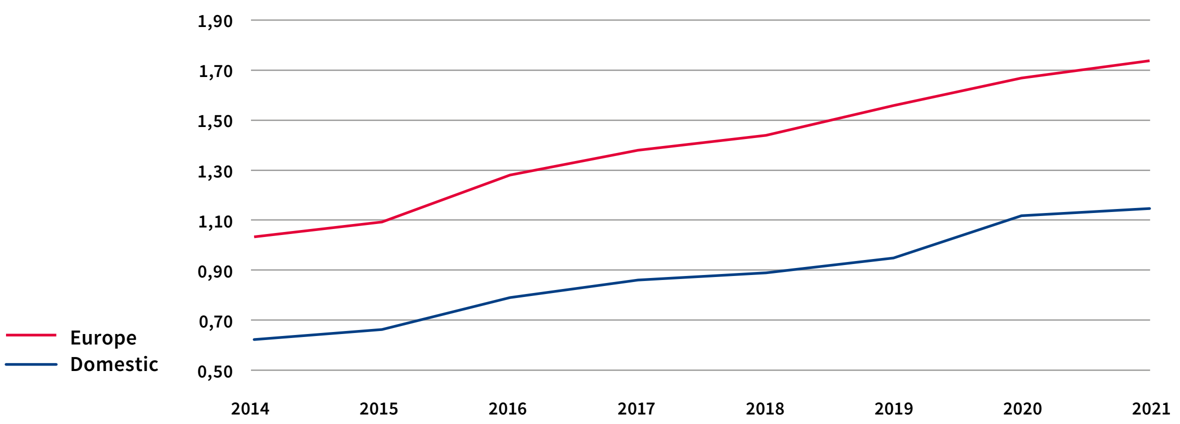
%-change in EU electricity prices for industrial consumers, 2021/2020 and 2021/2008, in €/KWh



- Norway registered the largest increases between 2020 and 2021 whereas prices in the Netherlands registered the sharpest decrease.
- Compared to 2008, Bulgaria and Estonia experienced the sharpest increase in electricity prices in 2021. Prices in Hungary and Czechia decreased the most compared to 2008.

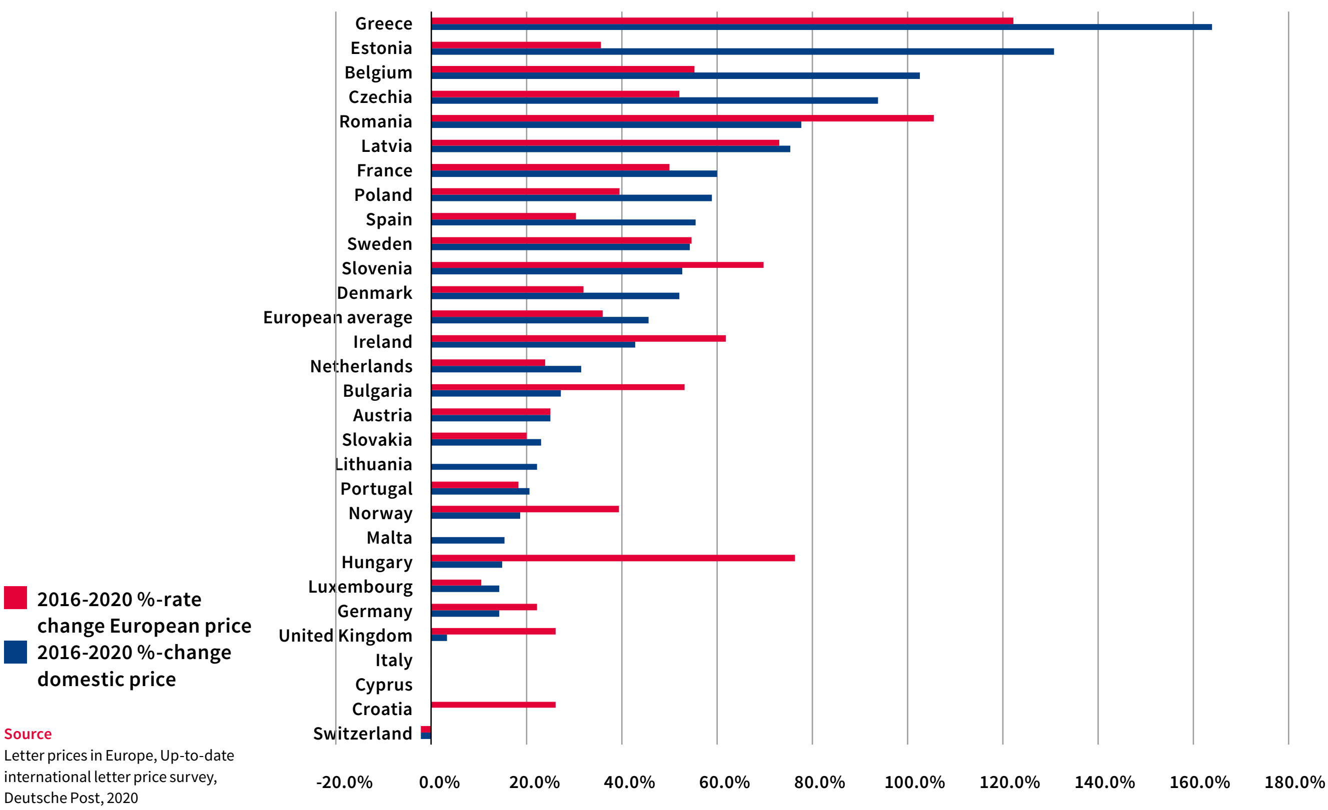
1.3.8 Postal market

Evolution average postal prices in Europe, in €, 2014-2020



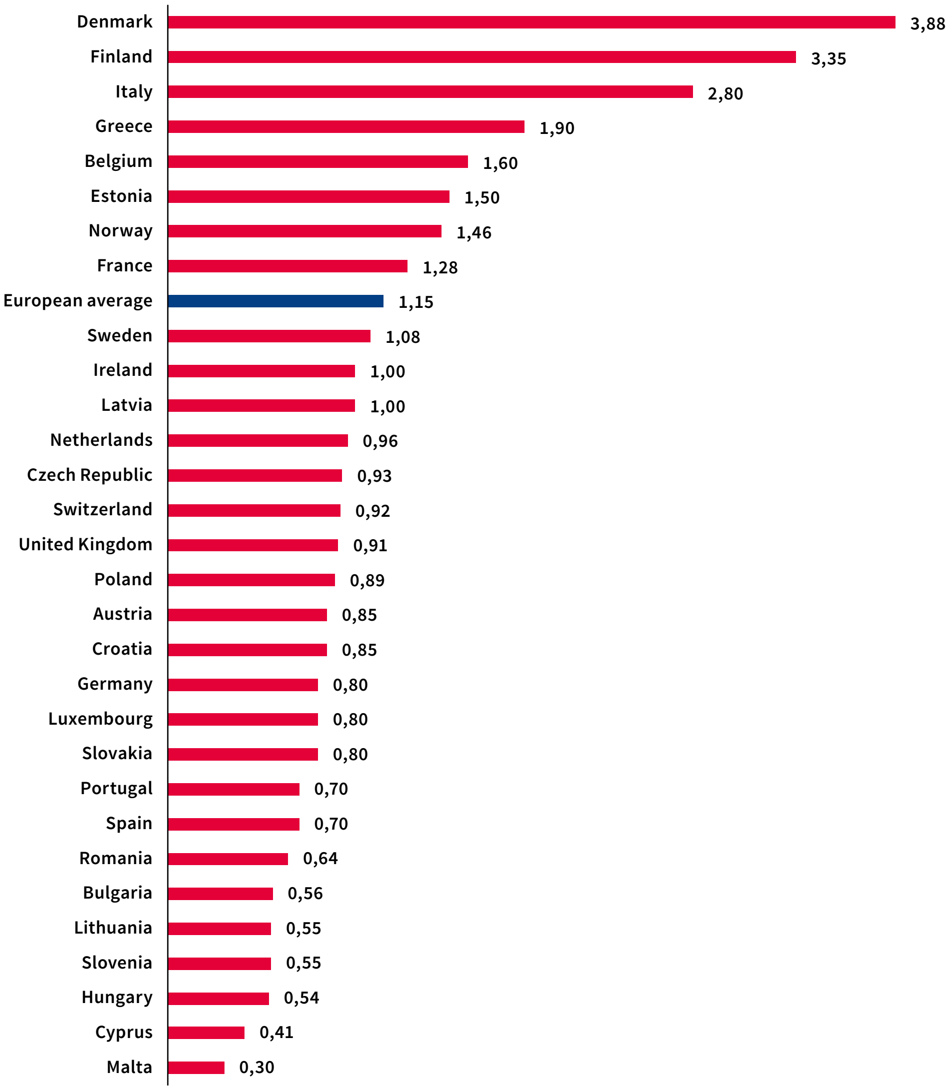
- On average, postal prices in Europe have increased by 45% in the last 5 years for a domestic sending and 36% for European sending.
- In the last year, prices have increased by 3% on average for domestic sending and 4% for European sending.

2016-2021 %-change



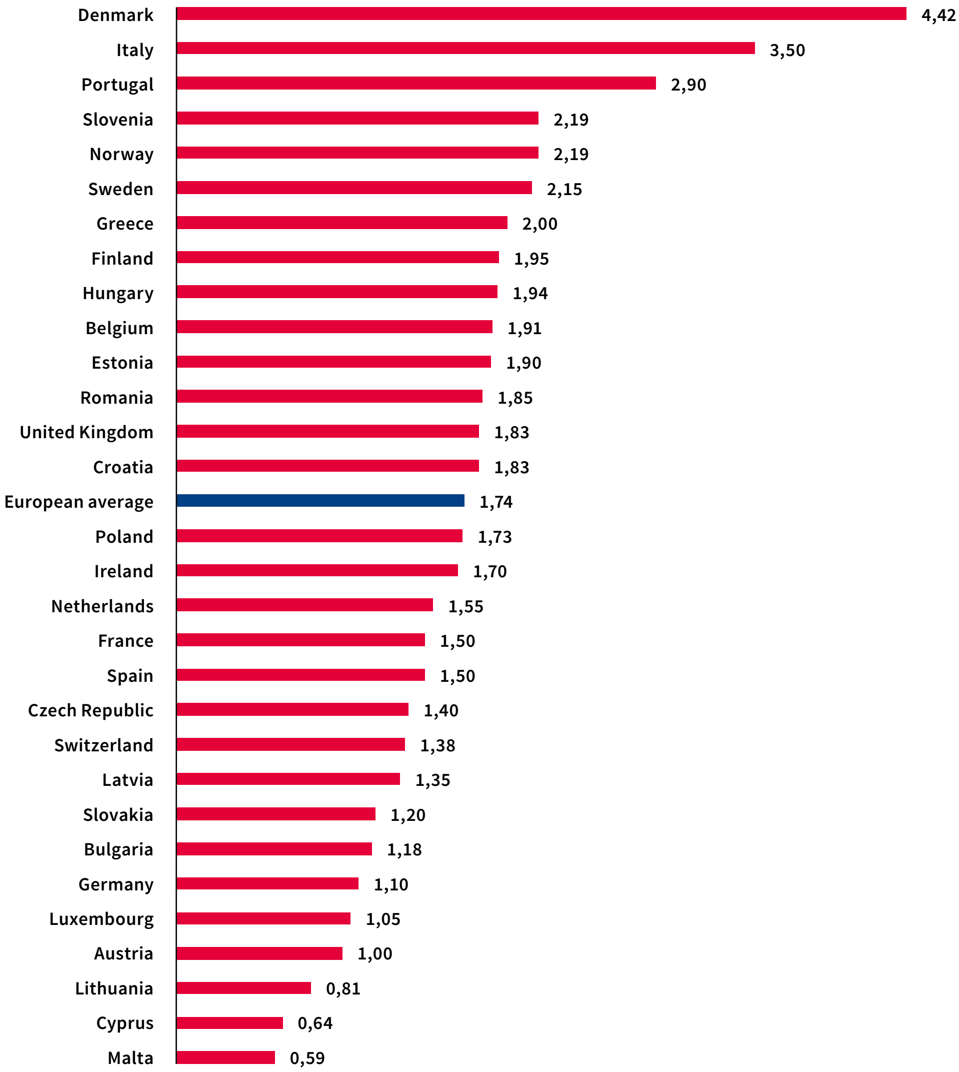
Source
Letter prices in Europe, Up-to-date international letter price survey, Deutsche Post, 2020

Nominal price for a domestic standard letter, in €, 2021



- The average price for a domestic standard letter is 1.15€ in Europe. This is 3% more than in 2020.
- Denmark and Finland have the highest prices for domestic standard letters in Europe. In both countries, the price per piece is above 3€.
- Between 2020 and 2021, the largest increase in price was registered in Estonia (+131%).

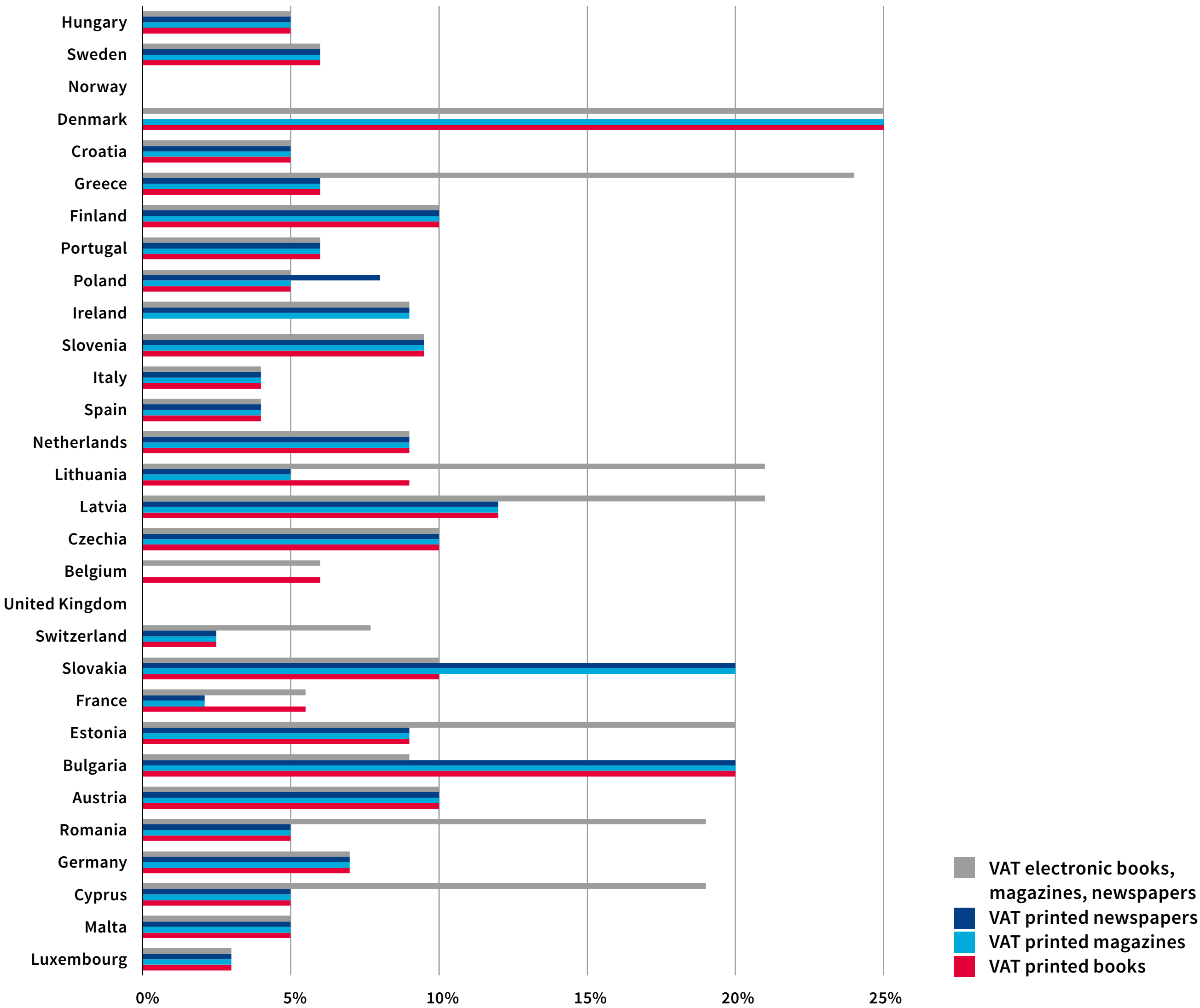
Nominal price for a letter mail in Europe, in €, 2021



- The average price for letter mail sent in Europe is 1.74€. This is 4% more than in 2020.
- Denmark and Italy have the highest price for letter mail in Europe with a price of respectively 4€ and 3.50€.
- Malta and Cyprus have the lowest prices in Europe with less than 0.70€ per piece.
- Estonia has registered the largest price increase compared to 2019 (+36%).

1.3.9 VAT rates

VAT rates applicable to printed books, printed magazines, printed newspapers and electronic publication, 2021



- Most European countries are using the possibility of granting printed publications with a reduced VAT rate with the exception of Denmark and Bulgaria. Both countries are also applying the highest standard VAT rate. There is however an exception in Denmark for newspapers which benefit from a 0%-rate.

- Norway and the UK are granting a zero % VAT rate on printed books, magazines and newspapers. Ireland is granting it only to printed books.

- Reduced rates are ranging from 0% to 12%.

- Member States are allowed to apply a reduced VAT for e-books and e-press since December 2018. The only countries which did not reduce their VAT for e-publications and still apply a standard VAT are Estonia, Lithuania, Greece, Romania, Cyprus and Switzerland.

Source
European Commission, 2022

1. HISTORICAL PRINT MARKET REVIEW

1.4.1 Bulgaria

2021 turnover

In 2021, the pandemic has caused many insurmountable problems throughout the Bulgarian economy. Energy prices increased more than 4 times, paper and cardboard increased more than 3 times, transport increased by more than 2 times. The total gross domestic product of 2021 recorded a decline of 2.9%, inflation reached nearly 11%, the purchasing power of the population continued to decline by a further 8%, and exports of goods and services fell by more than 30%. With this general macroeconomic stagnation, all the indicators of the Bulgarian printing industry also declined. Thus, in 2021 there are 30 companies less than in 2020, the number of employees decreased by 570 and the production volume decreased by BGN 120 million less. The downward trend of all types of printed products continues, only the volume of packaging for food, pharmaceutical and household is increasing.

Print sectors most impacted by the paper crisis and generally by raw materials, energy and transport costs' increase

There is no sector in the Bulgarian printing industry that is not affected by the critically rising prices of paper and cardboard. In addition, the deadlines for delivery of the requested quantities have been sharply violated, and the quotas for the quantities reappeared. Trade companies do not have any clarity at what price and when they will receive their orders, violating their contracts with the printing companies. Rising prices of all materials - inks, chemicals, printing plates, as well as for transport, fuels, electricity, etc. further increased the cost of the products and make it very difficult to determine the final price on time. Despite the government's support, the collapse is great and insurmountable.

Trends in specific printing market segments

Books: The decline in book production continues by another 15% on an annual basis. Only schoolbooks and teaching aids retain their volumes from 2020.
Magazines: The number of titles and their circulation decreased by 20%.
Newspapers: Newspapers also decreased by 20%.
Direct mail: The decline is only 10%.
Other commercial printing (catalogues, advertising…): The decline continues and they are more than 30% less than in 2020.
Printed packaging: This is the only sector with growing volumes and diversity. Growth of nearly 15% are being reported and only the high prices of materials and related costs holds a greater growth.

Trends in printing process

Digital printing: Reduced circulation and short deadlines have forced companies to increase digital printing in 2021, it increased by about 10%.
Weboffset: No change compared to the previous year.
Sheetfed offset: It experienced a 5% drop.
Publication gravure: The decline continues by another 10%.
Packaging gravure: In packaging, growth is over 15%.
Flexography: There are no change in flexography.
Large format: It continues to decline by 7%.

Trends in the printing employment market

The long-lasting pandemic, the sharp rise in energy prices, transport and materials have forced owners and managers to reduce the number of employees. In total, there are 570 workers less. Unemployment is as high as the national average - 9,7%. Trainings, as far as they are carried through, are only online and with low efficiency.

Trends in the number of operating printing companies

In 2021, 30 printing companies closed down in Bulgaria.

Trends in foreign trade

The export of printed products for last year marked an increase of 22 million BGN (Bulgarian Lewa, 1 Lew = 0,51 Euro), mainly due to packaging, labels and security documents.
As in previous years, the main competitors on the Bulgarian book market are products from Turkey and China.

Trends in labour costs

The average monthly salary in the industry is BGN 1.300, which is an increase of 8%.

Developments affecting competitiveness

The government has kept the VAT reduction for printed books from 20% to 9% for the whole year 2021. The aid under the "60/40 program" was preserved, as well as some other measures (the 60/40 measure is a short-term tool for urgent business support to maintain employment, but also to guarantee the income of employees). In connection with the sharp rise in electricity prices, the government has introduced, under certain conditions, aid to compensate at the level of 20%. However, the massive rise of energy, transport, materials and labour costs cannot be fully compensated by the Bulgarian government.

1.4.2 Denmark

2021 turnover

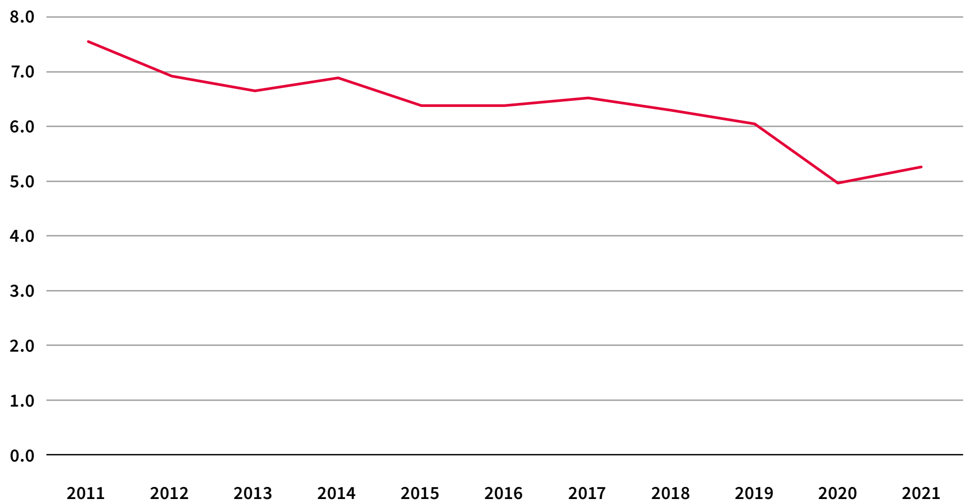
Denmark was in the second major lockdown when the year 2021 began. The lockdown was extensive and lasted well into the spring of 2021. When society again began to reopen, there were still many restrictions. It limited the demand for many of printers' services.

Similar like during the first lockdown in the spring of 2020, printers were affected very differently. Especially smaller companies as well as companies whose products are dependent on people being able to meet were hit the hardest.

Despite the restrictions and lockdown, the overall turnover the Danish Printing Industry increased in 2021 compared to 2020, but the turnover was still under the 2019-level. The printing industry in Denmark has been affected more from COVID-19 than the rest of society.

Many Danish printers made use of the state's aid packages in 2021. However, the volume was lower during the second major lockdown compared to the first. In general, the second lockdown did not have the same effect on the economy as the first, neither on the printers nor on the whole economy.

Overall turnover from printing companies in Denmark (Billion DKK)



Source
Statistics Denmark

Towards the autumn, the demand for many of the printers' products and services picked up again. But lockdowns were not the only consequence of the pandemic. As activity increased in Danish society and the rest of the world, so did the demand for raw materials. This led to rising prices and subsequent scarcity. On top of that, transportation costs and energy prices also rose. In the paper market, printers went from paying higher prices to when it was possible at all to obtain the quantities of paper they needed.

Print sectors most impacted by the paper crisis and generally by raw materials, energy and transport costs' increase

In general, Danish printers have been hit hard by rising paper prices and raw material prices. At the start of 2022, rising paper prices, energy costs and distribution costs were among the industry's biggest concerns, along with labour shortages and higher wages.

The paper crisis has hit the magazine industry particularly hard in Denmark, as a strike broke out in January at the Finnish paper plant UPM. It is estimated that UPM delivers up to 50% of the paper used for magazines in the Nordic region. This is further exacerbated by the fact that other European paper producers have cut back on paper production due to high energy prices.

Trends in specific market segments

The decline in turnover in 2021 compared to 2019 have been highly dependent on the type of customers. Printing companies with customers such as hotels, restaurants, museums have lost many orders due to the restrictions on the number of people who can meet. So have printers making materials for companies participating in conferences. There has been a decline in the number of doordrops, due to the ongoing digitalisation.

Trends in the employment market

There was a small increase in the number of employees in the graphic industry in 2022 after the large declines in 2021 caused by the pandemic in 2020. However, employment in the graphic industry is still lower than before the pandemic level.

Trends in the number of operating companies

There is still a decrease in the number of operating printing companies. Some printers are struggling, but the number of bankruptcies has not exploded during the last two years with COVID-19. This is properly due to the financial aid that was given by the Danish State to companies struggling from the consequences of COVID-19 and due to the flexible Danish labour market. There are still printers merging with other printers.

Trends in foreign trade

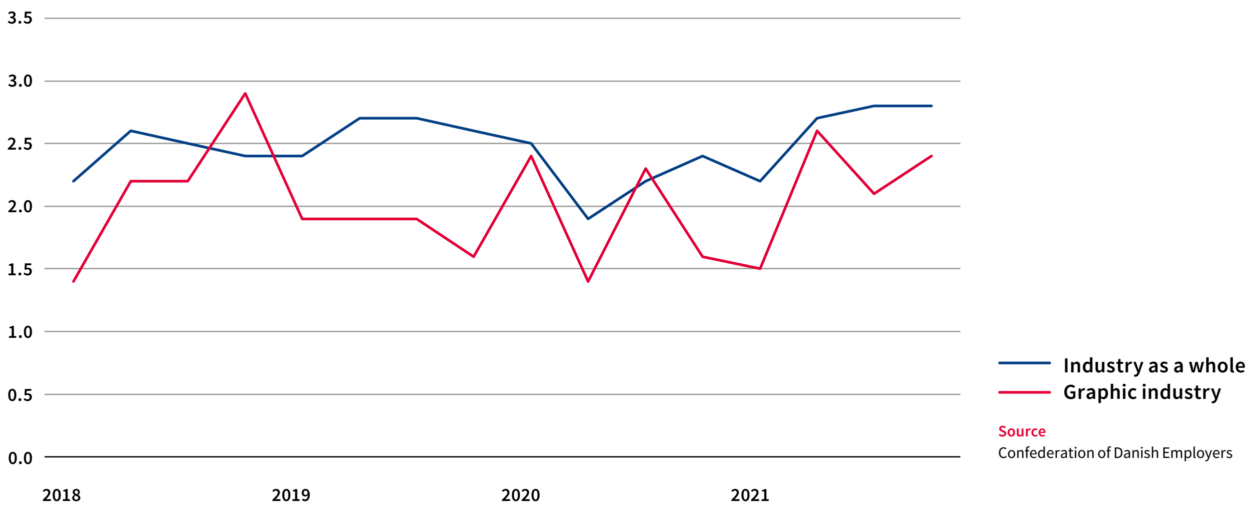
Danish exports of graphic products were largely unchanged in 2021 compared with 2020, while imports increased. The largest increase in imports has taken place in advertising printed matters. The increase is probably related to the fact that the market for graphic products had less implications from the pandemic in 2021 than in 2020. Denmark imports more graphic products than it exports.

Trends in labour costs

Before COVID-19, labour costs in the industry as a whole rose by around 2.5% per year. After the outbreak, the yearly increase in labour costs fell by around 2%. From the second quarter of 2021, labour costs rose again to a level a bit higher than before the outbreak. In the fourth quarter, labour costs rose by 2.8% per year.

Labour costs in the graphic industry have increased less in recent years than in the entire industry. Thus, the annual growth in labour costs was 2.4% in the graphic industry in fourth quarter.

Yearly change in labour costs in Denmark in the whole industry and the graphic industry



Source
Confederation of Danish Employers

The reason for the general salary increases is that employment in Denmark has increased since the beginning of 2021 and the vacancy rates have fallen. Several industries report labour shortages.

1.4.3 Germany

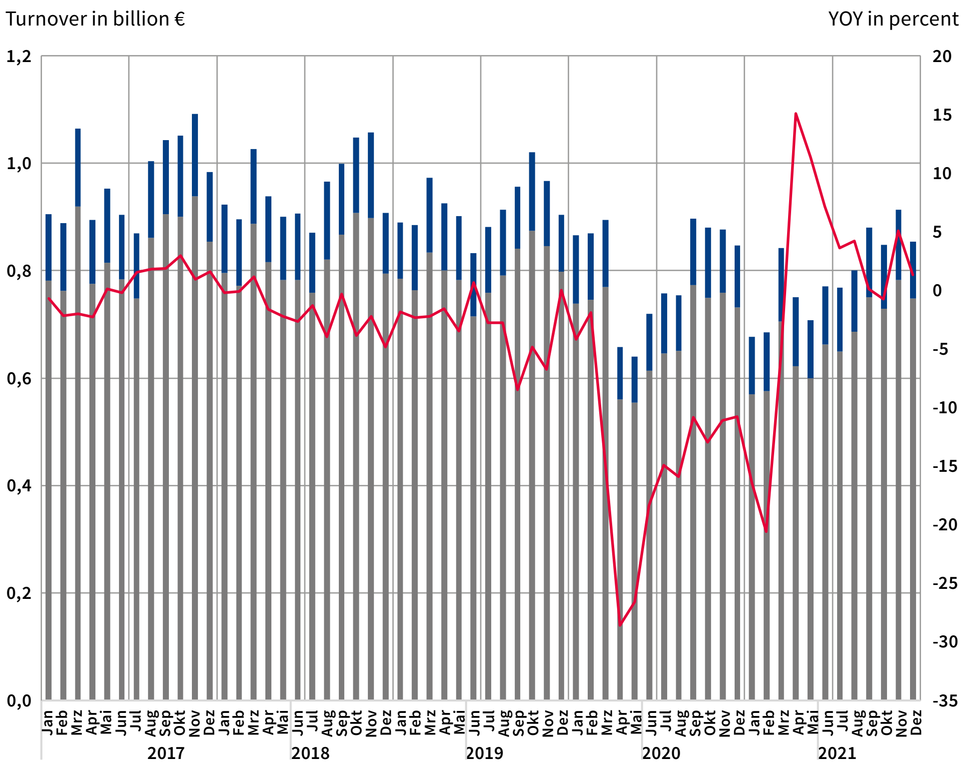
2021 turnover

The seasonally and calendar adjusted turnover in 2021 decreased by 0.4% on a YOY basis and is still 14.6% below the pre-pandemic level (2019).

Class-based seasonally and calendar adjusted turnover:
Printing of newspapers: -18.7% on a YOY basis
Other printing: -0.3% on a YOY basis
Pre-press and pre-media services: +16.8% on YOY basis
Binding and related services: +1.2% on a YOY basis

The preceding statistics are referring to the development of the turnover-index which is encompassing all printing-related production units (employing 50 or more employees) within a company.

Turnover in the German printing industry January 2017 – December 2021



Domestic Sales (left scale)
Foreign Sales (left scale)
Total Turnover (right scale)

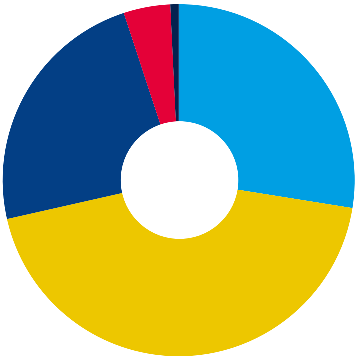
Source
Monthly Reports in The Production Sector of the Federal Statistical Office of Germany
Note
Consideration of companies with at least 50 employees
Calculation and illustration
bvdm

Print sectors most impacted by the paper crisis and generally by raw materials, energy and transport costs' increase

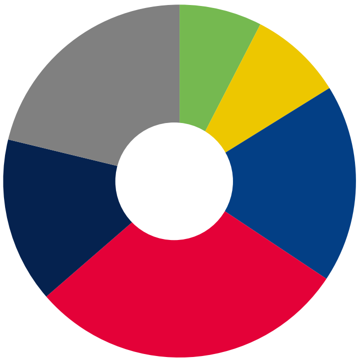
All printed sectors are significantly impacted by the ongoing paper crises. However, the sectors *printing of newspapers and printing of advertising* have experienced the largest price increases since LWC- and SC-papers as well as newsprint had reached all-time-high price levels.

The most recent bvdm-survey, which was conducted in February and had 396 participants, is displaying that 44% of the companies are expecting a permanent loss in turnover of more than 10% due to the ramifications of the ongoing paper crises. Additionally, 72% of the participating companies had to reject orders due to the paper shortages and sudden price increases.

Loss of printing orders due to paper shortages since the beginning of the year 2022



Expectations of printing companies: Expected irreversible loss in turnover due to the paper crises



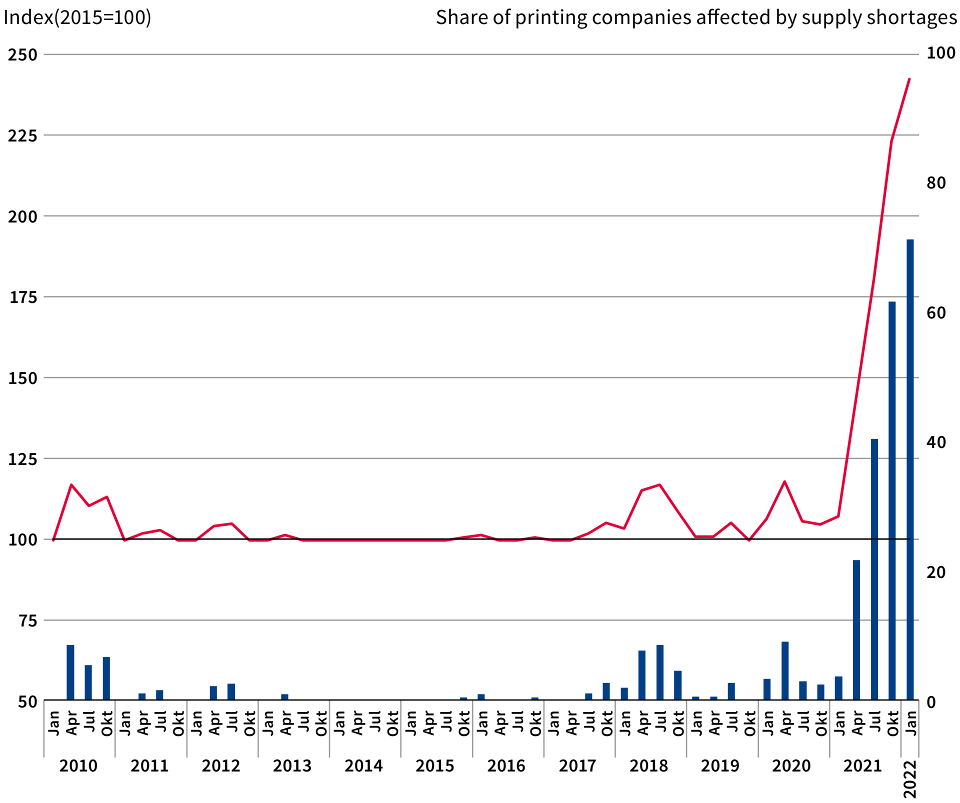
Source
bvdm-survey-February-2022
Note
Loss of orders = orders, which were cancelled by the customer due to unexpected and extreme paper price increases + potential/looming orders, which couldn't be accepted due to the paper bottleneck

Source
bvdm-survey-February-2022
Note
Effect of paper shortages and corresponding price increases on the German printing industry. Expected (irreversible) loss in turnover due to a shift of orders from print to other media (e.g. online and mobile advertising)

Consequences:
Future problems pertaining to the availability of graphic paper for the German printing industry are primarily linked to the ongoing capacity reductions of the graphic paper industry in Europe as well as the impending period of increasing energy prices (especially electricity prices but also gas prices) and decreasing conventional electricity generation capacities in Germany. Further issues are related to the availability of recovered paper and logistic Bottlenecks.

Capacity reductions:
The fact that Stora Enso has completed the conversion of its Oulu (Finland) paper mill for the production of packaging board will have severe ramifications for the German printing industry since the conversion of the mill has evoked the end for Stora Enso's Lumi-Papers (WFC-paper), which had been available in sheets or reels for web offset, sheetfed and digital printing. According to paper market analysts, this will reduce the availability of WFC-papers in Germany by approximately 100.000 tonnes per year.
Additionally, the German paper industry is expecting a shortage in LWC and SC papers for the upcoming years. The continuation of the conversion of graphic paper production facilities to packaging board production facilities and labelling production facilities in Europe will further exacerbate the availability of graphic paper in Germany.

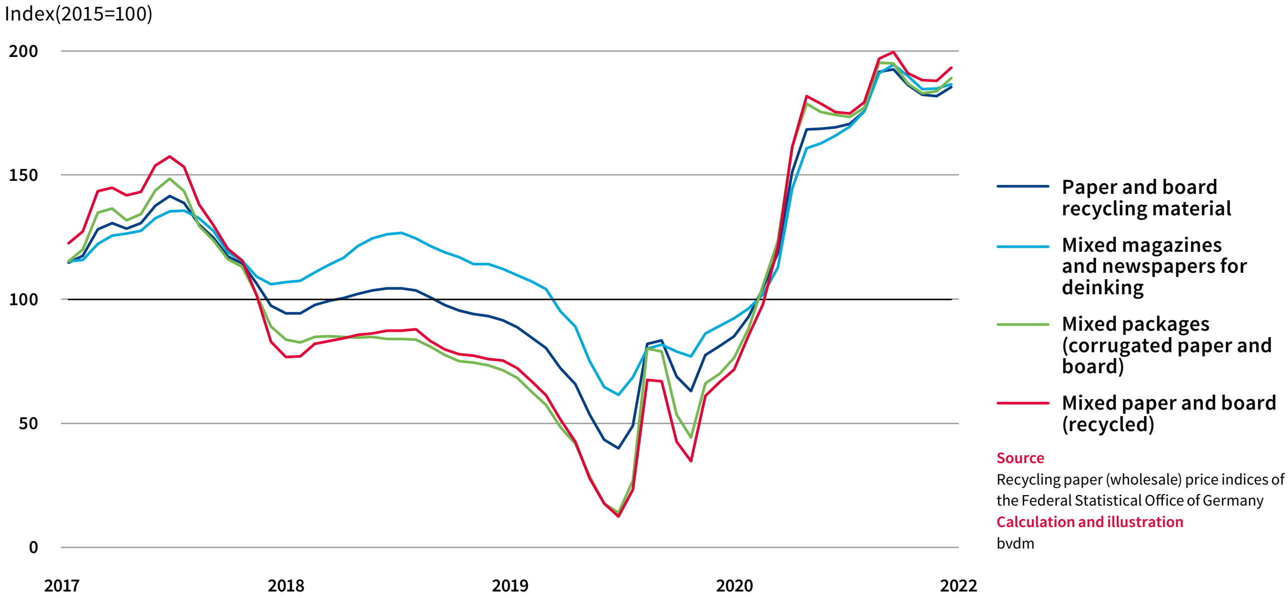
Supply Shortages in the German Printing Industry



Source
Monthly ifo-survey, bvdm
Note
The supply-shortage-index was developed by the bvdm to seize and display the current paper shortage situation. However, it is not only referring to paper shortages but supply bottlenecks in general. Larger values are corresponding to a higher degree of supply shortages. The index is based on the monthly ifo-survey data.

Availability of recovered paper:
The digitisation and the change in media consumption behaviour is leading to a rapid decline of printed newspapers and magazines in Germany (especially over the course of the last two years). This is also one of the main reasons why the availability of recovered paper is still constrained (with prices at an all-time high). However, with the increasing amount of packaging board it is possible that more and more recovered graphic paper is used for the production of packaging board, a certain amount of recovered graphic paper is also used for the production of packaging board. Furthermore, as the share of packaging material in the stream is constantly growing as online shopping is constantly increasing its market share (approximately 16-20 % of the total turnover in the German retail industry). Ultimately, this could entail a decrease in the availability of recovered paper for the production of graphic paper in the medium/long run.

Recycled German paper price indices (January 2017-February 2022)



Source
Recycling paper (wholesale) price indices of the Federal Statistical Office of Germany
Calculation and illustration
bvdm

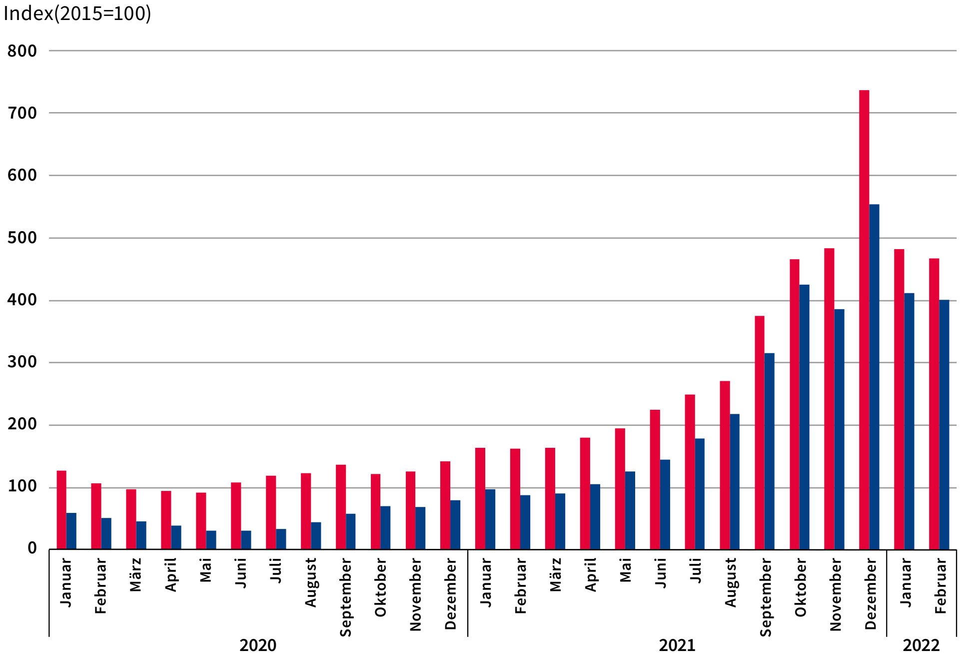
Energy/Electricity limitations:
Germany has been a country with constantly high industrial electricity prices, for years. The introduction of Germany's carbon pricing system for transport and buildings in 2021 as well as the fact that the carbon price on the EU Emissions Trading System has reached an all-time high and is expected to remain on a high level over the period of the next years, are additionally aggravating this situation. It is unlikely, that this situation will change in the upcoming years.

However, this cost-related development could be accompanied by raising problems of energy availability (security of supply problems related to the availability of electricity) since the German coal phase-out is expected to accelerate under the new German government (aim: 2030). Furthermore, the nuclear power phase-out will be completed till the end of 2022. Since the further expansion of the non-dispatchable renewable energy generation capacities (wind power and solar photovoltaic power) will – probably – take up a considerable amount of time, Germany will have to rely increasingly on gas plants, which are posing an inevitable transitional solution towards carbon neutrality in Germany. However, German gas is preponderantly imported (mainly from Russia), so that it is questionable if the looming sharp decrease in dispatchable electricity generation capacities can be compensated by a sufficiently fast expansion/ramp-up of modern gas plants.

The war in Ukraine is significantly accelerating the transformation of the German energy system since a stronger diversification of the gas suppliers is aspired by the German government. Nonetheless, this goal is requiring large state- and industry-based investments, a high degree of energy efficiency and a general reduction of the industrial energy consumption. Thus, in the short term, this war-induced developments will take a toll on the German industry.

Since the paper industry is characterised by a high energy and electricity intensity it is plausible to assume, that these energy-policy-related developments will significantly affect the paper industry in Germany and could thus, have a severe impact on the availability of graphic papers in the medium and long run. Thus, the current war in Ukraine is additionally hampering the energy-related transformation process in Germany, since 55% of imported gas is coming from Russia. Due to the war in Ukraine, a postponement of the coal phase out is discussed, currently, but not very popular among the members of the current German government since such a reaction would come along with severe climate- and emission-related consequences and would hence, aggravate the opportunity to reach the national climate goals of Germany.

German gas and electricity price indices (January 2020-February 2022)



Electricity; exchange prices

Gas, exchange prices

Source
Exchange price indices of the Federal Statistical Office of Germany
Calculation and illustration
bvdm

Logistic bottlenecks:
Furthermore, there is a structural logistic development in Germany, which could reduce the availability of paper in the foreseeable future. While we are expecting that the currently exacerbating international logistic problems are preponderantly going to alleviate after the end of the pandemic situation, national logistic capacities will continue to decrease. This is a structural phenomenon in Germany which is based on an increasing scarcity of lorry drivers and has aggravated over the course of the last two years. This, however, is a problem which is affecting almost all industries.

Trends in specific printing market segments

The following percentage values are referring to the development of the production value in 2021.

Production Values of German printing products and print-related service activities 2021

PRINTING PRODUCTS	2021		
	in Mio. Euro	**Share**	**YOY**
Werbedrucke/Kataloge (Commercial Print/ Advertising/Catalogues)	3.955	37%	-2,2%
Kataloge	717	7%	-5,9%
Plakate	440	4%	1,7%
Geschäftsberichte	33	0%	3,6%
Prospekte	1.781	16%	-5,5%
Mailings	242	2%	11,2%
Andere Werbedrucke und -schriften	740	7%	3,9%
Geschäftsdrucksachen	1.008	9%	-0,1%
Zeitschriften (Magazines/Periodicals)	698	6%	-6,8%
Zeitungen/Anzeigenblätter (Newspapers)	944	9%	-6,5%
Tageszeitungen	596	6%	-8,3%
Wochenzeitungen	131	1%	-2,0%
Anzeigenblätter	217	2%	-4,0%
Bücher/kartographische Erzeugnisse (books)	883	8%	6,2%
Bedruckte Etiketten	1.364	13%	-2,1%
Kalender/Karten	127	1%	5,7%
Sonstige Druckerzeugnisse	1.830	17%	10,8%
Textildruck	40	0%	51,1%
Bedrucken von anderen Materialien als Papier	683	6%	5,0%
Andere Drucke	1.108	10%	13,6%
Summe Druckerzeugnisse	10.810	100%	0,0%
Druck- und Medienvorstufe	837	61%	3,6%
Druckweiterverarbeitung	541	39%	3,1%
Summe Druckleistungen	1.378	100%	3,4%
GESAMT	**12.188**		**0,4%**

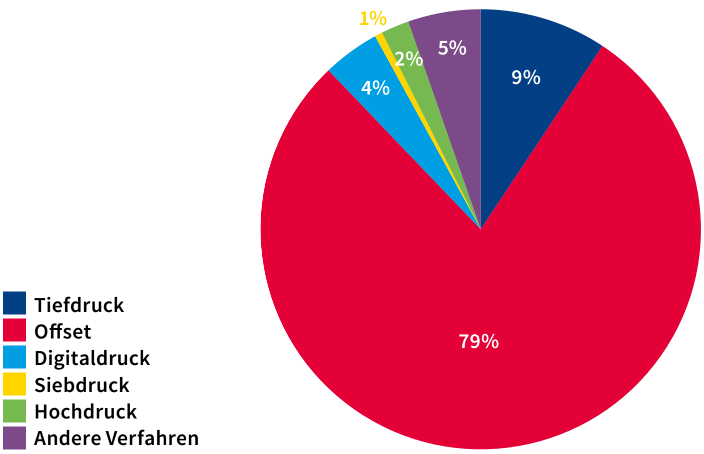
Source
Federal Statistical Office of Germany
Calculation and illustration
bvdm
Note
Due to the revision of the German CPA the comparison to the previous year (2018) is merely partly possible.

Trends in printing process

Annotation: Annual changes are determined according to developments of the production values of certain printed products published quarterly by the Federal Statistical Office of Germany.

Digital printing: +2,7% YOY(2021/2020)
Weboffset:-
Offset: -3,1% YOY(2021/2020)
Publication gravure:-9,5% YOY(2021/2020)
Packaging gravure:-
Flexography:-
Large format: +1,7% YOY (2021/2020)

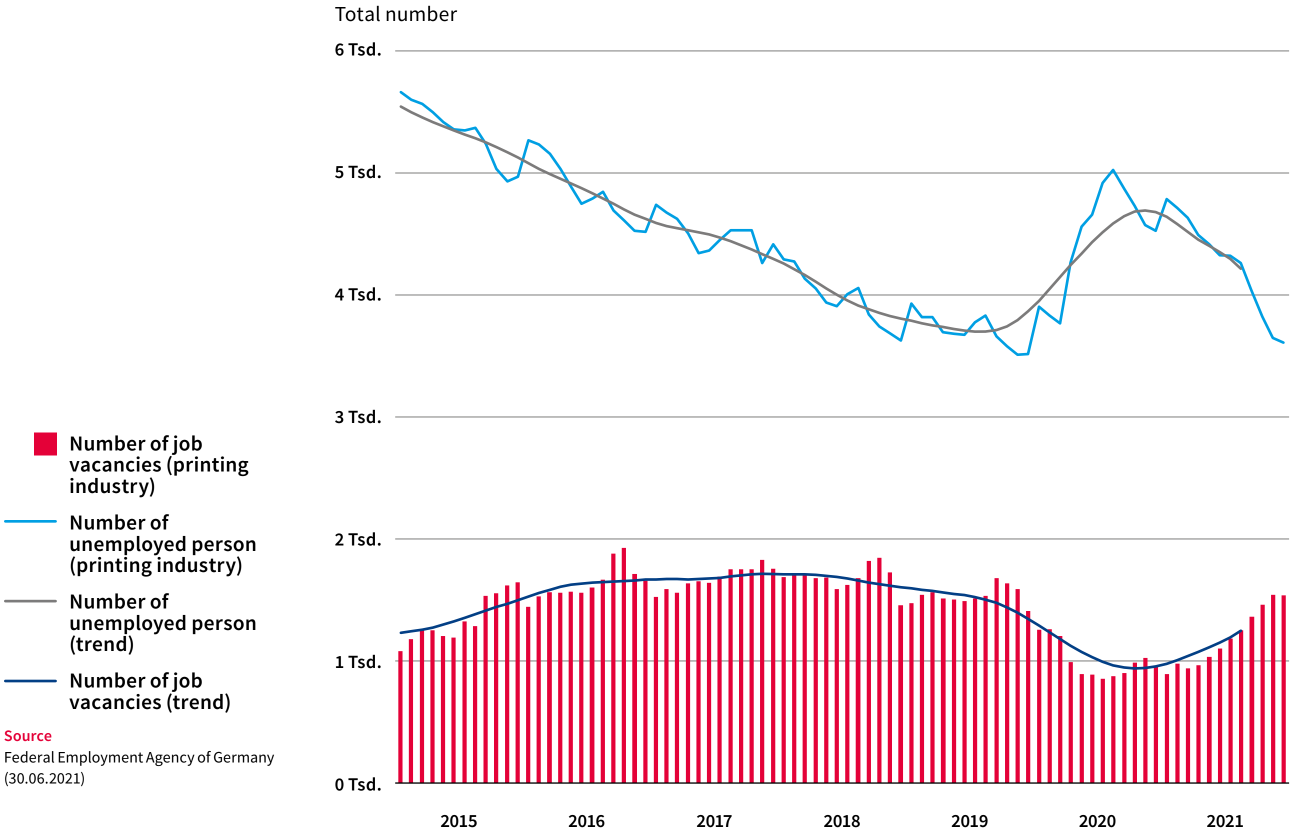
Share of printing process 2021



Source
Federal Statistical Office of Germany
Calculation and illustration
bvdm
Note
Due to the revision of the German CPA the comparison to the previous year (2018) is merely partly possible.

Trends in the printing employment market

Number of unemployed person and job vacancies in the printing industry (January 2015 –December 2021)

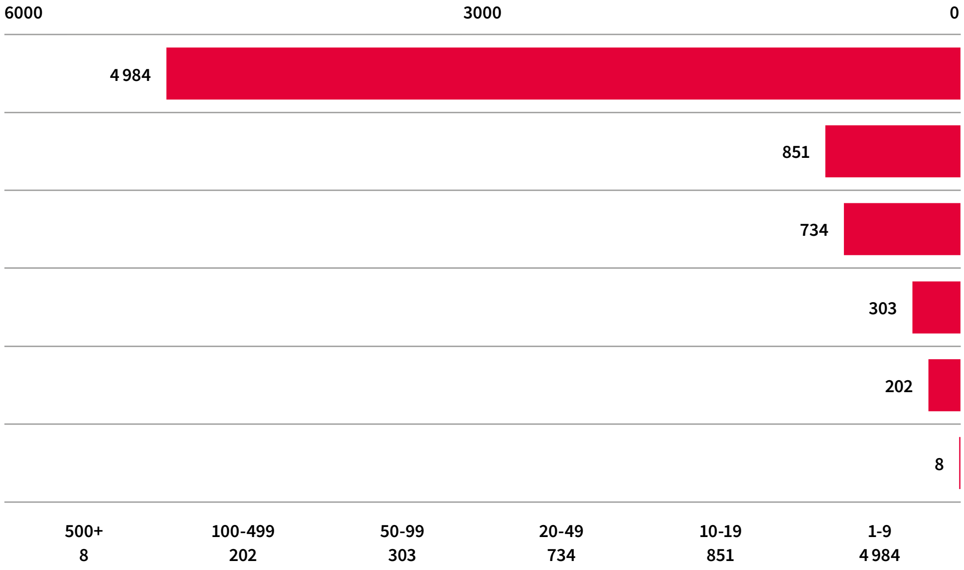


Source
Federal Employment Agency of Germany (30.06.2021)

Average unemployment rate in the printing industry in 2021: 3.7%.

Trends in the number of operating printing companies

Number of operating companies

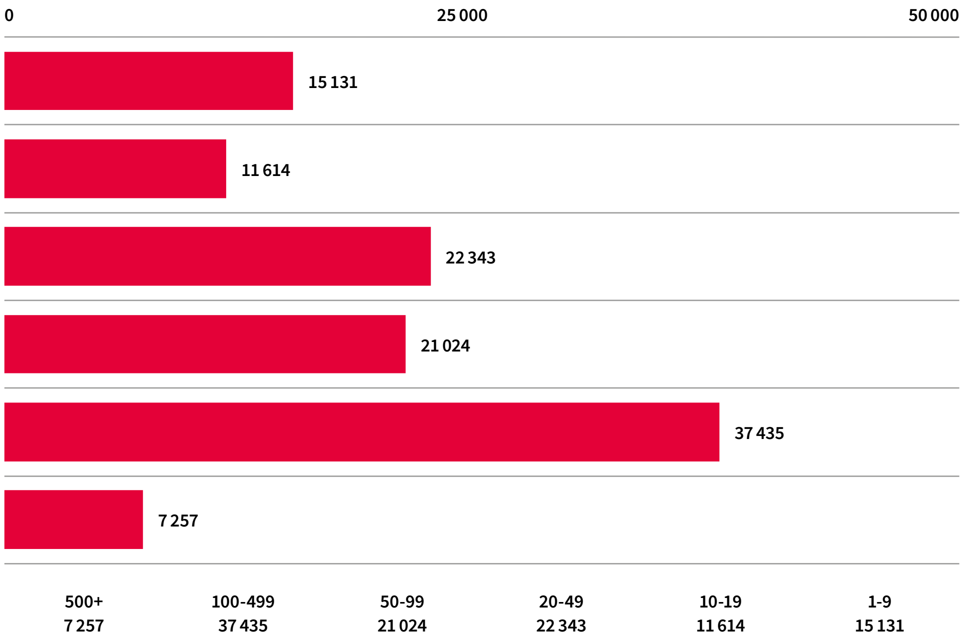


Betriebe

Source
Federal Employment Agency of Germany (30.06.2021)
Calculation and illustration
bvdm

Downwards movement in printing-industry-related employee numbers is continuing (-5.8% on average in 2021 on a YOY basis)

Number of employees by firm size

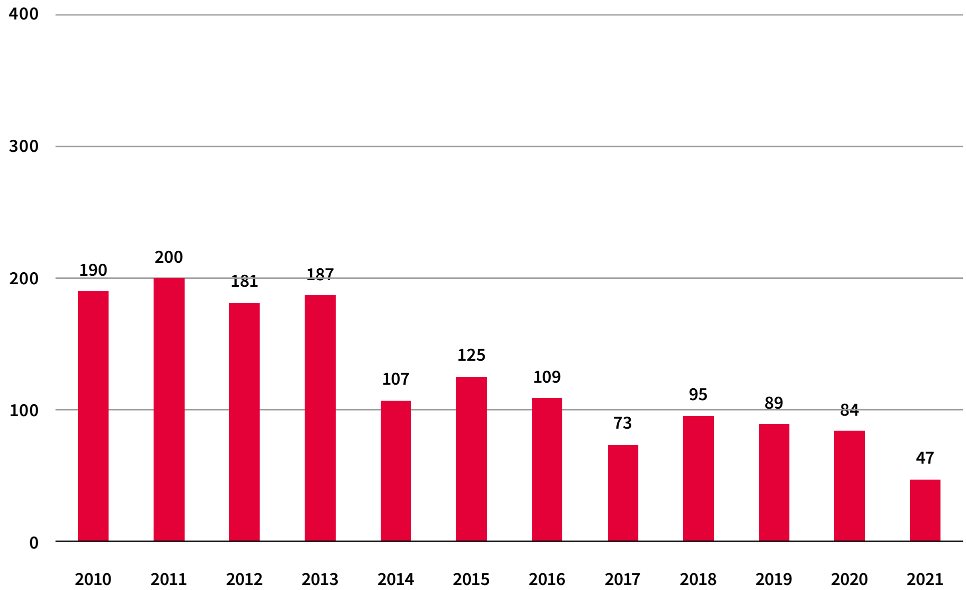


Beschäftigte

Source
Federal Employment Agency of Germany (30.06.2021)
Calculation and illustration
bvdm

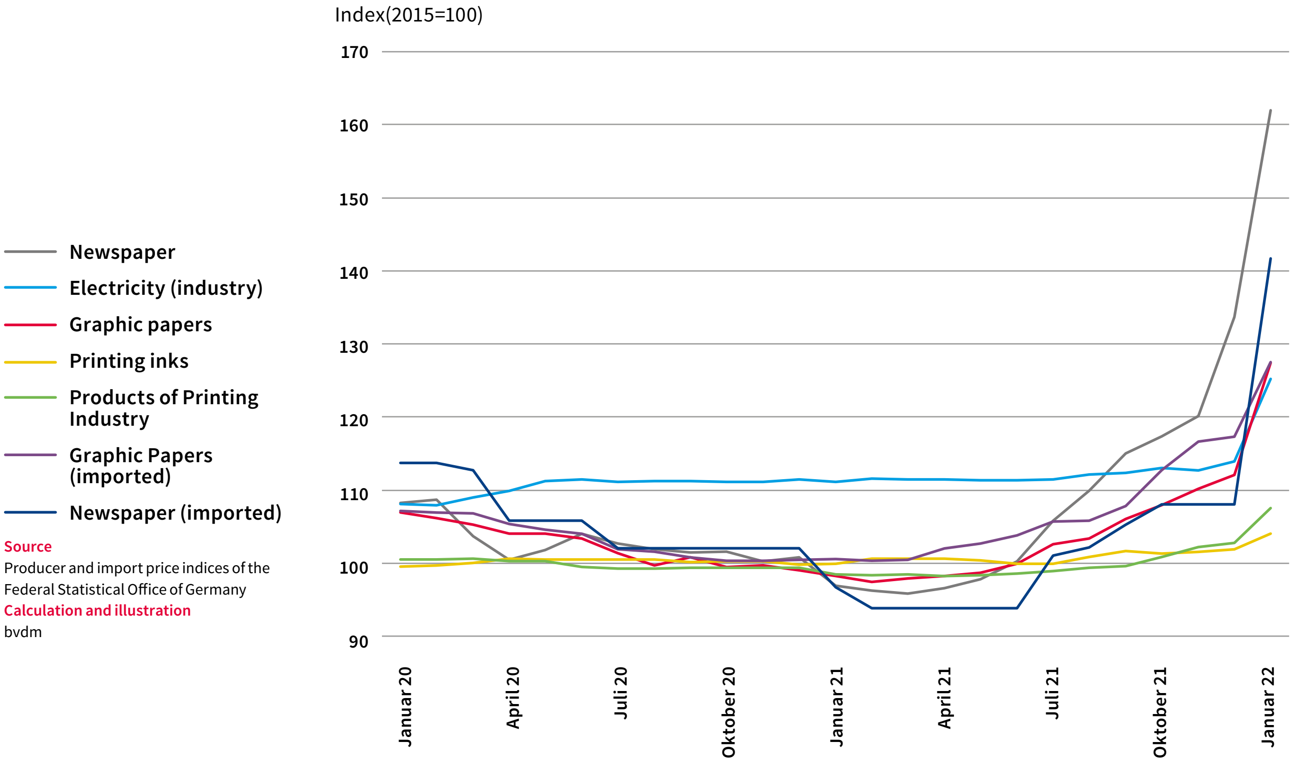
The number of operating printing companies has continued to decline, in 2021. The total number of operating companies has decreased by approximately 3% on YOY basis (on average).

Total number of bankruptcy cases



However, the total number of bankruptcies has declined in year 2021 by 44% on YOY basis. Though, the total number of bankruptcies is expected to rise in year 2022 due to a continuation of the supply shortages of key input goods, especially graphic papers.

Producer and import price indices of certain input goods (January 2020 – January 2022)



Source
Producer and import price indices of the Federal Statistical Office of Germany
Calculation and illustration
bvdm

Developments affecting competitiveness

A comparatively high taxation is considered to be one of the most significant problems, which is directly influencing the profitability of companies.

Corporate income tax needs to be reduced, in order to maintain the international competitiveness. The German corporate tax burden is among the highest among all OECD countries and is close to 30%.

Energy costs in general will continue to rise over the next years due to the accelerated transformation of the German energy system towards a carbon neutral future and a strongly diversified energy supply system. Hence, the concomitant nuclear- and coal-phase-out are going to put pressure on the cost development of industrial companies. Furthermore, the national carbon price mechanism, which entered into force in year 2021, will continue to unleash its effect on the industry. The current price is 30 €/ton. It will be increased gradually increase over the next years.

1.4.4 ITALY

2021 turnover

Based on the survey Osi (Printing and Packaging Observatory) of the Statistical Department Assografici, the turnover in the Italian printing industry grew by 9.5% in 2021 compared to 2020, particularly due to a very marked increase in the 2nd and 4th quarter. This growth in turnover, however, only partially recovers the considerable losses in 2020 (-16%) caused by the Covid-19 pandemic.
An analysis of the companies' sales turnovers shows a significant prevalence of positive results in 2021, as compared to 2020: 86% of the companies in the Osi Panel registered an average income increase of 9.7%, while just 14% suffered a decrease (of 16.2% on average) in their turnover.

Print sectors most impacted by the paper crisis and generally by raw materials, energy and transport costs' increase

On the raw materials front, the price of paper for printing increased considerably in 2021, and this kind of paper was difficult to obtain. In view of the simultaneous increase in the price of other raw materials (inks, solvents, adhesives, plastics), and of energy and transportation, the pressure on printers increased over the course of the year, with generalised negative effects on operating margins.
A Flash Survey conducted by Centro Studi Assografici in February 2022, analysing the costs of the production factors of printing companies, shows that the highest cost increases in 2021 concerned electricity and gas, which grew respectively by +47% and +46%. Costs increased by around 30-35% for paper and cardboard (+33%) and for plastics (+28%). Production costs increased by less than 20% for transports (+17%) and inks/solvents/adhesives (+15%). The total cost of production for printing companies is estimated to have grown by an average of 27% in 2021.
Based instead on the Milan Chamber of Commerce price lists for printing paper, the increase registered in 2021 for paper for newspapers, catalogues and the mass retail sector is between +24% and +38%, the increase for uncoated papers is between +8 and +19%, and that for coated papers is between +19% and +24%.

Trends in specific printing market segments

Based on April 2022 Istat data, production in the printing sector followed a trend similar to the turnover, closing 2021 with a two-digit 10% increase, determined by publishing printing segment (+19.4%). However, production in advertising and commercial printing segment is still slightly declining (-2.1%), despite the comparison with 2020, when the pandemic was at its peak.
In terms of products, production recovery is still mainly driven by books, which are growing significantly (+33.6%), while the worst-performing publications are magazines (-18.7%). A moderate decrease in production has been registered for advertising and commercial printed matter (-2.3%), while production of forms partially resumed (+6.9%) after the strong decline in the previous 3 years.
According to the Aie Association, the book market recovered significantly in 2021: the sales value of (miscellaneous) printed books is estimated to have grown by 16%, compared to an 18% growth in copies sold, thus exceeding 2019 pre-crisis values. It should also be noted that in 2021 a decline was registered in e-book sales (-11%) and that audio book sales grew considerably (+37%). Also worthy of note is the recovery of book sales in bookstores, after the strong crisis in 2020, and the steady growth in online sales, while – with a further slight decrease in sales – the mass retail industry is still in great difficulty. The market share, however, remains basically stable: in 2021, physical libraries weighed 51.5%, online libraries 43.5% and the mass retail industry 5%.
In 2021, advertising also recovered its 2020 losses: according to Nielsen, the Italian advertising market closed 2021 at EUR 8.9 billion, with a double-digit growth (+13.5) over 2020 and even a slight increase of 1% over 2019 pre-crisis figures. In 2021, advertising in periodicals grew by 3.6%, slightly less than in newspapers (+4.3%), meaning that, overall, press advertising grew by 4.1%. The 2021 advertising recovery is spread across all media in general, and particularly concerns TV (+14.4%) and web advertising (+15.1%).

Moving on to advertising and commercial printed matter, the segment suffered from the merely partial recovery in 2021 of several user sectors of the services, which had been heavily affected by the pandemic in 2020, such as tourism, transport, hospitality and catering, cultural and recreational activities, and trade shows/events. Among the major users of advertising and commercial printed matter (leaflets, posters, etc.), in sectoral terms, the mass retail industry's advertising increased considerably in 2021 (+32.8% over 2020). In 2021, a two-digit recovery (+28.6) was registered in billposting advertising investments, strongly affected in 2020 by the population's first lockdown due to Covid-19, and direct mail investments also increased (+6%).

Trends in printing process

The Acimga Association reports that, having closed 2020 – the year when the Covid-19 pandemic was at its peak – with every indicator down compared to the previous year, the Italian printing and paper converting machines industry is on the upward trend again, having registered excellent results in 2021. Turnover was 15% higher in 2021 than in 2020. National consumption registered positive results (+11.8%). Foreign trade grew, in terms of both exports (+16.4%) and imports (+8.9%), and the balance of trade also improved by almost 20%. There was also a strong recovery in exports to the main market, the US, and other major markets.

Trends in the printing employment market

Based on the latest Eurostat-Istat data available as of April 2022, employment in the Italian printing sector decreased by 2.2% in 2021 over 2020, down roughly from 77,800 to 76,100 workers. After the huge increase, in 2020, in the number of hours admitted to the Redundancy Fund System in the "Publishing, printing and reproduction of recorded media" segment, which had grown 9 times over 2019 (from 4.6 million to 39.1 million), in 2021, from the 2nd quarter onwards, there was a sharp decrease in the hours admitted to the Redundancy Fund System: over the whole of 2021, the hours admitted were 29.6 million – down by 24.4% over 2020, but still high in absolute terms.

Trends in the number of operating printing companies

In 2021, Infocamere data showed 15,996 companies operating in the "Printing and reproduction of recorded media" segment, about 95% of which have less than 20 employees. Active companies dropped by 553 units compared to 2020, i.e. by -3.3%.
The decline in printing companies has been ongoing for several years, but the 2021 decrease was more negative than in 2020 (-1.8%), therefore it is plausible that the strong 2020 crisis in the printing sector linked to the Covid-19 pandemic, despite subsequent signs of recovery in 2021, speeded up the difficulties and closing down of generally weaker enterprises, such as SMEs, that were less prepared to cope with the situation.

Trends in foreign trade

The favourable recovery of 2021 printing sector's turnover appears clearly also when we observe the foreign component. Following more intense growth in the 2nd and 4th quarter of 2021, the year 2021 closed with a significant increase in the printing sector's export value (+17.4% over 2020). It should be noted, however, that 2020 was characterised by the Covid-19 pandemic, which also heavily affected international trade.
In terms of its share of the industry's turnover, the printing sector's export value increased significantly from 16.3% in 2020 to 17.8% in 2021.
Considering the main products, in 2021 a significant increase was observed in the export value of books (+30.9%) and a near 10% (+9.1%) increase in advertising and commercial printed matter, while magazine exports fell moderately (-1.4%). Among minor products, two-digit export growth was also registered for postcards (+39.6%), cartographic works (+26.4%), stamps (+23.2%) and transfers (+17.7%); there was a decrease, instead, in exports of manuscript or printed music (-68%), albums/picture books (-18%) and calendars (-8.3%).
From the geographical standpoint, in 2021 the export value of printing products (compared to 2020) grew in the three main countries of destination and fell in the 4th and 5th. In particular, 2021 exports increased significantly towards the main country, France (+21.9%), and especially towards the United States (+57.8%), which surpassed Germany in this ranking (+2.7%), moving from the 5th destination country in 2020 to the 2nd in 2021; 2021 exports to the United Kingdom (-0.5%) and Switzerland (+0.3%) were substantially stable.

Taking a look at the 15 leading destination countries with regard to printed matter, 2021 export growth was reported to be over 30% in many countries, such as Spain (+35.6%), the Netherlands (+33.1%), Belgium (+35%), the Czech Republic (+52.6%), China (+127%) and Hungary (+42%).
The year 2021 also closed with a double-digit increase in the import value of the printing sector compared to 2020 (+11,2%); growth was very strong in the importation of advertising and commercial printed matter (+44.5%), while the increase in the importation of magazines (+0.7%) was negligible; imports of books fell by 4%.
From the geographical standpoint, an analysis of the 5 principal countries of origin of printing products showed a decrease in imports in 2021 over 2020 from the principal country, namely Germany (-4.4%), and from the 3rd country, the United Kingdom (-15.4%). Imports grew significantly, instead, from the 2nd country, France (+42.6%), from the 4th country, China (+16.3%), and from the 5th country, Poland (+31.5%).
Taking a look at the 15 leading countries of origin with regard to printed matter, 2021 growth was very strong in terms of imports from the United States (+51.3%), the Netherlands (+30.9%), Canada (+1,845.1%) and Romania (+131.7%); this figure dropped significantly, instead, for Spain (-19.2%) and Slovakia (-5.7%).

Trends in labour costs

In January 2021, negotiations for the renewal of the National Collective Labour Agreement (CCNL) in the printing-editorial industry were successfully concluded. The new printing-editorial CCNL will run from 1 January 2021 to 31 December 2022. The first wage increases were applied as from May 2021.
According to Istat data, hourly wages in contracts for workers and employees in the printing industry increased by 0.9% in 2021 over 2020.

Developments affecting competitiveness

The 18app continued to have a positive effect on the book market in 2021. This is a Culture Bonus of 500 Euro for 18-year-olds, promoted and supported by the Federazione Carta e Grafica (Federation of the Industry Associations for Paper, Printing, Converting and related Technologies), of which Assografici is a member together with the Acimga and Assocarta associations. The Bonus can be spent on cultural products, including books and from this year also subscriptions to periodicals (as well as newspapers). Since November 2021, this measure has become a structural part of the Budget Law. The success of the Culture Bonus – with more than 2 million young people benefiting between 2016 and 2021, for a total state investment of about EUR 1 billion, and with the involvement of about ten thousand exhibitors – has been taken as a model by other European countries, such as France and Spain, which have adopted similar measures.
In order to support press advertising investments, the “Sostegni-bis” Legislative Decree no. 73/2021 confirmed, for the year 2021 (and 2022), a uniform tax credit amounting to 50% of the advertising investments made in daily newspapers and periodicals (also online), up to a maximum amount of EUR 65 million. The incentive has always been supported and promoted by the Federation of the Industry Associations for Paper, Printing, Converting and related Technologies.

1.4.5 Latvia

2021 turnover

The total turnover increased by 14% in 2021 compared to 2020 in Latvian printing companies, but at the same time it is difficult to assess where the increase comes from – it could be just due to the increased material prices. No printers have complained about the demand, only about supply chain challenges.

Print sectors most impacted by the paper crisis and generally by raw materials, energy and transport costs' increase

There is not a single print segment which has not been impacted by material shortages and continuous retrospective price changes. Printers and customers have had to change their order placing habits – now orders are placed up to 3-6 months ahead to answer the paper suppliers' offered lead times. As these are very often changing together with prices, many of Latvian printers have lost orders, or orders have been cancelled. Printers have to increase warehouse stocks and thus freeze finances and overload warehouse facilities. Allotment of ''quotas'' for printers on different paper grades is a new way for paper mills to sell more expensive papers to substitute papers due to the lack of ''quotas''. The limited availability of soft cover board impacts book producers as well as packaging and there is no sign of possible improvements in the nearest future – just the opposite.

Printers got used to difficulties getting mechanics from equipment producers to do repairs of machinery (due to Covid), but in the second part of 2021, they were informed about lack of the necessary spare parts or extremely long delivery times – up to 2 months or in some cases even 6 months! Electronic spare parts cannot be purchased for stock – printers have to send the broken one and get a replacement instead. This created unnecessary downtimes and delays in production.

Summarized price increase over 2021 looks as follows:

- fibre-based materials from 20 – 90 %
- packaging, chemicals – up to 110 %
- wooden pallets – 300%
- electricity – 25 - 75 % (it is impossible to plan cash flow as these costs are constantly changing)
- gas – 300%
- transport – 20 %

There are no positive trends in 2022 – we can see further increases due to the war in Ukraine in all areas.

Trends in specific print markets

Books: + 17%
Magazines: -15%
Newspapers: -10%
Other commercial printing (catalogues, advertising…): +14%
Printed packaging: +8%

Trends in printing process

Some companies report that digital printing in 2021 increased by 30 - 35% compared to 2020.

Trends in the employment printing market

Unemployment rate at the end of 2021 was 6.9%, but in the capital Riga – 4.6%
Inflation increased from 6.2% in the last quarter of 2021 up to 7.4% in February 2022 with further tendency to increase.
On-site training of production employees has been difficult to plan and execute due to continuous Covid restrictions either in Latvia or countries providing instructors.
Lots of different on-line workshops for sales, marketing etc were available and were used by many companies.

Trends in the number of operating printing companies

No changes in printing companies, but there is one material supplier which has closed down.

Trends in foreign trade

Exports in 2021 increased by 12%. From the total export, 62% were directed to other EU countries, 38% to Norway, Russia (10%), Ukraine etc. The most exported products include books, packaging, labels.

Trends in labour costs

Although many companies in 2021 had to remain closed for long periods of time due to Covid restrictions and employees and companies received only down-time support from the state, the average gross salary in 2021 was € 1280. From 1 January 2022, there was an increase in minimum gross salary up to € 500.
Latvian printing companies report salary increases of 7.5-10% during 2021 and are still under pressure with inflation growing.

Specific developments impacting the competitiveness of the industry

All Latvian society appreciate the VAT tax reduction on books from 21% to 5% starting with the 1st of January 2021.
During the Covid crisis, many companies received financial state support for current assets, Covid sick leaves were fully paid by the government from day one.

1.4.6 Estonia

2021 turnover

The year 2021 was one of recovery from the worst of the pandemic, though later waves of the virus still had an impact. The turnover of the Estonian printing industry in 2021 registered a positive trend again, after the very difficult year of 2020 when the turnover reached its lowest level over the past five years.

Print sectors most impacted by the paper crisis and generally by raw materials, energy and transport costs' increase

The keywords of 2021 in the printing industry were undoubtedly related to raw materials: repeated price increases and persistent deficits. As an impact of UPM strikes, the situation was most difficult for label printing companies at the end of 2021.
There were still Covid impacts during 2021. There were less events in the cultural sector and due to restrictions, there was less demand for advertising and other materials for commercial print customers.

Trends in specific printing market segments

After the slowdown in 2020, all printing sectors increased again in 2021, in particular label printing and packaging production, but book printing did also well.

Trends in the printing employment market

The number of employees decreased by 4.2% in 2020 (and -3.5% in 2019) in the printing sector and increased by 3.2% in 2020 (and 0.6% in 2019) in the packaging sector. The same trend continued in 2021, the number of employees decreased in the printing sector and increased slightly in the packaging sector.
As there is a lack of labour force in all industries in Estonia, investments are made in machines to improve production efficiency.
The unemployment rate in Estonia reached a law level in 2019 (4.4%), it increased in 2020 (6.8%) and fell again in 2021 (6.2%).

Trends in the number of operating printing companies

There was no significant change in number of operating companies.
The three biggest label printing companies had changes in ownership and are now part of different European label printing groups.

Trends in foreign trade

More than half of the output of the printing industry is exported, mostly to European countries. Exports decreased significantly in 2020 due to COVID (-26%), and grew again in 2021 with the growth of sales.

1.4.7 The Netherlands

2021 turnover

In the Netherlands the Gross Domestic Product (GDP) in 2021 grew by 5% compared to the COVID-19 year 2020, and with 1.2% compared to 2019. In the printing industry, the domestic market for print products and services was shrinking even more by -0.3% compared to 2020. The turnover for the foreign market grew by 8.9%, but still lower than in 2019. The total print turnover in 2021 was about € 2,873 million, 11.8% less than in 2019. These figures show that the printing industry in The Netherlands was hit much harder than the total Dutch economy and is having a harder time recovering from the COVID-19 lockdown measures.

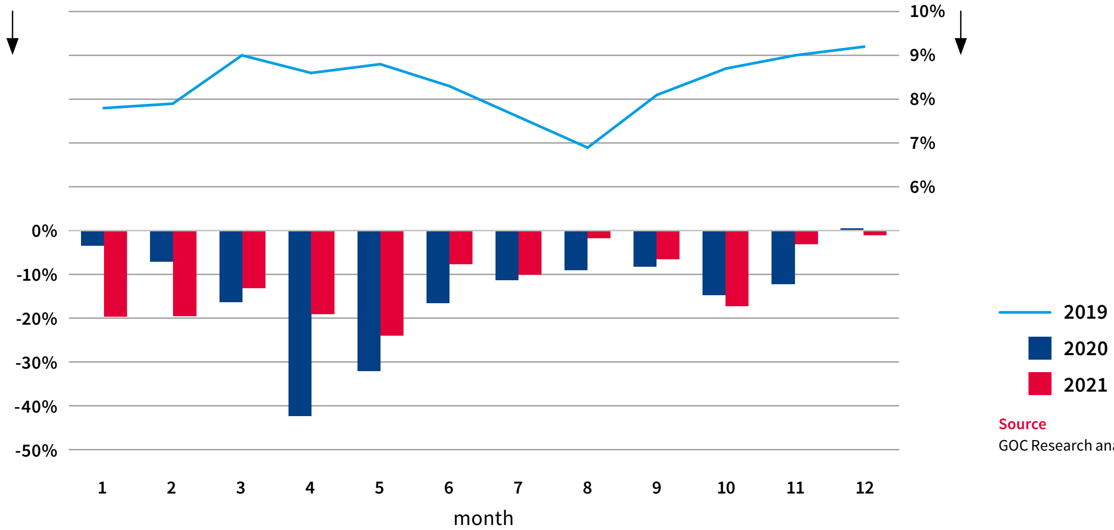
Printing industry turnover and GDP NL; index (2015=100)*

Year	Domestic market	Foreign market	Total turnover	GDP-NL
2010	152,9	87,1	132,8	96,3
2011	146,4	93,9	130,4	97,8
2012	125,3	96,9	116,6	96,8
2013	120,8	101,6	114,9	96,7
2014	109,7	100,1	106,8	98,1
2015	100,0	100,0	100,0	100,0
2016	98,8	126,6	107,2	102,2
2017	92,1	118,7	100,1	105,1
2018	90,1	114,4	97,5	107,7
2019	85,7	115,2	94,6	109,4
2020	74,6	93,2	80,2	105,7
2021**	74,3	102,1	82,8	110,7

Source
GOC Research analysis of CBS Statline data
* Gross Domestic Product (GDP) in the Netherlands
** preliminary figures

The COVID-19 crisis had a big influence on most sectors within the printing industry. In the figure below, the impact on turnover is illustrated for each month of 2020 and 2021 compared to 2019. The figures show the deviation in percentages of each month in 2020 and 2021 compared with the turnover level in the same month in 2019. The turnover level already started in January 2020 (before COVID-19 impact) with a lower level than January 2019. In March 2020, the turnover starts to fall and in April 2020, the turnover decline is the strongest. It was the first lockdown in The Netherlands. In the next months, the turnover recovered for the printing industry. In the first months of the year 2021, the turnover was declining even more but from March 2021, the turnover started to recover from the COVID-19 impact.
The printing sectors that were least affected by the COVID-19 crisis were printing of packaging, newspapers, magazines and books. All other printing sectors were affected very strongly as a result of the long-term closure of the catering industry, events industry, sports, theatres, museums et cetera. However, in 2021 the turnover did not fully recover compared to 2019.

COVID-19 impact on turnover in 2020 and 2021 compared to 2019



Source
GOC Research analysis of CBS Statline data

Print sectors most impacted by the paper crisis and generally by raw materials, energy and transport costs' increase
The prices of paper, including packaging papers, transport, gas and electricity rose strongly in 2021. On the other hand, the prices for printing productions were lower than in 2019 and even 2020. This means that printing companies were not successful to pass on cost increases in their prices. This stimulates strongly to reduce production costs by increasing productivity.

Trends in production costs and prices print products; Index (2015=100)

Year	Production costs							Output prices
	Paper	Ink	Transport	Gas small	Gas big	Electricity small	Electricity big	Print industry
2015	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0
2016	98,4	99,0	102,0	103,30	94,32	98,26	96,34	95,5
2017	104,1	94,8	104,9	98,87	87,57	95,65	89,02	93,6
2018	111,2	92,4	109,6	104,54	93,82	106,09	96,34	95,8
2019	105,7	93,0	111,5	110,98	93,75	100,87	107,32	97,7
2020	103,4	-	112,0	123,87	94,64	105,22	125,61	96,1
2021	127,6	92,5	116,4	130,19	119,06	118,26	142,68	95,8

Source
GOC Research analysis of CBS Statline data

Trends in specific printing market segments
Books: The quantity and turnover in Euro are growing for paper books in 2021. The share of e-books in total turnover for books is about 12% in 2021 and did not grow strongly in the past years. Almost all popular titles are available on internet for free. Reading books on e-reader devices is not (yet) very popular in the Netherlands, paper books are preferred. In book printing, there is a strong competition with Denmark and China. In 2021, books are more often printed in small runs. With some book titles, it is possible to order a separate printed copy. This copy is fully automated, produced in a digital printing and finishing production process.

Magazines: The number of magazine titles is growing but circulation figures are going down in 2021. This is the case for almost all titles. Almost all magazine titles have a paper and an e-based version.

Source
GOC Research analysis of CBS Statline data

Newspapers: Paid newspaper circulations went down very strongly and continued to go down in 2021. The number of newspaper titles is stable. All the titles also have an e-news portal version. E-news portals partly have free access and partly paid subscription or pay per article. The loss of paper-based turnover in Euro is still not compensated by the paid subscription for e-news access. In 2019, the national market for freesheets declined and stopped in 2020 completely. The impact of news-apps on smartphones caused a rapid decline in the circulation of the freesheets, the corona crisis was only the moment to stop.

Direct mail: In the past ten years, personalised direct mail grew rapidly because of digitalisation of personal information and one-to-one marketing strategies of institutions (health care, government) and companies. More and more, this kind of personalised communication takes place over the internet instead of paper. A more recent threat for personalised direct mail is the European privacy legislation. On the one hand because it is more difficult to collect and use personalised information, on the other hand because the public opinion becomes more hostile to personalised direct mail. In Amsterdam, the local government has changed the distribution of all non-addressed commercial print to a system that allows posting only with a sticker YES on the individual post box. The print employers' organization KVGO has lost all court cases against this local legislation. Other cities in the Netherlands are introducing the same sticker-system in 2021. In 2022, a digital system 'InMijnBus.nl' will allow all Dutch households to use this digital Mailing-system to block or to give access to their mailbox for all unaddressed mailings. With this digital mailing-system 'InMijnBus.nl' it will be possible to block and to give access to all separate mailings, and to change their preferences every day.

Other commercial printing (catalogues, advertising…): Job advertisements, manuals, phone books and timetables moved already completely to internet and social media devices. Product advertising in newspapers partly moved to internet. Advertising in magazines mostly remained. Because of the circulation decline, the prices for advertisement declined too and big discounts are offered to advertisers because of strong competition between publishers.

Printed packaging

Printed packaging is performing well because of economic growth and the development of webshop deliveries at home. In general, the position of paper packaging is growing against the pollution problems with plastic packaging. Paper packaging are gaining ground on plastic packaging already in the Netherlands. In 2022, the Dutch government wants to introduce a ban on all kinds of plastic and paper packaging for food and drinks such as cups. This ban of plastic and paper cups will even apply to offices and institutions.

Trends in printing process

Digital printing: Digital printing is rapidly growing in Dutch printing industry. In 2004, already 22% of the companies had digital printing systems (inkjet and laser) for print productions in addition to offset, flexography and gravure printing systems. These printing systems were used for small runs (max. 250 prints) and for personalised direct mail. In 2021, about three quarters of the printing companies (75%) had also digital printing systems in combination with other more traditional printing techniques. In 2004, about 5% of total print turnover was realised by digital printing, in 2021 this is already 28%. Although still not as much as predicted by Frank Romano, who predicted some years ago that this would be at least 50%.

In 2021, the first Dutch printing company installed a nanographic type Landa S10P press machine. In the same year, a second printing company bought a nonographic digital S10P press from Landa.

Share of digital printing: companies and total turnover

Year	Companies with digital printing in addition to offset etc.	Share of digital printing in total turnover
2004	22%	5%
2008	43%	8%
2012	62%	17%
2018	64%	21%
2021	75%	28%

Source
GOC annual survey research

Web-offset: In the Netherlands, web-offset is still strong in production of newspapers and magazines but is losing share of production to sheetfed offset and flexography. That is because the production quality of flexography has become much better the last ten years, the print speed of sheetfed offset is very high while the printing runs are much smaller nowadays.

Sheetfed offset: Sheetfed offset still has a strong position in printing production because of outstanding quality and speed (18.000 sheets per hour) combined with automated inking systems, automated plate change, automated clean up systems and automated visual ink density control systems. The automation system creates a complete control circuit. That is why offset is still in the lead of the printing production. Printing companies are using more and more large format and 8 colour unit printing machines to combine different orders in one production run. All the printing companies use computer-to-plate equipment for plate making and for automated digital operation of offset (sheet and web) and flexography presses.

Publication gravure: Publication gravure disappeared in 2019 in The Netherlands in web printing of magazines or other publication.

Packaging gravure: Packaging gravure is still in production but slowly replaced by flexography.

Flexography: In the Netherlands, flexography has a strong position in packaging. These are large presses with 10 printing units and completely automated. Most of the presses are sleeve printing. Behind the presses are fixed robotic arms in production lines like the automotive production industry.

Large format: The small sized printing companies (less than 20 staff) have small or medium size format presses. The medium sized and larger printing companies have more and more large format presses. Large format presses offer the possibility to combine different production orders to one press production run. It makes production cheaper and faster. In doing this, the modern printing company has a much larger production capacity than small sized print companies. That is why their prices are lower than in small sized companies.

Cross media services: For already 20 years, a growing number of printing companies were offering more and more new media services like database management and website building. There is however a very strong competition with specialised IT, design and communication companies offering the same services. The large publishing companies have specialised social media and web-based publishing departments for their own. So, it is not an easy way to make more money to compensate the reduction of print.
In 2020, most printing companies still experience digitalisation in the media as an ongoing threat for their business because the total amount of print is declining every year. Their strategy is first of all oriented to more efficiency in printing production process and not in developing more digital media business.
(Bar)Coding and Print-to-web are techniques most companies can offer, creating and hosting Websites much less. That is because of competition with designing, communication and IT companies. Mobile apps and mobile marketing are emerging techniques and services, also under strong competition with design and IT companies.

In 2021, there was a growing number of successful printing companies doing business almost only by web-to-print ordering systems. They were collecting a large amount of small digital print runs for low prices. For a part, they created a new market for small run and cheap printed products.

Trends in the printing employment market

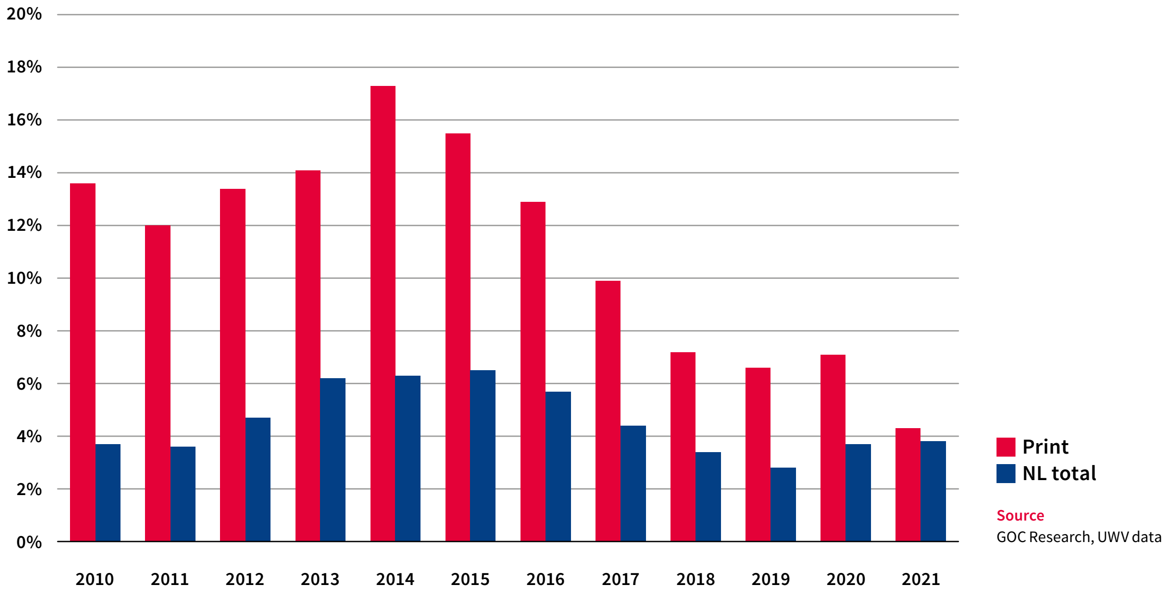
The employment is shrinking in 2021 but the unemployment rate in the printing industry was going down strongly in 2021 and is at the end of 2021 almost at the same level as the national unemployment rate. In The Netherlands, unemployment is at the end of 2021 3.8%. The unemployment rate for the printing people is 4.3%. In 2009 the employers' organization and trade unions have established a mobility agency (Centre for Creative Careers; C3works!). This mobility agency organizes career support and training for unemployed printers and other unemployed graphic personnel direct at the start of unemployment, while unemployment agencies of the government only starts after 6 months of unemployment. The government has changed the unemployment benefit period step by step from 38 month to 24 months. At the same time, the government has changed the year of retirement in steps of 3 month to 66 in 2018, 67 in 2021 and even further to 68 in 2033. The age of retirement is coupled on the average life expectancy age of the whole population. In 2021, the government introduced a solution for those employees who are working in physically demanding occupations. The government asked employers organisations and labour unions to make branch arrangements about a system of flexible retirement in combination with a system where employees have more personal options with variation in height and the age of pensions. The Dutch printing industry has introduced in early retirement regulation for printing and finishing professions, and a branch funding to pay for early retirement benefits.

Employment printing industry

Year	Employees	Self-employed and entrepreneurs	Total employment
2010	29.800	3.835	33.635
2011	28.100	3.715	31.815
2012	26.100	3.730	29.830
2013	24.800	3.595	28.395
2014	22.900	3.485	26.385
2015	20.700	3.320	24.020
2016	19.500	3.235	22.735
2017	19.400	3.195	22.595
2018	18.100	3.080	21.180
2019	17.300	2.970	20.270
2020	16.700	2.885	19.585
2021*	16.200	2.755	18.955

Source
GOC Research analysis of CBS Statline data
* preliminary figures

Unemployment rates in the print industry and NL total



Source
GOC Research, UWV data

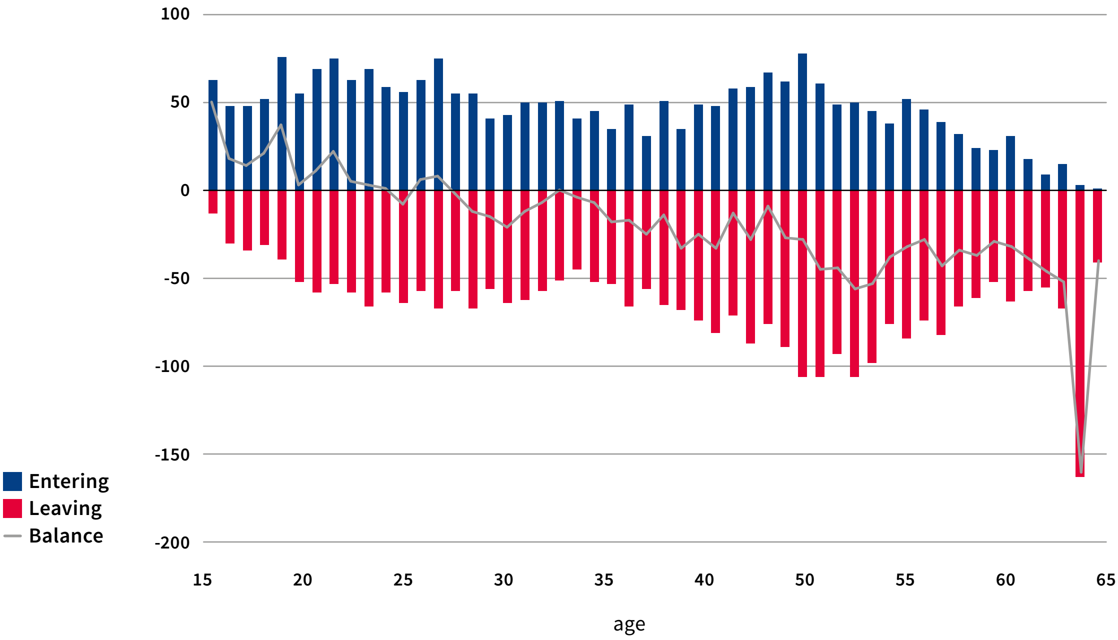
In the training market, there was a strong shift to alternative training programs for a career move to other professions outside the printing industry. In 2021, it is still very difficult for employers to find qualified personnel. The numbers of students in printing professions in the regular vocational education schools is very low and by far not enough to compensate the number of retiring print staff. The branch training centre GOC started in 2017 a dual training program for printing and finishing. The last five years the number of staff on temporary work contracts has increased. In 2020, about 13.3% of the total print staff left the printing industry and in the same year 18.5% entered the industry. The consequences of the great flows of people leaving and entering the companies translates into the need for ongoing training of entering staff. Often this training is given on the job by qualified workers.

Total number of students in printing professional education schools

Profession	EQF Level	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021
Graphic design	4	10.914	11.148	11.271	10.834	10.668	10.541
DTP	2	330	370	317	391	303	401
DTP	3	988	975	1.049	1.049	852	831
DTP	total	1.318	1.345	1.366	1.440	1.155	1.232
Printing and finishing	2	49	47	23	24	10	9
Printing and finishing	3	13	13	14	3	0	0
Printing and finishing	total	62	60	37	27	10	9
Total students	2-4	12.294	12.553	12.674	12.301	11.833	11.782

Source
GOC, data from DUO

Number of staff entering and leaving the print industry in 2020



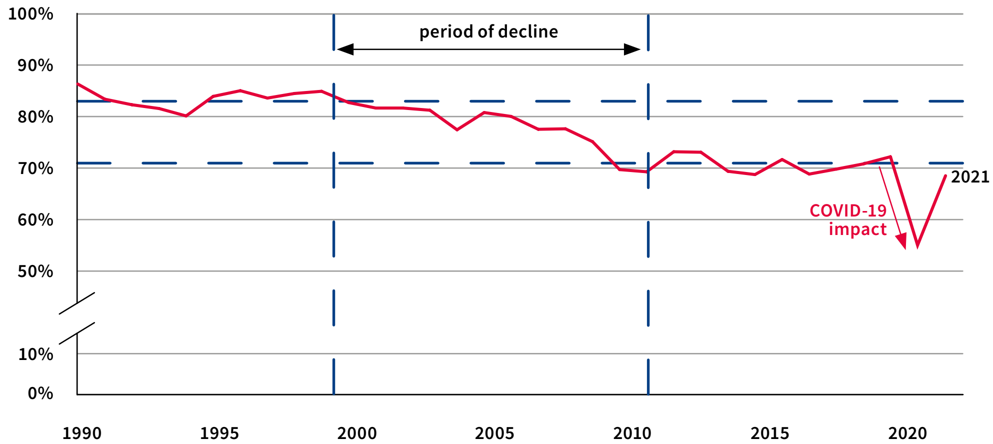
Trends in the number of operating printing companies
The total number of companies is shrinking already for 25 years. The number of one-person companies (self-employed without personnel) is rather stable but is also shrinking in 2021. The number of companies with personnel is falling sharply. That's why the one-person companies were making an increasing share of total companies every year.

Companies and self employed (31 december)

Year	Self-employed 1 person	Small companies 2-9 staff	Small medium-sized 10-49 staff	Large medium-sized 50-99 staff	Large companies 100+ staff	Total
2010	1.580	1.570	485	50	30	**3.715**
2011	1.660	1.550	430	50	30	**3.720**
2012	1.665	1.455	390	55	30	**3.595**
2013	1.690	1.355	370	40	30	**3.485**
2014	1.635	1.280	345	35	20	**3.315**
2015	1.650	1.210	315	40	20	**3.235**
2016	1.620	1.180	295	40	20	**3.155**
2017	1.625	1.110	280	40	15	**3.070**
2018	1.590	1.060	265	35	15	**2.965**
2019	1.575	995	265	35	15	**2.885**
2020	1.570	950	245	35	15	**2.815**
2021	1.540	945	230	25	20	**2.760**

Source
GOC Research analysis of CBS Statline data

Production utilization in the Printing industry fell down to a structurally lower level



Source
CBS statistical data/editing by GOC

There are three main reasons to declare the long term and structural decline of companies and employment in the printing industry in The Netherlands: first of all, the ongoing change of communication and distribution of information from paper to internet and social media devices. Expenditures of advertising follow that trend. It even happened to other older media distribution systems like broadcasting and radio. But the second main reason is the strong productivity growth in production technology in the printing process. First of all, in the prepress, then in the printing process and now also in the binding and finishing process. Less employees are needed in the production process to get the work done. The figure shows the decline of the production utilisation between 1998 and 2010 as a result of the growing production capacity despite of the ongoing shrinking of the number of companies and employees. The third reason is the consequences of the climate policy that changes the attitude of the population about the use of printed paper as an important source of the distribution of information. The COVID-19 impact on production utilisation in 2020 was temporarily. In 2021, the level of production utilisation was almost back to the level before COVID-19.

The number of bankruptcies was 6.3% in the beginning of the economic crisis but was less every year until 2017. In 2017, there was an increase from 1.7% in 2016 to 2.4%. In 2018, the number of bankruptcies was low with 1.5% of total companies (with staff), and in 2019 even lower (1.4%). In 2020, the number of bankruptcies because of the COVID-19 crisis was very limited with an increase of 0.1% to 1.5%. In 2021, the number of bankruptcies was extremely low (0.3%). The reason was the support from the government on labour and fixed operating costs for companies during the COVID-19 period.

Bankruptcies (excl. self-employed)

Year	Companies	Share of companies
2010	134	6,3%
2011	129	6,3%
2012	97	5,0%
2013	88	4,9%
2014	71	4,2%
2015	58	3,7%
2016	26	1,7%
2017	34	2,4%
2018	20	1,5%
2019	18	1,4%
2020	19	1,5%
2021	4	0,3%

Source
GOC Research analysis of CBS Statline data

Trends in foreign trade

In 2019, the import and the export figures were growing strongly and shrinking from outside-EU countries. The export is split up to export of print products made in The Netherlands and transit export. The NL-made export was in 2019 exceptionally high. A large amount of the export is transit to other EU-15 countries. All import and export figures are very low in 2020 because of the COVID-19 crisis. In 2021, the import and export were higher than in 2020, but not yet on the same level as in 2019.

Import and export print products inside EU and outside EU (x 1.000 Euro)

Year	Import to NL			Export from NL			
	EU	Outside-EU	Total	EU NL-made	EU Transit	Outside EU NL-made	Total
2010	680.319	209.955	890.274	741.507	406.337	108.163	1.256.007
2011	684.195	224.873	909.068	707.755	433.786	98.694	1.240.235
2012	689.230	226.536	915.766	730.411	391.572	117.744	1.239.727
2013	660.686	208.411	869.097	734.033	334.428	126.836	1.195.297
2014	551.825	189.398	741.223	739.505	291.883	151.704	1.183.092
2015	695.373	183.632	879.005	740.818	249.580	164.494	1.154.892
2016	697.427	194.530	891.957	714.691	344.111	163.636	1.222.438
2017	711.358	203.436	914.794	862.546	307.801	175.754	1.346.101
2018	750.980	188.378	939.358	750.165	321.499	179.728	1.251.393
2019	784.206	181.735	965.940	1.070.029	385.793	167.429	1.623.253
2020	557.362	236.674	794.035	984.508	295.737	236.899	1.517.146
2021	616.061	285.353	901.412	985.479	328.493	241.360	1.555.330

Source
GOC Research analysis of CBS Statline data

Country data of import and export in 2021 was not yet available. The most important countries for import and export of printed products are Germany, Belgium and the United Kingdom. France is also an important country for the Dutch export of printed products but less important for import. In the last ten years (2010-2020), the import and export of print from and to the UK reduced strongly. The import from Germany was shrinking and the export was rising in the past 10 years. So, Germany becomes more important for the Dutch printing industry. The export to Belgium grew in 10 years strongly and the import remained stable. The trade with the USA was rising in 10 years. China counts in 2020 for 7.9% in total import of printed products to The Netherlands, so not very large compared to the neighbouring countries.

Top export and import countries for printed products in 2020

Countries	Import to NL from country		Export from NL to country	
	Share of total import	Growth 2010-2020	Share of total export	Growth 2010-2020
Germany	23,6%	–	15,5%	+
Belgium	22,2%	=	43,9%	++
United Kingdom	8,8%	– –	8,0%	– –
China	7,9%	+	0,3%	=
USA	8,4%	+	1,1%	+
France	3,1%	+	9,7%	=
Italy	1,6%	–	1,8%	–

Source
GOC Research analysis of CBS Statline data

Trends in labour costs

In The Netherlands, labour costs were rather stable for many years because the wages did not rise much. That situation is changing. The wages as a large part of the labour costs are rising, also in the printing industry. Collective bargaining in 2021 between the employers' organisation and labour unions ended in an agreement about a step by step rise of wages of 6.5% in a period of 27 month, starting on 1 January 2022 until 1 April 2024.

Developments affecting competitiveness

In 2021, there are six main trends with uncertain effects for the graphic industry in the (near) future:

- The consequences of the COVID-19 crisis in 2022 and future years. Will there be more lockdowns with dramatic falls of turnover, and more bankruptcies now that the support from the government has stopped?
- The long-term consequences of the Brexit for the import and export of printed products. The UK is the third in importance for foreign trade for the Dutch printing industry;
- The cost effects of the energy transition. Energy costs will go up for the energy intensive paper industry and thus for the paper prices, but all energy prices are going up strongly for all the printing companies;
- The changeover in packaging materials from printing on many plastics to printing more and more on paper packaging. Print companies have to invest in new production equipment. On the other hand, some single-use products will be forbidden, like plastic and paper drink cups;
- The consequences of major legislation (national and local) for reducing environmental pollution and waste of raw materials from printed products. The introduction of a national digital mail-system for free advertising papers will reduce paper advertising with about probably 50%;
- The consequences of ongoing automation and robotisation in production. The rise of the fully automated printing company will reduce employment.

1.4.8 Norway

2021 turnover
The downward trend continued in 2021. The turnover was reduced by 4% compared to 2020.

Print sectors most impacted by the paper crisis and generally by raw materials, energy and transport costs' increase
Generally, the price increase affects all companies. However, regarding electricity prices; the south of Norway had huge price increases while mid- and north Norway still have low electricity prices.

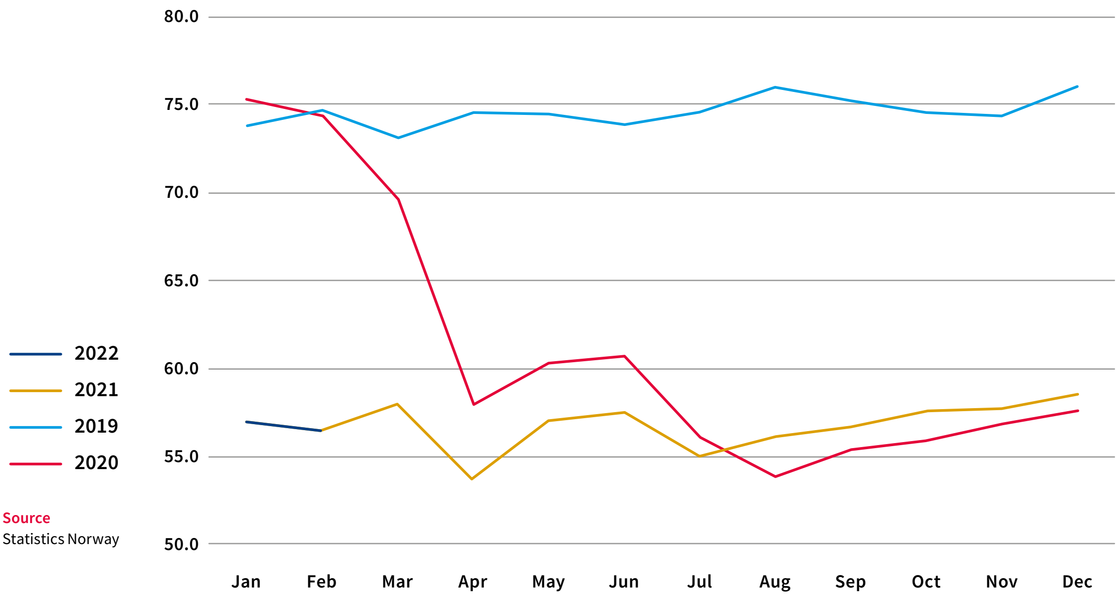
Trends in specific printing market segments
The downward trend for printed magazines and newspapers continues, with respectively -5% and -6%.

Trends in the printing employment market
Generally, there is a tight labour market, however due to the reduction of staff in many printing companies, it has not been a major issue. Labour costs are generally increasing.

Trends in the number of operating printing companies
The concentration of companies continues. There have been few bankruptcies.

Trends in foreign trade
There is little export from Norwegian printing companies. There was a downward trend in the import of printed material, with the exception of books where there has been an increase.

Production 2019-22, printing, 2005=100



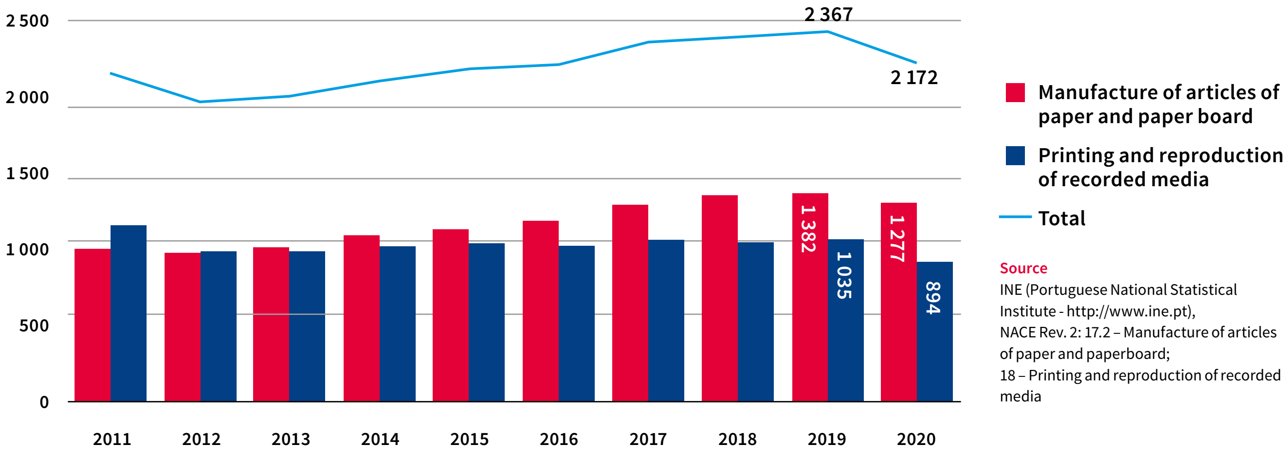
Source
Statistics Norway

1.4.9 Portugal

2021 turnover

Regrettably, the pessimistic outlook regarding the magnitude of the effects of the SARS-COV-2 pandemic on the economic performance of companies in the printing industry was confirmed, with a drop in annual turnover of more than 8% between 2019 and 2020 (last year available). The fall in turnover is more significant in the printing and reproduction of recorded media sector, where it reached 13%.

Printing industry annual turnover (Euro Million)



Source
INE (Portuguese National Statistical Institute - http://www.ine.pt),
NACE Rev. 2: 17.2 – Manufacture of articles of paper and paperboard;
18 – Printing and reproduction of recorded media

Print sectors most impacted by the paper crisis and generally by raw materials, energy and transport costs' increase

The disruption of global supply chains with the consequent generalised upturn in the prices of raw materials and energy has negatively affected the national economy, leading to an increase in the inflation rate. This situation has negative effects in most economic sectors, including the printing industry. Many managers in the sector consider that we are facing the "perfect storm" with prices escalating - paper, chemical components, energy and transport costs - combined with an economic environment also marked by high levels of uncertainty.

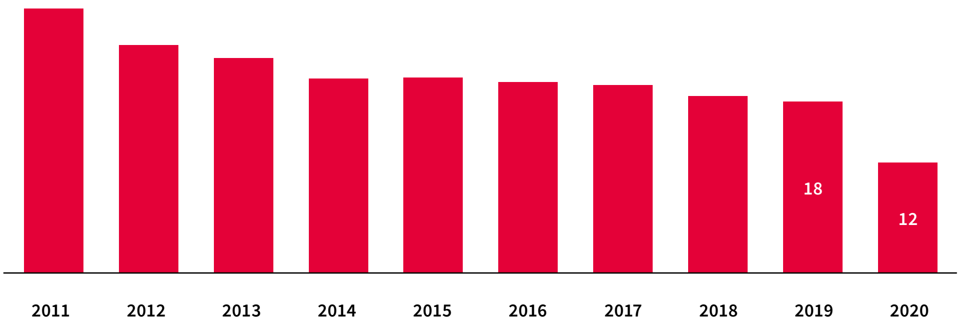
In fact, a pronounced increase in bleached pulp prices is expected (already announced by many producers), justified by issues related to constraints in the logistics area and also due to the war in Ukraine. The printing industry as a whole will be strongly impacted by this situation.

The recent invasion of Ukraine by Russia will contribute to the worsening of the situation and limit economic dynamism and intensify inflationary pressures. The negative impact on activity will result from the sharp increase in commodity prices, reduced confidence among economic agents, turbulence in financial markets and the effects of trade and financial sanctions imposed on Russia.

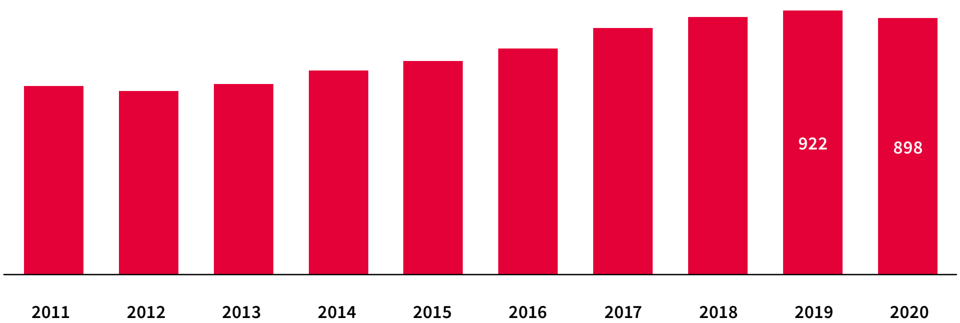
Trends in specific market segments

Books	▲	Prox: Book Publishing
Magazines	▼	Proxy: Magazines Publishing
Newspapers	▼	-
Direct mail	▼	Proxy: Advertising
Printed packaging	▼	Proxy: Paper packaging

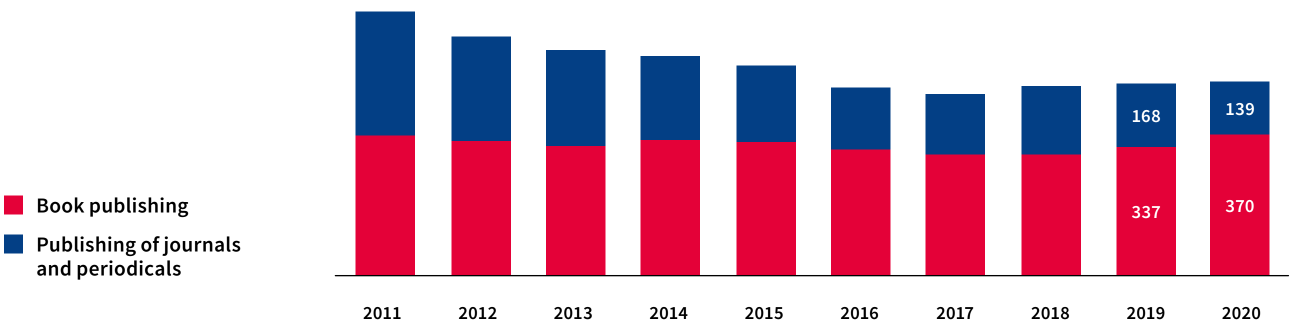
Newspapers printing annual turnover (Euro Million)



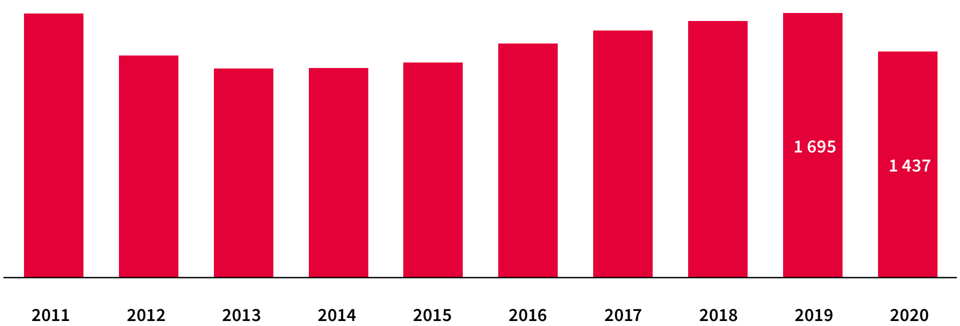
Paper packaging annual turnover (Euro Million)



Book, journals and peridocals publishing annual turnover (Euro Million)



Advertising (Euro Million)



Source
INE (Portuguese National Statistical Institute - http://www.ine.pt),
NACE Rev. 2: 18.11 – Printing of newspapers; 17.21 – Manufacture of corrugated paper and paperboard and of containers of paper and paperboard; 58.11 – Book Publishing; 58.14 – Publishing of journals and periodicals; 73.1 – Advertising

As for the newspapers segment, there was a steep decline of 35.7% in the respective annual turnover compared to previous year 2019. Thus, confirming the growing preference for online editions and for different sources of information, a transition accelerated by the pandemic context. With regard to the paper packaging segment (as a proxy to the printed packaging), there was an inflection in 2020 in its growth trajectory. In comparison with the previous year, it recorded a reduction of 2.7%. With regard to the "Books", "Magazines" and "Direct mail" segments, by resorting to the economic activities of book and magazine publishing and advertising as a proxy, respectively, it stands out:

- The annual turnover of book publishing grew by 9.8% in 2020;
- The annual turnover of magazine publishing fell by 17.2% in 2020;
- The annual turnover of advertising dropped by 15.3% in 2020.

Trends in printing process

Despite the lack of statistical information with the necessary level of disaggregation to distinguish between the different printing processes, it is possible to state that digital printing technologies continue to be a priority for most companies in the printing industry, as well as the automation of printing processes. Flexography and large formats continue to register significant demand in the Portuguese printing industry.

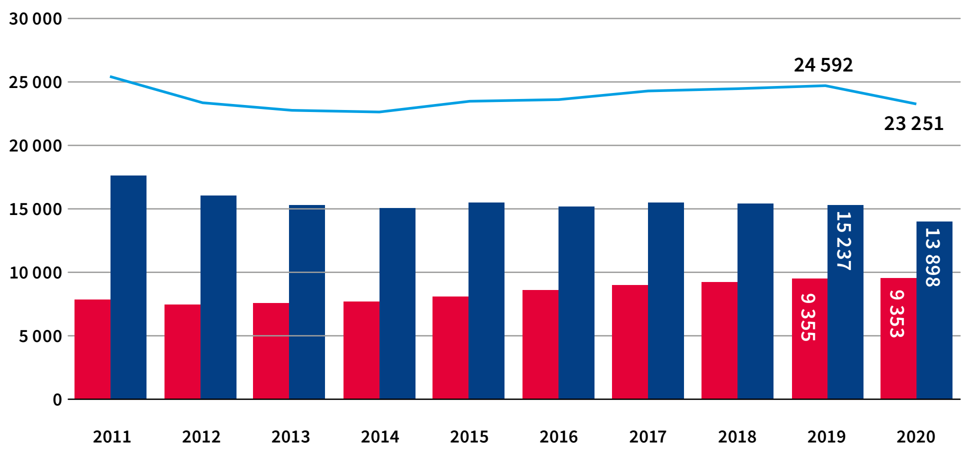
Trends in printing processes

Digital printing	▲
Weboffset	▼
Sheetfed offset	▼
Publication gravure	▼
Packaging gravure	▲
Flexography	▲
Large format	▲

Trends in the printing labour market

The negative effect of the pandemic is also reflected in the decline in the number of employees in companies in the printing industry as a whole, which fell by more than 5% between 2019 and 2020. It should be noted, however, that this decline is mainly felt in print and recorded media reproduction companies (less 9%).

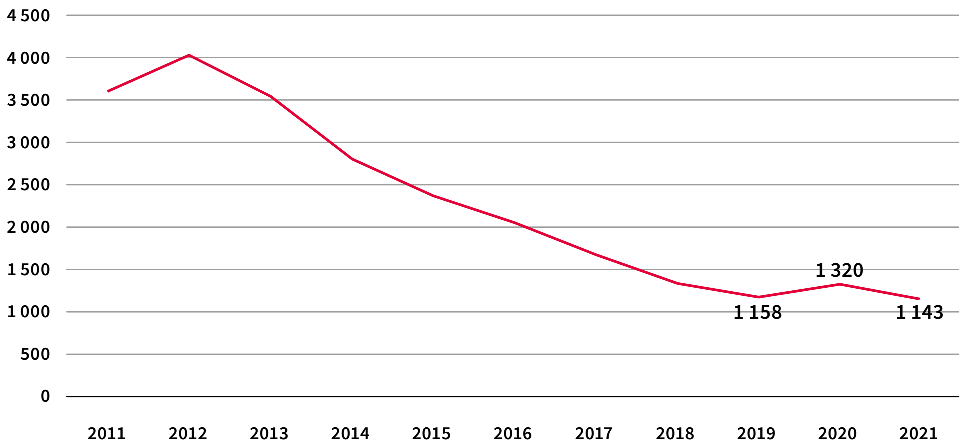
Persons employed in the printing industry



Source
INE (Portuguese National Statistical Institute - http://www.ine.pt),
NACE Rev. 2: 17.2 – Manufacture of articles of paper and paperboard;
18 – Printing and reproduction of recorded media

The decrease in the number of persons employed is corroborated by the significant increase in registered unemployment originating from companies in the printing and reproduction of recorded media sector (data referring to 31 December of each year). However, this situation is partially reversed in 2021, with a 14% decrease in registered unemployment between 2020 and 2021.

Registered unemployment (N°)



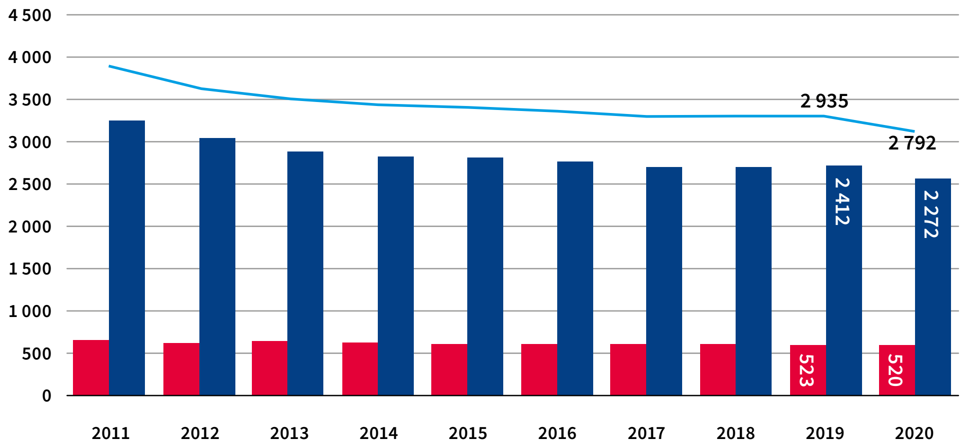
Source
INE (Portuguese National Statistical Institute - http://www.ine.pt),
NACE Rev. 2: 17.2 – Manufacture of articles of paper and paperboard;
18 – Printing and reproduction of recorded media

Trends in the number of operating printing companies

In 2020, there were 2 792 registered companies (considering the manufacture of paper products and printing and reproduction of recorded media), 143 fewer units than in 2019. The decrease in the number of companies occurs mainly in the sector of printing and reproduction of recorded media, where there was a reduction of 140 business units.

The available data on business demographics confirm a negative trend in all the indicators considered, to which the SARS-COV-2 pandemic has certainly contributed.

Printing industry companies



Manufacture of articles of paper and paper board

Printing and reproduction of recorded media

Total

Source
INE (Portuguese National Statistical Institute - http://www.ine.pt),
NACE Rev. 2: 17.2 – Manufacture of articles of paper and paperboard;
18 – Printing and reproduction of recorded media

Trends in Business Demography

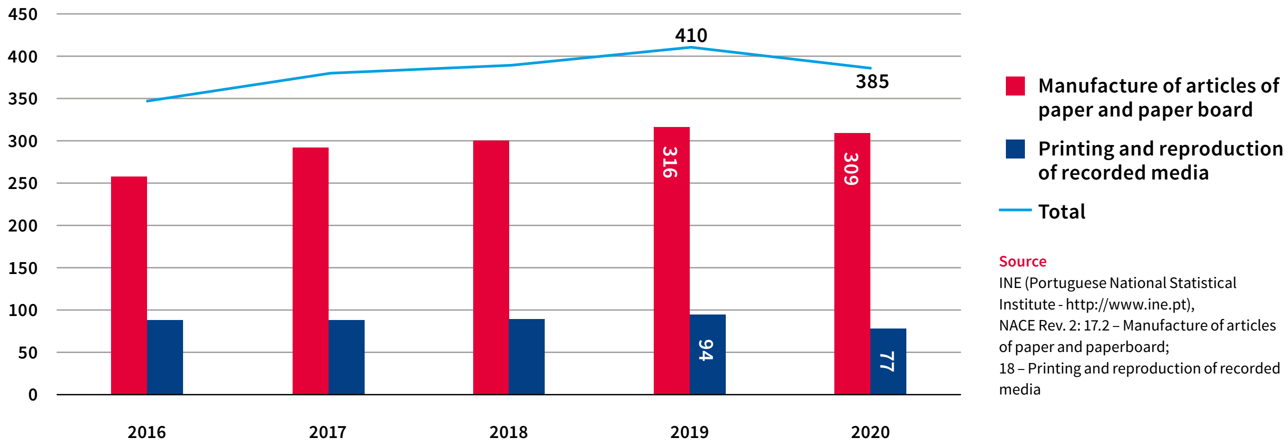
Year	2016	2017	2018	2019	2020
Operating Companies (No)	2 453	2 403	2 396	2 412	2 272
New Companies (No)	174	165	182	188	133
Dissolved Companies (No)	211	175	186	n/a	n/a
Birth Rate (%)	7.1	6.9	7.6	7.8	5.8
Mortality Rate (%)	8.6	7.3	7.8	n/a	n/a
Survival Rate (%) after two years	65.9	65.9	69.5	70.2	68.1

Source
INE (Portuguese National Statistical Institute - http://www.ine.pt),
NACE Rev. 2:18 – Printing and reproduction of recorded media

Trends in foreign trade

Exports by companies in the printing industry reached an overall value of €385 million in 2020, which represents a decrease of about 6% compared to the value recorded in 2019. This decrease is much more expressive in the printing and reproduction of recorded media sector, where it exceeded 18%.

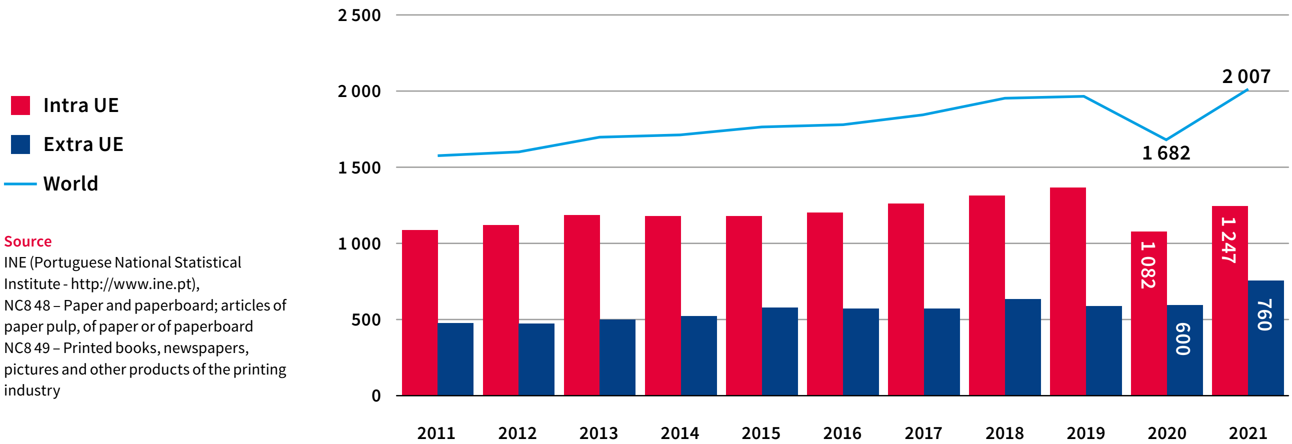
Printing industry annual exports



Source
INE (Portuguese National Statistical Institute - http://www.ine.pt),
NACE Rev. 2: 17.2 – Manufacture of articles of paper and paperboard;
18 – Printing and reproduction of recorded media

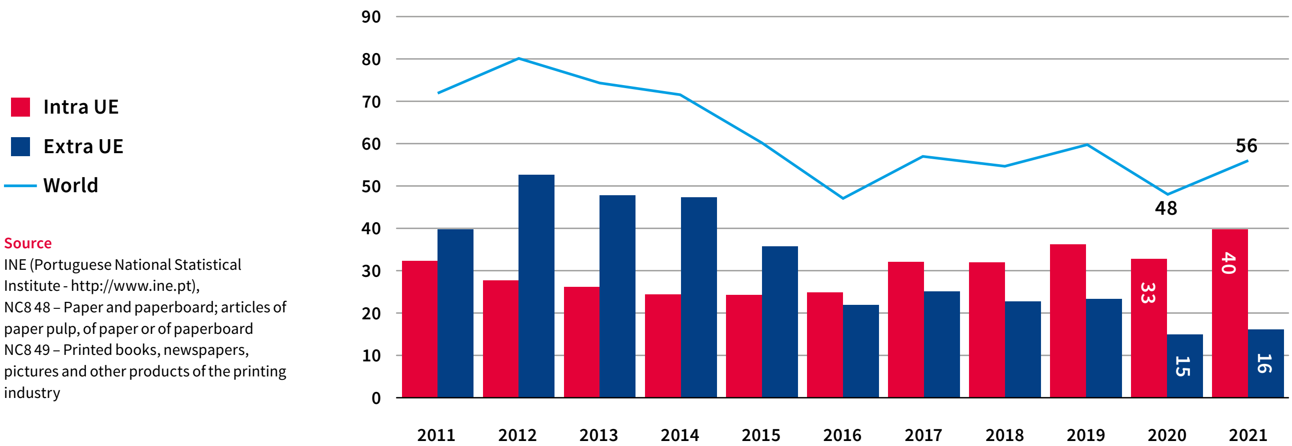
Considering exports of paper products and printed products (NC8 48 and 49), exports not only from companies in the printing industry but also from other economic sectors, reach an overall value of 2 074 million euros in 2021. The total volume of exports thus represents a strong increase of 19.3% over the previous year, indicating the beginning of a recovery movement from the negative effects of the SARS-COV-2 pandemic.

Exports – paper and paperboard; articles of paperpulp, of paper or of paperboard



Source
INE (Portuguese National Statistical Institute - http://www.ine.pt),
NC8 48 – Paper and paperboard; articles of paper pulp, of paper or of paperboard
NC8 49 – Printed books, newspapers, pictures and other products of the printing industry

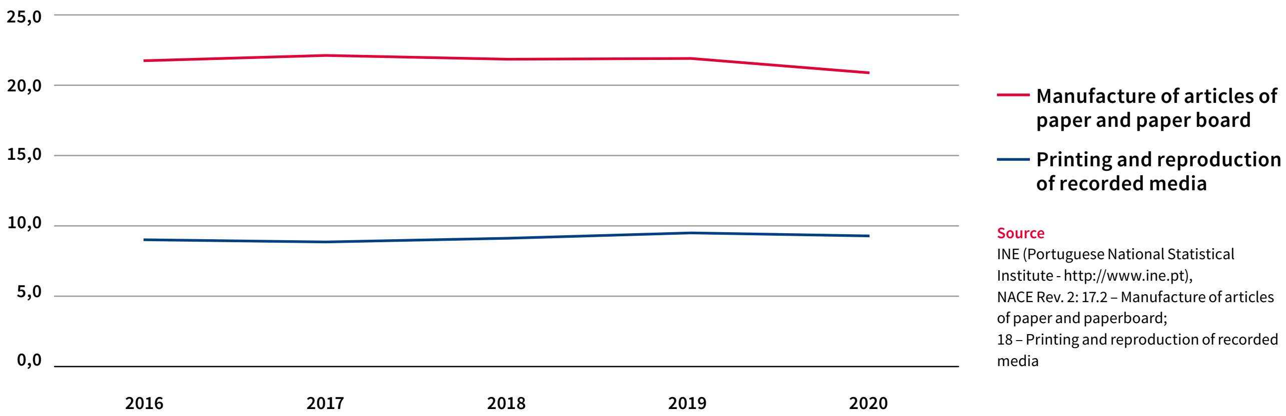
Exports – printed books, newspapers, pictures and other products of the printing industry; manuscripts, typescripts and plans



Source
INE (Portuguese National Statistical Institute - http://www.ine.pt),
NC8 48 – Paper and paperboard; articles of paper pulp, of paper or of paperboard
NC8 49 – Printed books, newspapers, pictures and other products of the printing industry

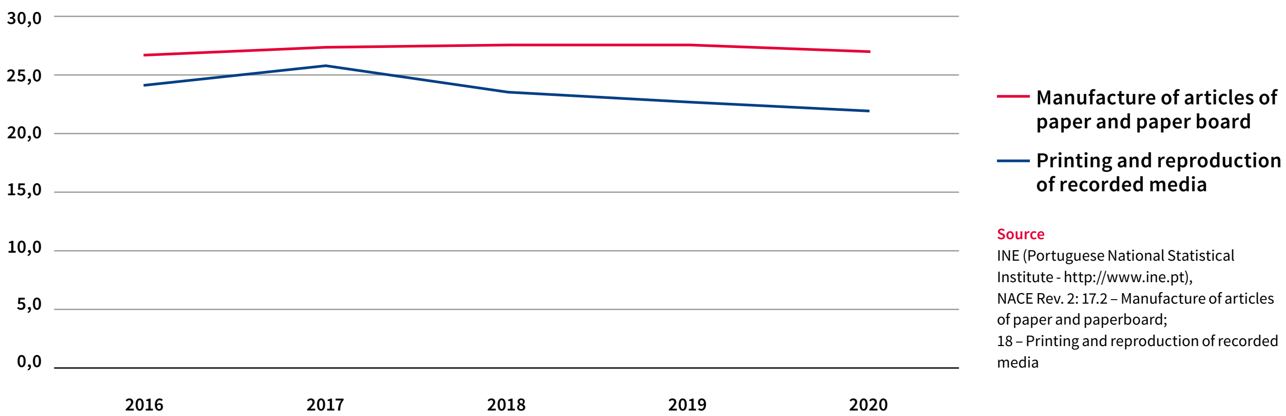
Globally, exports of these products are still mostly oriented towards European markets, i.e. around two thirds of their total value. This conclusion is valid for both paper and printed products. The weight of foreign markets in the sales and purchases of printing industry companies suffered only a slight decrease (between 1 and 0.2 pp) in 2020 compared to 2019.

Weight of external markets – Exports (%)



Source
INE (Portuguese National Statistical Institute - http://www.ine.pt),
NACE Rev. 2: 17.2 – Manufacture of articles of paper and paperboard;
18 – Printing and reproduction of recorded media

Weight of external markets – Imports (%)



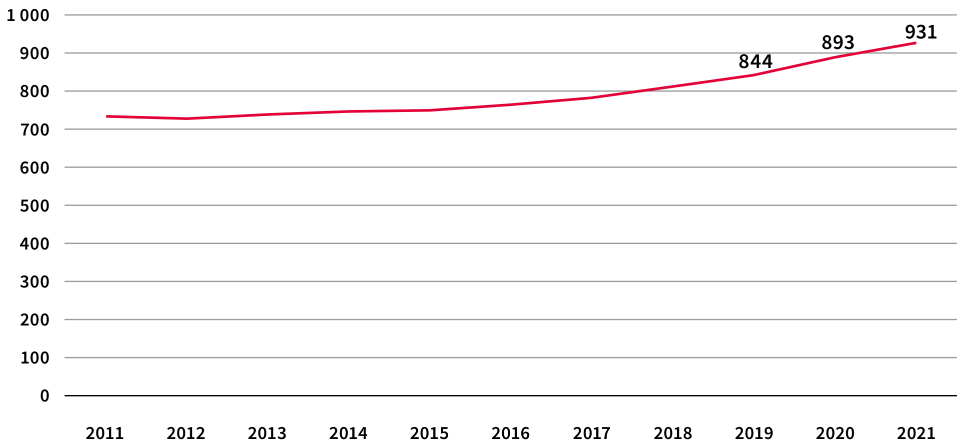
Source
INE (Portuguese National Statistical Institute - http://www.ine.pt),
NACE Rev. 2: 17.2 – Manufacture of articles of paper and paperboard;
18 – Printing and reproduction of recorded media

Spain was the main competitor of the Portuguese printing industry in 2021. This country was the main source of imports of paper products (HS 48) and of the printed products (HS 49), representing more than 60% of the total annual import value.

Trends in labour costs

Labour costs maintain an upward trend, although the average monthly net salary still remains below 1 000 euros per month. An average net monthly salary of 931 euros was reached in 2021, representing an increase of 4.3% compared to the previous period.
The most recent projections of the Bank of Portugal point to an average wage growth in the private sector of 4.0% in the period 2022-2024.

Net monthly mean wages (Euros)



Source
INE (Portuguese National Statistical Institute - http://www.ine.pt)

Developments affecting competitiveness

The global economic activity decelerated in the early months of 2022, due to the impact of the new wave of the pandemic and in a context of rising inflation. By the end of 2021, the spread of the Omicron variant and the control measures adopted had a moderate and short-lived negative impact on the growth of the global economy.

The invasion of Ukraine by Russia at the end of February implies a deterioration of the growth prospects for the global economy in the short term and higher inflationary pressures. The conflict implied an intensification of the rise in oil and gas prices in international markets, reflecting the importance of Russia in the supply of these commodities. It has also translated into an increase in uncertainty and geopolitical risk, with negative effects on financial markets and agents' confidence. Russia is not an important trading partner for Portugal, but the indirect impact via Central and Eastern European economies contributed to deteriorate the external environment.

In addition, the conflict may cause further disruptions to global value chains, in particular those dependent on raw materials from Russia or freight transport within the region. The recent increase in cases of COVID-19 in some Asian economies and the imposition of restrictive measures may also exacerbate these disruptions.

Given that we are facing a new period of great uncertainty and volatility, which will certainly influence the economic recovery that began in 2021, the projections of the Bank of Portugal for the period 2022-2024 points to:

- Economic growth profile throughout 2022-2024, with Gross Domestic Product (GDP) growing 4.9% in 2022 and converging in the following years to rates of 2.9% in 2023 and 2.0% in 2024;
- Increase in inflation in 2022 to 4.0% associated with the rise in the price of raw materials, energy and others, and reduction to 1.6% in 2023 and 2024;
- Increase of 45.7% in the price of oil, reaching $103.6 per barrel in 2022, and a decrease in the following years, reaching $81.7 per barrel in 2024;
- A new increase in the cost of other raw materials for 2022, assuming a reversal in the following years;
- Increased investment momentum in 2022-24 supported by higher inflows of European Funds;
- Exports continue to combine the favourable dynamics of external demand for goods with the recovery of international tourism flows, with the assumption of limited negative effects of the conflict in Ukraine;
- Employment growth, but at a progressively slower pace over the period 2022-2024;
- Reduction of the unemployment rate to 5.9% in 2022 and 5.7% and 5.6% in the two following years.

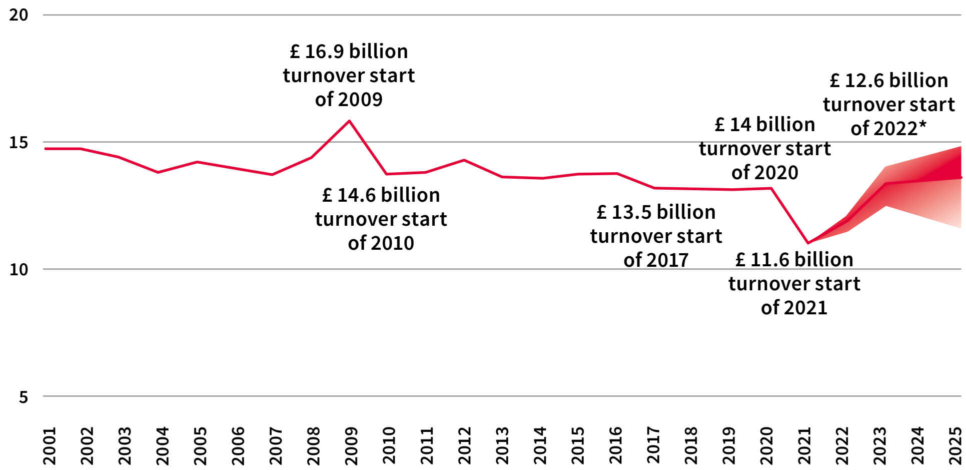
Geopolitical instability implies that the magnitude of the economic impact of the conflict is uncertain, involving the risk of materialisation of more adverse scenarios.

1.4.10 United Kingdom

2021 turnover

The latest annual data shows that industry turnover (including the carton, label, and paper stationery sectors) contracted by around 19% in 2020 (to approximately £11.6 billion). BPIF's estimate for 2021 suggests that the industry finished 2021 with a 9% recovery, to an annual

UK printing industry – Turnover (£bn) 2001-2025



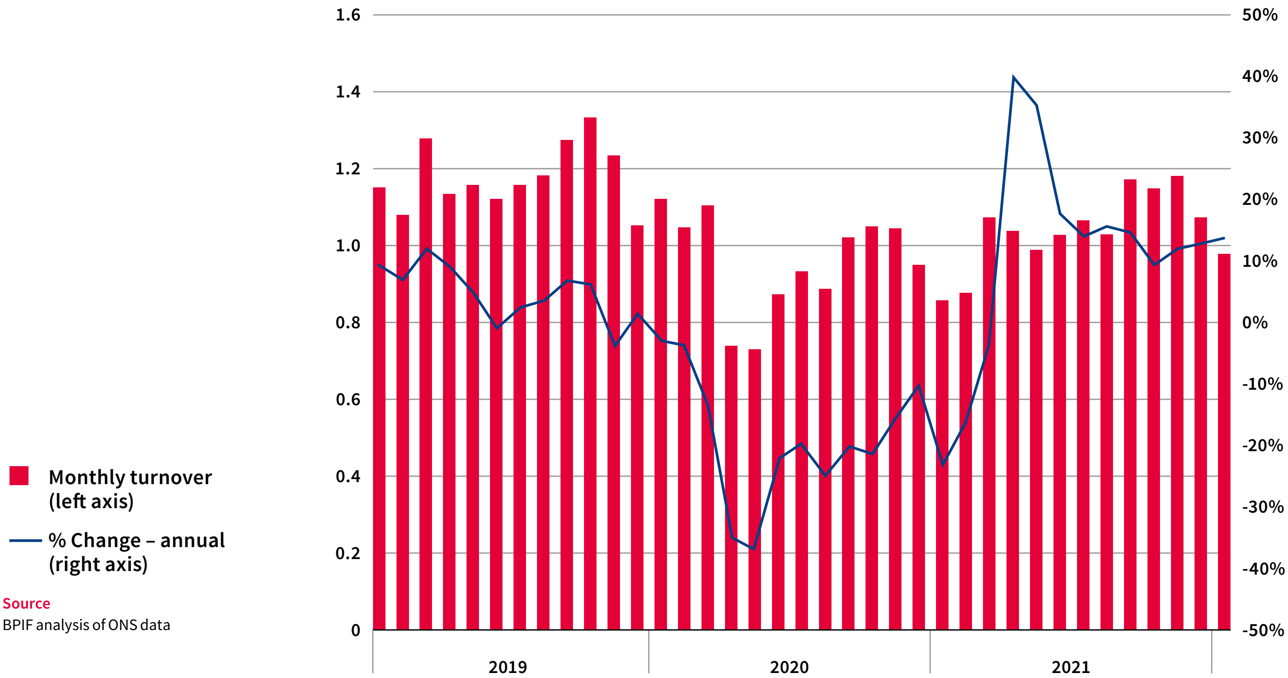
Source
BPIF
*2020 – 2025 forecast estimates

The monthly turnover chart shows some 'official' turnover data from the Office for National Statistics (ONS). The blue bars are the reported monthly turnovers for the UK Printing Industry – this version includes the printed packaging and paper stationery sectors.

Looking through 2021 – in January turnover was £634 million, 13% lower than in December and 28% down from January 2020. The decline slowed in February with a turnover of £633 million, though still 23% down from February 2020. March data was significantly more positive – it showed a very strong recovery with monthly growth of 24% bringing turnover to £783 million and now only 7% down from March 2020.

Unfortunately, April and May didn't kick-on – instead there were consecutive monthly contractions (1% in April, followed by 5% in May). June and July experienced a return to growth whilst August stuttered slightly – though not unexpectedly, as workforce holidays caused some disruption. As expected, stronger growth came through in September and, although there was a slight fall back in October, November data revealed a pick-up. December exhibited a downturn in the face of Christmas holidays, and Omicron-induced restrictions and isolations.

UK printing industry – Monthly turnover (£bn) 2019-2021



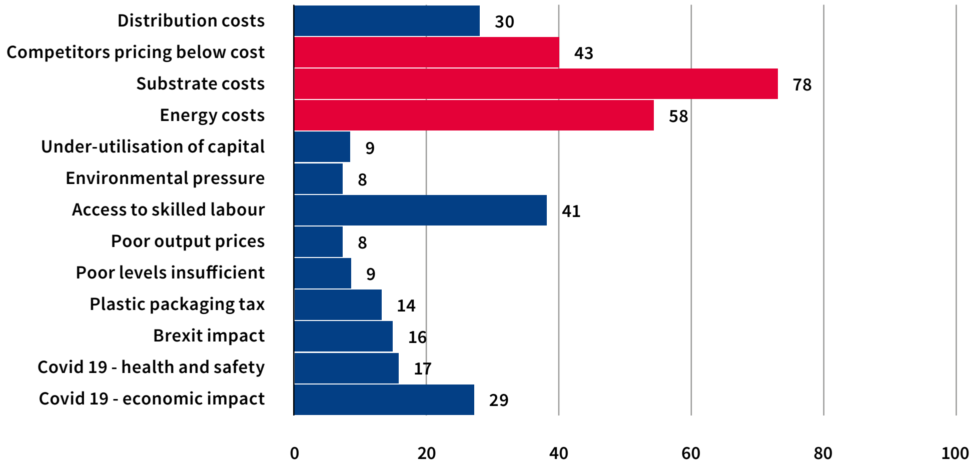
Source
BPIF analysis of ONS data

The industry is incredibly resilient, diverse and dynamic. Companies are showing that, once given the opportunity to trade, they can support and drive the economic recovery. Many companies are now looking to target investment to help them adjust to new growth opportunities in 2022.

Print sectors most impacted by the paper crisis and generally by raw materials, energy and transport costs' increase

Substrate costs remains the top business concern for printing companies – for the third successive quarter. Energy costs have now moved up to second place in the priority ranking. Substrate costs (paper, board, plastics etc.) were selected by 78% of respondents, energy costs by 58% of companies, and competitors pricing below cost is now the third ranked concern – selected by 43% of respondents. Access to skilled labour is just a little behind, with 41% of respondents selecting it. Dealing with the economic impact of Covid-19 has resurfaced, with 29% having fallen down the list of concerns last quarter.

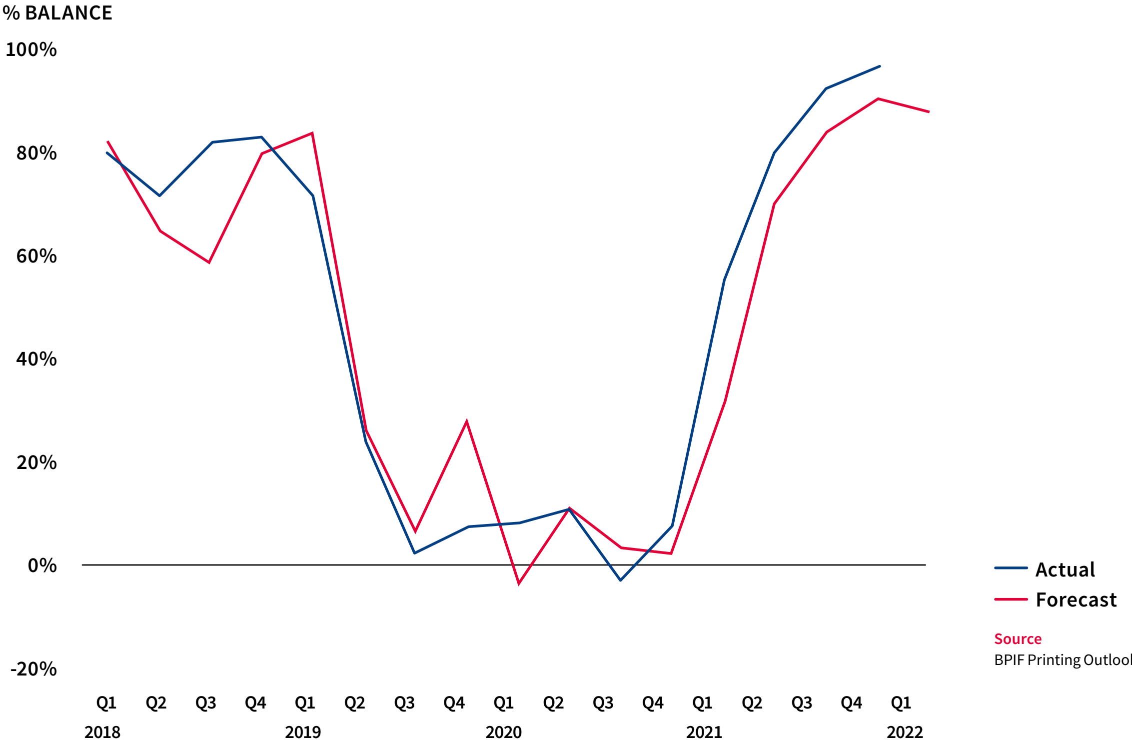
Top business concerns - % of respondents selecting



Source
BPIF Printing Outlook

Companies in the printing and printed packing industry continue to be faced with unprecedented levels of cost increases across all major cost areas in their business. Paper and board costs continued to provide the most inflationary pressure in Q4 2021. 97% of companies hit by an increase in average costs for Paper & Board, generally around 15-20% for Paper – and 10-15% for Board.

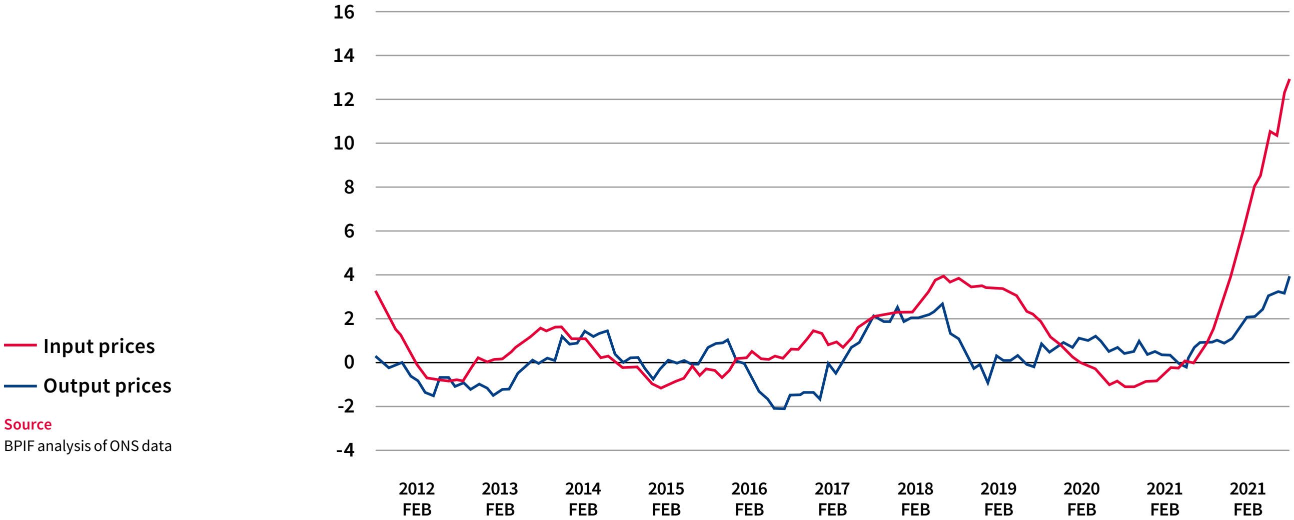
Cost of paper & board - increased for most all in Q4



Source
BPIF Printing Outlook

Input price inflation for the printing industry was 13.3% in the 12 months to February 2022, up from 12.5% in January. Output price inflation was 4.3% in the 12 months to February 2022, up from 3.2% in the 12 months to January.

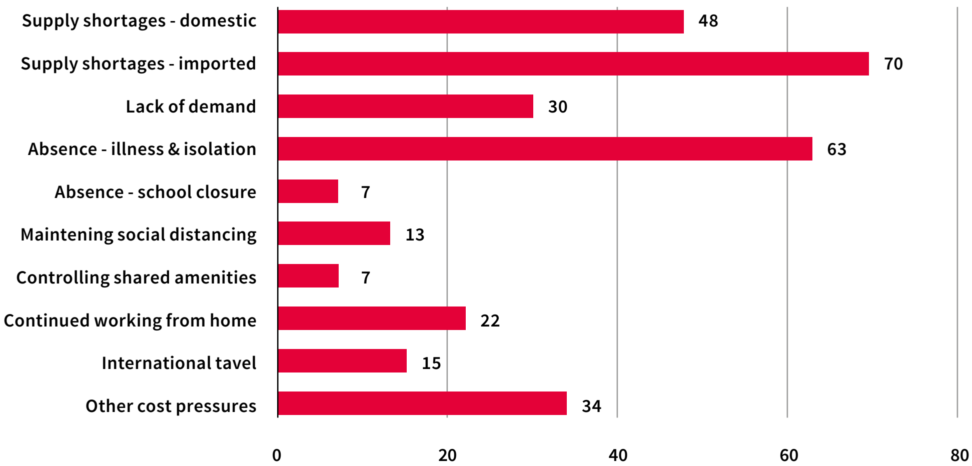
UK printing industry annual input and output inflation - %



Source
BPIF analysis of ONS data

Concern over supply shortages of imported inputs and raw materials has increased to become the most selected operational challenge; chosen by 70% of respondents in Q1 2022.

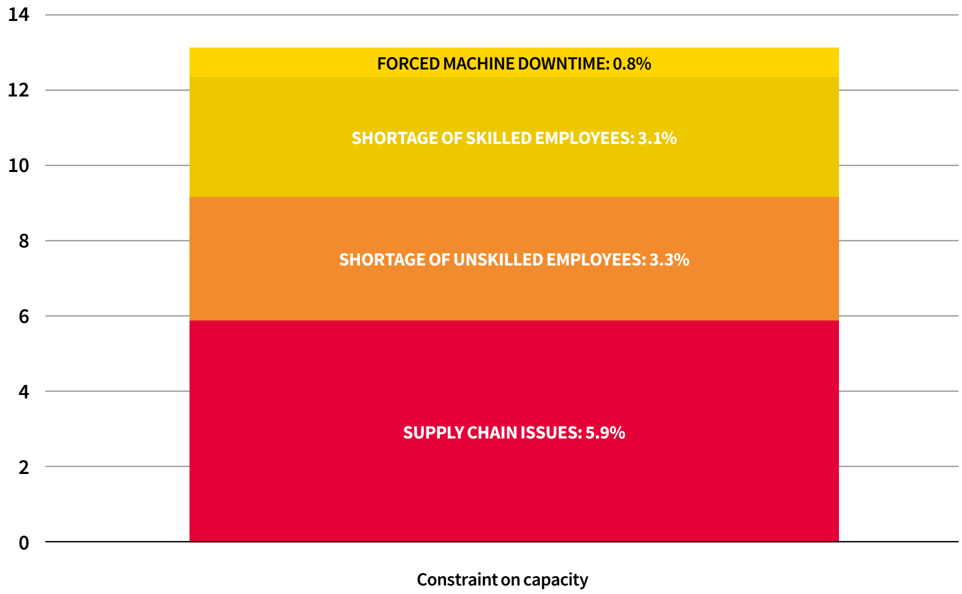
Operational challenges



Source
BPIF Printing Outlook

BPIF has conducted some research to help establish the extent and make-up of some potential constraints on capacity. The identified constraints were: supply chain issues affecting the availability or timely delivery of material inputs; a shortage of skilled employees; a shortage of unskilled employees; and machine downtime due to failures, extra maintenance or parts and service delays. The most significant of these constraints was supply chain issues – 51% of companies reported that this was constraining their capacity; by between 10% and 15% in most cases.

Constraints on capacity – average % capacity restriction



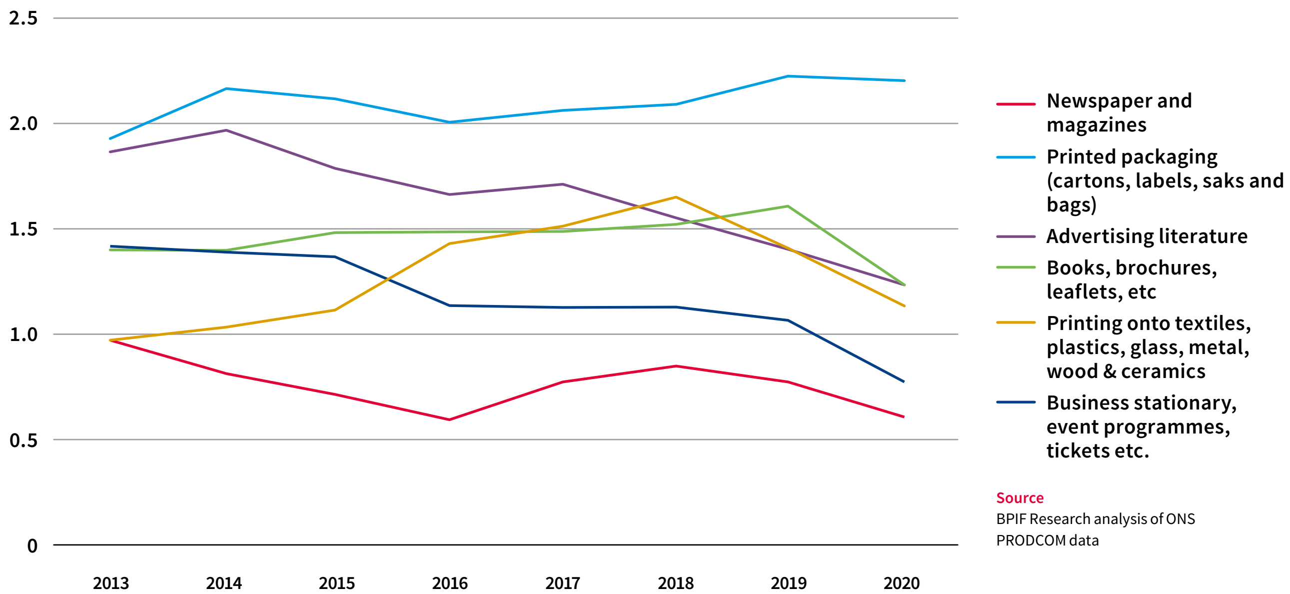
Source
BPIF Printing Outlook

The constraints on capacity chart shows the average estimate capacity has been restricted for each of the identified constraints. An overall average has been calculated, also taking into account those companies that reported no constraint. Together these constraints are estimated to have restricted the UK printing industry's capacity by around 13%. Anecdotally supply issues have been more of a constraint in the packaging sector, particularly labels, than in commercial printing.

Trends in specific printing market segments

Detailed sector data for 2021 was not available at time of publication. The chart below shows broad sector turnover from 2013 to 2020. All of these sectors, with the exception of printed packaging, experienced a Covid-enforced decline in 2020.

UK printing industry - sector performance 2013-2020 (turnover - £bn)

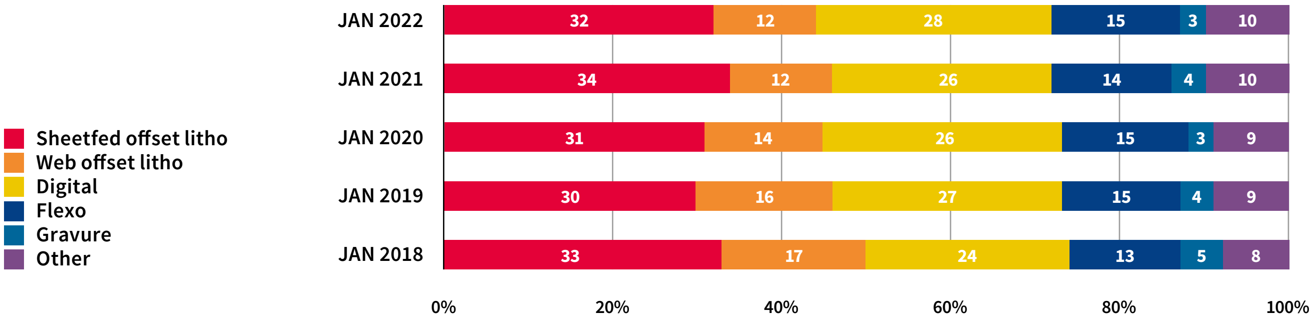


Source
BPIF Research analysis of ONS PRODCOM data

Trends in printing process

Digital printing lost some market share during the pandemic as it was dominant in sectors that were most effected by the enforced restrictions and economic slowdown. Litho gained share mostly because of a dominance in carton packaging which maintained a strong performance throughout the pandemic. Market share has returned to pre-pandemic levels now that restrictions have been lifted and the industry has experienced some recovery.

UK printing industry – process share 2018-2022

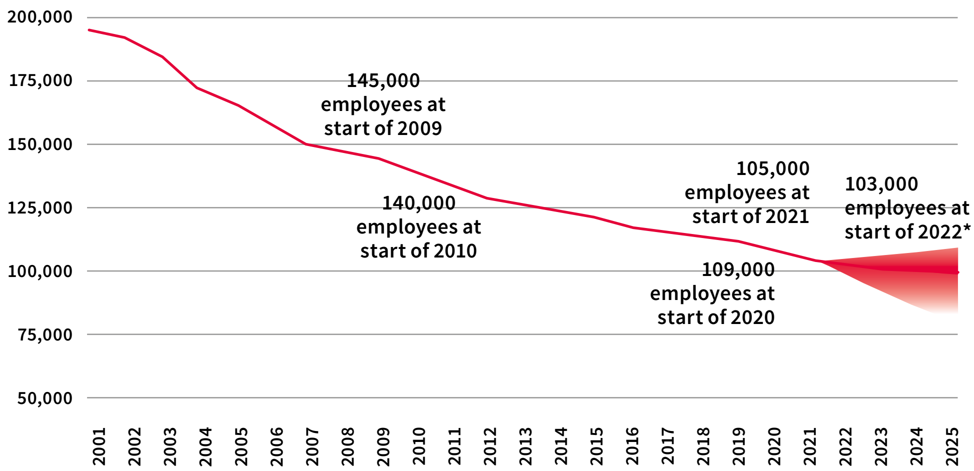


Trends in the printing employment market

Employment numbers on a steady but slow decline as some employees leave the industry for other occupations and the supply of labour from overseas declines. The Government's furlough scheme slowed what would have been a much hastier decline in employment during the pandemic.

Despite there being an overall decline in employment numbers in the industry, there are now many companies that are attempting to recruit new employees once again. Developments in automation and efficiency improvements in workflow are becoming increasingly important, especially for those companies experiencing labour shortages (skilled and unskilled).

UK printing industry - number of employees 2001-2025

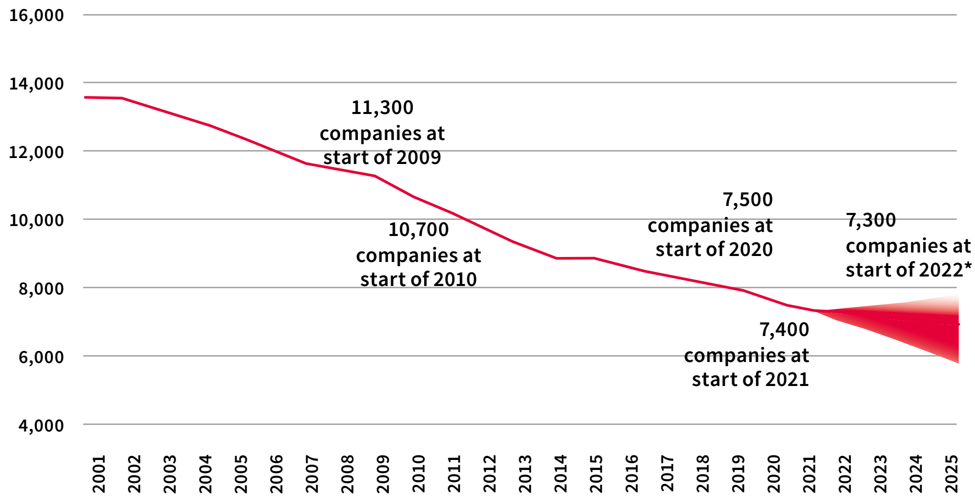


Source
BPIF Research
*2022 – 2023 forecast estimates

Trends in the number of operating printing companies

Similarly to the decline in employment numbers, the number of companies in the industry has also experienced a slow and steady fall. The decline has perhaps eased very slightly in recent years but a continued economic recovery is crucial if cash flow pressure and significant cost inflation is to be overcome.

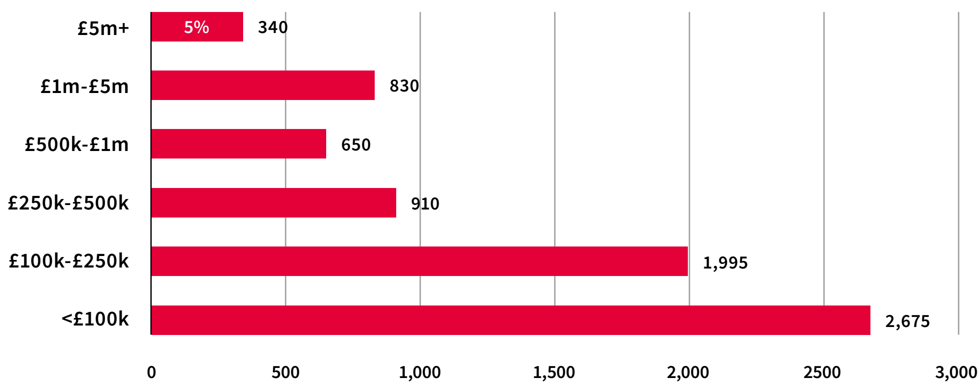
UK printing industry - number of companies 2001-2025



Source
BPIF Research
*2022 – 2023 forecast estimates

Only 5% of companies have a turnover greater than £5 million, whilst 36% have a turnover less than £100,000.

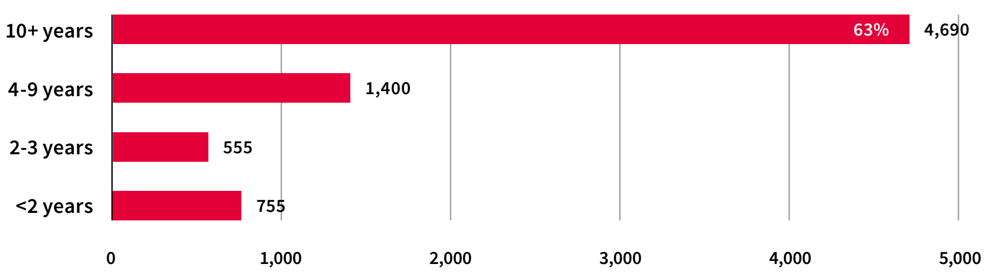
UK printing industry - companies by turnover size, 2020



Source
BPIF analysis of ONS data

Almost two-thirds of business in the UK printing industry are at least 10 years old. However, 10% of companies are less than 2 years old.

UK printing industry - companies by age of business, 2020

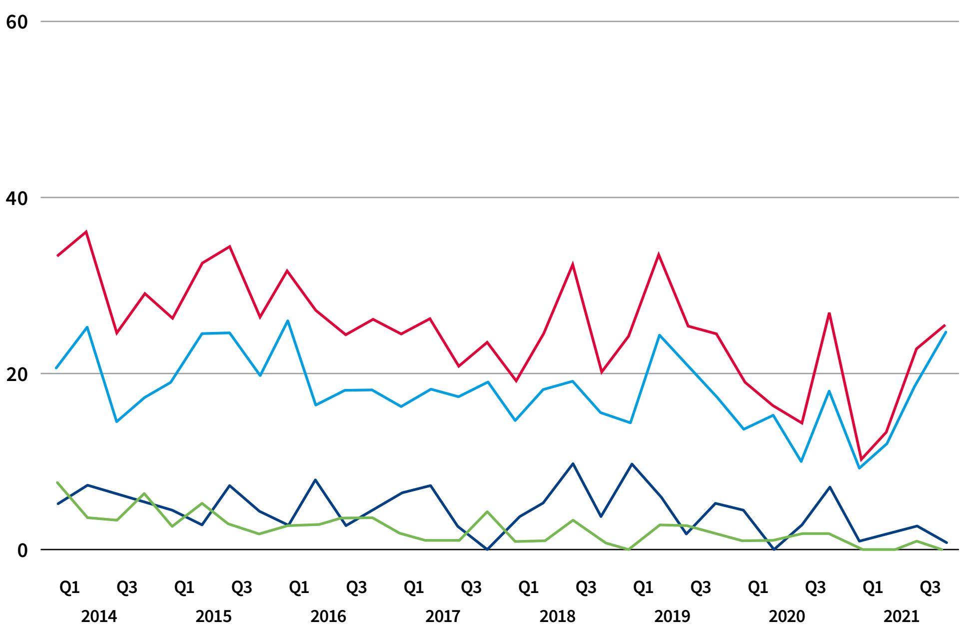


Source
BPIF analysis of ONS data

Government measures in response to Covid-19 (not just the financial support available to companies and individuals but also reduced HMRC enforcement, operation of courts and temporary restrictions on the use of statutory demands and winding-up petitions) have dampened insolvencies throughout much of 2020 and early 2021. Insolvencies did spike in Q4 2020, ease in Q1 and Q2 2021 before increasing in Q3 and again in Q4 – the latest data is an increase back to levels frequently in pre-Covid times.

There were 28 new company insolvencies in the printing industry (SIC 181) in England, Wales and Scotland in the fourth quarter of 2021. This latest figure is an increase of 12% from Q3, but 7% lower in comparison with Q4 2020.

Company insolvencies - printing (sic 181)



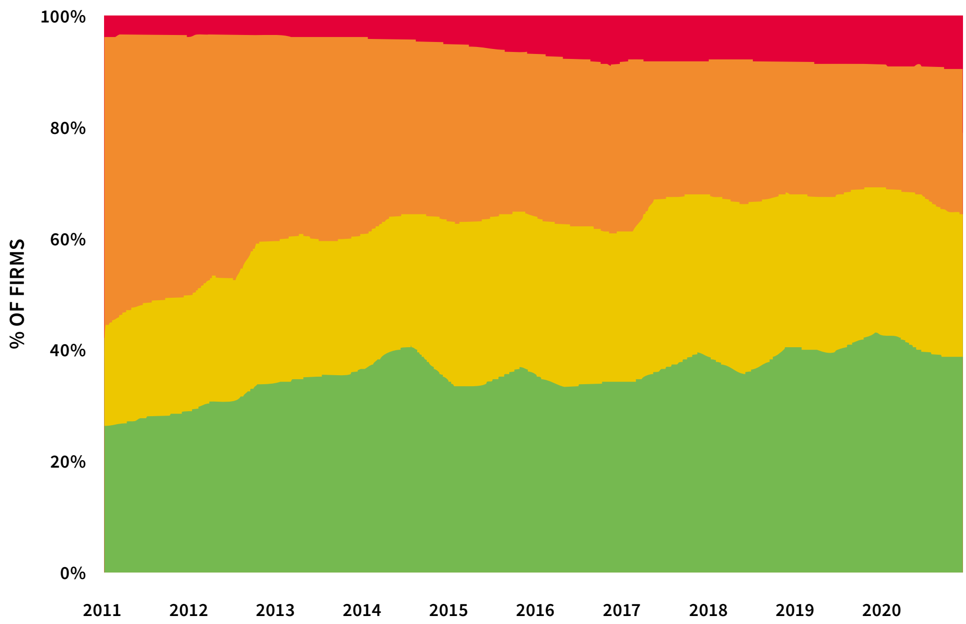
Total New Company Insolvencies
Creditor's Voluntary Liquidation
Compulsory Liquidations
Other

Source
The Insolvency Service

A detailed financial health analysis of data for the 5,000 largest print and printed packaging companies (as selected by total asset value ranking) provides some further interesting insights. This financial health analysis rates the financials for each company and updates them over time so that a financial health chart can be produced.

Looking at the financial health chart and working from the bottom up – the green proportion shows the share of the top 5,000 companies that are in a strong and secure financial position; the number of companies categorised here has increased from a low of 26.4% in Q1 2011 to a new high in Q4 2021, of 45.2% – surpassing the 42.8% in Q4 2019. The yellow section shows the proportion of companies with a less strong financial position, representing an average credit risk. The percentage of companies assigned to yellow has increased from 17.9% in Q1 2011 to a high of 31.2% in Q2 2017; it stands at 25.5% in Q4 2021.

Financial health - printing & printed packaging companies



Source
Begbies Traynor and BPIF analysis of financials from the top* 5,000 print and printed packaging companies (*selected by total assets value).

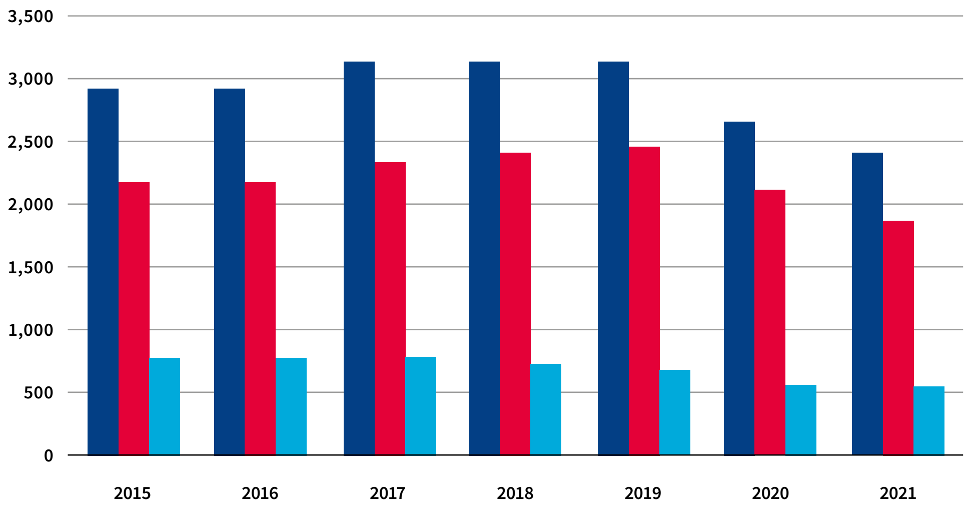
The orange shading depicts the share of the top 5,000 companies that are considered to be a higher credit risk due to their financial results, past trading history, the lack of available information or the presence of detrimental information against them. The proportion of companies in the orange section has fallen from 51.8% in Q1 2011, to a new low of 21.1% in Q4 2021, ducking under the previous low of 22.4% in the previous quarter. Finally, the red section is for high-risk companies with poor credit scores and/or serious detrimental information filed against them and companies that have undergone insolvency or have a striking-off action registered against them. The red section represents a smaller proportion of companies, but one that has grown throughout the pandemic. The red portion's low was 3.2% in Q2 2011; it's high was 9.3% in Q4 2020; it has fallen since to 8.3% in Q4 2021.

Trends in foreign trade

In recent years foreign trade has had to deal with a global pandemic, recession, extreme conditions in haulage and distribution, dramatic cost increases, Brexit and war in Ukraine.

The value of exports and imports both declined by around 15% in 2020 – the majority of this coming from non-EU trade. In 2021, exports have fallen by a further 10% and imports by 12% - on this occasion all of this has come from EU trade; non-EU trade actually increased slightly in 2021. Exports to the EU declined by 23%, imports from the EU decreased by 30%.

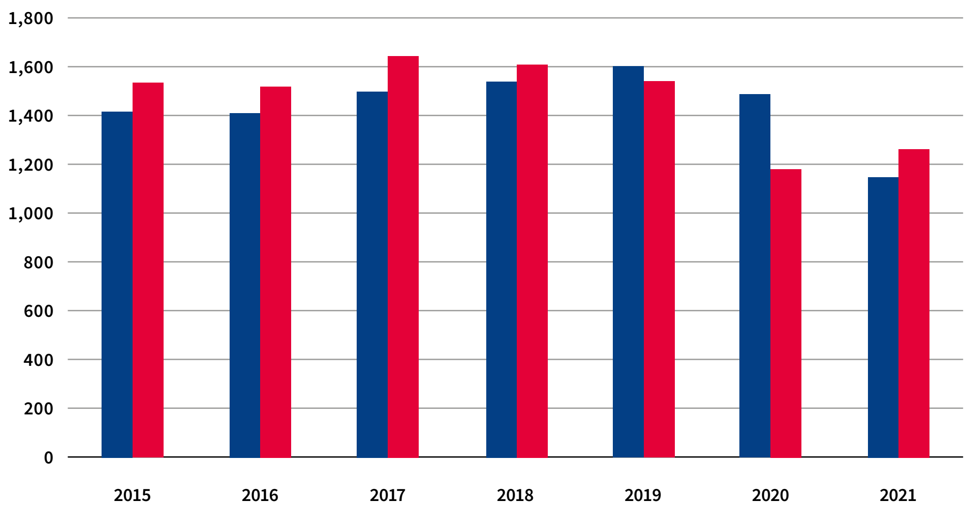
UK printing industry - overseas trade in printed matter 2015 - 2021 (£m)



Exports
Imports
Balance of trade

Source
BPIF Research analysis of HM Revenue and Customs data

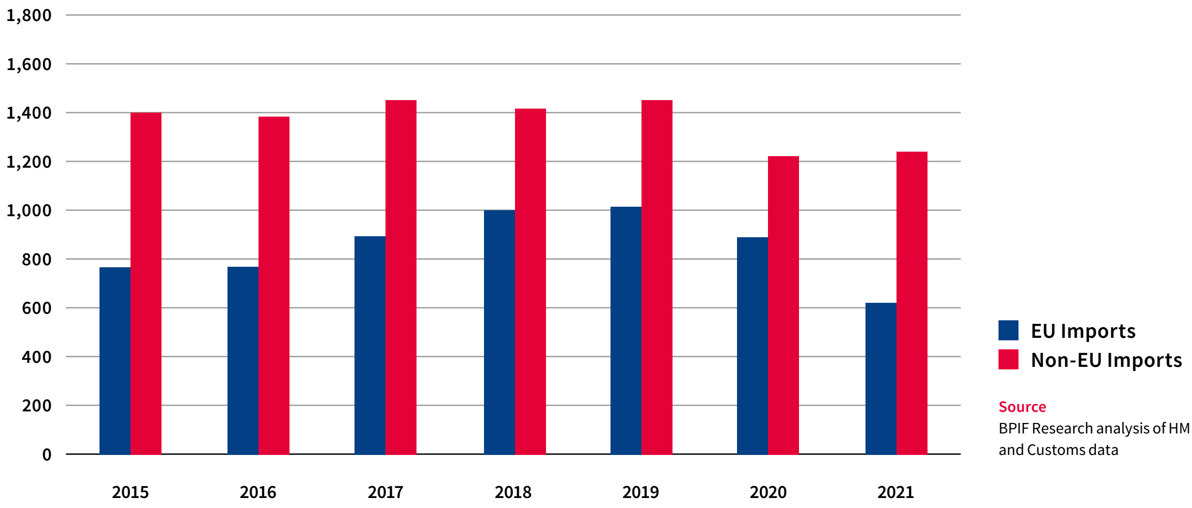
UK printing industry - exports 2015 - 2021 (£m)



EU Exports
Non-EU Exports

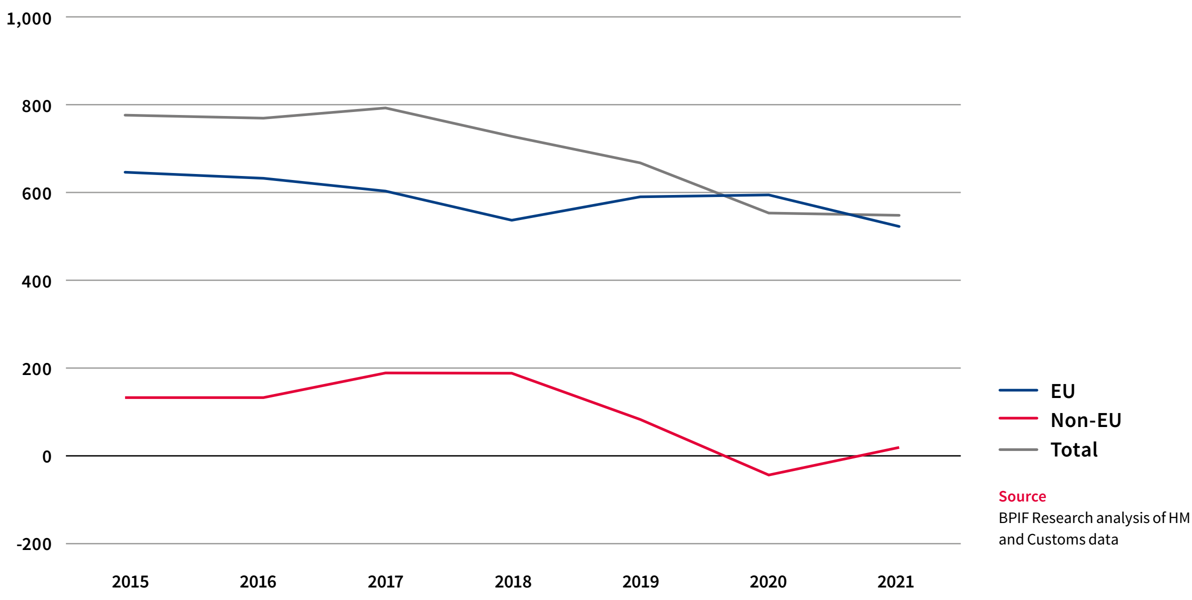
Source
BPIF Research analysis of HM Revenue and Customs data

UK printing industry - imports 2015 - 2021 (£m)



Source
BPIF Research analysis of HM Revenue and Customs data

UK printing industry - balance of trade 2015 - 2021 (£m)



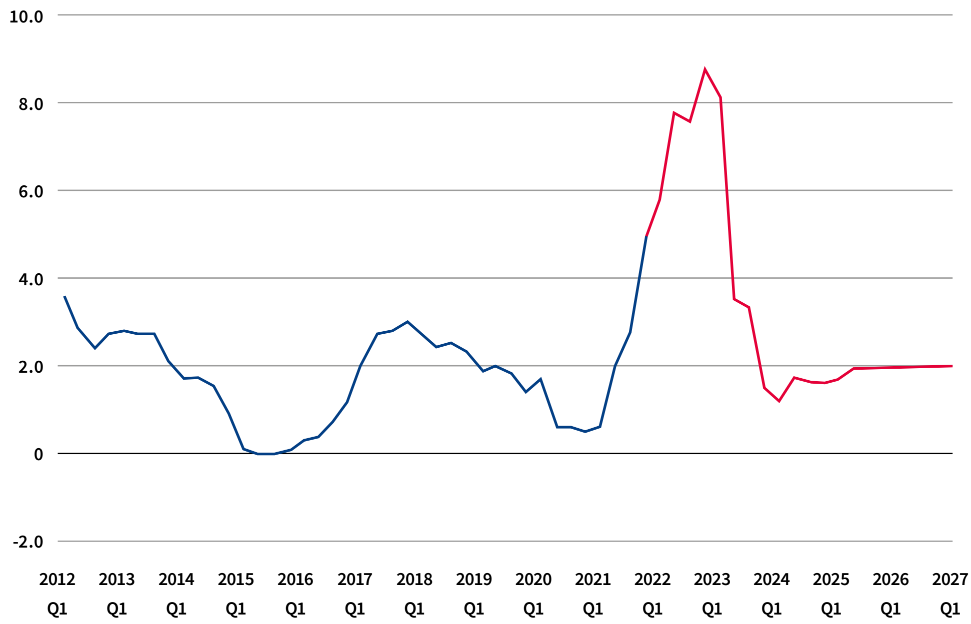
Source
BPIF Research analysis of HM Revenue and Customs data

Developments affecting competitiveness

Inflation is now running high in the UK and putting pressure on the cost of living. The 6.2% increase in CPI (February 2022) is the highest level of inflation experienced for 30 years - it has been stimulated by surging food, energy and fuel costs. Prices are rising faster than wages and there is an expectation that inflation could even reach double digits at some point this year. Fuel bills are expected to rise further, and tax changes will add to the pressure on household incomes.

Higher energy, freight and wage costs have been getting passed on to consumers, and Russia's invasion of Ukraine is further inflating the cost of commodities and energy.

Quarterly CPI inflation - %

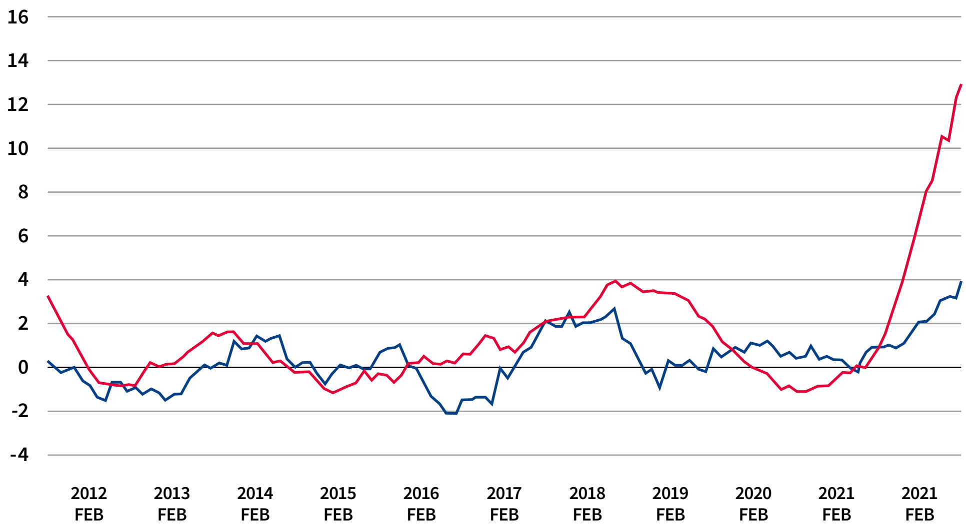


OBR forecasts

Source
Office for National Statistics, www.ons.gov.uk; Office for budget Responsibility, www.obr.uk

Input price inflation for the printing industry (SIC 18) was 13.3% in the 12 months to February 2022, up from 12.5% in January. Output price inflation was 4.3% in the 12 months to February 2022, up from 3.2% in the 12 months to January.

UK printing industry annual input and output inflation - %



Input prices
Output prices

Source
BPIF analysis of ONS data

The UK Government introduced a new **Plastic Packaging Tax (PPT)** on the 1st April 2022. After this time, tax at the rate of £200 per tonne will have to be paid on any plastic packaging that falls within the tax rules. The tax applies when the plastic packaging component does not contain a minimum of 30% recycled content. If you manufacture or import packaging, you will need to take steps to establish your status within the tax. Companies that manufacture or import more than 10 tonnes of plastic in 12 months will have to register and keep additional records to calculate and pay the tax if they are the company performing the last substantial modification before filling, packing and labelling. As printing has been designated as a ‘substantial modification’ many packaging producers will undertake the last substantial modification and be required to pay the tax.

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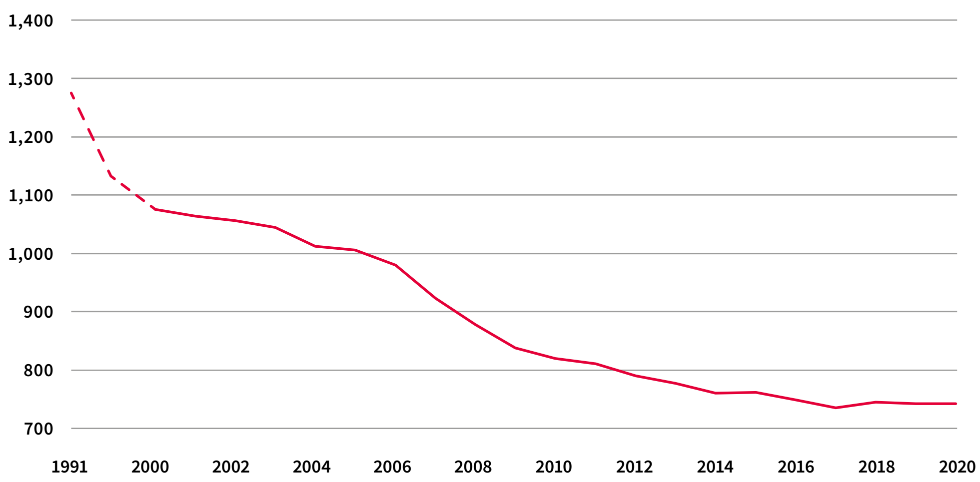
2022 PRINT MARKET REVIEW

Sources
CEPI (Confederation of European Paper Industries)
Eurograph (European Association of Graphic Paper Producers)
PPPC
Eurostat

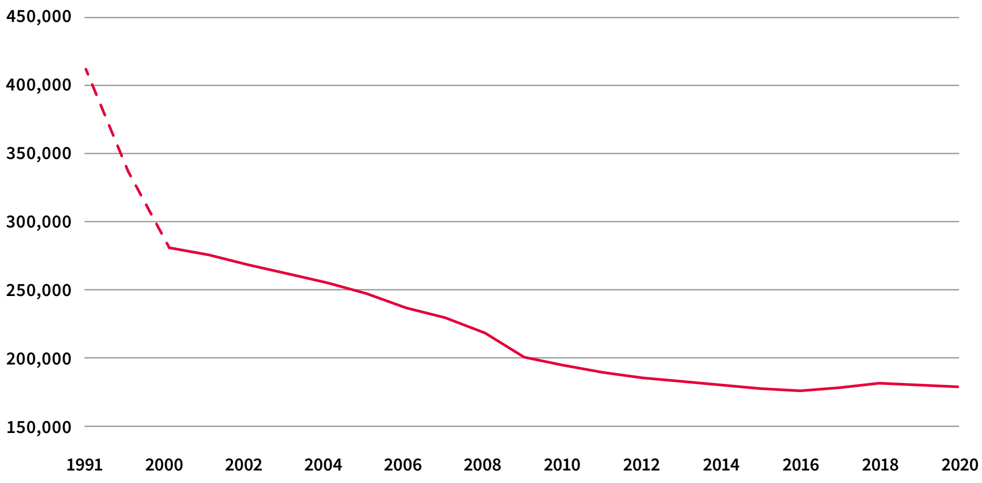
Note
: = data not available

2.1.1 Profile of the paper industry

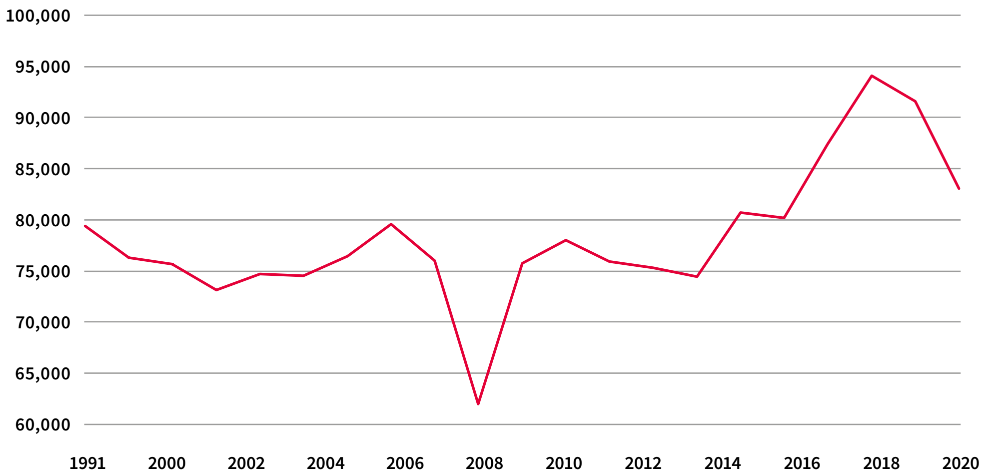
Number of paper & board mills



Number of employees



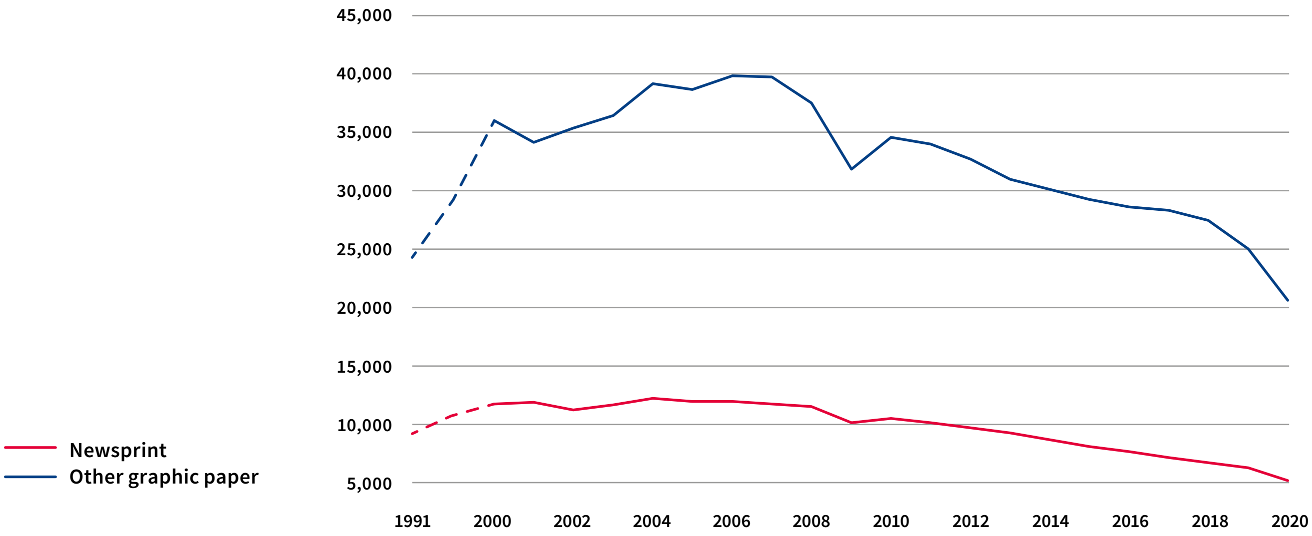
Turnover (in million €)



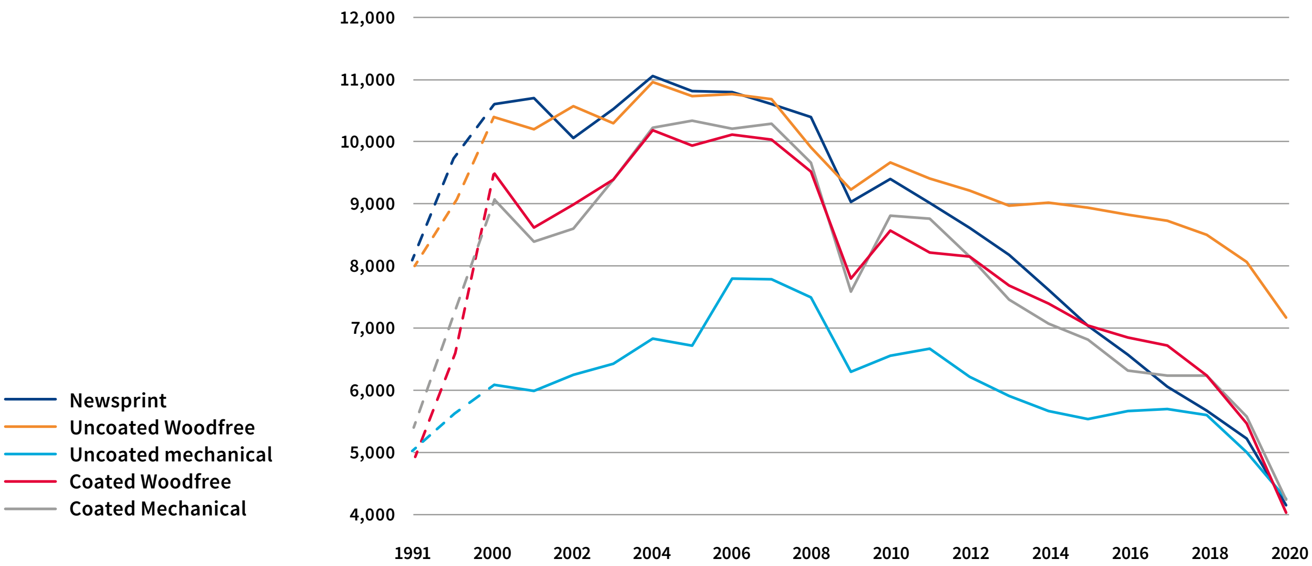
- With a turnover of approximately €83 billion, the European paper manufacturing industry was composed of 683 companies, running 743 mills and employing around 180,000 employees in 2020.
- Since 2000, the paper industry has lost one third of its companies and employees whereas the turnover has increased by approximately 10%.

2.1.2 Production of paper

European production of newsprint paper and other graphic paper, 1991-2020, in million tonnes



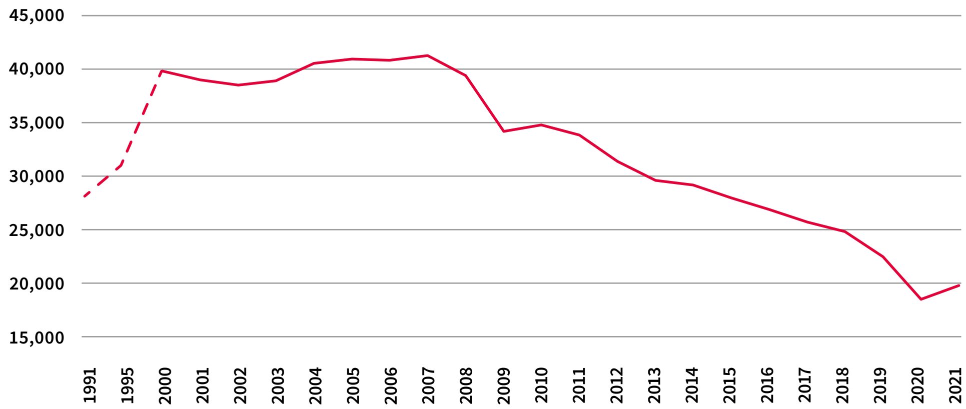
European production of graphic paper per type, 1991-2020, in million tonnes



- 23.7 million tonnes of graphic paper were produced in Europe in 2020. This is 18% less than in 2019.
- The largest decrease in production was in newsprint as well as coated paper (over 50% decrease).

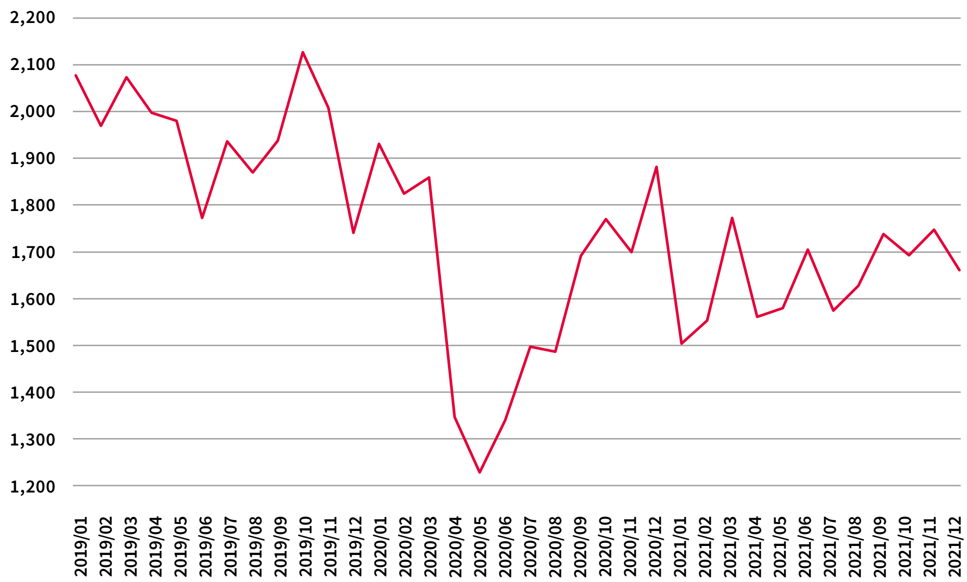
2.1.3 Consumption of paper

Graphic paper consumption in the EU, 1991-2021, in million tonnes

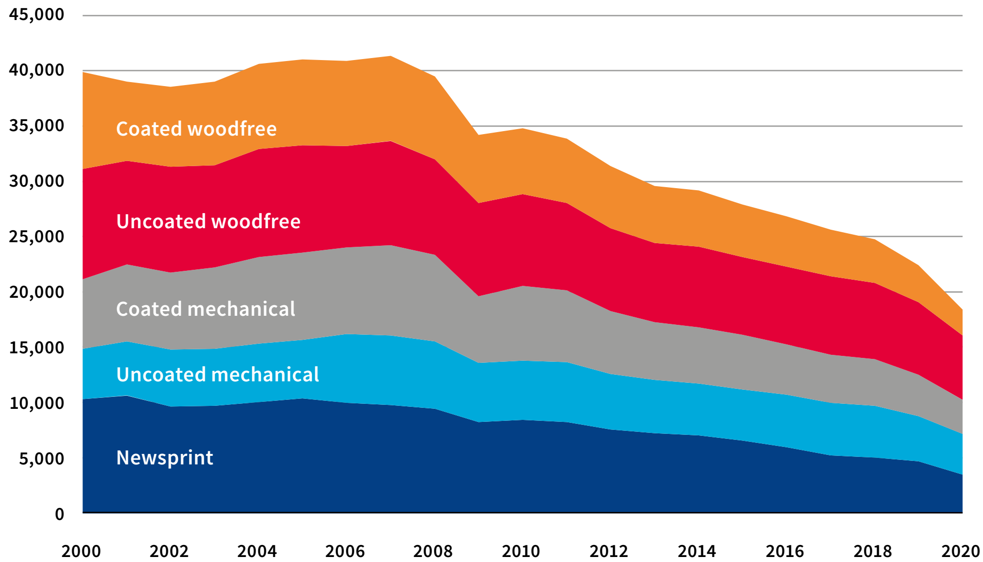


- The total graphic paper consumption in Europe amounted to 18.4 million tonnes in 2020. This is 17.8% less than in 2019.
- Graphic paper consumption has significantly decreased since 2000. It has decreased by 46%, which corresponds to over 20 million tonnes.
- In 2021, graphic paper consumption in Europe recovered from the 2020 pandemic to a level of 19.7 million tonnes, i.e. +7.1%.

Short-term graphic paper consumption, monthly, 2019-2021, in thousand €



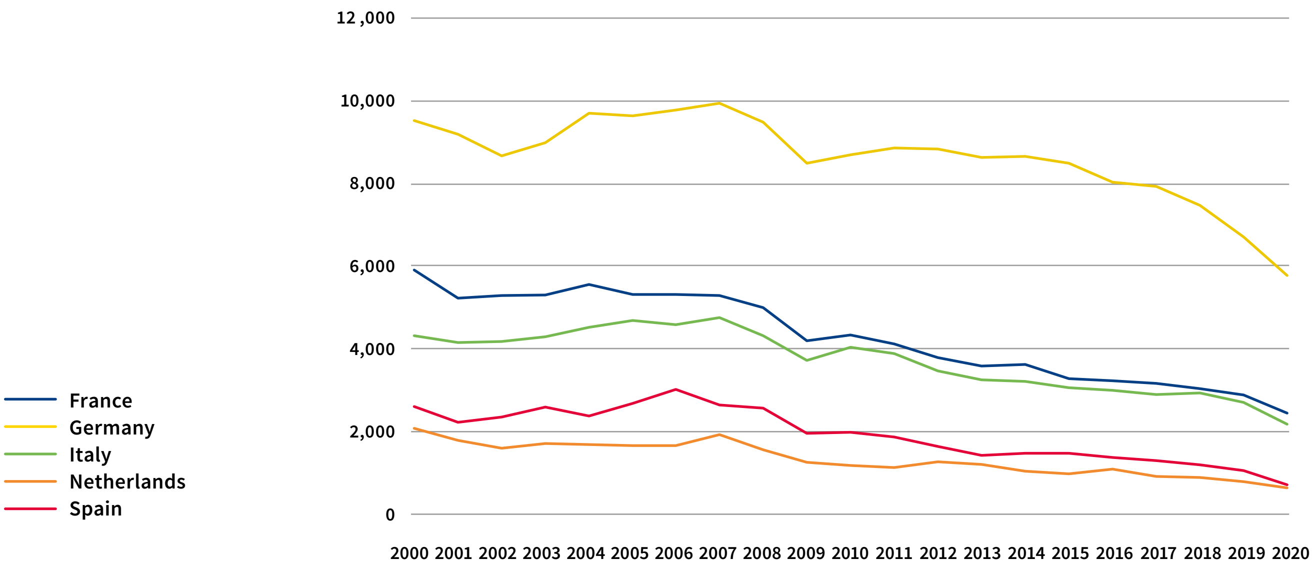
Graphic paper consumption in Europe, 2000-2020, in million tonnes



- In 2020, the sharpest decrease in consumption was registered by coated woodfree paper (-30.5%) between 2019 and 2020.

- The paper grade which registered the least decreasing trend compared to the preceding year is uncoated mechanical paper. It decreased by 10.6% compared to 2019.

Graphic paper consumption in selected countries, 2000-2020

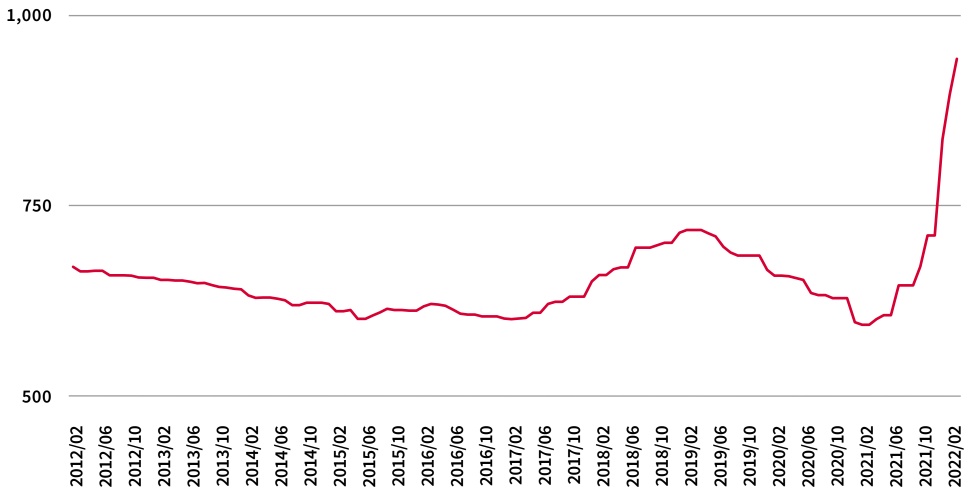


- With 5.7 million tonnes of graphic paper, Germany was the largest consumer of graphic paper in Europe in 2020, followed by the UK (2.4 million tonnes) and Italy (2.1 million tonnes).

- The largest decrease in graphic paper consumption compared to 2019 was registered in Spain (-32.8%) whereas Austria increased its consumption by 2.6%.

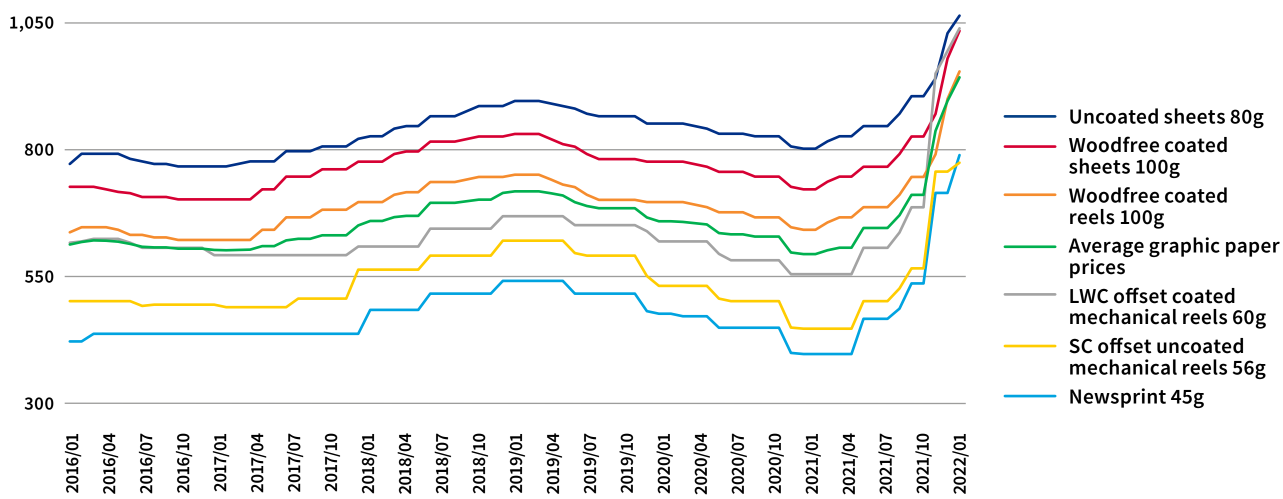
2.1.4 Price developments

Average graphic paper prices, Germany, €/tonne, 2012-2021

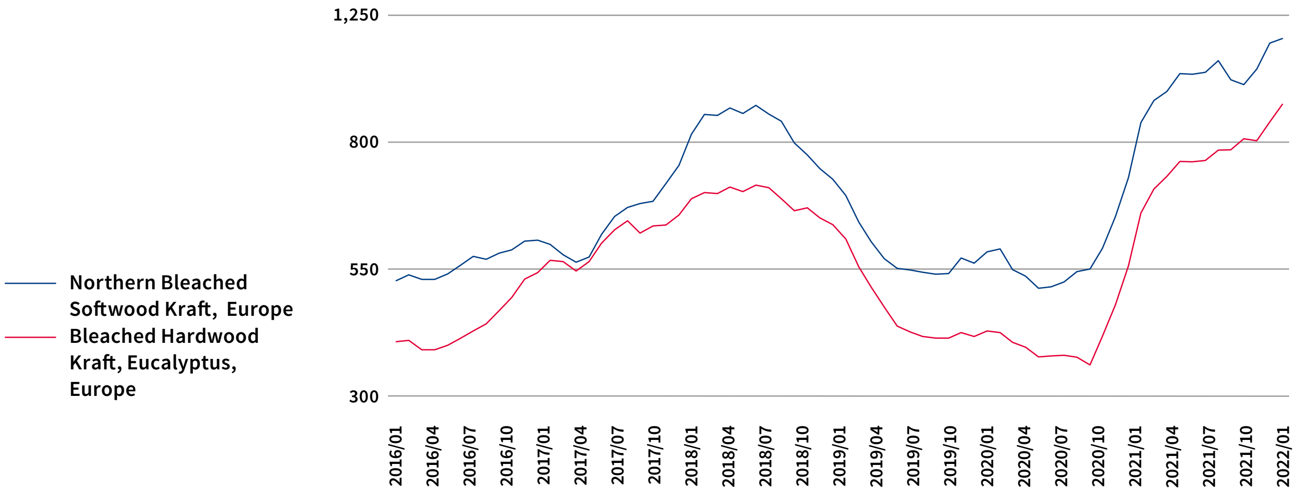


- Skyrocketing prices have been initiated at the beginning of 2021, surpassing by far the increases of 2019.
- Based on the example of Germany, graphic paper prices in March 2022 are 60% higher than in March 2021. They are 30% higher than at their highest level in 2019.
- The highest increase was registered by newsprint prices, which doubled in one year.

Average graphic paper prices, Germany, €/tonne, 2012-2021

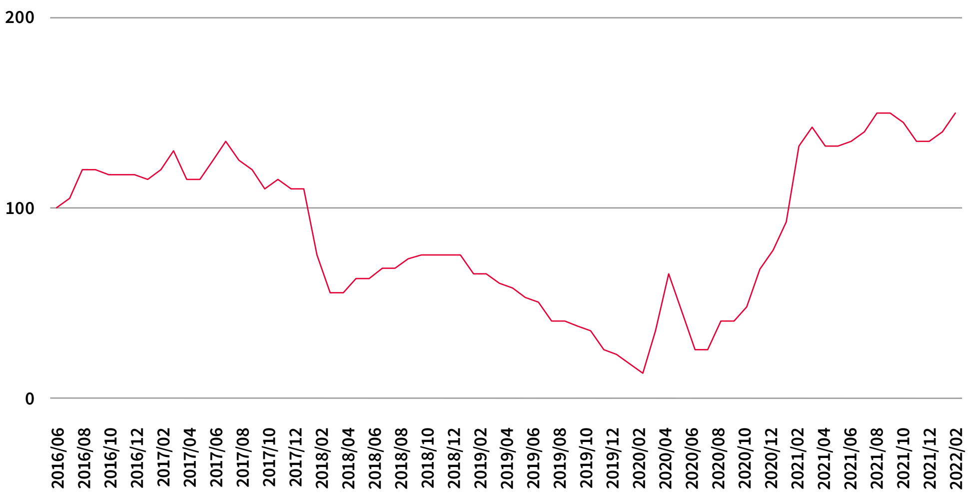


Pulp prices, Europe, €/tonne, 2016-2021



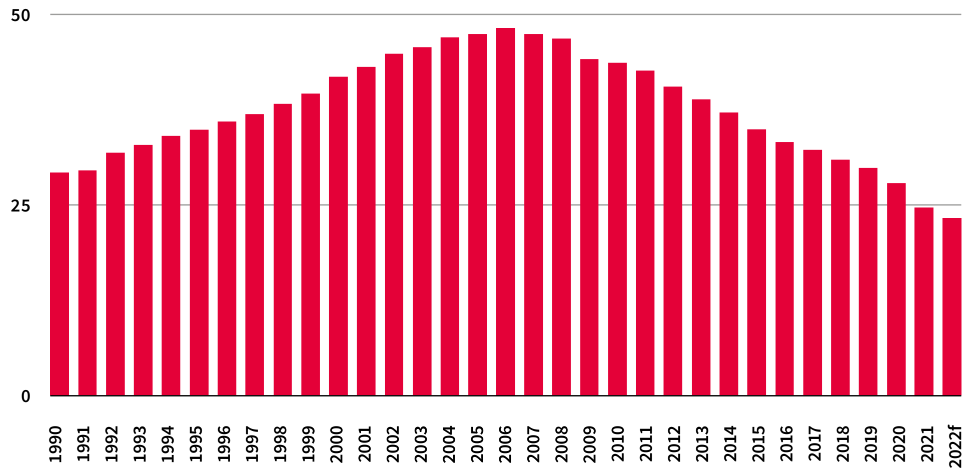
- Graphic paper price increases are the consequences of both pulp price increases and recovered paper prices.
- Pulp prices increased by 35% in one year and 65% in two years.
- Recovered paper had reached very low levels during the 2020 pandemic. They are now at the highest level for the last 5 years.

Sorted mixed paper and board prices, Germany, €/tonne, 2016-2021



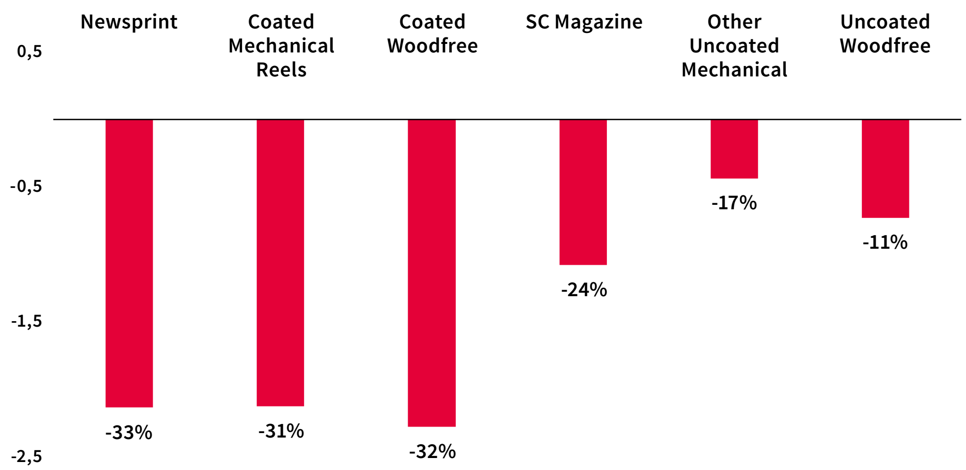
2.1.5 Graphic paper capacity

Graphic paper capacity, Western Europe, in million tonnes, 1990-2022
(2022 forecasts are based on confirmed announcements known in October 2021)



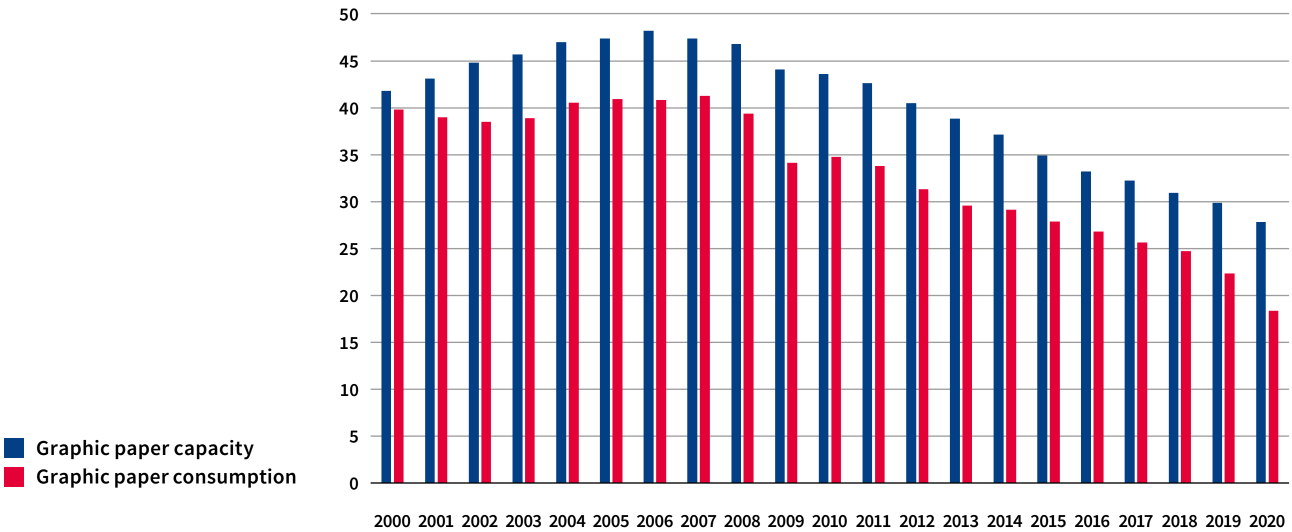
- 2006 was the peak year in terms of capacity at a level of 48.3 million tonnes. In 2021, half of the 2006 capacity remains, i.e. 24.7 million tonnes, even below the level in the 90's.
- The annual growth rate before 2006 was +3.2%, after 2006, it was -4.4%. Production capacity is expected to further reduce in 2022 based on announcements known in October 2021.

Graphic paper capacity changes per paper grade, Western Europe,
in million tonnes and % changes, 2016-2021



- The main capacity reductions were in the newsprint, coated mechanical reels and coated woodfree markets, i.e. over -30% capacity reduction in the last 5 years. The end-use markets for these grades include newspapers, magazines, books, catalogues and brochures.
- SC magazine and uncoated grades were impacted to a lesser extent. They are used primarily for advertising leaflets and transactional print.

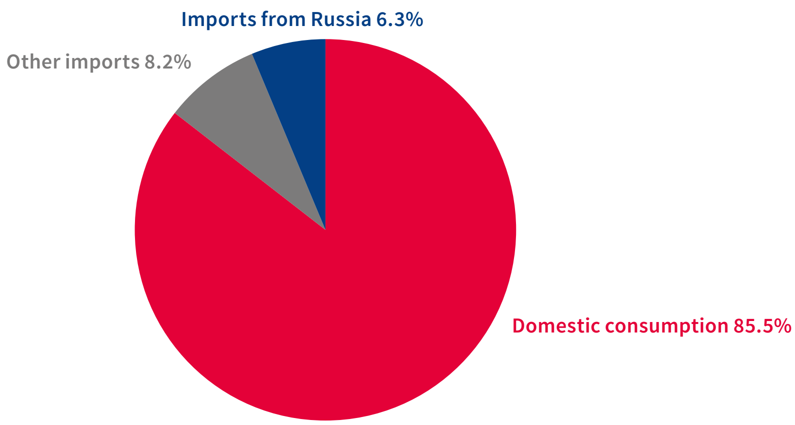
Graphic paper capacity and consumption in million tonnes 2000-2026



- From 2000 until 2009, over 80% of the capacity was utilised, from 2009 until 2019, it was between 75% and 80%. In 2019, 74.9% of the graphic paper production capacity was utilised, and in 2020, it further decreased to reach 65.9%.

2.1.6 European reliance of paper, pulp and wood from Russia

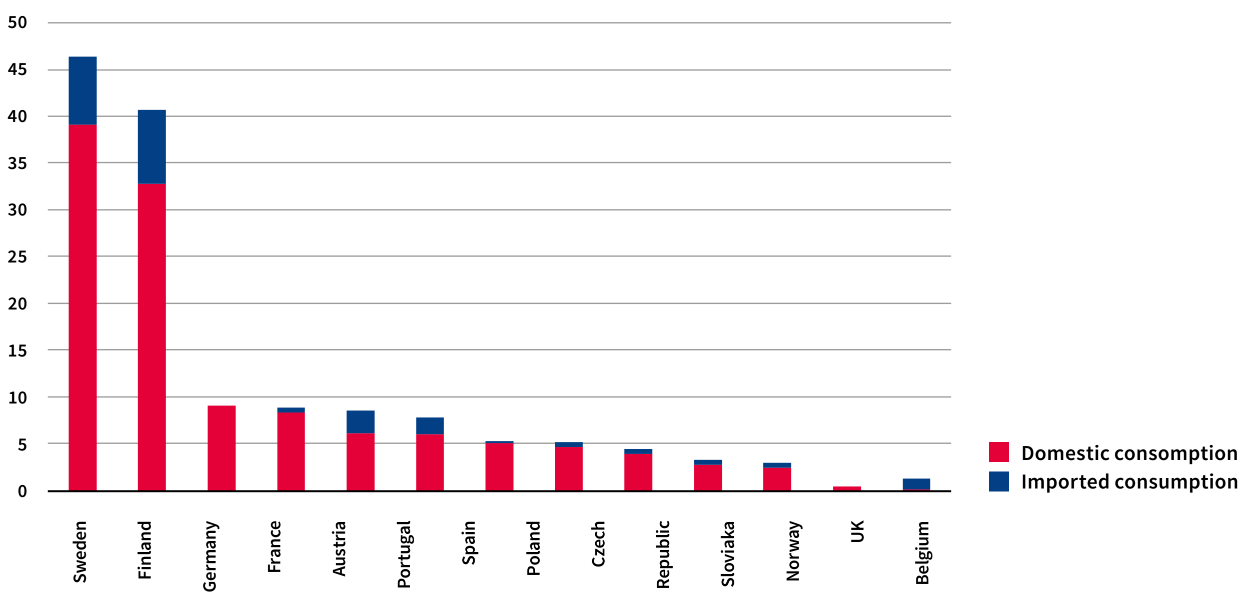
Origin of European wood consumption, 2020



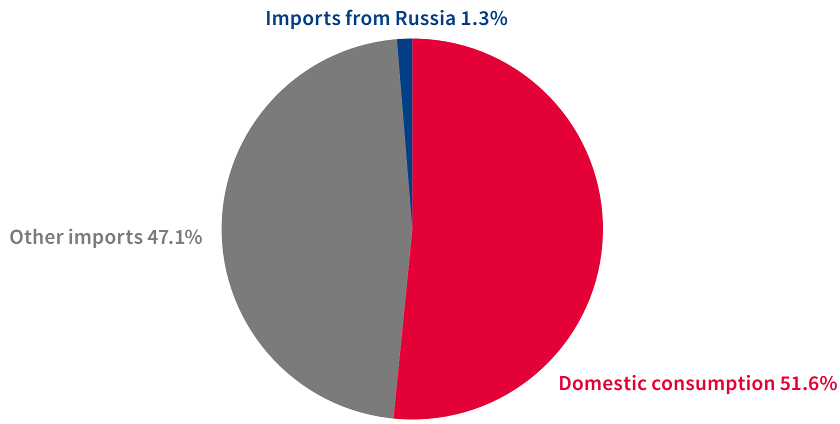
- In 2020, the level of European wood consumption was 108,592,000 tonnes. 6.3% of the total wood consumption originated from Russia, representing the main import country. 1.8% originated from Belarus. This figure constitutes the total wood consumption and is not only linked to pulp and paper industries.

- In the analysed European countries, Finland and Sweden are the largest consumers of wood and the most dependent countries on wood imports.

Wood consumption by country, 2020

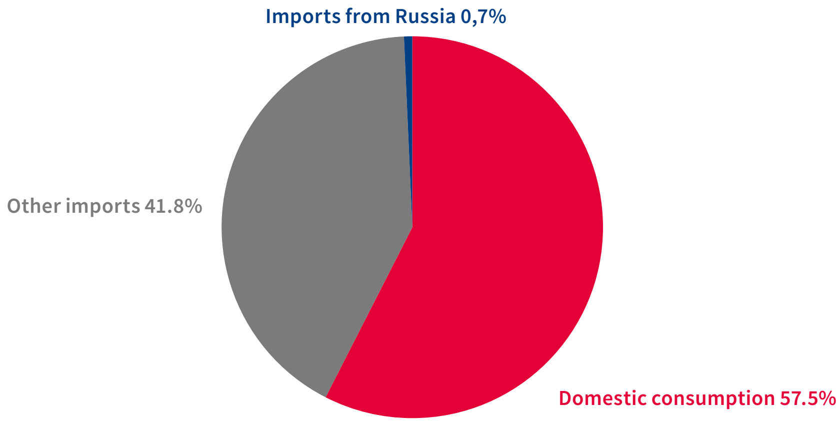


Origin of European pulp consumption, 2020

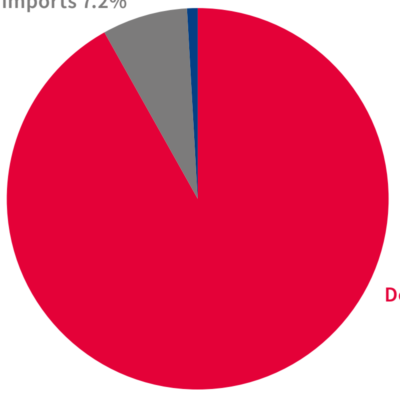


- The total pulp consumption in Europe reached 17,200,000 tonnes in 2020. 1.3% of the total pulp consumption originated from Russia, the main import country being Brazil (22.7%).
- In 2020, the total pulp production in Europe reached 15,300,000 tonnes. 0.7% of the pulp produced in Europe was exported to Russia. Most of the exported pulp is shipped to China (21.3%).

Destination of pulp produced in Europe, 2020

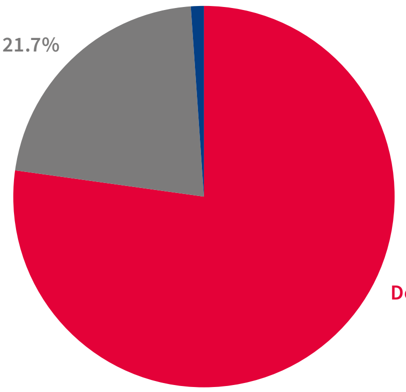


Origin of European paper and board consumption, 2020

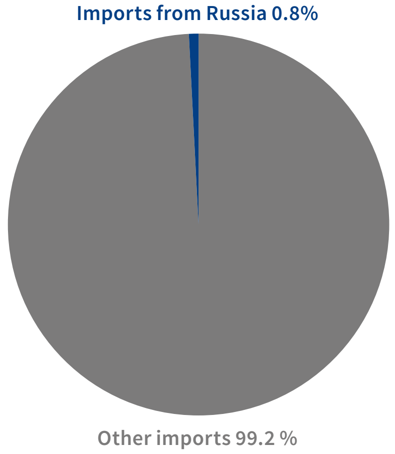


- In 2020, the level of European paper and board consumption was 71,000,000 tonnes. 0.9% of the total European paper and board consumption originated from Russia.
- The European paper and production in 2020 was 85,200,000 tonnes. 1.1% of the paper and board produced in Europe was exported to Russia.

Destination of paper and board produced in Europe, 2020

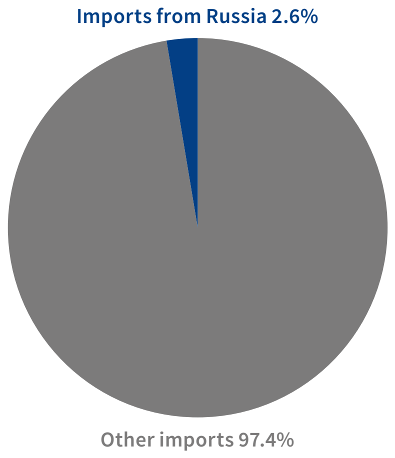


Imports of printed products , 2020



- In 2020, the European Union (EU-27) imported € 2.7 billion worth of printed products. 0.8% of the total printed product imported originated from Russia. The main import markets are the UK (47%), China (19%) and the US (10%).
- The European Union (EU-27) exported € 4 billion worth of printed products to Russia. 2.6% of the total exports of printed products were directed to Russia. The largest export markets are Switzerland (22%), the UK (19%) and the US (10%).

Exports of printed products , 2020



2.
2022 PRINT MARKET REVIEW

Sources
Smithers Information Ltd, 2021

2.2.1 Introduction

In 2021, European printing and printed packaging output grew by 2.2% in real (constant) value terms and by 7.7% in current value terms to €159.1 billion. The year was characterised by only a partial return to normality as COVID vaccinations were developed and distributed throughout the year, but even into 2022 infection levels remain very high and although mortality rates have fallen back this is not to the extent that might have been hoped. If 2022 started out with any optimism that the general operating environment might improve and things gradually return to normal, the outbreak of hostilities in Ukraine put paid to this early on in the year with terrible consequences on the ground. Supply chain disruptions – already a major feature of business during 2021 and into the New Year – were only exacerbated.

For once packaging revenues (incl. labels) and graphic print revenues moved ahead at similar rates in 2021, but this only meant that the graphic print sector had achieved real growth of around two per cent after a 19% decline in 2020, while package & label printing output more or less returned to 2019 levels. It should be said, however, that the figures presented here for 2021 are provisional and may be subject to change as official data is published later in the year.

2.2.2 The European Print Market

Basis of presentation

Smithers undertakes ongoing research into European and global print markets, and maintains a database of print market information covering printed output by print product, printing process and industry sector, as well as data on the key supply markets of new printing equipment, inks/colourants, paper/other substrates and prepress consumables. Much of the data here is based on data developed during the autumn of 2021 ahead of the publication of our report on the Future of Global Print to 2026, but this has since been reviewed and amended into 2022 – especially following the events in Ukraine and related changes in expectations for the global economy with reference to the IMF's latest forecasts in April of this year.

We continue to consult with a wide number of secondary sources, including official sources and also printing and related, publishing and packaging trade associations. We also undertake regularly primary research projects including surveys of printers in addition to more wide-ranging discussions with key players in supply industries. This is backed up by a variety of other information on the operating environment for print, including economic, demographic, literacy, advertising and postal data, as well as data on trends IT and communications. Major research projects undertaken in 2021 and through into early 2022 have covered prospects for print markets in the medium term (Future of Global Printing), printing equipment markets, digital print for packaging, flexo printing and printed labels, in addition to other one-off projects and an ongoing prepress consumables syndicate.

We continue to consult Eurostat data when putting together our figures on trends in printing output, machinery, inks, paper and other elements. We also look at the original national statistics data sources from which the data is drawn, which generally provide an indication as to any changes in the respondent base and degree of error in reporting, and consequently enables us to assess whether data is comparable from one year to the next. It is true that accurate comparisons cannot be made in some cases, but in other instances there is genuinely useful data that is especially valuable in an industry that is difficult to track and define. On the matter of definition, it is also important to note that Eurostat data focuses on the commercial printing industry and excludes various printing undertaken by some in-house printing operations, packaging companies and business support services such as some transactional printers and direct mail publishing houses. Furthermore, often the practise of classification into product segments on the part of companies submitting revenue data can vary from one company to the next, with 'other printing' often including data on products classified separately elsewhere. Nevertheless, as one becomes more acquainted with the data, it becomes easier to establish that data that is consistent and provides a useful indication on printing trends.

Given that there is no single official source that surveys print output in all its forms from all types of companies engaged in printing activities, ultimately, almost all available data on print is indicative. The key is to undertake as much research as possible and ensure that final figures are consistent with key data, especially relating to inks consumption and paper/other substrate consumption. In terms of Smithers data on printing output – including for digital print – this is given at ex-factory prices, whereby the design and prepress work billed by the print supplier is included, along with the substrate value (unless supplied by the customer), and any printing/converting and finishing. We are concerned with the invoice value to the print buyer rather than the final retail value of the product, and we do not include delivery costs, or any local taxes or VAT.

For companies offering mailing services the data handling, mail sorting (to obtain postal discounts) and inserting are included, but the postage costs are not. For in-plants, where the print supplier is a part of the buyer group, costs are apportioned at commercial rates rather than trying to follow the range of inter-company costing and transfer pricing. The value data includes substrates where there is more than one type of print process; in hybrid manufacture or two-pass overprinting, part of the value is apportioned to the digital production and part to the other processes in developing the final report data. The costs of the packaging substrates are included in the figures.

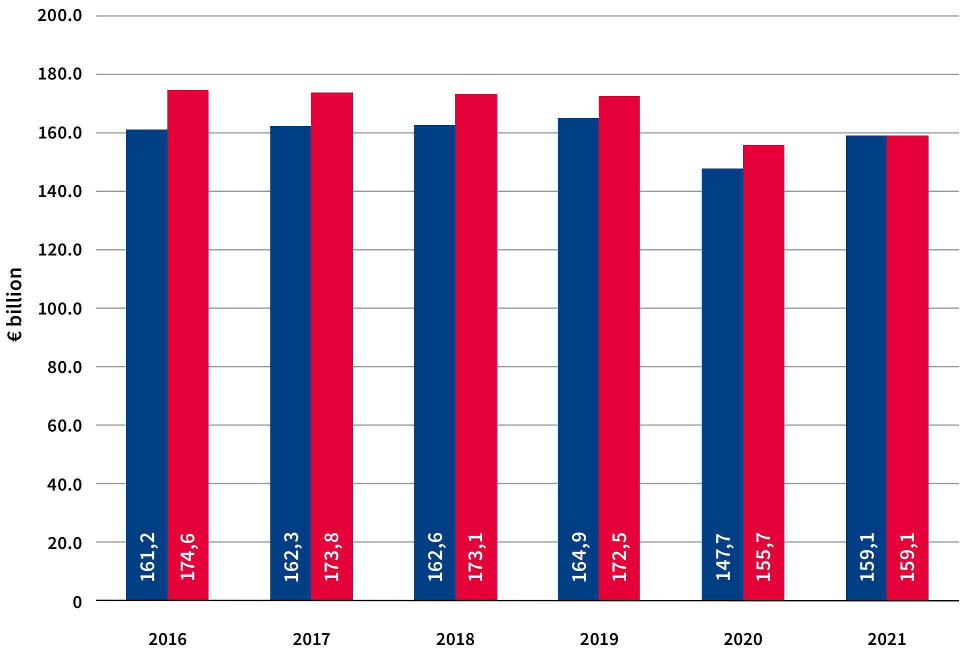
We cover all materials produced by specialist converters that are sold for profit, and estimates of values are provided for materials produced internally by in-plant operations, e.g. for in-house billing and statement applications. We do not distinguish between output from high-volume, industrial production equipment and low-cost, low-volume systems when sold for profit or used to pack or label goods produced by the user.

For the purposes of this publication, value data has been converted into Euros. In some cases, data is presented in terms of constant 2021 prices and exchange rates to reflect real changes in demand after the effects of inflation (as measured by the consumer prices index) and exchange rate movements. Volume data is generally presented in terms of tonnages unless otherwise stated.

2.2.3 The market in 2021 and beyond

European printing output, including package printing output, grew by 7.7% in current terms and by 2.2% in real terms (excluding the effects of inflation and exchange rate movements) to €159.1 billion in 2021. Both graphic print and package & label printing grew at a similar rate, but this masks the much worse performance of graphic print in 2020, and the recovery in graphic print in 2021 was less than initially expected.

FIGURE 1 European Printing & Printed Packaging Output, 2016-2021



€ billion, current prices & exchange rates

€ billion, constant (2020) prices & exchange rates

Source
Smithers

Note
constant price values show market data at 2021 prices, removing impact of inflation and exchange rate fluctuations from one year to the next.

Euro-Graph statistics for 2021 pointed to a rather sluggish recovery in paper industry activity, complicated by a difficult supply situation. European graphic paper sales grew by just 3.1% in 2021 to 19.77 million tonnes after an 18% decline in 2020. Newsprint demand fell by a further 3.5% (down 22.2% in 2020), with SC-magazine demand was down 1.7% (12.6% down in 2020). Across other grades, demand for coated mechanical reels rose by 2.9% (22.1% decline in 2020); coated woodfree paper demand was ahead by 8.0% (25.2% decline in 2020); other uncoated mechanical papers (including improved newsprint) were up 5.1% (down 7.4% in 2020); and uncoated woodfree paper demand grew by 6.9% after a 13.8% decline in 2020. Continuing falls in newsprint and SC-magazine grades were particularly notable at a time when a certain amount of recovery might otherwise have been expected, while the recovery in demand in other grades was fitful at best.

2.2.4 Supply chain issues

In terms of supply chains for print substrates, inks, and other consumables – including plates – 2021 was a febrile year. A quicker than anticipated economic recovery, elevated haulage costs and residual disruption from the COVID pandemic all contributed to suppliers raising their prices across the year, often multiple times.

Several press OEMs in Europe also raised prices in the year as transportation, energy, metal and other raw material prices rose. In paper markets, some remedial action is underway to reflect the changed demand for print products – mainly the addition of new packaging grade capacity, including conversion of graphic paper machines. Any major rebuilds, however, are capital intensive and will take years to complete.

Stability had not returned by Q1 2022, when another series of factors has struck leading to further rises in paper prices. The first was a strike at the Finnish mills of UPM. The action began on January 1st, and was most recently extended to May 14th after the Paperiliitto union rejected a compromise proposal from management. The main products affected have been communication papers; and release liner papers in particular, where UPM accounts for around 40% of European supply.

This has led to price increases, and some label suppliers have even recommended a short-term switch from paper to polymer labelstocks. FINAT warned in March that supplies of some FMCGs could be disrupted if the situation was not resolved. Intergraf, meanwhile, said that unprecedented paper supply shortages were also endangering supplies of books, magazines and newspapers. It should be noted that paper prices had risen on average by 45% in the six months prior, while newsprint prices had risen by 80% over the same period.

The Russian invasion of Ukraine and resultant economic sanctions have caused more uncertainty and disruption. Most Russian pulp is used domestically or exported east into China, but Europe does import 180,000-200,000 tonnes of kraftliner annually from Russia. In the medium term, North American mills and capacity expansions in Europe – such as Stora Enso's Oulu mill – will be able to compensate, but there may be some short-term shortages.

Many European paper and pulp firms have suspended operations in Russia and stopped exports. In terms of paperboard exports from Europe to Russia, RISI estimates these at 421,000 tonnes of boxboard, 129,000 tonnes of containerboard and 291,000 tonnes of graphic grades per year – which would be lost if the conflict or sanctions are prolonged. CEPI independently estimates that 212,000 tonnes of exports of paper to Ukraine itself will also be lost if the war continues through 2022.

New print equipment sales to Russia will stop. One month after the invasion there were already reports that digital press users in the country were having difficulty sourcing replacement parts and consumables, as most major OEMs stopped sales and international payments become difficult to complete.

The value of the rouble, which plunged at the beginning of March, had largely recovered by mid-April, but any future equipment purchases are likely to be from Chinese press builders.

The main impact however is being seen in energy prices. This is impacting substrate and inks suppliers, as well as raising the costs for Europe's print service providers to operate their own machinery. Entering 2022, European natural gas and energy prices were already trading at record levels – around €136 per megawatt hour (MWh), compared to around €20/MWh in pre-pandemic times. In the immediate aftermath of the invasion these soared further, at one time trading at €345/MWh, before falling back.

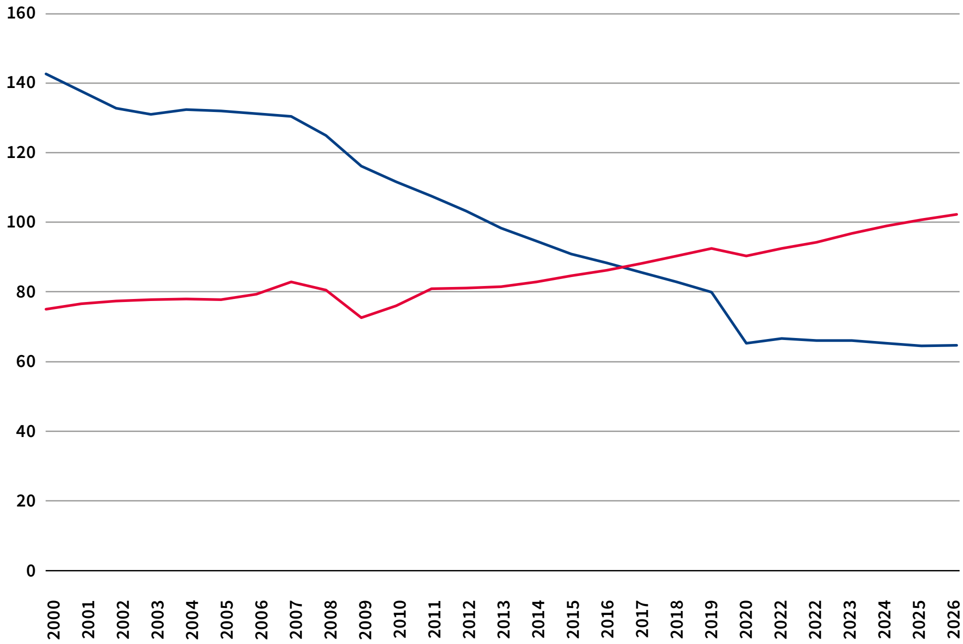
At the beginning of Q2 2022, prices remain elevated. This is mainly due to market uncertainty – Russian gas is continuing to flow into Europe – but Germany has delayed the opening of the NordStream 2 pipeline, and the EU has pledged to break its dependence on Russia petrochemicals, which account for 40% of its total natural gas use.

The immediate impact has been multiple price rises for substrates and consumables – sometimes now referred to as surcharges – as suppliers aim to pass on elevated costs to their customers. For example, price increases in the range of €50-180 per tonne for folding boxboard (FBB) and €140-155 per tonne for white-lined chipboard (WLC) were announced by all major producers during Q1 2022. Ink companies are also raising their prices – Epple Druckfarben, Flint Group, Huber Group, and Sun Chemical –all announced prices rises in the same quarter.

2.2.5 Market forecasts

Going forward, we expect package/label printing revenues to grow by around two per cent per annum in real terms over the next five years to reach €102.3 billion by 2026, with graphic print falling by less than one per cent per annum on average to €64.7 billion. The overall value of the European print market will amount to €167 billion by the end of the period, up from €159 billion in 2021.

FIGURE 2 Trends in European Printing & Printed Packaging Output, 2000-2026f (€ billion, constant 2021 prices & exchange rates)



Graphic print
Printed packaging/labels

Source
Smithers

Note
constant price values show market data at 2021 prices, removing impact of inflation and exchange rate fluctuations from one year to the next.

2.2.6 National markets

Out of overall estimated printing revenues of €159 billion in 2021, Western European countries contributed €133.2 billion, led by Germany (€31.9 billion), the UK (€22.7 billion) and France (€19.3 billion). Of the €25.9 billion in Eastern European printing revenues in 2020, Poland and Russia between themselves accounted for half of the total at €7.9 billion and €7.4 billion respectively. It should be said that it is extremely difficult to predict what will happen in Russia and especially Ukraine over the coming years, but is clear that sanctions will take a major toll on the Russian market and it will take some years for the situation to return to normality in Ukraine. Our internal forecasts of course point to a sharp drop in output in Ukraine in 2022.

TABLE 1: European Printing & Printed Packaging Output by Country and by Region, 2016-2026 (€ billion, current prices & exchange rates; constant 2021 prices & exchange rates)*

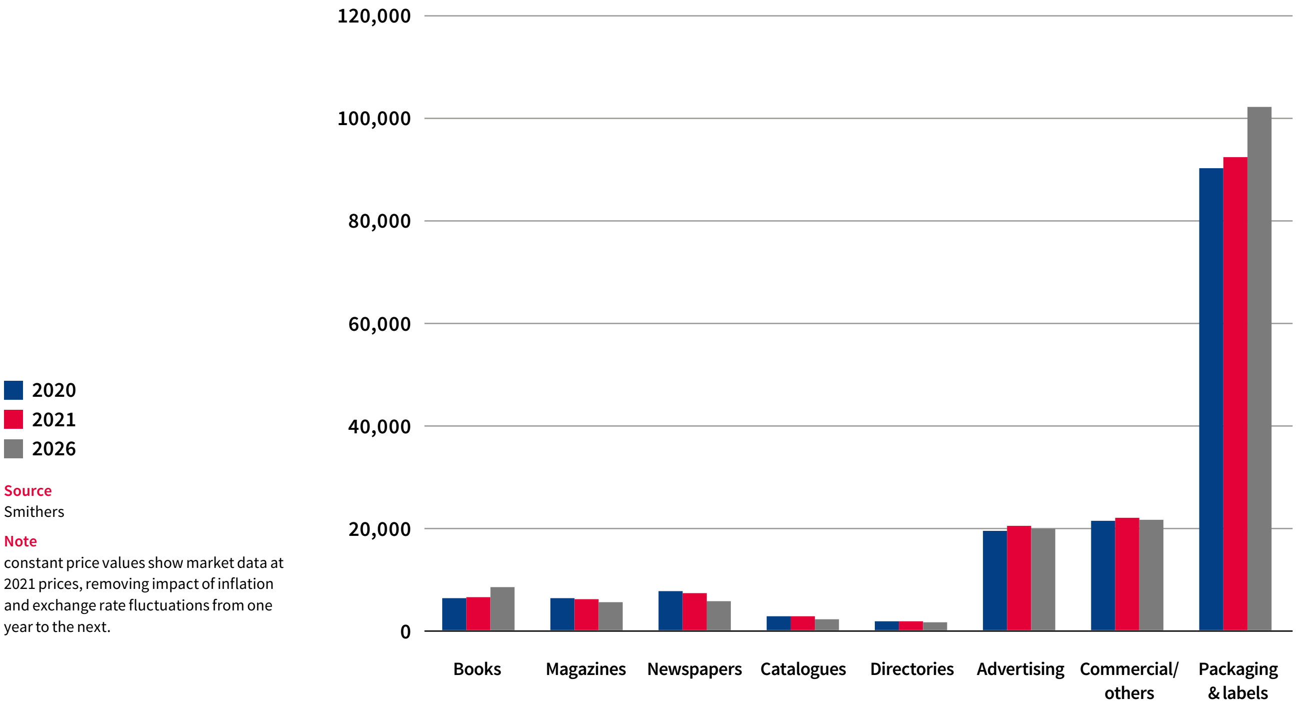
Country	Current prices & exchange rates				Constant (2021) prices & exchange rates*			
	2016	**2020**	**2021e**	**2026f**	**2016**	**2020**	**2021e**	**2026f**
Western Europe	138.0	123.8	133.2	157.9	149.3	130.6	133.2	138.9
Germany	33.2	30.6	31.9	36.8	36.5	32.3	31.9	32.7
UK	22.9	19.8	22.7	29.6	24.5	21.6	22.7	23.9
France	19.4	18.0	19.3	22.4	21.0	18.6	19.3	20.2
Italy	17.9	16.0	17.2	19.6	19.1	16.7	17.2	17.3
Spain	11.1	10.2	11.1	13.4	12.1	10.9	11.1	12.4
Netherlands	5.6	5.2	5.6	6.4	6.4	5.5	5.6	5.8
Belgium	4.5	4.0	4.4	5.0	5.1	4.2	4.4	4.5
Switzerland	5.0	4.3	4.4	5.2	5.1	4.4	4.4	4.5
Austria	3.7	3.4	3.6	4.2	4.2	3.6	3.6	3.8
Sweden	3.9	3.1	3.3	3.8	4.1	3.3	3.3	3.4
Denmark	2.1	1.9	2.0	2.4	2.2	2.0	2.0	2.1
Greece	1.5	1.4	1.5	1.7	1.6	1.5	1.5	1.6
Norway	1.8	1.3	1.4	1.8	1.9	1.4	1.4	1.6
Finland	1.7	1.4	1.4	1.6	1.8	1.4	1.4	1.4
Portugal	1.5	1.4	1.4	1.6	1.5	1.4	1.4	1.5
Ireland	1.4	1.3	1.3	1.8	1.5	1.3	1.3	1.5
Others	0.6	0.5	0.6	0.7	0.7	0.6	0.6	0.7
Eastern Europe	23.2	23.9	25.9	32.4	25.3	25.1	25.9	28.1
Poland	6.5	7.2	7.9	10.7	7.4	7.6	7.9	9.3
Russia	6.8	7.0	7.4	7.1	7.2	7.2	7.4	6.6
Czechia	2.2	2.4	2.6	3.6	2.7	2.6	2.6	3.1
Hungary	1.4	1.4	1.6	2.4	1.5	1.5	1.6	1.9
Romania	1.1	1.1	1.3	1.7	1.2	1.2	1.3	1.5
Ukraine	0.7	0.9	1.0	1.0	0.9	1.0	1.0	0.9
Slovenia	0.6	0.6	0.6	0.8	0.7	0.6	0.6	0.7
Bulgaria	0.6	0.6	0.6	0.8	0.6	0.6	0.6	0.7
Others	3.3	2.8	3.0	4.2	3.0	2.9	3.0	3.5
Europe	161.2	147.7	159.1	190.3	174.6	155.7	159.1	167.0

Source
Smithers
Note *removes impact of inflation and exchange rate fluctuations from one year to the next

2.2.7 Print products

While 2021 saw some recovery in books, advertising and general commercial print, this was far more sluggish than might typically have been expected. Newspaper printing output continued to fall back, however, and there was little evidence of a pick-up in magazine and catalogue printing markets, with Ikea only the latest company to stop publishing a catalogue. Package & label printing, meanwhile, continued to grow with metal cans and corrugated among the best performers.

FIGURE 3 European Printing & Printed Packaging Output by Print Product, 2020-2026f (€ million, constant 2021 prices & exchange rates)



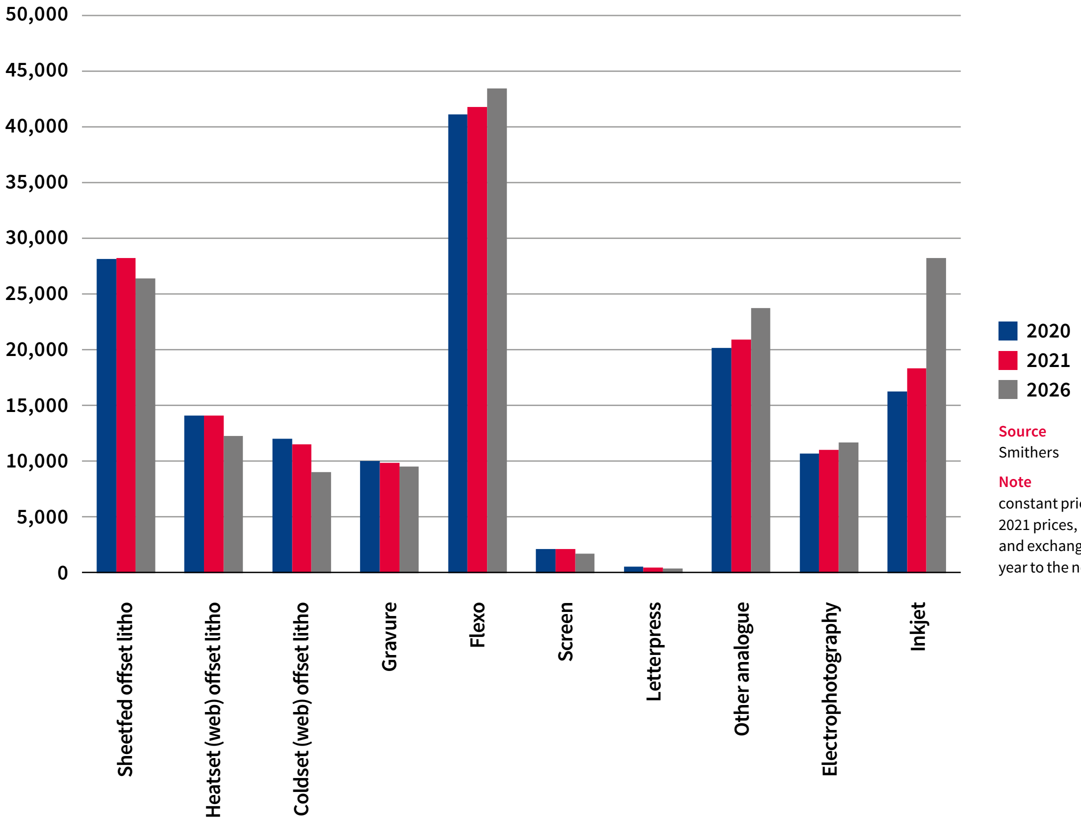
Source
Smithers

Note
constant price values show market data at 2021 prices, removing impact of inflation and exchange rate fluctuations from one year to the next.

2.2.8 Printing processes

In 2021, flexo reinforced its position as the single largest printing process sector with output rising by 1.8%, broadly in line with the growth in package & label printing areas. Digital printing, however, continues to be the fastest growing area with inkjet printing revenues rising at double-digital rates during the year.

FIGURE 4 European Printing & Printed Packaging Output by Process, 2020-2026f (€ million, constant 2021 prices & exchange rates)

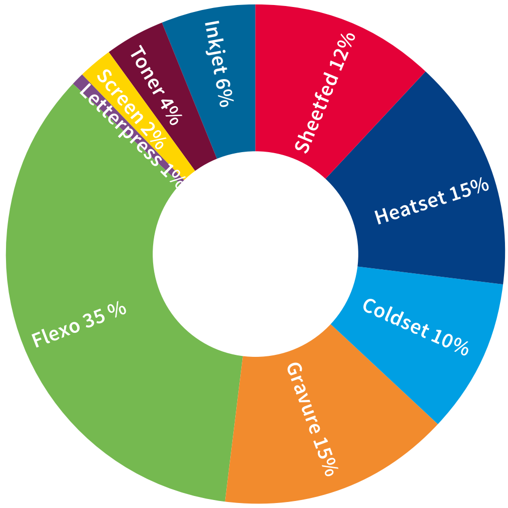


Source
Smithers

Note
constant price values show market data at 2021 prices, removing impact of inflation and exchange rate fluctuations from one year to the next.

FIGURE 5 European Printing Inks Consumption by Type, 2021 (% share by volume)

Total printing inks & colourants consumption: 721,000 tonnes



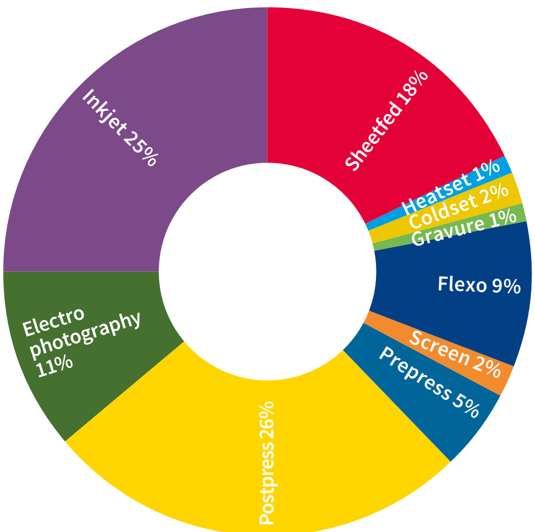
Source
Smithers

2.2.9 Printing equipment

Printing equipment sales grew strongly in 2021 but still remain well below 2019 levels. Digital printing accounted for 36% of sales at €1.52 billion.

FIGURE 6 European Sales of New Printing Equipment by Type, 2021 (% share by value)

Total sales of new printing equipment: €4.25 billion



Source
Smithers

2.2.10 Summary

It appears to the case that the economic impact of COVID-19 has been a permanent change in the nature of printing demand, although we would expect there to be some pockets of recovery over the coming years as societal habits begin to return to normal in most countries, at least outside of Ukraine. There is though a higher than usual degree of uncertainty about forecasts given the mix of economic and political upheaval, and this should be borne in mind when looking ahead.

3.
ANNEX

Annex to 1.2.1

Turnover, 2019 , in million €

	Printing and service activities related to printing	Printing of newspaper	Other printing	Pre-press and pre-media services	Binding and related services
Austria	1 811,0	119,8	1 557,4	76,9	56,9
Belgium	2 721,3	11,0	2 384,3	294,8	31,3
Bulgaria	407,1	14,4	375,9	16,8	:
Croatia	660,6	13,7	590,8	51,0	5,1
Cyprus	65,7	:	63,8	1,9	:
Czechia	1 292,0	:	:	:	:
Denmark	828,1	:	717,7	52,0	58,4
Estonia	243,3	0,0	232,1	11,2	:
Finland	952,5	100,7	804,4	44,5	2,9
France	8 417,3	:	6 580,3	1 521,2	:
Germany	18 609,5	641,4	15 564,8	1 695,1	708,2
Greece	606,9	16,2	440,8	119,6	30,3
Hungary	957,6	1,0	843,4	96,7	16,5
Ireland	710,2	38,3	622,3	37,6	12,0
Italy	10 299,3	260,5	8 649,1	777,6	612,1
Latvia	243,0	0,4	233,9	4,7	4,1
Lithuania	272,3	:	253,0	17,1	2,2
Luxembourg	87,3	0,0	86,0	1,3	:
Malta	221,1	:	216,2	:	0,2
Netherlands	3 081,8	:	2 733,0	:	:
Poland	3 848,4	66,0	3 257,9	330,2	194,3
Portugal	1 024,3	18,5	799,0	186,8	20,0
Romania	859,0	63,4	751,3	22,7	21,7
Slovakia	399,1	1,4	307,2	81,9	8,6
Slovenia	444,8	0,6	370,1	68,6	5,5
Spain	6 067,6	275,1	5 043,3	556,2	193
Sweden	1 637,2	:	1 404,7	72,9	:
Norway	805,6	143,4	565,4	83,2	13,6
Switzerland	3 265,0	:	:	:	:
United Kingdom	11 923,3	27,4	10 651,5	884,6	359,8
Europe (EU27+UK+NO+CH)	**82 762**	**1 813**	**66 100**	**7 107**	**2 357**

Annex to 1.2.1

Number of companies, 2019

	Printing and service activities related to printing	Printing of newspaper	Other printing	Pre-press and pre-media services	Binding and related services
Austria	776	6	585	109	76
Belgium	3 692	101	1 428	2 072	91
Bulgaria	983	12	727	174	70
Croatia	1 368	15	904	368	81
Cyprus	261		230	18	
Czechia	7 452	:	:	:	:
Denmark	564	6	416	103	39
Estonia	369	2	319	37	11
Finland	719	10	558	123	28
France	14 674	23	4 604	9 473	574
Germany	10 559	127	7 091	2 550	790
Greece	2 582	39	1 494	895	154
Hungary	2 948	15	1 311	1 441	181
Ireland	1 072	14	733	275	50
Italy	13 731	17	10 876	1 820	1 018
Latvia	438	4	314	69	51
Lithuania	698	2	312	154	230
Luxembourg	66	0	44	18	4
Malta	136	:	122	7	:
Netherlands	3 108	31	2 097	438	542
Poland	10 137	408	5 509	3 221	999
Portugal	2 375	19	1 502	713	141
Romania	2 430	58	2 000	183	189
Slovakia	1 885	5	816	919	145
Slovenia	1 144	8	566	509	61
Spain	12 587	62	9 915	2 241	368
Sweden	2 373	6	1 692	555	120
Norway	769	30	486	239	14
Switzerland	2 100	:	:	:	:
United Kingdom	10 757	33	9 152	1 285	287
Europe (EU27+UK+NO+CH)	**112 753**	**1 053**	**65 803**	**30 009**	**6 314**

Annex to 1.2.1

Number of employees, 2019

	Printing and service activities related to printing	Printing of newspaper	Other printing	Pre-press and pre-media services	Binding and related services
Austria	9 423	465	7 921	581	456
Belgium	10 047	49	8 551	1 164	283
Bulgaria	8 994	184	8 098	495	217
Croatia	7 722	122	6 889	616	95
Cyprus	936	:	903	33	:
Czechia	13 464	:	:	:	:
Denmark	4 418	:	3 780	342	296
Estonia	2 807	0	2 733	74	:
Finland	6 097	445	5 184	440	28
France	47 846	:	35 821	9 725	:
Germany	136 638	4 269	108 561	15 889	7 919
Greece	6 905	337	4 634	1 437	497
Hungary	14 555	22	12 377	1 628	528
Ireland	5 151	122	4 637	285	107
Italy	61 159	1 061	49 093	5 283	5 722
Latvia	3 500	10	3 215	143	132
Lithuania	3 934	:	3 631	270	33
Luxembourg	539	0	532	7	:
Malta	1 667	:	1603	11	:
Netherlands	16 018	44	13 738	974	1 263
Poland	45 203	730	38 198	3 402	2 873
Portugal	14 280	276	10 572	3 052	380
Romania	15 211	1 012	12 761	591	847
Slovakia	4 559	28	3 514	813	204
Slovenia	3 757	:	3 089	605	63
Spain	51 731	1851	41 460	5 589	2831
Sweden	9 174	:	8 127	550	:
Norway	4 360	586	3 210	413	151
Switzerland	18 440	:	:	:	:
United Kingdom	100 459	264	87 650	8 679	3 866
Europe (EU27+UK+NO+CH)	**628 994**	**11 877**	**490 482**	**63 091**	**28 791**

Annex to 1.2.1

Turnover 18.1, 1995-2018, in million €

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Austria	1 947,7	:	1 750,3	1 888,7	1 981,5	2 086,2	2 126,1	2 083,7	2 019,8	2 029,3	2 017,8
Belgium	3 078,0	3 187,8	3 066,0	3 157,6	3 336,1	3 378,5	3 864,6	3 864,6	3 678,8	3 585,7	3 640,2
Bulgaria	:	83,4	79,9	78,3	84,7	94,8	114,2	141,2	147,4	171,6	189,0
Croatia	:	:	:	:	:	:	:	:	:	:	:
Cyprus	:	:	:	:	:	85,7	89,3	84,9	82,1	87,6	92,5
Czechia	531,3	:	:	608,3	471,6	:	:	846,5	947,7	1 026,1	:
Denmark	1 653,2	1 802,0	1 714,0	1 818,9	1 928,1	1 936,2	1 802,4	1 722,1	1 616,0	1 517,7	1 518,5
Estonia	:	:	:	:	:	:	:	94,4	101,4	114,2	132,3
Finland	1 219,9	1 273,0	1 379,7	1 460,3	1 474,6	1 543,0	1 579,1	1 536,7	1 458,9	1 457,8	1 624,6
France	:	13 147,0	12 987,2	13 543,9	13 797,0	14 135,5	14 365,4	13 993,7	13 318,7	13 136,9	13 082,8
Germany	:	:	:	:	24 754,0	21 337,8	21 275,0	20 975,8	18 805,9	20 067,7	21 115,0
Greece	:	:	:	:	:	:	:	:	1 354,3	1 504,9	1 464,4
Hungary	:	:	:	385,9	448,2	591,1	823,6	890,3	931,6	991,5	989,5
Ireland	:	:	742,9	789,3	828,0	858,9	854,5	837,3	741,3	667,4	878,2
Italy	8 889,5	9 706,5	10 128,0	10 747,9	10 996,9	12 851,9	13 223,2	13 377,5	14 058,6	14 241,1	13 426,3
Latvia	:	:	39,0	66,8	80,2	80,1	96,1	97,2	99,9	124,5	130,8
Lithuania	:	:	:	:	:	62,9	78,7	94,5	99,1	106,1	116,1
Luxembourg	103,4	95,8	98,4	103,9	117,0	134,5	139,7	140,8	154,1	151,9	152,0
Malta	:	:	:	:	71,5	90,7	81,1	96,6	105,1	:	104,5
Netherlands	5 502,9	5 836,5	5 431,9	5 572,5	5 664,7	5 886,3	5 936,8	5 599,4	5 207,4	5 228,8	5 178,3
Poland	:	819,7	1 050,8	1 253,9	1 575,0	1 868,8	2 247,9	2 295,3	2 061,0	2 193,4	2 514,8
Portugal	:	:	:	:	1 247,8	1 299,0	1 391,5	1 237,7	1 269,3	1 395,4	1 305,9
Romania	:	:	:	:	:	314,7	303,5	330,9	385,4	473,8	549,2
Slovakia	135,0	:	148,5	154,1	126,6	174,5	225,3	220,1	202,7	202,8	225,8
Slovenia	251,6	246,4	257,3	280,9	274,2	305,1	330,4	406,0	376,6	388,3	392,9
Spain	4 947,7	5 400,6	5 538,5	6 249,0	6 248,3	7 826,6	7 681,3	8 239,7	8 116,9	8 545,3	8 593,5
Sweden	2 766,5	3 044,8	3 038,6	3 086,6	3 130,3	3 284,6	2 994,0	2 904,5	2 802,9	2 870,7	2 804,9
Norway	:	1 151,4	1 236,9	1 295,1	1 363,7	1 505,1	1 400,1	1 424,7	1 285,7	1 316,1	1 424,3
Switzerland	:	:	:	:	:	:	:	:	:	:	:
United Kingdom	:	15 050,2	20 020,2	20 290,6	21 389,1	23 639,1	23 118,3	22 505,5	18 398,7	19 843,2	17 980,2
Europe (EU27+UK+NO+CH)	**31 026,7**	**60 845,1**	**68 708,1**	**72 832,5**	**101 389,1**	**105 371,6**	**106 142,1**	**106 041,6**	**99 827,3**	**103 439,8**	**101 644,3**

Slovakia: include as from 2010 individual entrepreneurs

2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
2 167,9	2 171,8	2 325,8	2 090,8	1 976,5	2 030,1	1 988,2	1873,9	1 852,5	1 863,7	1 900,7	1 823,2	1 824,2	1 811,0
3 888,0	3 963,5	3 636,0	3 636,0	3 475,4	3 382,9	4 054,1	3202,1	3 248,0	3 028,1	2 792,6	2 903,5	2 309,2	2 721,3
224,3	284,3	277,2	274,6	278,9	298,0	312,6	315,3	348,0	330,7	339,1	360,2	375,9	407,1
:	:	564,3	546,0	528,1	538,2	521,6	516,3	537,5	577,8	558,2	557,0	616,1	660,6
102,8	112,3	121,0	121,0	101,2	100,0	83,7	63,9	63,9	63,9	65,0	64,3	66,0	65,7
1 276,5	1 470,3	1 607,8	1 607,8	1 347,7	1 336,2	1 336,2	1227,0	1 220,6	1 220,6	1 220,6	1 220,6	1 292,0	1 292,0
1 521,2	1 547,2	1 535,5	1 535,5	962,7	931,8	1028,9	959,1	1 006,5	952,8	896,6	892,2	860,6	828,1
157,1	157,1	188,4	159,4	197,6	201,7	204,5	216,9	216,9	218,1	236,2	242,6	243,3	243,3
1 657,4	1 716,1	1 671,7	1 433,4	1 355,1	1 407,8	1 454,8	1343,3	1 206,2	1 119,0	1 060,0	1 048,1	1 008,6	952,5
13 019,5	12 736,8	12 447,2	10 694,9	10 554,0	10 220,0	9 491,1	8904,5	8 787,6	8 390,7	8 670,9	8 464,2	9 489,5	8 417,3
22 099,1	21 600,8	21 505,6	20 405,8	20 677,2	21 133,1	20 446,1	19151,3	18 260,8	17 528,9	18 763,2	19 045,0	17 271,3	18 609,5
1 579,7	1 629,5	888,0	862,3	862,3	862,3	595,6	509,3	493,8	616,7	595,7	607,3	628,7	606,9
970,6	1 077,9	1 086,8	850,3	889,8	893,0	881,3	871,7	890,3	926,3	888,2	959,9	993,2	957,6
711,3	686,7	971,0	742,1	827,5	758,4	891,8	711,7	640,7	652,9	713,8	730,7	730,7	710,2
14 848,3	14 512,1	14 133,5	11 422,3	11 766,5	11 617,4	10 824,8	10169,2	9 976,9	10 007,1	10 652,5	10 281,6	10 267,4	10 299,3
193,7	208,2	178,6	134,7	142,5	155,3	184,2	218,8	204,0	202,9	202,5	214,4	222,4	243,0
170,7	195,5	170,7	127,5	132,4	167,8	197,7	208,7	217,2	218,8	212,4	211,6	223,9	272,3
146,1	146,1	133,7	133,7	133,7	141,4	139,5	107,4	111,6	105,6	100,3	95,3	90,0	87,3
:	131,2	:	:	:	:	120	133,4	123,5	124,5	109,9	93,5	137,1	221,1
5 088,1	5 432,8	5 381,6	4 809,2	4 645,5	4 537,2	4 176,6	3935,3	3 748,4	3 472,5	3 467,6	3 275,4	3 152,2	3 081,8
2 812,2	3 453,2	2 803,8	2 080,0	2 455,3	2 556,0	2 515,9	2733,6	2 977,4	3 124,4	3 095,6	3 200,2	3 834,3	3 848,4
1 265,8	1 282,6	1 303,5	1 212,7	1 163,4	1 109,5	954,3	950,8	983,4	1 007,0	983,4	1 026,4	1 007,8	1 024,3
624,5	779,9	806,8	649,5	665,3	687,4	662,0	679,2	737,1	741,6	749,9	759,2	825,9	859,0
294,3	365,1	391,0	391,0	431,2	386,8	386,4	401,6	381,7	378,4	372,8	396,5	483,9	399,1
426,4	469,4	465,7	448,2	416,8	428,7	415,1	410,2	415,2	420,3	423,9	423,3	427,4	444,8
9 041,9	9 298,1	8 794,7	7 781,3	7 466,4	6 833,8	5 734,3	5525,2	5 559,5	5 622,1	5 625,2	5 523,5	6 061,0	6 067,6
2 891,3	2 918,7	2 858,1	2 363,7	2 682,9	2 706,2	2 701,5	2529,0	2 331,9	2 473,2	2 132,0	2 101,4	1 802,4	1 637,2
1 448,5	1 536,0	1 507,4	1 286,7	1 390,5	1 406,1	1 441,5	1294,4	1 128,2	1 128,2	937,1	924,1	877,2	805,6
:	:	:	3 340,5	3 516,5	3 649,2	3 725,0	3725,4	3 532,8	4 043,0	4 043,0	4 043,0	3 265,0	3 265,0
18 652,6	18 438,3	16 374,5	12 365,6	12 182,6	12 946,2	13 201,6	12008,9	13 014,9	14 693,4	12 649,5	12 223,3	11 923,3	11 923,3
107 279,8	**108 321,5**	**104 129,9**	**93 506,5**	**93 225,5**	**93 422,5**	**90 671**	**84897,4**	**84 217,0**	**85 253,2**	**84 458,4**	**83 711,50**	**82 310,50**	**82 762,20**

Annex to 1.2.1

Number of companies 18.1, 1995-2019, in million €

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Austria	1 065	1 141	1 110	1 129	1 016	1 045	1 010	1 088	1 095	1 070	1 032
Belgium	3 900	3 900	3 900	3 900	3 914	3 728	3 905	3 905	3 748	3 810	3 965
Bulgaria	549	549	588	594	643	628	672	786	818	815	857
Croatia	1 800	1 800	1 800	1 800	1 800	1 800	1 800	1 800	1 800	1 800	1 800
Cyprus	270	270	270	270	270	277	302	316	318	322	286
Czechia	2 535	2 113	2 901	3 944	2 995	4 112	3 708	5 675	6 104	6 192	6 822
Denmark	2 358	2 222	2 145	2 105	1 789	1 736	1 569	1 473	1 352	1 252	1 192
Estonia	140	140	140	140	140	140	153	168	168	195	210
Finland	1 487	1 470	1 438	1 480	1 415	1 368	1 311	1 276	1 237	1 208	1 172
France	17 903	17 903	17 731	17 537	17 289	17 114	16 962	16 766	17 986	17 852	17 648
Germany	14 000	14 000	14 000	14 000	13 828	13 584	14 680	12 934	12 574	11 294	12 228
Greece	4 400	4 400	4 400	4 400	4 400	4 400	4 400	4 400	4 431	4 426	4 649
Hungary	530	530	530	528	590	661	4 265	4 322	4 487	4 540	4 340
Ireland	333	333	343	343	343	353	357	380	391	357	326
Italy	19 317	19 354	19 277	19 930	20 168	20 386	20 323	20 262	19 603	19 355	19 272
Latvia	165	165	165	212	245	273	258	298	324	376	389
Lithuania	250	250	250	250	250	262	274	291	295	284	386
Luxembourg	87	84	89	90	86	86	78	77	82	84	88
Malta	200	200	200	200	200	194	198	201	167	171	162
Netherlands	4 130	4 180	4 325	4 770	4 450	4 140	3 885	3 915	3 665	3 635	3 425
Poland	7 742	7 742	9 357	11 290	11 601	11 001	10 333	11 416	10 426	11 626	11 023
Portugal	3 200	3 200	3 200	3 200	3 201	3 056	3 116	2 987	3 237	3 251	4 699
Romania	1 000	1 000	1 000	1 000	1 000	1 026	1 141	1 330	1 662	1 945	2 073
Slovakia	36	36	41	40	41	186	240	245	201	200	216
Slovenia	1 264	1 294	1 147	1 190	1 287	1 282	1 413	1 133	1 094	1 112	1 120
Spain	9 286	10 318	9 914	10 357	14 254	15 445	14 452	14 445	13 958	15 070	14 593
Sweden	3 545	3 478	4 093	4 066	3 994	3 951	3 835	3 683	3 728	3 673	3 704
Norway	1 158	1 158	1 253	1 208	1 054	1 100	990	961	867	1 734	1 606
Switzerland	2 500	2 500	2 500	2 500	2 500	2 500	2 500	2 500	2 500	2 500	2 500
United Kingdom	19 296	19 296	19 521	19 405	19 785	18 937	18 814	18 777	18 283	17 433	16 906
Europe (EU27+UK+NO+CH)	**124 446**	**125 026**	**127 628**	**131 878**	**134 548**	**134 771**	**136 944**	**137 810**	**136 601**	**137 582**	**138 689**

Slovakia: include as from 2010 individual entrepreneurs

2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
1 008	1 022	985	935	931	893	877	854	854	842	856	845	798	776
4 022	4 677	4 426	4 426	4 229	4 043	3 506	3480	4 158	4 032	3 813	4 148	3 111	3 692
914	988	957	1 135	1 123	1 104	1 036	1023	1 026	1 013	1 013	999	1 006	983
1 800	1 800	1 816	1 905	1 752	1 624	1 542	1490	1 399	1 300	1 248	1 208	1 197	1 368
287	288	292	292	257	256	259	248	250	248	251	247	261	261
8 330	9 483	9 483	8 994	8 785	7 006	7 840	7598	7 546	7 528	7 571	7 438	7 594	7 452
1 137	1 081	1 063	992	950	892	842	806	771	715	685	648	595	564
241	245	263	279	308	310	332	362	357	383	377	387	366	369
1 153	1 169	1 158	1 137	1 072	1 028	968	918	887	863	814	784	741	719
17 601	17 916	15 848	14 987	15 352	16 192	17 772	19065	21 320	17 920	17 256	15 052	14 537	14 674
11 967	12 224	11 982	12 206	13 014	12 243	11 330	11536	11 002	10 065	10 046	9 585	10 364	10 559
4 753	4 852	4 852	3 360	3 360	3 360	2 434	2336	2 217	2 756	2 651	2 534	2 557	2 582
4 182	4 082	3 984	3 695	3 573	3 506	3 360	3198	3 198	3 153	3 098	3 040	2 994	2 948
337	374	943	989	957	950	980	1 005	1 014	1 007	1 032	1 079	1 079	1 072
19 069	18 782	17 837	16 901	16 567	16 248	15 981	15851	15 206	14 869	15 057	14 901	14 318	13 731
433	456	444	422	425	402	441	475	471	463	469	451	451	438
395	375	370	349	360	418	496	537	605	625	661	700	696	698
91	99	97	103	102	95	90	94	90	83	79	71	69	66
162	152	101	118	109	106	106	102	105	102	108	111	116	136
3 400	3 720	3 592	3 620	3 766	3 652	3 697	3787	3 656	3 492	3 375	3 305	3 221	3 108
10 464	10 960	10 553	8 186	8 616	8 335	8 157	8 629	8 254	8 423	8 820	8 611	10 264	10 137
4 276	4 013	3 299	3 183	2 962	2 833	2 654	2 519	2 467	2 451	2 415	2 365	2 364	2 375
2 128	2 227	2 313	2 165	1 964	1 786	1 845	1915	1 973	1 998	1 928	2 012	2 210	2 430
262	270	245	245	1 252	1 276	1 299	1302	1 410	1 535	1 675	1 812	1 827	1 885
1 169	1 183	1 218	1 219	1 231	1 198	1 194	1179	1 183	1 189	1 182	1 165	1 164	1 144
15 023	14 853	14 866	14 427	14 128	13 638	13 177	14041	13 649	12 340	12 380	11 982	12 353	12 587
3 573	3 406	3 321	3 178	3 122	3 099	3 006	2946	2 896	2 821	2 782	2 738	2 402	2 373
1 524	1 362	1 382	1 311	1 220	1 211	1 162	1097	1 036	968	920	849	794	769
2 500	2 500	2 500	2 500	2 500	2 500	2 500	2571	2 488	2 416	1 131	1 056	2 100	2 100
16 356	15 725	14 943	14 055	13 246	12 788	12 201	11973	11 608	11 400	11 208	10 933	10 757	10 757
138 557	**140 284**	**135 133**	**127 314**	**127 233**	**122 992**	**121 084**	**122 937**	**123 096**	**117 000**	**114 901**	**111 056**	**112 306**	**112 753**

Annex to 1.2.1

Number of employees 18.1, 1995-2019, in million €

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Austria	18 451	17 075	17 075	17 075	16 550	16 803	16 560	16 066	15 196	14 572	14 270
Belgium	24 170	23 372	21 750	21 780	21 315	21 161	22 619	20 067	20 067	19 585	19 284
Bulgaria	7 154	7 154	7 238	6 680	6 599	6 391	6 520	7 895	7 952	8 549	8 697
Croatia	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000	9 000
Cyprus	1 300	1 300	1 300	1 300	1 300	1 382	1 382	1 382	1 573	1 491	1 498
Czechia	19 292	19 292	19 292	18 016	15 694	15 694	17 531	18 457	20 272	19 676	18 957
Denmark	16 963	16 740	16 740	16 562	16 247	16 643	15 023	14 025	12 590	10 728	10 096
Estonia	2 500	2 500	2 500	2 500	2 500	2 500	2 500	2 489	2 336	2 565	2 761
Finland	12 299	11 839	12 813	13 400	13 560	13 317	13 129	12 390	11 951	11 462	11 490
France	124 146	124 146	122 968	121 084	121 387	120 978	119 698	115 796	109 811	104 070	100 330
Germany	195 000	195 000	195 000	195 000	195 245	196 489	191 822	186 432	165 511	161 553	160 339
Greece	7 000	7 000	7 000	7 000	7 000	7 000	7 000	7 000	7 580	7 946	8 045
Hungary	14 000	14 000	14 000	14 107	14 727	16 076	21 213	23 683	25 437	21 936	19 727
Ireland	9 000	9 000	8 981	8 780	9 159	8 672	8 523	7 936	7 456	6 450	6 664
Italy	95 959	93 457	91 048	92 435	91 766	99 099	98 981	93 673	94 903	92 428	91 196
Latvia	3 000	3 000	3 012	3 289	4 427	3 609	3 917	4 193	3 716	4 639	4 339
Lithuania	3 000	3 000	3 000	3 000	3 000	3 145	3 363	3 515	3 628	3 840	3 828
Luxembourg	987	971	1 008	1 054	1 065	1 141	1 143	1 140	1 285	1 519	1 180
Malta	1 200	1 200	1 200	1 200	1 119	1 284	1 061	1 111	1 245	1 245	1 192
Netherlands	49 885	45 664	44 427	44 805	45 160	45 836	43 561	39 383	36 532	36 198	34 577
Poland	30 000	30 073	32 198	33 792	39 093	38 653	38 233	34 684	39 549	41 816	42 213
Portugal	26 000	26 000	26 000	26 000	26 321	24 588	25 259	22 857	24 762	24 425	24 831
Romania	14 000	14 000	14 000	14 000	14 000	14 091	14 346	15 238	16 749	19 012	19 949
Slovakia	6 053	:	5 594	5 380	4 901	5 592	6 118	5 046	3 863	4 476	4 345
Slovenia	5 829	5 787	5 777	5 721	5 735	5 731	5 778	6 058	5 686	5 567	5 555
Spain	69 721	74 102	72 623	75 278	72 097	87 209	82 852	84 949	82 864	84 311	85 069
Sweden	23 833	23 226	25 847	25 897	25 039	24 314	23 839	22 606	20 492	19 986	19 772
Norway	10 000	9 982	10 491	11 090	10 330	10 456	9 490	8 820	8 355	8 318	7 927
Switzerland	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 000
United Kingdom	193 693	193 693	175 075	198 184	193 632	186 205	179 224	171 728	170 058	156 611	149 384
Europe (EU27+UK+NO+CH)	**799 742**	**787 880**	**791 882**	**795 225**	**794 336**	**816 854**	**810 461**	**785 891**	**760 361**	**747 363**	**737 131**

Slovakia: include as from 2010 individual entrepreneurs

2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
14 119	14 305	14 264	13 176	12 136	11 833	11 278	10 679	10 625	10 391	10 389	9 784	9 704	9 423
18 954	18 073	16 526	16 526	14 170	13 258	15 043	13 180	13 088	12 254	11 010	11 391	9 463	10 047
9 565	9 815	9 244	9 585	9 081	8 796	8 408	8 340	8 570	8 244	8 692	8 979	9 026	8 994
9 000	9 000	9 077	8 692	7 835	7 794	7 613	7 439	7 515	7 402	7 466	7 436	7 379	7 722
1 497	1 434	1 462	1 462	1 210	1 182	1106	969	969	969	904	942	974	936
19 717	21 458	21 458	18 083	15 050	14 830	14 830	15 145	15 145	15 145	15 145	15 145	13 464	13 464
10 207	10 007	9 594	9 594	6 411	6 411	6 578	6 117	6 403	6 142	5 174	5 075	4 809	4 418
2 906	2 906	2 920	2 554	2 695	2 728	2 565	2 593	2 593	2 799	2 871	2 889	2 807	2 807
11 175	11 586	11 965	11 185	10 238	9 810	9 699	9 185	8 487	7 867	7 047	6 854	6 422	6 097
96 714	92 307	79 618	74 253	71 400	68 485	62 719	59 101	57 095	54 665	53 832	52 243	50 524	47 846
155 260	159 118	160 643	154 068	158 904	156 358	145 550	144 151	138 748	134 465	137 342	129 520	140 854	136 638
8 109	8 534	8 534	9 448	9 448	9 448	8 180	7 409	6 702	6 011	6 602	6 211	7 245	6 905
18 195	19 560	17 152	15 211	14 467	14 282	13 650	13 263	13 302	14 928	14 755	14 987	15 047	14 555
5 988	5 745	6 729	5 390	5 002	4 887	4 650	4 511	4 593	4 569	5 142	5 227	5 227	5151
90 240	89 887	84 259	82 299	75 673	70 779	68 462	65 091	62 519	60 520	65 632	63 244	61 864	61 159
4 713	4 974	4 406	3 061	2 766	2 703	3 040	3 211	3 439	3 382	3 214	3 333	3 404	3 500
4 733	4 939	4 255	3 787	3 430	3 577	3 831	4 009	4 162	4 239	4 137	4 031	3 967	3 934
1 166	1 166	926	926	926	887	874	709	699	689	599	576	565	539
1 192	1 260	1 090	1 163	1 163	1 163	1163	1174	1156	1078	1001	883	1 264	1667
34 947	34 889	34 474	31 927	28 213	26 064	24 386	22 939	20 744	19 041	18 942	18 033	16 872	16 018
42 695	45 789	34 652	32 220	32 985	34 231	32 461	34 280	35 300	38 390	38 643	39 904	44 932	45 203
23 143	22 210	20 371	18 914	17 802	16 393	14 869	14 251	14 135	14 437	14 132	14 430	14 294	14 280
19 780	20 583	20 200	18 502	16 851	16 990	16 134	15 884	15 378	15 200	15 223	15 412	15 323	15 211
4 683	5 573	6 225	6 225	6 341	5 348	5 373	5 322	5 797	5 024	4 698	4 743	4 843	4 559
5 477	5 441	4 981	4 921	4 516	4 252	4 048	3 759	3 647	3 631	3 653	3 659	3 756	3 757
83 903	81 367	78 252	69 512	65 796	61 010	55 478	49 091	48 670	49 578	50 062	49 347	51 675	51 731
18 422	18 468	18 321	16 822	16 204	15 282	14 588	13 609	12 933	12 935	11 718	11 019	10 128	9 174
7 905	7 634	7 514	7 099	6 733	6 317	6 102	5 826	5 229	5 360	5 022	4 842	4 739	4 360
20 000	20 000	20 000	20 000	20 000	20 000	20 000	20 076	19 213	18 279	18 279	18 279	18 440	18 440
147 364	142 702	137 378	106 255	104 562	97 797	97 797	97 797	106 324	106 324	106 324	97 722	100 459	100 459
724 405	**728 028**	**689 112**	**646 605**	**617 446**	**595 098**	**562 678**	**541 237**	**527 643**	**519 355**	**523 047**	**510 139**	**520 571**	**628 994**

Annex to 1.2.2

Printing and recorded media, labour cost per employee, full-time equivalent

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Austria	52,0	50,7	53,8	54,1	56,4	58,2	58,8	61,7	59,3	59,4	60,3	67,4
Belgium	51,6	53,6	55,8	56,3	59,4	60,6	60,4	60,3	59,9	60,3	58,1	77,7
Bulgaria	4,2	4,3	4,2	4,6	4,8	5,2	5,5	5,9	6,4	7,3	8,1	8,6
Croatia	14,9	14,5	15,3	14,8	15,0	14,8	14,4	14,9	14,2	14,8	16,1	16,4
Cyprus	22,1	23,2	22,9	23,4	22,0	19,7	20,0	18,5	19,2	19,0	19,1	22,2
Czechia	14,2	14,1	14,8	15,3	15,1	14,8	14,2	14,8	15,2	16,4	17,9	22,3
Denmark	58,0	57,2	59,6	58,5	60,6	60,3	60,8	61,9	62,8	64,5	63,6	78,7
Estonia	14,2	13,2	13,1	13,6	14,9	15,4	16,0	16,3	17,9	19,2	20,2	21,3
Finland	43,4	43,0	44,5	46,4	47,0	47,2	48,7	48,8	50,5	48,9	51,0	59,7
France	:	49,6	51,3	52,6	51,9	52,3	53,0	55,0	53,2	54,9	57,2	67,2
Germany	40,9	41,0	40,3	39,9	41,6	41,8	41,3	43,2	42,9	45,4	43,2	64,3
Greece	23,8	34,7	29,0	28,1	25,6	22,8	22,1	21,6	21,4	21,3	18,0	23,0
Hungary	11,0	9,7	9,9	10,1	10,5	10,6	10,7	10,6	11,0	12,0	12,1	18,4
Ireland	49,4	62,3	41,4	46,1	45,6	45,0	42,0	49,4	51,5	45,6	45,6	62,7
Italy	40,0	40,6	41,2	41,6	42,2	42,4	44,5	44,7	45,5	43,2	43,2	54,1
Latvia	8,8	7,9	9,0	10,1	10,5	11,6	11,2	12,4	14,3	14,3	15,0	16,1
Lithuania	9,4	8,7	7,9	8,8	9,6	10,5	10,8	11,6	12,2	12,9	14,7	16,0
Luxembourg	:	:	:	:	50,8	48,1	48,7	50,1	49,3	51,7	50,8	60,4
Malta	:	:	:	:	23,6	22,4	22,5	22,0	23,8	24,8	29,8	24,4
Netherlands	45,0	47,2	49,5	53,5	52,8	53,5	55,5	55,6	51,6	52,9	52,9	68,9
Poland	:	:	:	12,2	12,6	13,0	14,0	13,8	13,9	15,0	16,3	16,6
Portugal	17,4	17,7	18,1	18,3	17,7	17,9	17,9	18,0	18,4	18,7	19,5	19,7
Romania	6,4	5,7	5,7	5,8	6,4	:	:	:	:	:	9,5	11,7
Slovakia	15,9	17,7	12,8	12,8	13,5	13,5	12,4	13,2	13,0	14,0	15,3	20,5
Spain	32,4	32,3	33,5	33,2	33,8	33,2	33,1	31,7	32,3	32,6	34,3	40,6
Sweden	49,5	45,3	51,4	54,9	59,2	61,1	59,0	58,4	59,2	59,7	56,6	67,8
Norway	57,1	57,2	66,1	66,8	74,4	74,0	67,2	:	62,0	65,0	66,8	72,5
Switzerland	:	57,5	64,0	72,5	70,8	69,7	:	:	:	:	:	:
United Kingdom	34,8	37,5	28,8	28,7	32,6	33,8	32,9	35,0	35,7	35,7	35,7	:
Europe (EU27+NO+CH)	**32,0**	**32,4**	**33,5**	**34,4**	**35,5**	**35,9**	**36,5**	**36,9**	**37,3**	**38,3**	**39,5**	**40,7**

Annex to 1.2.3

Detailed production value of printed products, 2020, in €

	Notebooks, letter pads, memorandum pads, of paper or paperboard	Diaries, of paper or paperboard	Engagement books, address books, telephone number books and copy books, of paper or paperboard (excluding diaries)	Exercise books, of paper or paperboard	Blotting pads and book covers, of paper or paperboard	Self-adhesive printed labels of paper or paperboard	Printed labels of paper or paperboard (excluding self-adhesive)	Printed newspapers, journals and periodicals, appearing at least four times a week	Printed new stamps, stamp-impressed paper, cheque forms, banknotes, etc	Printed commercial catalogues	Printed trade advertising material (excluding commercial catalogues)	Printed newspapers, journals and periodicals, appearing less than four times a week
France	46 914 422	64 161 139	17 336 689	93 678 637	24 413 240	796 770 359	85 351 446	145 922 935	535 605 986	249 829 677	1 179 641 984	328 590 304
Netherlands	4 028 000	:	6 400 000	:	450 000	216 446 000	102 171 000	:	91 427 000	33 031 000	519 234 000	80 948 000
Germany	87 020 439	:	17 299 816	25 780 492	98 697 836	1 039 682 389	353 932 631	650 280 660	:	762 534 737	3 280 810 195	1 131 738 260
Italy	7 356 000	52 459 000	91 928 000	52 789 000	:	666 189 000	89 072 000	196 977 000	:	696 611 000	749 642 000	156 814 000
Ireland	1 717 000	915 000	0	:	:	110 831 000	:	:	23 215 000	54 390 000	36 715 000	:
Denmark	48 027	0	0	14 086	0	153 609 643	2 626 305	0	0	0	0	0
Greece	278 727	0	813 138	7 019 007	0	54 055 280	1 530 483	20 166 033	24 522 993	3 980 508	32 573 135	19 495 537
Portugal	:	:	:	:	0	28 082 042	9 403 680	8 912 957	17 886 132	13 103 097	120 916 079	10 245 100
Spain	13 638 181	16 729 588	1 648 583	42 527 852	5 751 343	573 855 986	108 659 921	104 327 764	127 849 949	214 453 090	247 860 971	83 844 024
Belgium	:	:	:	:	:	193 307 529	:	:	:	46 906 161	430 387 122	:
Norway	0	0	0	0	:	23 087 626	0	68 919 312	0	15 639 199	48 364 793	39 334 875
Sweden	:	0	0	0	0	132 444 110	:	138 425 340	38 455 288	:	72 312 681	:
Finland	0	0	0	0	0	30 753 865	10 297 214	90 664 600	1 203 204	2 885 405	94 286 719	92 099 843
Austria	17 240 631	0	0	:	:	136 080 664	:	:	62 969 128	29 063 537	325 326 897	114 357 735
Estonia	1 570 622	957 706	0	12 487 600	0	22 854 889	3 144 608	6 471 939	65 000	324 484	28 674 159	38 169 323
Latvia	665 242	:	:	:	:	10 463 348	3 146 896	:	0	2 057 241	16 073 970	:
Lithuania	96 591	0	0	2 931 915	0	75 799 950	8 924 164	1 284 053	12 069 699	2 201 067	18 786 832	24 269 745
Poland	29 715 980	0	4 543 597	41 649 381	0	:	46 177 740	64 308 463	:	12 217 578	107 562 008	161 619 176
Czechia	2 563 485	:	630 883	:	0	80 164 657	33 305 916	38 994 935	20 087 545	35 089 586	177 064 978	86 604 234
Slovakia	:	:	0	:	0	17 703 729	4 284 933	:	:	30 508 647	5 217 266	41 455 936
Hungary	1 575 994	97 557	:	879 977	171 664	21 054 793	14 527 015	:	101 330 540	4 757 107	74 668 367	43 653 389
Romania	222 909	6 574 387	:	8 704 376	0	26 050 034	4 261 960	8 181 717	16 009 164	:	19 742 615	29 560 397
Bulgaria	598 067	1 280 397	:	2 253 400	1 749 156	11 405 512	4 441 635	7 779 937	19 747 929	7 243 788	31 416 377	3 692 607
Slovenia	:	0	0	:	:	16 213 345	9 324 619	:	:	5 272 899	62 795 676	2 950 317
Croatia	1 969 181	1 835 770	0	4 648 829	0	27 037 945	9 238 054	34 461 336	21 879 364	38 903 609	39 470 973	36 234 050
Europe (EU28+NO)	217 219 498	145 010 544	140 600 706	295 364 552	131 233 239	4 463 943 695	903 822 220	1 586 078 981	1 114 323 921	2 261 003 417	7 719 544 797	2 525 676 852

Printed books, brochures, leaflets and similar printed matter, in single sheets	Printed books, brochures, leaflets and similar printed matter (excluding in single sheets)	Printed children's picture, drawing or colouring books	Printed dictionaries and encyclopaedias, and serial instalments thereof	Printed maps, hydrographic or similar charts, in book-form	Printed maps, hydrographic or similar charts (excluding in book-form)	Printed postcards, whether or not illustrated	Printed cards bearing personal greetings, messages or announcements, whether or not illustrated, with or without envelopes or trimmings	Printed pictures, designs and photographs	Printed calendars of any kind, including calendar blocks	Printed music (including braille music)	Printed transfers (decalcomanias)	Other printed matter	**TOTAL**
46 379 719	216 055 022	109 208	:	:	754 313	1 655 072	37 357 146	:	27 478 540	1 219 890	24 985 414	2 037 694 265	5 961 905 407
33 025 000	146 575 000	0	0	0	:	:	28 306 000	18 759 000	30 969 000	:	0	278 852 000	1 590 621 000
369 205 751	:	16 798 664	2 115 730	:	1 704 952	13 411 298	19 127 507	112 144 091	87 993 232	:	73 259 557	1 720 661 357	9 864 199 594
194 165 000	327 555 000	36 690 000	3 023 000	39 634 000	61 900 000	166 000	19 658 000	52 592 000	51 006 000	0	223 886 000	2 317 030 000	6 087 142 000
91 430 000	10 148 000	:	0	0	0	376 000	1 175 000	9 806 000	636 000	0	:	373 540 000	714 894 000
0	0	0	0	0	0	0	0	0	0	0	0	0	156 298 061
24 641 098	9 949 535	:	0	:	0	:	1 358 434	1 803 950	3 558 214	0	2 238 196	100 661 038	308 645 306
21 285 217	57 217 722	520 816	:	0	:	145 209	156 499	15 952 809	485 594	0	:	276 218 039	580 530 992
219 611 458	265 440 014	1 740 301	3 143 075	218 015	1 021 176	8 874 666	2 365 086	30 314 833	27 073 615	:	1 942 717	127 801 201	2 230 693 409
75 240 606	48 333 664	1 170 817	0	0	0	:	:	:	2 813 218	0	0	228 475 917	1 026 635 034
9 546 107	17 877 140	:	:	:	:	:	1 476 387	3 942 720	752 882	:	:	76 015 406	304 956 447
:	:	0	:	:	0	16 622 921	:	36 344 041	:	0	:	:	434 604 381
12 810 983	30 852 593	766 148	0	0	20 409	1 452 519	1 289 757	2 975 049	2 550 009	0	0	228 580 847	603 489 164
6 768 933	54 075 984	0	0	0	70 554	3 085 035	356 181	851 251	10 651 677	0	16 083 860	314 411 576	1 091 393 643
24 434 271	1 168 512	0	0	0	0	258 112	0	1 451 072	1 247 806	0	0	791 086	144 071 189
8 843 712	98 202 050	1 174 656	:	0	200 878	:	:	:	1 311 595	0	115 899	15 709 285	157 964 772
3 248 243	50 340 698	90 290	0	0	3 960	0	485 080	0	670 097	0	0	54 479 988	255 682 372
442 854 490	150 895 611	7 793 788	:	:	520 459	149 156	105 289	36 984 222	12 050 439	0	2 066 644	424 141 819	1 545 355 840
32 590 437	170 335 400	314 081	:	:	253 941	136 269	351 843	19 118 276	14 245 398	:	1 119 524	94 389 756	807 361 144
34 688 847	59 528 482	:	0	0	0	289 166	:	:	872 034	0	0	19 675 571	214 224 611
44 426 773	68 820 809	831 294	:	:	:	0	:	238 776	2 187 291	:	97 375	122 234 981	501 553 702
17 909 508	38 193 496	:	:	:	3 927	:	:	2 241 064	2 056 058	0	:	319 083 854	498 795 466
31 837 100	12 477 247	471 418	0	:	95 613	:	388 076	:	4 648 226	0	308 314	148 374 425	290 209 224
27 544 670	36 076 287	:	0	0	0	:	:	:	2 722 532	0	0	43 547 439	206 447 784
6 189 235	63 290 712	698 519	15 930	34 780	9 027	192 219	45 134	1 327	1 965 730	0	0	475 137 129	763 258 853
1 778 677 158	1 933 408 978	69 170 000	8 297 735	39 886 795	66 559 209	46 813 642	114 001 419	345 520 481	289 945 187	1 219 890	346 103 500	9 797 506 979	36 340 933 395

Annex to 1.2.4

Trade of printed products, 2021, in €

	EXPORT			IMPORT			
	EU28 Extra	**EU28 Intra**	**Total**	**EU28 Extra**	**EU28 Intra**	**Total**	**Trade balance**
Austria	83 042 947	318 256 276	401 299 223	30 651 436	697 842 262	728 493 698	-327 194 475
Belgium	154 697 322	515 695 795	670 393 117	187 399 380	589 293 719	776 693 099	-106 299 982
Bulgaria	12 853 681	47 191 316	60 044 997	6 230 903	30 892 115	37 123 018	22 921 979
Croatia	19 201 221	44 955 219	64 156 440	14 546 791	32 324 516	46 871 307	17 285 133
Cyprus	2 111 811	480 157	2 591 968	5 940 492	15 542 821	21 483 313	-18 891 345
Czechia	54 766 196	773 548 788	828 314 984	44 316 211	501 076 973	545 393 184	282 921 800
Denmark	71 198 493	128 530 223	199 728 716	49 092 398	236 476 302	285 568 700	-85 839 984
Estonia	10 469 925	68 170 334	78 640 259	7 661 594	8 818 502	16 480 096	62 160 163
Finland	16 538 678	15 305 831	31 844 509	38 156 295	69 550 257	107 706 552	-75 862 043
France	591 247 097	826 665 908	1 417 913 005	409 277 252	1 439 232 937	1 848 510 189	-430 597 184
Germany	1 433 962 062	2 510 594 022	3 944 556 084	693 076 457	2 343 884 560	3 036 961 017	907 595 067
Greece	35 708 433	36 384 381	72 092 814	47 477 248	34 067 722	81 544 970	-9 452 156
Hungary	40 814 520	181 397 571	222 212 091	47 461 985	105 600 571	153 062 556	69 149 535
Ireland	81 632 215	19 811 267	101 443 482	429 429 280	40 711 492	470 140 772	-368 697 290
Italy	404 224 688	667 869 101	1 072 093 789	175 499 246	344 335 389	519 834 635	552 259 154
Latvia	39 869 189	116 417 572	156 286 761	7 839 213	21 274 864	29 114 077	127 172 684
Lithuania	57 877 890	69 968 835	127 846 725	10 926 528	27 646 763	38 573 291	89 273 434
Luxembourg	880 851	9 629 161	10 510 012	3 157 653	67 314 660	70 472 313	-59 962 301
Malta	256 967 399	16 025 174	272 992 573	11 008 471	7 774 062	18 782 533	254 210 040
Netherlands	304 803 294	1 434 311 814	1 739 115 108	460 219 849	649 062 687	1 109 282 536	629 832 572
Poland	277 712 779	2 032 039 119	2 309 751 898	64 187 156	795 272 590	859 459 746	1 450 292 152
Portugal	16 222 612	39 829 467	56 052 079	22 788 863	134 917 475	157 706 338	-101 654 259
Romania	20 249 412	67 903 993	88 153 405	30 309 760	92 260 388	122 570 148	-34 416 743
Slovakia	6 168 705	196 579 477	202 748 182	6 545 961	137 022 702	143 568 663	59 179 519
Slovenia	32 981 494	140 925 214	173 906 708	38 007 855	36 208 657	74 216 512	99 690 196
Spain	246 806 941	462 979 285	709 786 226	166 718 150	403 448 892	570 167 042	139 619 184
Sweden	143 196 642	92 544 905	235 741 547	127 925 829	230 192 819	358 118 648	-122 377 101
EU-27	**4 416 206 497**	**10 834 010 205**	**15 250 216 702**	**3 135 852 256**	**9 092 046 697**	**12 227 898 953**	**3 022 317 749**

Annex to 1.2.4

Trade of books, 2021, in €

	EXPORT			IMPORT			
	EU28 Extra	**EU28 Intra**	**Total**	**EU28 Extra**	**EU28 Intra**	**Total**	**Trade balance**
Austria	6 408 072	41 772 112	48 180 184	7 466 116	359 819 623	367 285 739	-319 105 555
Belgium	64 344 136	161 556 181	225 900 317	105 606 862	325 080 254	430 687 116	-204 786 799
Bulgaria	3 505 698	23 366 009	26 871 707	3 019 359	5 117 204	8 136 563	18 735 144
Croatia	73 491	363 516	437 007	4 636 628	12 001 238	16 637 866	-16 200 859
Cyprus	11 433 331	408 099 063	419 532 394	22 452 779	195 348 805	217 801 584	201 730 810
Czechia	519 114 004	1 087 876 284	1 606 990 288	353 495 402	1 199 556 980	1 553 052 382	53 937 906
Denmark	33 841 509	36 593 648	70 435 157	29 775 251	64 134 761	93 910 012	-23 474 855
Estonia	2 337 382	22 017 122	24 354 504	4 223 166	3 576 871	7 800 037	16 554 467
Finland	204 250 947	218 234 372	422 485 319	111 851 738	184 418 017	296 269 755	126 215 564
France	4 423 656	4 508 661	8 932 317	7 964 154	26 333 070	34 297 224	-25 364 907
Germany	317 686 756	438 603 561	756 290 317	214 107 949	604 515 860	818 623 809	-62 333 492
Greece	22 418 364	19 246 078	41 664 442	27 638 411	10 831 946	38 470 357	3 194 085
Hungary	4 924 209	16 606 283	21 530 492	5 821 867	8 722 262	14 544 129	6 986 363
Ireland	27 506 815	80 571 826	108 078 641	12 024 138	22 020 721	34 044 859	74 033 782
Italy	18 015 003	11 256 349	29 271 352	150 574 162	19 305 882	169 880 044	-140 608 692
Latvia	211 130 287	289 497 648	500 627 935	63 601 634	166 329 625	229 931 259	270 696 676
Lithuania	18 419 495	40 448 009	58 867 504	2 496 557	6 410 642	8 907 199	49 960 305
Luxembourg	183 419	1 255 897	1 439 316	1 275 436	34 294 512	35 569 948	-34 130 632
Malta	33 458 101	86 904 097	120 362 198	4 724 982	7 190 328	11 915 310	108 446 888
Netherlands	3 741 201	248 335	3 989 536	5 216 028	897 857	6 113 885	-2 124 349
Poland	67 504 702	771 744 038	839 248 740	270 435 761	270 690 039	541 125 800	298 122 940
Portugal	91 393 467	1 057 872 318	1 149 265 785	21 903 957	601 968 012	623 871 969	525 393 816
Romania	8 809 062	11 528 042	20 337 104	11 064 419	36 652 042	47 716 461	-27 379 357
Slovakia	6 719 276	20 549 531	27 268 807	15 742 454	33 540 516	49 282 970	-22 014 163
Slovenia	55 673 063	28 238 412	83 911 475	75 595 059	71 773 761	147 368 820	-63 457 345
Spain	14 566 191	65 372 475	79 938 666	30 160 597	13 885 539	44 046 136	35 892 530
Sweden	4 585 920	121 407 596	125 993 516	2 628 265	57 384 132	60 012 397	65 981 119
EU-27	**1 756 467 557**	**5 065 737 463**	**6 822 205 020**	**1 565 503 131**	**4 341 800 499**	**5 907 303 630**	**914 901 390**

Annex to 1.2.5

Imports from China to the EU, 2021, in €

	Printed books, newspapers, pictures and other products of the printing industry; manuscripts, typescripts and plans	Printed books, brochures and similar printed matter, whether or not in single sheets (excl. Periodicals and publications which are essentially devoted to advertising)(1988-2500)	Newspapers, journals and periodicals, whether or not illustrated or containing advertising material (1988-2500)	Children's picture, drawing or colouring books (1988-2500)	Printed or illustrated postcards; printed cards bearing personal greetings, messages or announcements, whether or not illustrated, with or without envelopes or trimmings (1988-2500)	Calendars of any kinds, printed, incl. Calendars blocks (1988-2500)	Trade advertising material, commercial catalogues and the like	Pictures, prints and photographs, n.E.S.
Austria	4 705 971	794 624	2 416	161 352	771 363	81 068	654 354	1 176 448
Belgium	43 485 276	12 171 684	103 873	9 926 943	8 285 502	2 363 953	4 747 774	2 493 243
Bulgaria	1 632 087	723 528	:	505 190	15 033	1 702	127 983	172 629
Croatia	4 146 909	1 473 742	75	1 046 658	45 498	14 928	75 800	137 959
Cyprus	407 132	83 620	:	37 099	183 820	31 403	17 110	25 164
Czechia	7 872 425	2 276 364	4 890	3 612 974	228 646	306 732	155 184	337 153
Denmark	8 207 791	1 950 029	821	2 184 565	793 544	509 178	289 211	1 107 382
Estonia	1 400 371	524 326	3 301	475 631	68 052	2 251	182 208	105 779
Finland	5 563 772	1 537 159	409	2 249 973	547 603	281 278	45 540	294 170
France	133 772 006	71 739 898	122 787	25 653 209	3 913 331	4 866 729	1 988 912	13 150 784
Germany	139 724 585	50 992 844	307 583	29 237 916	18 074 062	9 201 316	4 561 564	13 395 280
Greece	7 854 370	2 338 420	99 458	2 602 764	113 738	249 638	173 191	154 804
Hungary	13 403 682	3 769 070	6 462	2 002 017	789 670	814 230	124 391	440 903
Ireland	34 325 678	11 635 516	49 888	4 430 639	11 812 558	1 364 451	652 705	2 539 130
Italy	51 747 614	35 554 103	246 043	6 915 497	1 640 995	347 978	1 076 833	2 126 802
Latvia	746 695	209 441	25	222 090	1 258	1 436	57 637	189 877
Lithuania	2 169 330	563 286	34	1 382 430	33 086	98 661	11 002	10 004
Luxembourg	134 618	32 143	776	414	59 922	1 281	24 509	5 463
Malta	3 196 164	736 283	:	426 146	264 234	12 665	9 668	1 623 520
Netherlands	118 989 737	30 129 436	161 532	31 155 549	23 321 436	4 961 069	2 795 342	11 726 517
Poland	31 399 597	11 485 616	2 139	7 747 159	3 501 480	2 268 910	1 187 728	1 597 931
Portugal	4 419 949	1 651 181	24 313	1 683 045	105 311	9 268	275 163	255 675
Romania	7 200 882	3 088 263	91 291	2 161 517	48 598	24 789	561 114	45 079
Slovakia	1 599 968	733 597	3 159	776 175	19 257	21 910	11 393	18 854
Slovenia	3 189 189	1 730 183	320	490 023	151 786	27 551	263 851	144 132
Spain	64 126 403	44 824 466	7 934	3 142 994	1 039 769	1 851 987	993 017	7 030 355
Sweden	17 475 612	4 447 901	5 536	5 003 427	2 706 090	1 180 205	605 567	849 807
EU-27	**712 897 813**	**297 196 723**	**1 245 065**	**145 233 396**	**78 535 642**	**30 896 567**	**21 668 751**	**61 154 844**

Annex to 1.2.6

Trade of printed products with the US, 2021, in €

	Exports	Imports	Trade balance
Italy	33 801 639	116 223 545	-82 421 906
Poland	5 205 170	76 353 336	-71 148 166
France	35 626 888	59 174 034	-23 547 146
Spain	10 490 204	24 889 706	-14 399 502
Belgium	16 443 460	23 991 591	-7 548 131
Lithuania	500 791	4 934 312	-4 433 521
Slovenia	608 515	3 263 407	-2 654 892
Latvia	242 889	1 378 492	-1 135 603
Finland	2 438 388	3 484 237	-1 045 849
Austria	4 411 174	5 021 428	-610 254
Bulgaria	393 404	861 775	-468 371
Slovakia	835 967	1 013 668	-177 701
Romania	1 271 651	1 440 257	-168 606
Estonia	353 797	279 553	74 244
Croatia	482 434	306 146	176 288
Cyprus	603 745	18 840	584 905
Malta	1 138 651	139 064	999 587
Luxembourg	1 129 183	109 471	1 019 712
Greece	3 633 159	1 189 071	2 444 088
Portugal	3 401 759	924 592	2 477 167
Denmark	6 886 703	4 360 493	2 526 210
Czechia	6 347 145	3 135 607	3 211 538
Hungary	12 306 753	2 625 430	9 681 323
Ireland	17 073 307	4 364 794	12 708 513
Sweden	31 558 239	12 572 002	18 986 237
Germany	207 456 192	161 292 918	46 163 274
Netherlands	87 698 645	24 659 406	63 039 239

Annex to 1.3.6

Electricity prices for industrial consumers, 2008-2021

	2008S1	2008S2	2009S1	2009S2	2010S1	2010S2	2011S1	2011S2	2012S1	2012S2	2013S1	2013S2
Austria	0,1276	0,1286	0,1421	0,1394	0,1352	0,1353	0,1351	0,1353	0,1322	0,1339	0,1337	0,1329
Belgium	0,1293	0,1163	0,1344	0,1305	0,1274	0,1276	0,1328	0,1381	0,1302	0,1340	0,1305	0,1325
Bulgaria	0,0675	0,0782	0,0777	0,0767	0,0782	0,0798	0,0778	0,0800	0,0832	0,0935	0,0976	0,0871
Croatia	0,0922	0,1142	0,1057	0,1110	0,1155	0,1112	0,1115	0,1094	0,1120	0,1175	0,1186	0,1180
Cyprus	0,1638	0,2075	0,1360	0,1715	0,1727	0,1984	0,1919	0,2419	0,2601	0,2732	0,2440	0,2367
Czechia	0,1318	0,1335	0,1271	0,1335	0,1239	0,1297	0,1330	0,1299	0,1247	0,1234	0,1237	0,1198
Denmark	0,2113	0,2245	0,2067	0,2140	0,2270	0,2293	0,2423	0,2343	0,2391	0,2421	0,2496	0,2463
Estonia	0,0669	0,0711	0,0759	0,0774	0,0833	0,0873	0,0862	0,0902	0,0941	0,0981	0,1169	0,1164
Finland	0,0781	0,0822	0,0841	0,0833	0,0846	0,0841	0,0930	0,0923	0,0928	0,0915	0,0929	0,0929
France	0,0778	0,0736	0,0865	0,0774	0,0930	0,0835	0,1014	0,0948	0,1117	0,0951	0,1157	0,1022
Germany	0,1410	0,1428	0,1505	0,1515	0,1507	0,1562	0,1668	0,1662	0,1703	0,1727	0,1879	0,1902
Greece	0,0941	0,1006	0,1037	0,1020	0,1036	0,1139	0,1182	0,1256	0,1337	0,1381	0,1411	0,1400
Hungary	0,1371	0,1461	0,1487	0,1618	0,1320	0,1312	0,1271	0,1317	0,1190	0,1255	0,1210	0,1229
Ireland	0,1489	0,1604	0,1364	0,1327	0,1263	0,1277	0,1281	0,1460	0,1488	0,1575	0,1534	0,1541
Italy	0,1565	0,1704	0,1773	0,1581	0,1596	0,1663	0,1741	0,1908	0,1919	0,2075	0,1951	0,1995
Latvia	0,0779	0,0940	0,1085	0,1082	0,1076	0,1096	0,1201	0,1344	0,1346	0,1344	0,1362	0,1394
Lithuania	0,0978	0,0990	0,1099	0,0954	0,1205	0,1265	0,1269	0,1256	0,1378	0,1384	0,1489	0,1485
Luxembourg	0,1035	0,1038	0,1227	0,1228	0,1078	0,1086	0,1063	0,1060	0,1113	0,1074	0,1042	0,1063
Malta	0,1282	0,1700	0,1581	0,1356	0,1809	0,1898	0,1869	0,1886	0,1881	0,1904	0,1879	0,1869
Netherlands	0,1252	0,1234	0,1321	0,1263	0,1205	0,1154	0,1175	0,1131	0,1159	0,1152	0,1144	0,1143
Norway	0,0980	0,1089	0,0987	0,0994	0,1288	0,1173	0,1381	0,1136	0,1154	0,1074	0,1208	0,1082
Poland	0,1075	0,1110	0,1100	0,1139	0,1194	0,1204	0,1247	0,1158	0,1127	0,1176	0,1145	0,1079
Portugal	0,0939	0,0946	0,0984	0,0989	0,0982	0,0964	0,1048	0,1146	0,1403	0,1409	0,1416	0,1397
Romania	0,1057	0,1134	0,0970	0,0990	0,1018	0,1008	0,1024	0,1055	0,1058	0,1091	0,1337	0,1185
Slovakia	0,1424	0,1533	0,1693	0,1670	0,1397	0,1426	0,1531	0,1513	0,1579	0,1525	0,1543	0,1523
Slovenia	0,1118	0,1182	0,1235	0,1155	0,1192	0,1206	0,1185	0,1157	0,1138	0,1129	0,1160	0,1153
Spain	0,1108	0,1238	0,1338	0,1299	0,1354	0,1290	0,1342	0,1364	0,1433	0,1447	0,1482	0,1454
Sweden	0,0866	0,0965	0,0832	0,0861	0,1005	0,1050	0,1116	0,1036	0,1012	0,0970	0,1006	0,0934
United Kingdom	0,1147	0,1279	0,1283	0,1164	0,1162	0,1164	0,1179	0,1253	0,1372	0,1432	0,1375	0,1436
Europe (EU27+NO)	**0,1148**	**0,1237**	**0,1230**	**0,1219**	**0,1245**	**0,1262**	**0,1304**	**0,1330**	**0,1365**	**0,1384**	**0,1407**	**0,1383**

2014S1	2014S2	2015S1	2015S2	2016S1	2016S2	2017S1	2017S2	2018S1	2018S2	2019S1	2019S2	2020S1	2020S2	2021S1
0,1307	0,1266	0,1247	0,1260	0,1264	0,1229	0,1116	0,1196	0,1196	0,1215	0,1290	0,1305	0,1430	0,1421	0,1474
0,1283	0,1309	0,1301	0,1297	0,1349	0,1398	0,1336	0,1314	0,1315	0,1373	0,1385	0,1388	0,1408	0,1426	0,1464
0,0896	0,0909	0,0831	0,0939	0,1202	0,0946	0,0915	0,0947	0,0972	0,1015	0,1065	0,1042	0,0979	0,1011	0,1155
0,1195	0,1148	0,1150	0,1159	0,1129	0,1096	0,0987	0,1040	0,1124	0,1144	0,1169	0,1192	0,1179	0,1156	0,1158
0,2070	0,2256	0,1648	0,1668	0,1238	0,1532	0,1664	0,1637	0,1653	0,2137	0,1901	0,2115	0,1706	0,1608	0,1786
0,1003	0,0991	0,0934	0,0947	0,0884	0,0885	0,0832	0,0859	0,0887	0,0872	0,0930	0,0948	0,1023	0,1019	0,1069
0,2562	0,2606	0,2589	0,2587	0,2664	0,2651	0,2579	0,2579	0,2537	0,2510	0,2358	0,2324	0,2252	0,2349	0,2503
0,1100	0,1117	0,1066	0,1117	0,1054	0,1075	0,1044	0,1015	0,1038	0,1109	0,1100	0,1098	0,0988	0,1048	0,1148
0,0910	0,0895	0,0877	0,0875	0,0849	0,0861	0,0827	0,0838	0,0844	0,0876	0,0880	0,0894	0,0862	0,0941	0,0838
0,1183	0,1126	0,1232	0,1141	0,1145	0,1075	0,1180	0,1102	0,1174	0,1053	0,1225	0,1136	0,1256	0,1142	0,1247
0,2071	0,1992	0,1979	0,1960	0,1974	0,1958	0,1991	0,1985	0,1967	0,1987	0,2036	0,1989	0,2180	0,2181	0,2239
0,1510	0,1467	0,1460	0,1299	0,1326	0,1260	0,1215	0,1315	0,1169	0,1184	0,1172	0,1149	0,1143	0,1125	0,1254
0,1142	0,1123	0,1080	0,1084	0,1004	0,0992	0,0947	0,0957	0,1042	0,1023	0,1206	0,1188	0,1226	0,1167	0,1143
0,1541	0,1532	0,1601	0,1531	0,1498	0,1404	0,1392	0,1399	0,1491	0,1518	0,1579	0,1499	0,1498	0,1681	0,1705
0,2000	0,2033	0,1873	0,1855	0,1771	0,1807	0,1712	0,1675	0,1642	0,1662	0,1913	0,1870	0,1738	0,1753	0,1837
0,1417	0,1374	0,1425	0,1432	0,1410	0,1453	0,1427	0,1402	0,1257	0,1267	0,1273	0,1295	0,1246	0,1276	0,1224
0,1414	0,1417	0,1198	0,1205	0,1136	0,1069	0,1024	0,1000	0,1014	0,1089	0,1119	0,1146	0,1142	0,1242	0,1266
0,1067	0,1046	0,1003	0,0965	0,0943	0,0926	0,0849	0,0873	0,0905	0,0914	0,0975	0,0983	0,1009	0,1020	0,1037
0,1856	0,1870	0,1679	0,1475	0,1493	0,1469	0,1419	0,1432	0,1413	0,1420	0,1462	0,1423	0,1410	0,1414	0,1409
0,1131	0,1075	0,1091	0,1024	0,1037	0,0974	0,0995	0,0925	0,1044	0,0978	0,1138	0,1087	0,1665	0,1253	0,1365
0,0998	0,1010	0,0962	0,0856	0,0930	0,1017	0,0888	0,0879	0,0973	0,1090	0,1036	0,0948	0,0634	0,0603	0,1013
0,1015	0,1025	0,1085	0,1059	0,0993	0,1003	0,1065	0,1061	0,1078	0,1088	0,1233	0,1018	0,1336	0,1325	0,1343
0,1427	0,1460	0,1402	0,1420	0,1384	0,1392	0,1408	0,1411	0,1381	0,1440	0,1409	0,1408	0,1371	0,1354	0,1294
0,1087	0,1001	0,1029	0,0989	0,0913	0,0926	0,0915	0,0936	0,0989	0,1030	0,1157	0,1206	0,1265	0,1213	0,1180
0,1382	0,1409	0,1351	0,1346	0,1310	0,1334	0,1342	0,1336	0,1399	0,1441	0,1543	0,1580	0,1585	0,1579	0,1530
0,1056	0,1033	0,1009	0,1061	0,1033	0,1015	0,0957	0,0956	0,1050	0,1057	0,1170	0,1163	0,1201	0,1190	0,1123
0,1507	0,1412	0,1420	0,1371	0,1337	0,1245	0,1284	0,1249	0,1282	0,1329	0,1389	0,1336	0,1302	0,1422	0,1300
0,0885	0,0833	0,0778	0,0738	0,0770	0,0820	0,0810	0,0808	0,0855	0,0909	0,0922	0,0867	0,0972	0,0925	0,0961
0,1548	0,1606	0,1788	0,1823	0,1653	0,1534	0,1508	0,1487	0,1596	0,1699	0,1813	0,1864	0,1968	:	:
0,1364	**0,1357**	**0,1313**	**0,1293**	**0,1265**	**0,1253**	**0,1229**	**0,1228**	**0,1251**	**0,1291**	**0,1340**	**0,1326**	**0,1344**	**0,1316**	**0,1359**

Annex to 1.3.7

European postal rates, 2014-2021, in €

Nominal price for letter mail within Europe								
	2014	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Austria	0,70	0,70	0,80	0,80	0,80	0,9	0,90	1,00
Belgium	1,17	1,20	1,23	1,23	1,36	1,46	1,61	1,91
Bulgaria	0,77	0,77	0,77	0,77	1,02	1,02	1,18	1,18
Croatia	1,45	1,44	1,45	1,46	1,47	1,89	1,89	1,83
Cyprus	0,51	0,64	0,64	0,64	0,64	0,64	0,64	0,64
Czechia	0,96	0,91	0,92	1,18	1,33	1,52	1,52	1,40
Denmark	1,88	1,95	3,35	3,36	3,63	4,03	4,02	4,42
Estonia	1,00	1,20	1,40	1,40	1,40	1,40	1,40	1,90
Finland	1,00	1,10	1,30	1,40	1,60	1,60	1,70	1,95
France	0,83	0,95	1,00	1,10	1,20	1,30	1,40	1,50
Germany	0,75	0,80	0,90	0,90	0,90	1,10	1,10	1,10
Greece	0,90	0,90	0,90	0,90	0,90	0,90	2,00	2,00
Hungary	0,99	1,05	1,10	1,20	1,25	1,40	2,00	1,94
Ireland	0,90	1,00	1,05	1,35	1,50	1,70	1,80	1,70
Italy	0,85	0,95	3,50	3,50	3,50	3,50	3,50	3,50
Latvia	0,78	0,78	0,78	0,78	0,78	0,78	1,35	1,35
Lithuania	0,71	0,81	0,81	0,81	0,81	0,81	0,81	0,81
Luxembourg	0,85	0,85	0,95	0,95	0,95	1,05	1,05	1,05
Malta	0,59	0,59	0,59	0,59	0,59	0,59	0,59	0,59
Netherlands	1,05	1,15	1,25	1,33	1,40	1,45	1,50	1,55
Norway	1,66	1,68	1,57	1,83	1,93	2,68	2,64	2,19
Poland	1,24	1,24	1,24	1,38	1,41	1,41	1,40	1,73
Portugal	1,90	2,35	2,45	2,45	2,80	2,80	2,80	2,90
Romania	0,48	0,47	0,90	0,89	0,88	1,50	1,48	1,85
Slovakia	1,00	1,00	1,00	1,00	1,10	1,20	1,20	1,20
Slovenia	1,19	1,29	1,29	1,77	1,77	2,01	2,01	2,19
Spain	0,75	0,90	1,15	1,25	1,35	1,40	1,45	1,50
Sweden	1,62	1,54	1,39	2,22	2,18	2,05	2,08	2,15
Switzerland	1,14	1,15	1,41	1,38	1,35	1,30	1,35	1,38
United Kingdom	1,14	1,24	1,45	1,43	1,43	1,53	1,62	1,83
European average	**0,61**	**1,09**	**1,28**	**1,38**	**1,44**	**1,56**	**1,67**	**1,74**

Annex to 1.3.8

VAT rates applied to printed and electronic publications, 2021

	VAT standard rate, generally applicable to printed products	Exceptions			
		VAT printed books	VAT printed magazines	VAT printed newspapers	VAT electronic books, magazines, newspapers
Austria	20%	10%	10%	10%	10%
Belgium	21%	6%	0%	0%	6%
Bulgaria	20%	20%	20%	20%	9%
Croatia	25%	5%	5%	5%	5%
Cyprus	19%	5%	5%	5%	19%
Czechia	21%	10%	10%	10%	10%
Denmark	25%	25%	25%	0%	25%
Estonia	20%	9%	9%	9%	20%
Finland	24%	10%	10%	10%	10%
France	20%	5,5%	2,1%	2,1%	5,5%
Germany	19%	7%	7%	7%	7%
Greece	24%	6%	6%	6%	24%
Hungary	27%	5%	5%	5%	5%
Ireland	23%	0%	9%	9%	9%
Italy	22%	4%	4%	4%	4%
Latvia	21%	12%	12%	12%	21%
Lithuania	21%	9%	5%	5%	21%
Luxembourg	17%	3%	3%	3%	3%
Malta	18%	5%	5%	5%	5%
Netherlands	21%	9%	9%	9%	9%
Norway	25%	0%	0%	0%	0%
Poland	23%	5%	5%	8%	5%
Portugal	23%	6%	6%	6%	6%
Romania	19%	5%	5%	5%	19%
Slovakia	20%	10%	20%	20%	10%
Slovenia	22%	9,5%	9,5%	9,5%	9,5%
Spain	21%	4%	4%	4%	4%
Sweden	25%	6%	6%	6%	6%
Switzerland	20%	2,5%	2,5%	2,5%	7,7%
United Kingdom	20%	0%	0%	0%	0%

Annex to 2.1

Total graphic paper consumption (in '000 tonnes)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Newsprint	9 488	8 284	8 442	8 269	7 560	7 255	7 061	6 606	5 999	5 259	5 061	4 719	3 510
Uncoated mechanical	6 057	5 322	5 345	5 430	5 017	4 843	4 646	4 623	4 700	4 715	4 636	4 083	3 670
Coated mechanical	7 845	6 035	6 764	6 479	5 711	5 172	5 143	4 926	4 611	4 379	4 221	3 670	3 092
Uncoated woodfree	8 599	8 379	8 298	7 867	7 501	7 175	7 247	7 036	6 974	7 075	6 915	6 523	5 811
Coated woodfree	7 480	6 187	5 977	5 816	5 606	5 163	5 083	4 754	4 565	4 244	3 954	3 383	2 329
TOTAL	**39 470**	**34 207**	**34 826**	**33 861**	**31 396**	**29 608**	**29 180**	**27 946**	**26 849**	**25 672**	**24 788**	**22 378**	**18 412**

Total graphic paper consumption (in '000 tonnes)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
France	5 004	4 201	4 343	4 119	3 792	3 586	3 619	3 282	3 232	3 162	3 036	2 884	2 444
Germany	9 481	8 489	8 695	8 860	8 837	8 622	8 659	8 484	8 027	7 920	7 468	6 694	5 766
Italy	4 324	3 726	4 047	3 886	3 467	3 248	3 210	3 062	2 995	2 899	2 935	2 708	2 176
Netherlands	1 573	1 264	1 193	1 138	1 278	1 208	1 041	980	1 091	920	892	790	639
Spain	2 580	1 961	1 989	1 872	1 643	1 433	1 480	1 479	1 382	1 307	1 203	1 062	714

AUSTRIA
PROPAK
www.propak.at

BELGIUM
Fédération Belge Des
Industries Graphiques (FEBELGRA)
www.febelgra.be

BULGARIA
Printing Industry Union
Of Bulgaria
www.printunion-bg.org

DENMARK
GRAKOM
www.grakom.dk

ESTONIA
Association of Estonian Printing and
Packaging Industry (AEPPI)
www.etpl.ee

FINLAND
Graafinen
Teollisuus Ry
www.graafinenteollisuus.fi

FRANCE
Union Nationale des Industries
de l'Impression et de la Communication (UNIIC)
www.uniic.org

GERMANY
Bundesverband Druck und Medien e.V. (bvdm)
www.bvdm-online.de

HUNGARY
Federation of Hungarian
Printers and Papermakers
(FEDPRINT)
www.fedprint.hu

ITALY
Italian Association of Printing and Paper Converting
Industries (ASSOGRAFICI)
www.assografici.it

LATVIA
Latvian Printers Association
www.lpua.lv

LITHUANIA
Association of Lithuanian Printing Industries (LISPA)
www.lispa.net

LUXEMBOURG
Association Des Maitres Imprimeurs
Du Grand-Duché De Luxembourg (AMIL)
www.amil.lu

NORWAY
Norwegian Printing Federation
www.nhografisk.no

PORTUGAL
APIGRAF
www.apigraf.pt

SWEDEN
Grafiska Företagens (GF)
www.grafiska.se

SWITZERLAND
Schweizerischer Verband
für Visuelle Kommunikation
(VISCOM)
www.viscom.ch

SWITZERLAND
Verband Der Schweizer
Druckindustrie (VSD)
www.druckindustrie.ch

THE NETHERLANDS
Koninklijk Verbond Van Grafische
Ondernemingen (KVGO)
www.kvgo.nl

UNITED KINGDOM
British Printing Industries Federation
(BPIF)
www.britishprint.com

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