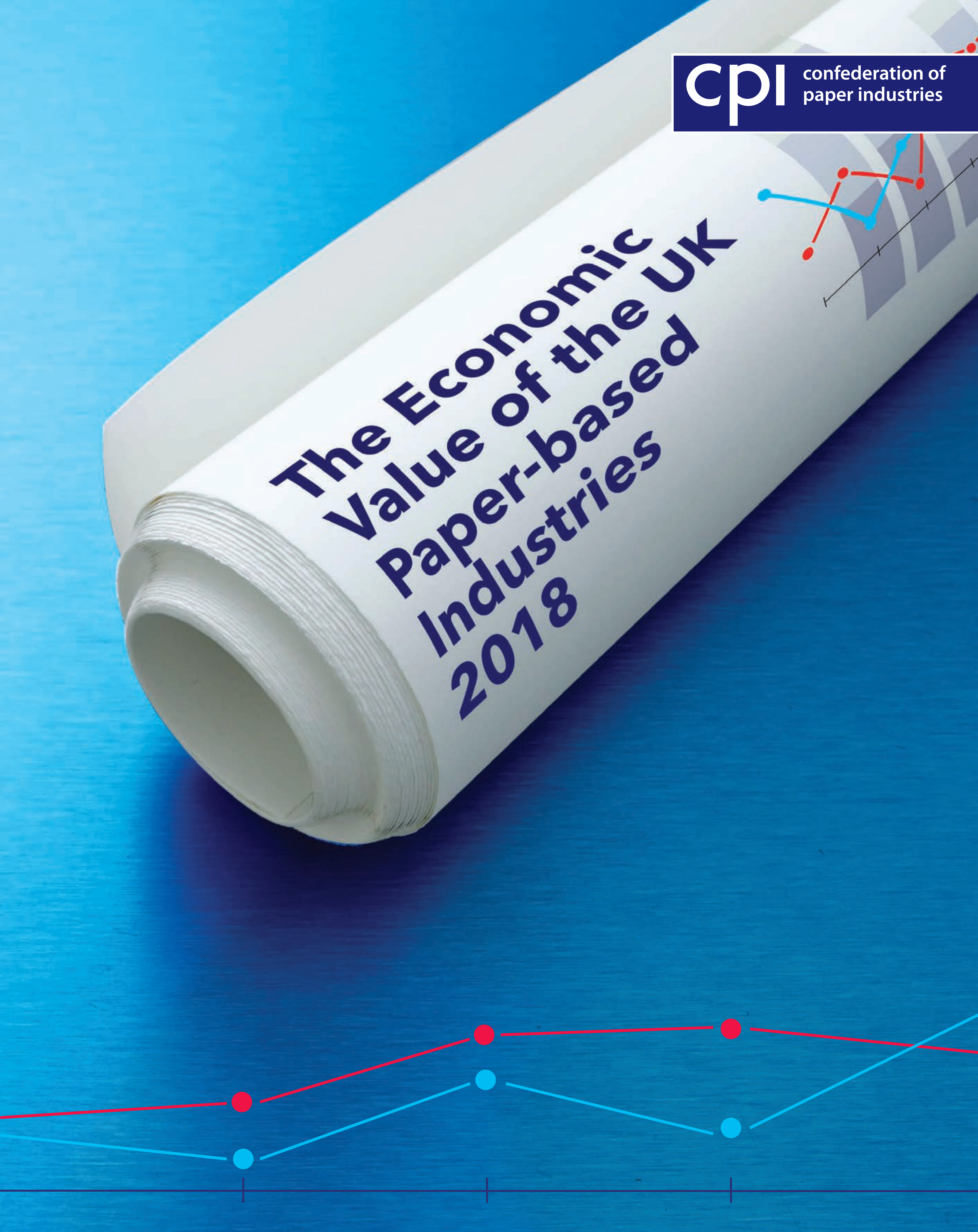
confederation of paper industries

The Economic Value of the UK Paper-based Industries 2018



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Foreword

Paper is an inherently renewable and recyclable material. Paper and its products are woven into our daily lives; just try to imagine a world without paper….

We rely on paper-based packaging to keep the food we eat safe from the farm to our kitchen. Tissue products improve hygiene and help stop the transmission of disease. Newspapers, magazines and books are read by millions of people every year.

The UK's Paper-based Industries are working with Government to develop a Sector Deal for the industry. This first report sets out the Economic Value of the Paper-based Industries to the UK and the opportunity for future growth. It will be accompanied by a second report in due course that will lay out the vision for the achievement of that growth potential, the possible elements of a Sector Deal, and the benefits that this would bring to the UK economy.

I urge the Government to respond to the challenge that we have set, to understand both the value of paper as an inherently renewable and recyclable material and the value of the jobs and economic prosperity that our industry provides, and to work with us to conclude a Sector Deal that builds the competitiveness of the UK's Paper-based Industries for many years to come.

Patrick Willink

President, CPI

March 2018

Executive Summary

Growth
Demand for both packaging and tissue products continues, driven by the demand from e-commerce for delivery packaging, innovation in shelf-ready packaging for retailers, and continued evolution in hygiene products.

Productivity
Since the year 2000, productivity in papermaking has jumped from 350 tonnes per employee to 491 tonnes per employee in 2017, an improvement of 40% in 17 years.

Productivity has also improved in the production of corrugated board for packaging customers. In 2010, each employee produced 354,000 square metres per year. By 2015, that had increased to 450,000 square metres per year, an increase of 27% overall.

Sustainability
68% of all raw materials used in UK papermaking is recovered fibre, while 26% is virgin fibre sourced from sustainably managed forests.

Emissions of fossil carbon due to papermaking have declined from 6.6 million tonnes to 2.4 million tonnes between 1990 and 2015.

The UK's Paper-based Industries are working with the Government to develop a 2050 Roadmap to plan for further emissions reductions to enable the sector to play its full part in meeting the overall UK objective of an 80% emissions reduction, while continuing to have a successful energy intensive industry based in the UK.

Health & Safety
Since 2005, the sector injury rate has been reduced from 15.6 injuries per 1,000 employees then, to 4.4 injuries per 1,000 employees today, a reduction in the injury rate of over 70%.

3.7 million tonnes	The UK Paper Industry produced 3.7 million tonnes of paper in 2016	Production
£450 million	The UK's Paper-based Industries invested £450 million in 2015	Investment
68%	68% of all raw materials used in UK papermaking are recovered fibre	Recycling
4.2 million tonnes of CO_2	Between 1990 and 2015 the UK's Paper-based Industries reduced emissions by 4.2 million tonnes of CO_2	Emissions Reductions

56,000 JOBS
56,000 people are employed in the UK manufacturing paper and paper products

1,467 COMPANIES
1,467 UK enterprises are engaged in manufacturing paper

£11.5 BILLION TURNOVER
UK companies manufacturing paper have a turnover of £11,532 million

£4 BILLION GVA
UK manufacturing of paper has a Gross Value Added £4,078 million

Introduction

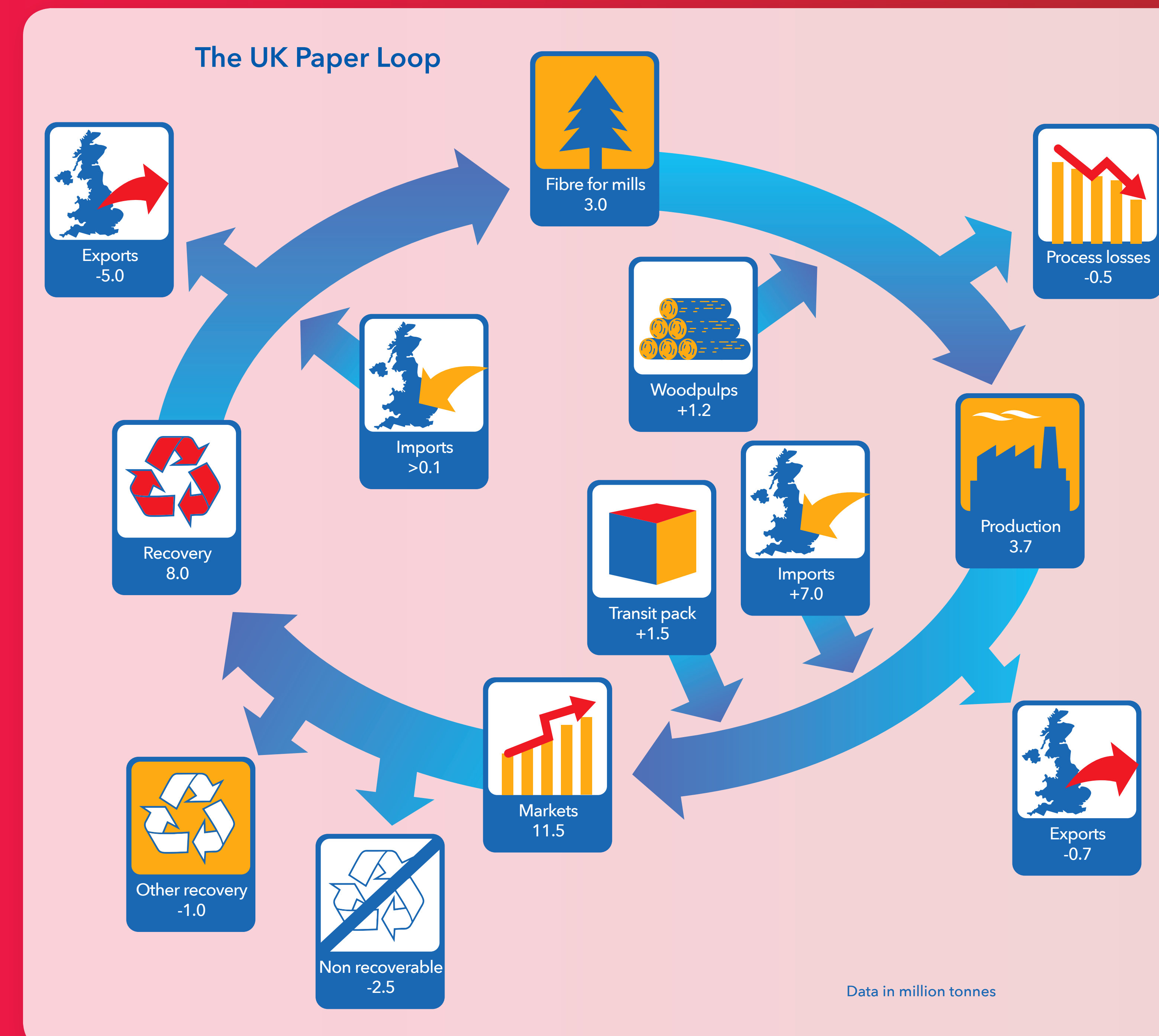
1 The UK's Paper-based Industries are pleased to be working with the Government to develop the future strategic vision for the sector. This Economic Value Report is the first step in demonstrating the importance of the UK's Paper-based Industries to the UK economy, both intrinsically and in terms of the wider supply chains that they support. In the context of the Brexit negotiations, it is even more vital that the UK Government should work collaboratively with UK industries to ensure a positive future for growth and jobs across the UK.

2 This report sets out the value of the UK's Paper-based Industries to the UK economy and society. It describes the sector, considers its contribution in economic terms, such as productivity growth, value added and employment. It also looks at paper's social contribution and shows how the sector has reduced its carbon emissions and improved its health and safety performance. The geographical spread of sector employment is analysed, in the context of the Government's concern that the economy should work for all.

3 A future report will consider the barriers to growth and how the industry can work with Government to lower them and work with the sector to ensure that investments will be made. In this context, the post-Brexit relationship will be vital, as the trade, investment and regulatory environment in the UK will need to be right to persuade the European and Global companies that make up the paper-based industries that the rewards of investment in the UK outweigh the potential risks.

4 As the UK's Paper-based Industries look forward, we see a bright future for the industry, based on attracting inward investment to drive productivity and growth and meet demand for paper-based products from a wide range of customer sectors. We seek a long term and mutually beneficial partnership with Government, in the context of the Sector Deal process, which will enable our sector to play its full part as a lynchpin of the UK economy for generations to come.

5 Paper holds a unique position in the world of materials, namely its inherent renewability and recyclability. Paper quite literally grows on trees! The sustainability advantages of this characteristic cannot be overstated, and paper is in prime position to lead the UK economy towards a more sustainable circular future, and an economy founded on bio-based industries.



About CPI

6 The Confederation of Paper Industries (CPI) is the leading organisation working on behalf of the UK's Paper-based Industries. CPI was formed in 2000 as a confederation of the individual trade associations for the paper supply chain.

7 CPI represents 79 companies in the supply chain for paper, comprising paper and board manufacturers and converters, corrugated packaging producers, makers of soft tissue papers, and collectors and processors of paper for recycling.

8 CPI aims to unify the UK's Paper-based Industries with a single purpose in promoting paper's intrinsic value as a renewable and sustainable fibre-based material, enhancing its competitiveness through seeking to reduce legislative and regulatory impacts, and in spreading best practice.

9 CPI is working to promote:

- a positive image for paper
- secure energy supplies at competitive prices
- resource efficiency within a coherent waste strategy
- the benefits of packaging
- a sustainable UK Paper Industry
- manufacturing as a vital part of a balanced economy
- a competitive, level playing field for the UK's Paper-based Industries

Callum McCaig (MP for Aberdeen South 2015 -2017) with Angus MacSween (General Manager, Arjowiggins Stoneywood)

Defining the Industry

History

10 Papermaking in the UK has been in existence for hundreds of years, dating back to the 15th century, and the principles of making paper and some of the skills that were used back then are still evident today.

11 In a fiercely competitive global market, innovation, quality, design and service levels are critical to maintaining market share. The level of skills and techniques required to maintain, not only the traditional skills of papermaking, but also the knowledge and essential skills to operate in all other aspects of modern hi-tech industry are crucial to sustaining the UK's Paper-based Industry.

Scope of the Industry Today

12 The scope of this report covers the following areas of the UK's Paper-based Industries:

- The manufacturing of paper
- The conversion of paper into corrugated packaging
- The conversion of paper into tissue for hygiene products
- The recovery and recycling of paper from both business and households

Customer Groups

13 Paper is a ubiquitous product. Products made of paper and board are sought after by a wide variety of customer groups. Some customers, such as printers, use paper as an intrinsic part of their final product. For others, paper-based packaging is essential in ensuring that their own products get to market with the highest quality.

14 The following list is a small sample of the key customer groups for paper products and the products that they use:

- The NHS
  - Surgical masks
  - Surgical clothing
  - Disposable sanitary products
- Food manufacturers
  - Transit and shelf-ready packaging for food products
  - Cereal boxes, egg boxes
  - Tea bag papers
  - Greaseproof papers
- Industrial manufacturers
  - Electrical insulation
  - Battery separators
  - Plasterboard liner for construction
  - Engine filter papers
  - Industrial hygiene products
- Online retailers
  - Corrugated boxes for delivery shipments
- Supermarkets
  - Point of sale packaging and promotional materials
- Printers and publishers
  - Newsprint for newspapers and magazines
  - Graphic papers for posters and promotional materials
  - Papers for book and document printing
- Fast Moving Consumer Goods (FMCG)
  - Packaging for high-end consumer goods
- Domestic consumers
  - Toilet tissue
  - Kitchen paper
  - Nappies
  - Hygiene products
  - Stationery and school books
  - Passports

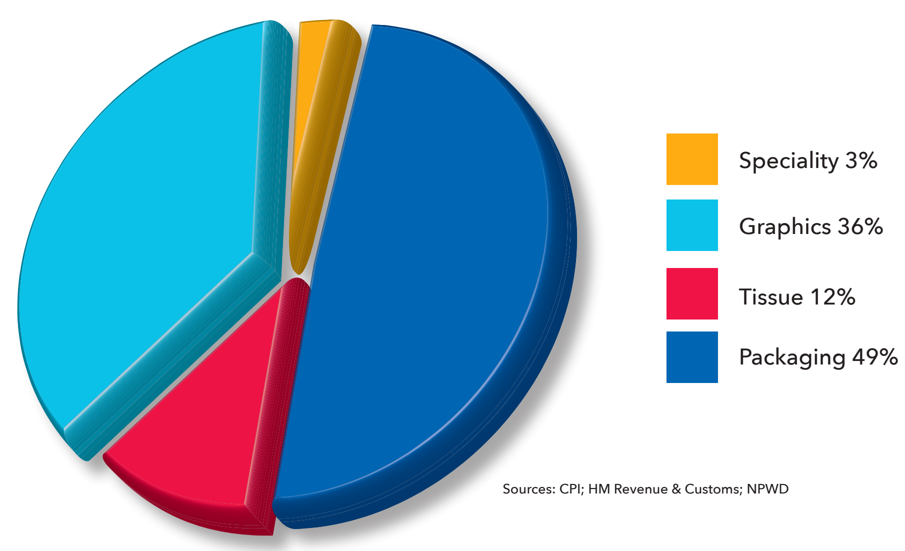
Overview

Consumption

15 In 2016, some 11.5 million tonnes of paper[1] were placed on the UK market. Current consumption equates to the average UK family using 500 kg of paper and board[2] every year. In packaging terms some 4.7 billion square metres of corrugated boxes[3] were used in 2016, and the average UK family uses 200 square metres of corrugated board[4] each year.

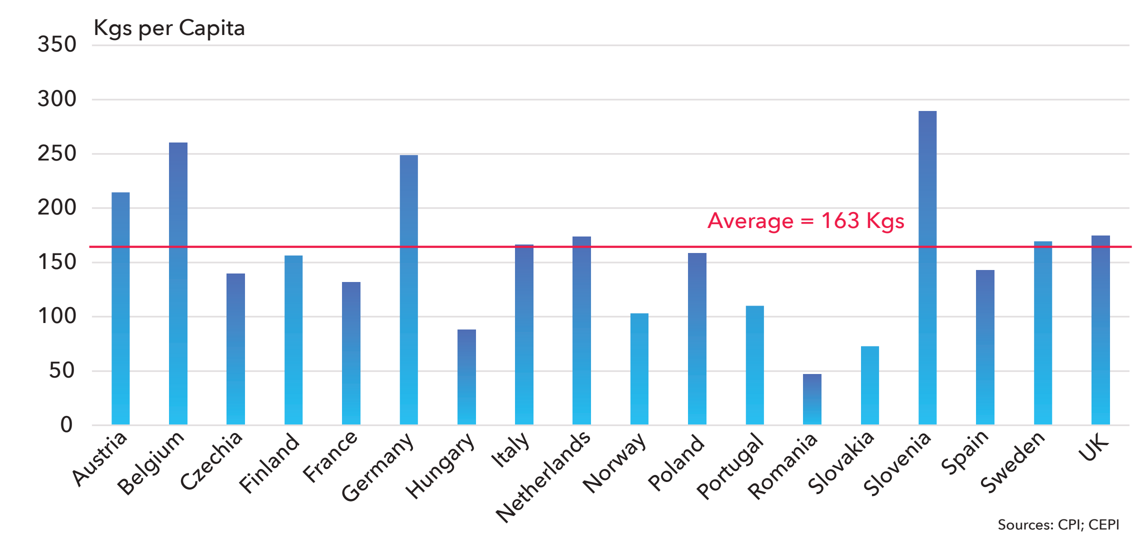
16 As Chart 1 shows, nearly half the paper and board placed on the UK market are for packaging and just over one third is from the graphic sector. 12% are tissue products and the final 3% are speciality paper products[1].

Chart 1. UK Consumption of papers and boards



17 The UK is in the top 5 of EU countries in terms of its consumption of paper per capita[1], as Chart 2 shows.

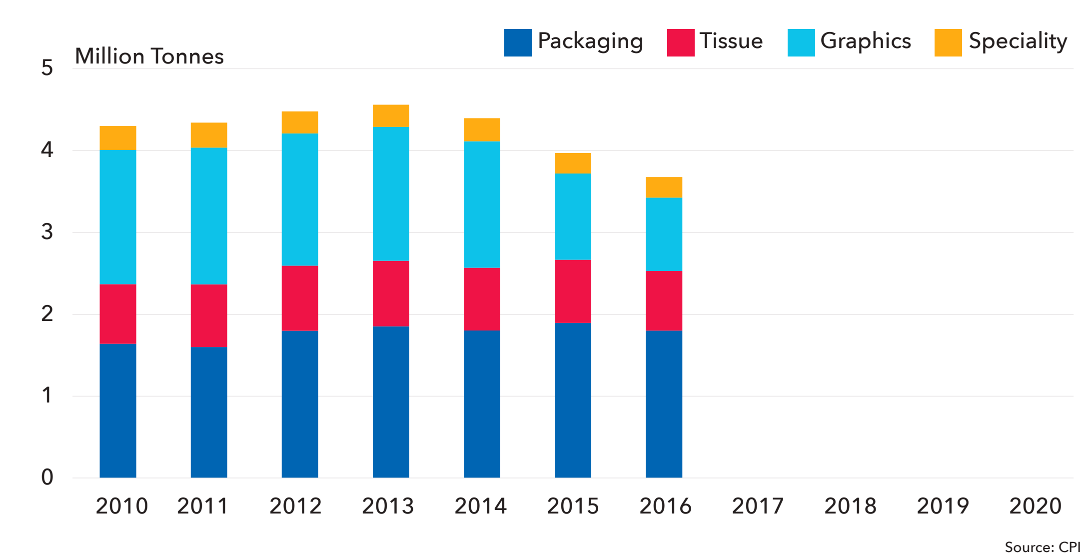
Chart 2. European per capita consumption of paper and board



Production

18 In 2016, the UK produced nearly 3.7 million tonnes of paper[1]. About half of that paper was for packaging uses, with the rest divided between tissue, graphics and speciality papers as shown in Chart 3.

Chart 3. Production of papers and boards

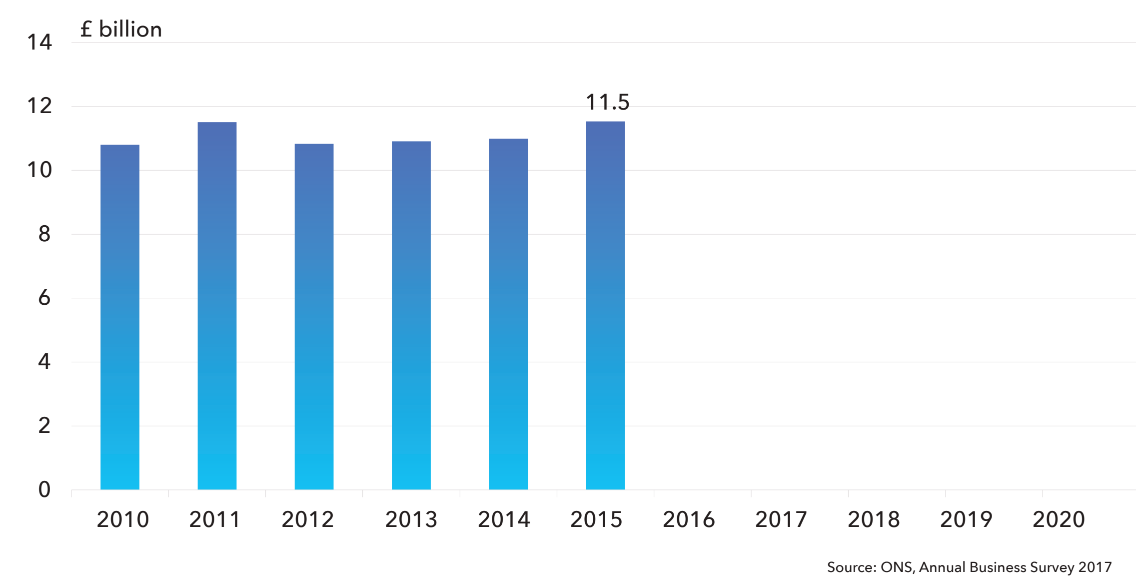


19 Advances in mobile digital technology have had a noticeable effect on consumption patterns. While the requirement for newsprint and other graphic papers has reduced, the demand for both packaging and tissue products has grown, driven by the demand from e-commerce for delivery packaging, innovation in shelf-ready packaging for retailers and continued growth in hygiene products. Moreover, energy policy has made the UK less cost competitive as a location for paper making and the focus of investment in new capacity has shifted to other countries.

Turnover

20 The turnover of the UK's Paper-based Industries remains robust. In 2015 the industry had a turnover of £11.5 billion[1], which represented growth of £700 million in turnover[2] since 2012.

Chart 4. Paper sector turnover



Employment

21 The UK's Paper-based Industries are a major UK manufacturing employment sector. In 2016, total direct employment in CPI membership was 19,500 jobs. This employment is divided into 8,900 in paper and board manufacture (including tissue), 9,600 employed in manufacturing corrugated board and boxes, and 1,000 in the collection of recovered paper for recycling[1].

22 In the industry overall, the Office for National Statistics reports that there are 56,000 jobs[1], and the direct supply chain for paper manufacturing and processing supports a further 86,000 jobs[2] in the wider UK economy.

23 The UK's Paper-based Industries are not only major employers, but that employment is largely located in areas of the UK outside the M25. These are the counties and regions of the UK where the greatest strides in growth and productivity will be required to make the UK economy work for all.

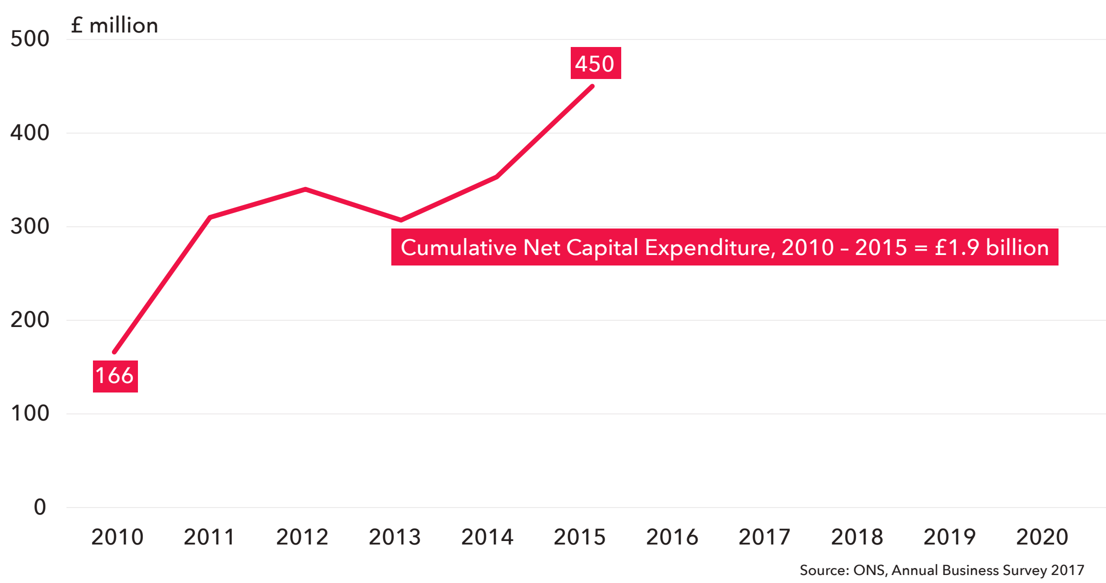
Chart 5. Integrated paper, packaging, tissue and recycling in the UK

Investment

24 The UK's paper manufacturing production, turnover and employment do not remain static, but have required significant investment over many years to remain competitive and to support innovative technology and machinery. Investment cycles in the sector are long and new facilities frequently have a design life of 25 – 30 years. This reinforces the need for UK installations to continue to win investment today, if they are to continue to have a long-term future.

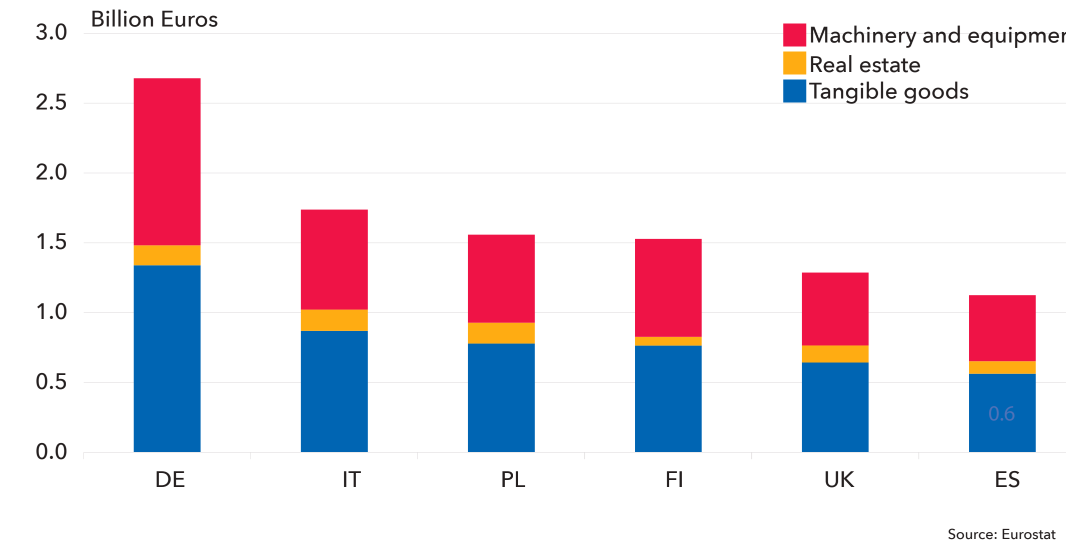
25 Cumulative net capital expenditure in the UK's Paper-based Industries between 2010 and 2015 was £1.9 billion[1], with robust growth observed over that period, as Chart 6 shows.

Chart 6. Net capital expenditure



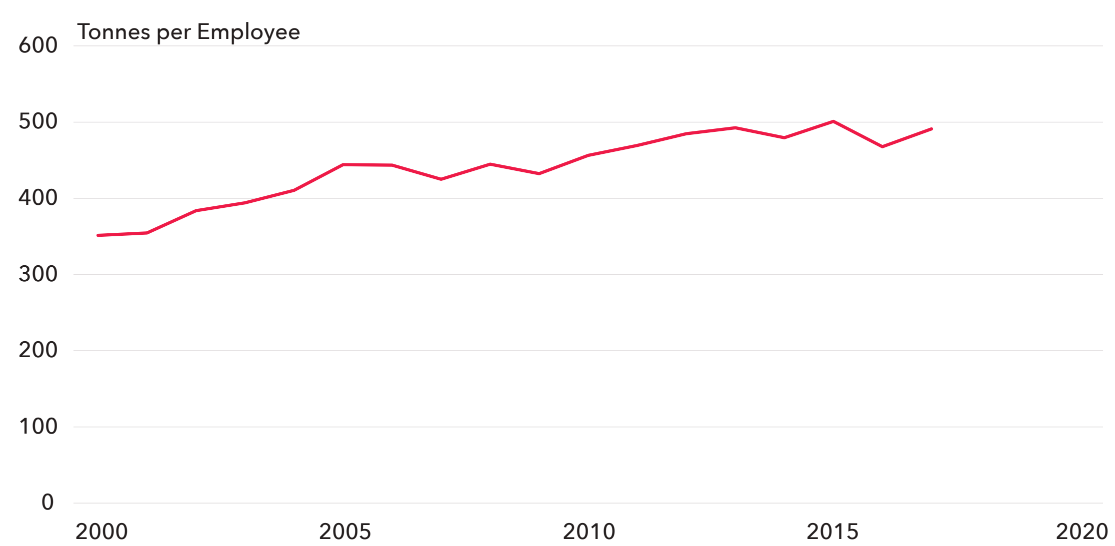
26 Moreover, the UK is one of the largest investors in paper production and conversion in the EU[1], as shown in Chart 7.

Chart 7. Investment across Europe



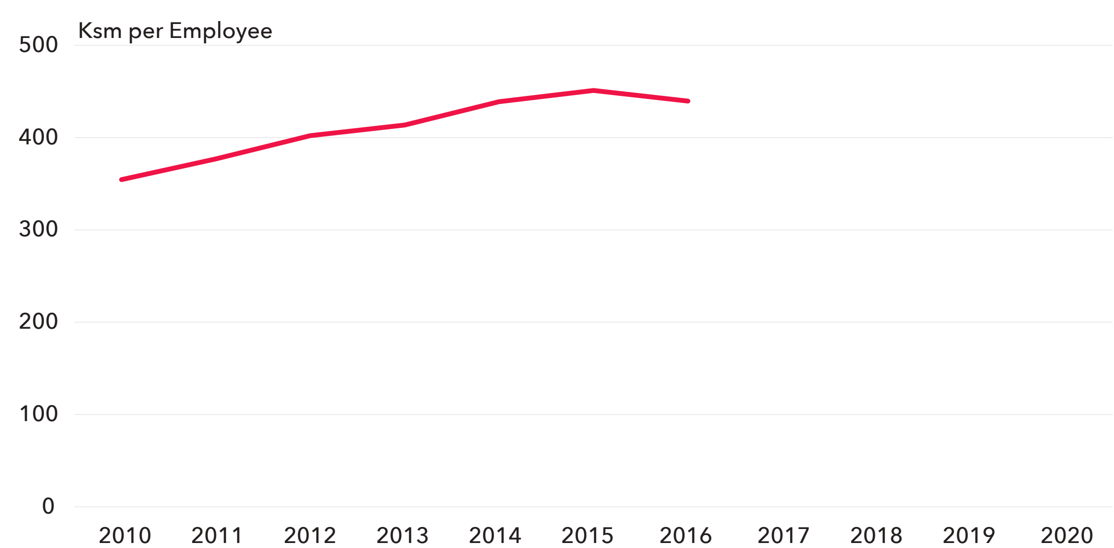
27 This investment has contributed to the sustained improvement in the productivity of papermaking facilities over the years. Since the year 2000, productivity in papermaking has jumped from 350 tonnes per employee to 491 tonnes per employee in 2017[1], an improvement of 40% in 17 years.

Chart 8. Papermaking productivity



28 Productivity has also improved in the production of corrugated board for packaging customers. In 2010, each employee produced 354,000 square metres per year. By 2015, that had increased to 450,000 square metres per year, an increase of 27% overall[1].

Chart 9. Corrugated board productivity



Source: CPI

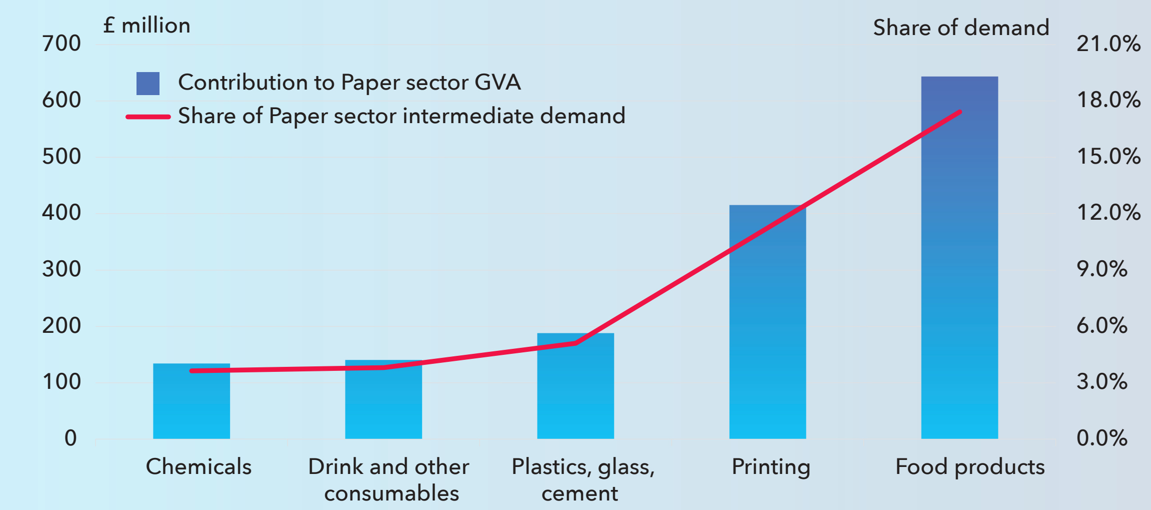
Gross Value Added (GVA)

29 The UK's Paper-based Industries make a significant contribution to UK Gross Value Added. GVA attributable to paper has increased to £4.1 billion in 2015, from £3.5 billion in 2010[1], an increase of 17% in five years.

30 In the same period, GVA per employee has increased from £66,000 in 2010 to £73,000 in 2015[1].

31 Chart 10 shows the components of the 2013 GVA figure. It reinforces the position of paper as a key foundation sector for the UK economy. Some £650 million of paper GVA comes from the food products industry and just over £400 million comes from the printing sector[1]. Paper is a vital component of the UK economy, not just by itself but as an integral part of the overall ecosystem of UK industry, all of which is only as strong as the weakest link in its supply chain.

Chart 10. Demand for paper products by selected manufacturing industries



Source: ONS, Input-Output Analytical Tables, 2013

Sustainability

Recovery and Recycling

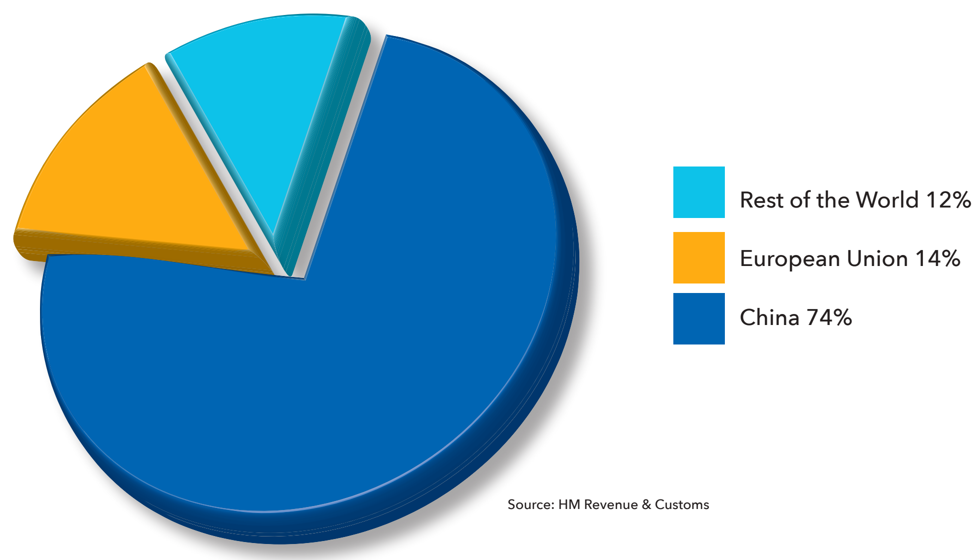
32 Paper and board are inherently renewable, recyclable, and sustainable materials. Recovered paper is a globally traded commodity. In the UK, the recycling of paper has a history going back nearly 100 years and is a national success story.

33 In 2016 the UK recovered 69% of all paper and board[1] placed onto the market, an impressive performance, since a further 20% came from hygiene products or papers and boards in long term use that are unrecoverable.

34 An estimated 84% of packaging papers[1] were recovered for recycling. This, together with other recovered papers, amounted to nearly 8 million tonnes of potential raw material[2] for UK and foreign paper mills, and a commensurate reduction in waste going to landfill.

35 Of this material, over 3 million tonnes[1] is consumed by UK mills, with a value of circa £300 million[2]. A further 5 million tonnes of material[3] is currently exported for use in other countries.

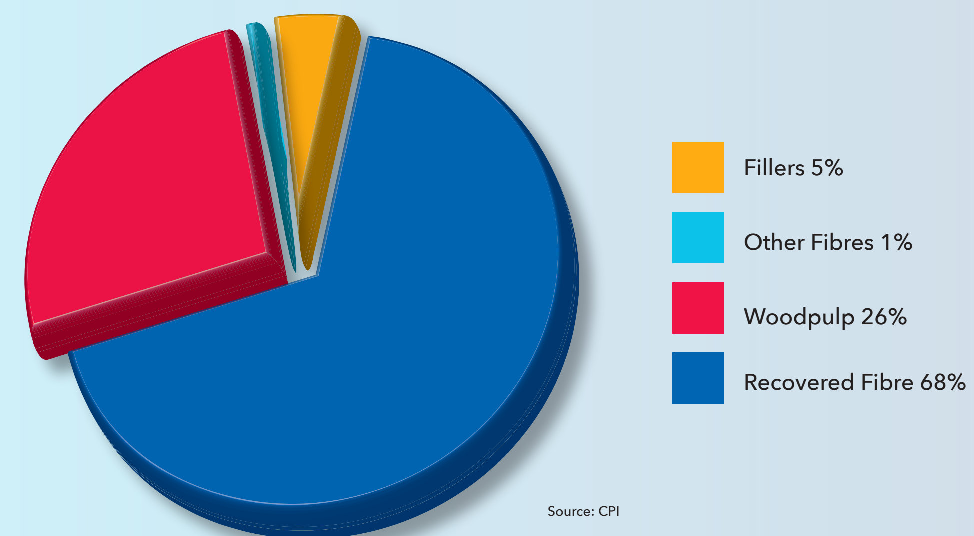
Chart 11. Recovered paper exports by destination

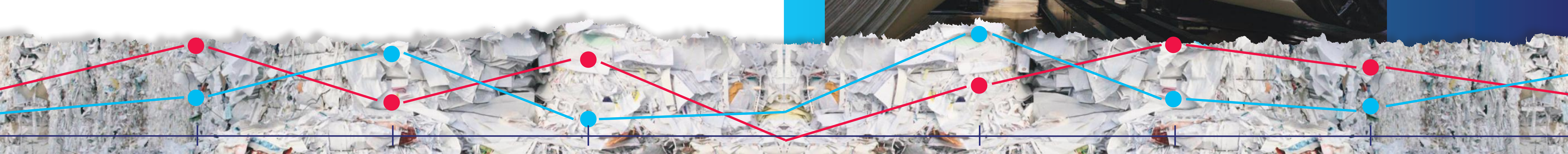


36 In recent years, the proliferation of a wide variety of local authority kerbside collection methods has led to public confusion about what to recycle. This has resulted in increased contamination of recovered paper, with negative impact on the cost efficiency of UK mills. CPI estimates that each percentage point increase in feedstock contamination costs UK paper makers circa £8 million[1] annually. Equally, inferior quality material is more difficult to sell in export markets. The long-term sustainability of recovered paper and its circularity in the economy is reliant upon it being of high quality. This is dependent upon consistent collection systems across the UK and close communication with the public.

37 It is estimated that paper fibre can be recycled up to seven times before it becomes too degraded to be reused. Virgin fibre is vital to maintain the integrity of the national fibre pool and will always be needed to ensure the quality and utility of finished products. Whilst the UK papermaking industry is heavily dependent upon recovered fibre, nearly 30% is virgin fibre sourced from sustainably managed forests.

Chart 12. Papermaking raw materials



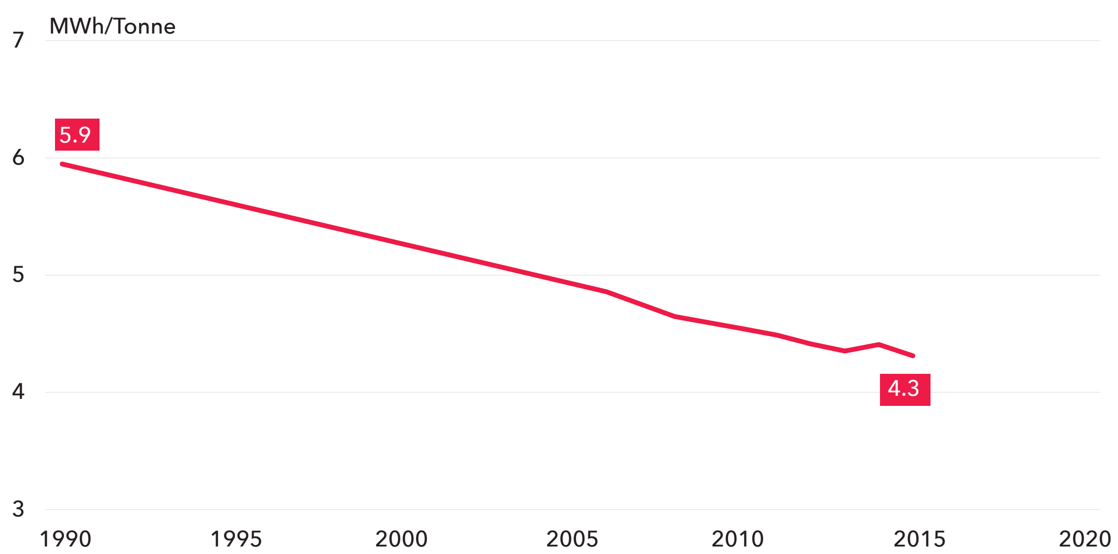


Energy, Carbon and Water

38 The second major element of the sustainability work of our sector is the considerable efforts that have been made to reduce its energy consumption and carbon emissions. Papermaking is an energy intensive process, and energy costs are the key driver of competitiveness for paper makers.

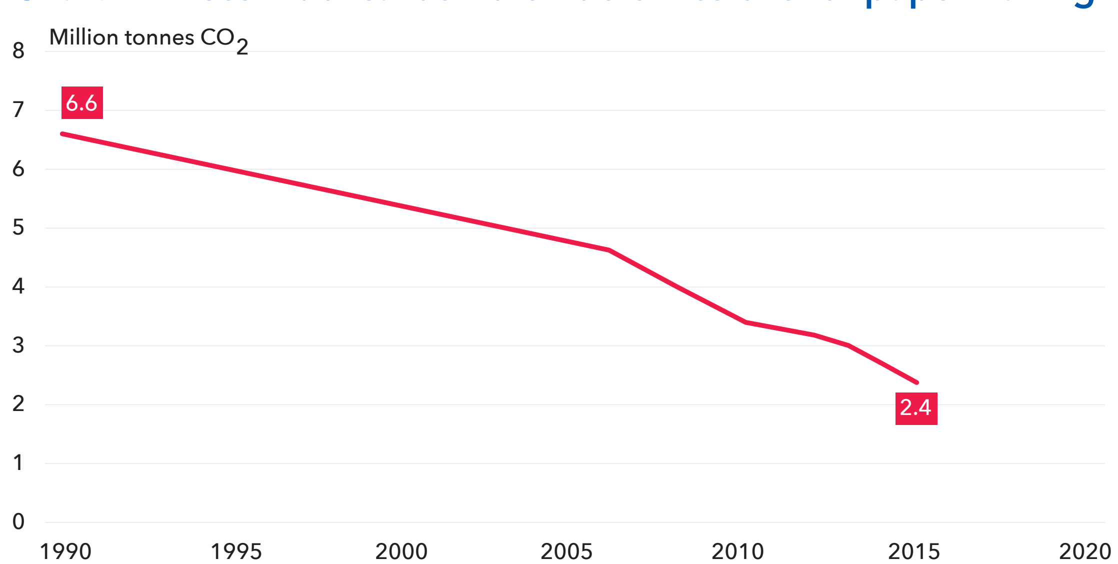
39 It is therefore no surprise that the data shows a substantial reduction in energy consumption and in the emissions of fossil carbon dioxide due to papermaking. As the following charts show, specific energy consumption per tonne of paper produced has declined from 5.9 MWh per tonne in 1990 to 4.3 MWh per tonne in 2015[1]. Emissions of fossil carbon dioxide due to papermaking have declined from 6.6 million tonnes to 2.4 million tonnes in the same period[2].

Chart 13. Specific energy consumption for papermaking



Source: CPI

Chart 14. Fossil fuel carbon dioxide emissions for papermaking



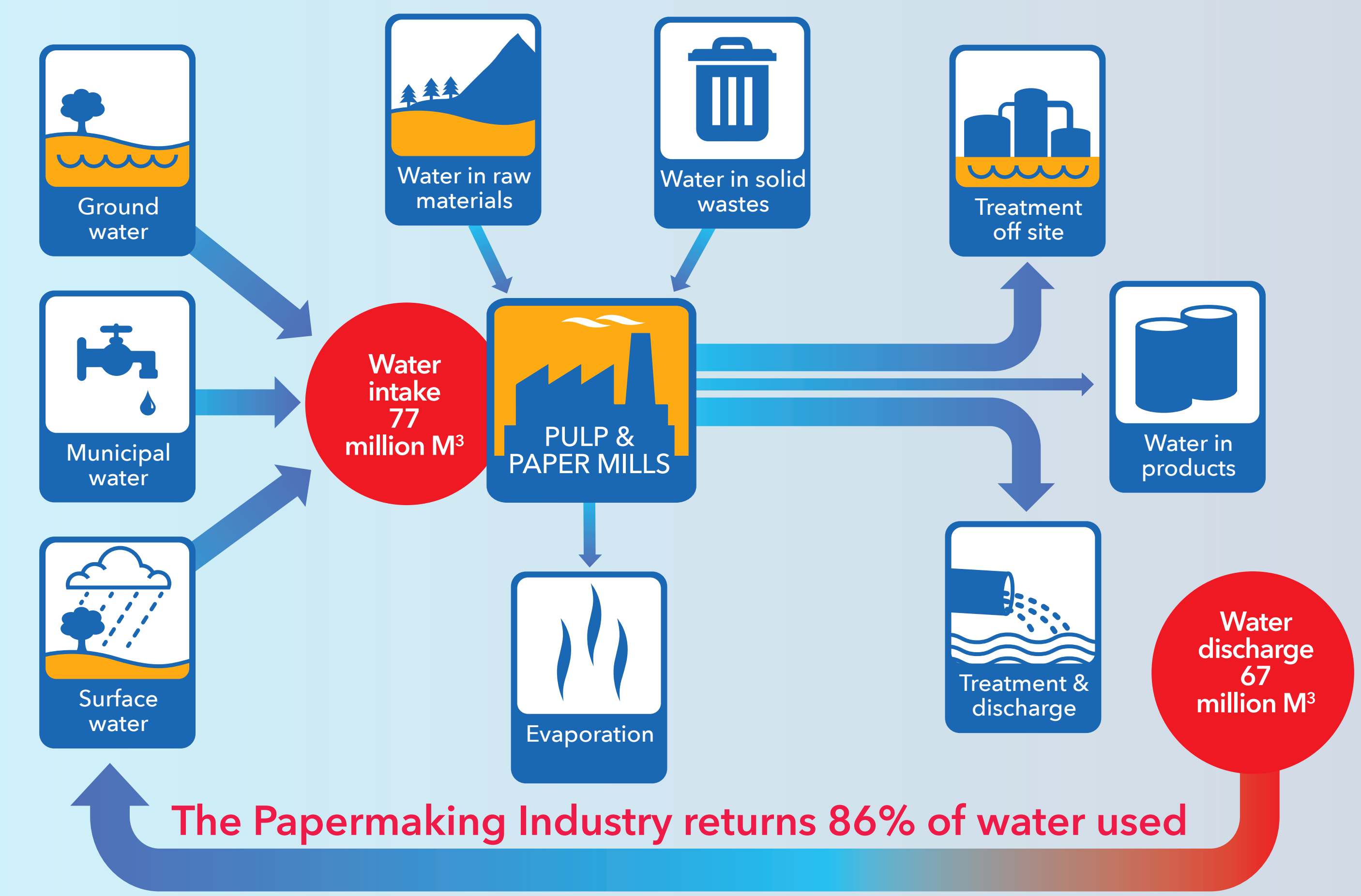
Source: CPI

40 The UK's Paper-based Industries are working with the Government to develop a 2050 Roadmap to plan for further emissions reductions to enable the sector to play its full part in meeting the overall UK objective of an 80% emissions reduction, while continuing to have a successful energy intensive industry based in the UK.

41 The UK's Paper-based Industries are a major user of water in the production process. As an industry we work with Regulators to ensure sustainable abstraction and best practice in efficient water use.

42 In 2015, the UK industry took in (or more accurately borrowed) 77 million M^3 of water. This water comes from a variety of sources, both abstraction from natural water sources as well as embedded water within raw materials. However, the industry does not consume all this water, as some 67 million M^3 of water is discharged back to rivers and other water courses every year after treatment. In fact, the sector directly returns some 86% of all water used back into the environment[1], as the following chart shows.

Chart 15. Water use for papermaking



Source: CPI

Health and Safety

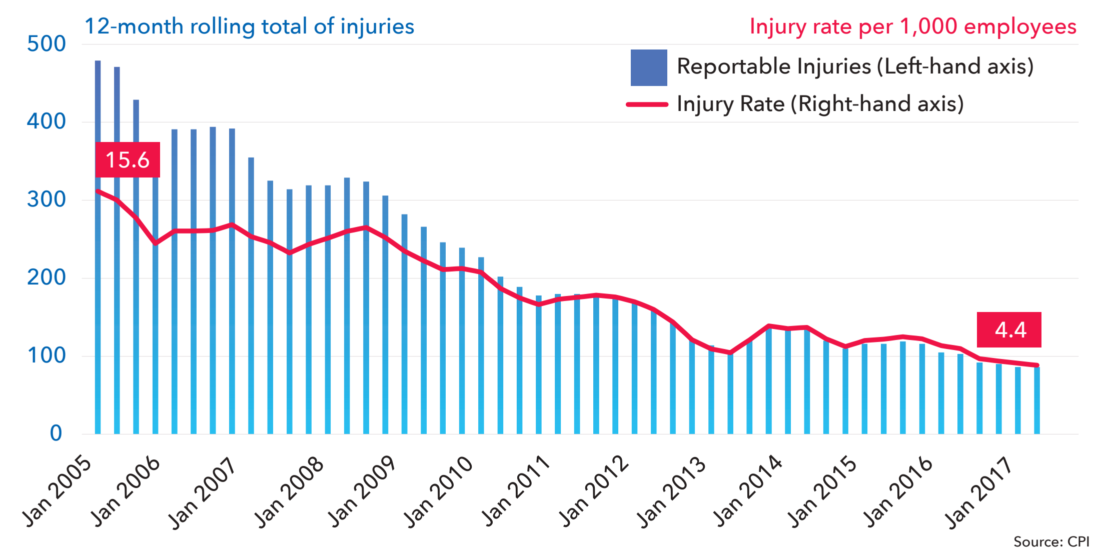
43 The health, safety and wellbeing of all employees working in the UK's Paper-based Industries is of paramount importance.

44 Over the last 15 years the UK's Paper-based Industries have gone from being criticised for their poor health and safety performance, to now being an exemplar to other sectors in the UK and Paper-based Industries across Europe.

45 Under the direction of the Paper and Board Industry Advisory Committee, (PABIAC) and the influence of CPI in continuously challenging the industry not to accept the status quo, but to strive towards achieving higher health and safety standards, the industry has been successful in achieving substantial reductions in injury incidence rates and improving health and safety management performance.

46 The following Chart shows the success of this strategy in reducing injury rates across the sector. Since 2005, the sector injury rate has been reduced from 15.6 injuries per 1,000 employees then, to 4.4 injuries per 1,000 employees today, a reduction of over 70%[1].

Chart 16. Improving safety in the Paper-based Industries

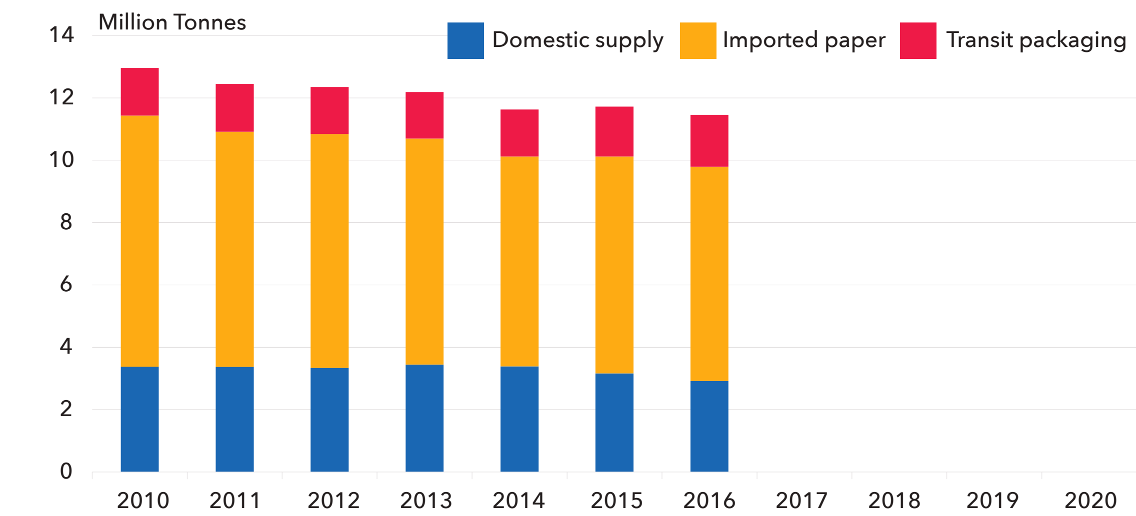


Source: CPI

Trade

47 As Chart 17 shows, of the 11.5 million tonnes of paper and board consumed in the UK in 2016, only 2.9 million tonnes came from domestic production – (or just 25%[1]). Of the rest, 1.67 million tonnes was transit packaging[2] around other imported goods, but the majority, more than 6 million tonnes or 60%[3], was imported for direct use as paper or conversion into other paper products.

Chart 17. Sources of paper and board consumption



Sources: CPI; HM Revenue & Customs; NPWD

48 The following table shows that in comparison with other major economies, the UK is the largest net importer of paper in the world[1].

Chart 18. Trade in paper and board

2015 (TONNES)	EXPORTS	IMPORTS	NET TRADE
USA	11.56 MILLION	9.81 MILLION	+1.75 MILLION
JAPAN	1.38 MILLION	1.92 MILLION	-0.54 MILLION
GERMANY	13.83 MILLION	12.00 MILLION	+1.83 MILLION
UK	0.81 MILLION	6.16 MILLION	-5.35 MILLION

Sources: CEPI, Annual Statistics 2015

49 In 2016, 75% of UK paper imports came from elsewhere in the EU, with the remaining 25% divided almost evenly between other European Countries, the United States and Asia[1].

50 In the same year, some 67% of the UK's paper exports went to the EU, with 14% to Asia and 8% to North America[1]. The UK's Paper-based Industries are highly dependent on the EU27 countries for their trade in finished paper and products.

Conclusion

This report provides the first robust evidence base for the scale and importance of the UK's Paper-based Industries. It shows the opportunities that are present and highlights some of the challenges to be overcome.

It shows that the industry is widely spread across the UK and that it contributes to growth and employment in all countries and regions. The UK's Paper-based Industries produce a very wide range of products, which are an essential component of daily life and which are also essential enablers of other sectors, both in the UK and for their exports overseas.

This is an industry that invests heavily in improving the productivity and efficiency of its production processes in the UK.

The results of that investment can be seen in the industry's performance in critical areas for the sustainable development of the UK.

In particular, the recovery and recycling of paper shows how this industry contributes to the resource efficiency of the UK. Paper is the material of the circular economy and no other material approaches its recyclability and renewability.

Moreover, as an energy intensive sector, UK papermaking has led the way in reducing its carbon intensity, showing policy makers that climate change targets can be compatible with energy intensive manufacturing.

As the industry works on its Sector Deal proposals and opens negotiations with the Government, this report sets out the firm foundations on which any deal will rest. The UK's Paper-based Industries are well placed to contribute to the future industrial growth of the UK, and the industry looks forward to playing a full role in that future.

References

15.1 Sources: CPI; HM Revenue and Customs; Environment Agency's 'National Packaging Waste Database', https://npwd.environment-agency.gov.uk/ Paper and board consumption calculated as: [Domestic production of papers and boards] + [Net imports of paper and board products] + [Net imports of paper-based transit packaging around imported commodities]

15.2 Sources: as 15.1 plus ONS population estimates https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates and ONS average family size (2015 data) https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/families/adhocs/006257averagefamilysizeukandconstituentcountries2015 UK average family size was 2.84 persons in 2015

15.3 Sources: CPI; HM Revenue and Customs. Box consumption calculated as [Estimated shipments of boxes from corrugated warehouses] + [Net imports of new corrugated board and boxes]

15.4 Sources: CPI; ONS population estimates (as 15.2); and ONS average family size (2015 data, as 15.2)

16.1 Sources as 15.1

17.1 Sources: CPI, as 15.1 and 15.2; Confederation of European Paper Industries, Annual Statistics 2016

18.1 Source: CPI data collected from members

20.1 Source: ONS Annual Business Survey https://www.ons.gov.uk/businessindustryandtrade/business/businessservices/bulletins/uknonfinancialbusinesseconomy/previousReleases

20.2 Source: ONS Annual Business Survey. SIC 17, 2012 turnover = £10,827 million

21.1 Source: CPI member surveys

22.1 Source: ONS Annual Business Survey, as 20.1. Total employment average during the year, 2015

22.2 Source: ONS UK Input-output Analytical Tables 2013 https://www.ons.gov.uk/economy/nationalaccounts/supplyandusetables/datasets/ukinputoutputanalyticaltablesdetailed 'Employment multiplier' for SIC 17 = 1.531

25.1 Source: ONS Annual Business Survey, as 20.1

26.1 Source: Eurostat RAMON Metadata Server http://ec.europa.eu/eurostat/ramon/index.cfm?TargetUrl=DSP_PUB_WELC

27.1 Source: CPI data collected from members

28.1 Source: CPI data collected from members

29.1 Source: ONS Annual Business Survey, as 20.1

30.1 Source: ONS Annual Business Survey, as 20.1

31.1 Source: ONS UK Input-output Analytical Tables 2013, as 22.2

33.1 Sources: CPI; HM Revenue and Customs and EA National Packaging Waste Database. Recycling rate calculated as [Collection of papers and boards] / [Consumption of papers and boards (as defined in 15.1)] where collection of papers and boards is defined as [Domestic recycling of papers and boards] + [Net exports of papers and boards]

34.1 Source: WRAP

34.2 Source: CPI; HM Revenue and Customs

35.1 Source: CPI data collected from members

35.2 Source: CPI analysis

35.3 Source: HM Revenue & Customs

36.1 Source: CPI analysis

39.1 Source: CPI data collected from members

39.2 Source: CPI data collected from members

42.1 Source: CPI survey of member environmental data, 2015

46.1 Source: CPI sectoral accident and injury surveys

47.1 Source: CPI analysis from members

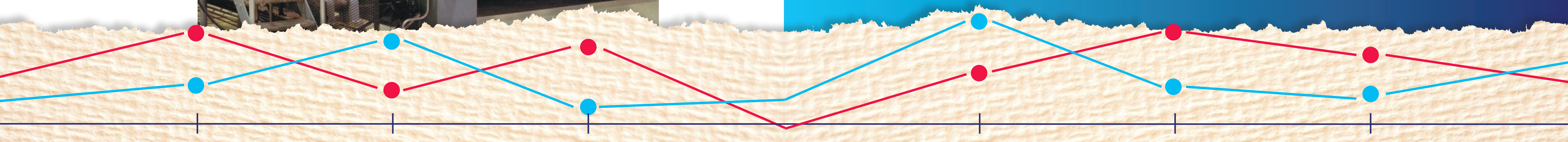
47.2 Source: EA National Packaging Waste Database, as 15.1

47.3 Source: HM Revenue & Customs

48.1 Source: Confederation of European Paper Industries, annual analysis of global paper and board trade data

49.1 Source: HM Revenue & Customs

50.1 Source: HM Revenue & Customs



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