syndex
L'EXPERTISE ENGAGÉE

UNI global union europa graphical & packaging

industriAll EUROPEAN TRADE UNION

STRENGTHENING WORKERS' INVOLVEMENT IN THE PACKAGING AND TISSUE SECTORS IN THE CONTEXT OF THE COVID CRISIS

CONSOLIDATED REPORT

OCTOBER 2022

OVERVIEW OF THE RESEARCH ON THE EUROPEAN PACKAGING AND TISSUE INDUSTRIES

Two phases:

- Phase 1: mapping the two sectors, identifying key structural and conjunctural trends and challenges, with a focus on COVID-19 and environmental sustainability regulations.
- Phase 2: employment trends, trade union representation, information and consultation.
- Supplementary global updates on each sector

Methodology:

- Analysis of secondary data (statistical or otherwise).
- Analysis of company data (finances, strategy, employment, sustainability).
- Survey among trade union representatives and EWC members).
- Interviews with company and trade union representatives.

Outcomes:

- Intermediate reports for phase 1 (October 2021, February 2022)
- Global updates (March 2022)
- Intermediate report for phase 2 (May 2022)
- Consolidated revised report (October 2022)

CONTENTS

I. Overview of the European Packaging Industry (Phase 1) / 4

1) Mapping / 5
2) Ongoing issues and current trends / 51
3) Global update / 92

II. Overview of the European Tissue Industry (Phase 1) / 142

1) Mapping / 143
2) Ongoing issues and current trends / 202
3) Global update / 233

III. Social Developments in the Packaging and Tissue Sectors (Phase 2) / 255

1) Review and update on Phase 1 / 256
2) Employment overview / 265
3) Survey analysis / 271
4) Case studies on collective bargaining and information & consultation / 283

I. OVERVIEW OF THE EUROPEAN PACKAGING INDUSTRY (PHASE 1)

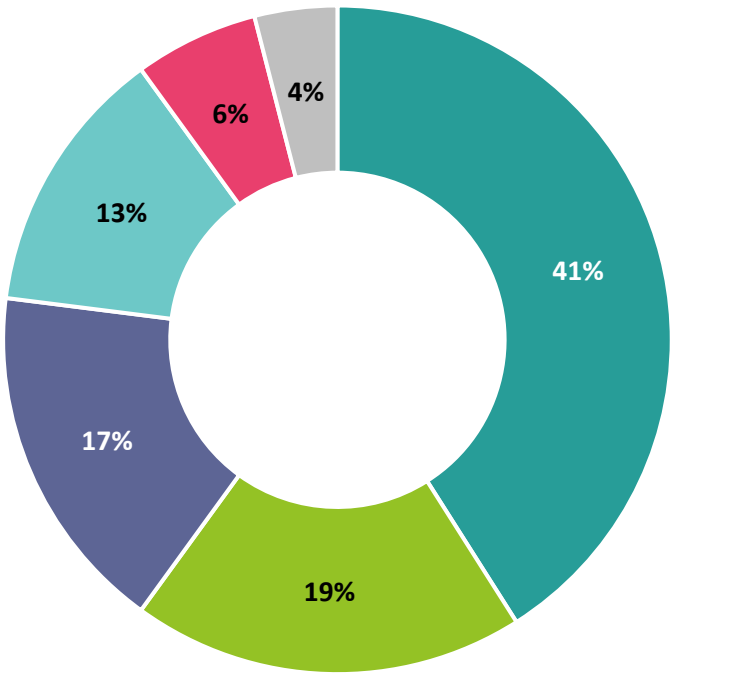
#1 MAPPING

#1.1 GENERAL FEATURES

HIGH DIVERSITY OF MATERIALS, MARKET APPLICATIONS AND MANUFACTURING PROCESSES

- Global packaging market is 41% paper, 36% plastics (19% rigid + 17% flexible), 13% metal and 6% glass.
- For consumer packaging, the ratios are quite different, with plastics taking up 52% of the market and paper just 15%.
- Material diversity in the packaging industry is due to different applications and still limited substitution capabilities between materials. From an industrial point of view, differences in material translate into differences in manufacturing processes, including technologies and competencies — in fact, multiple separate industries making up the broader packaging sector.

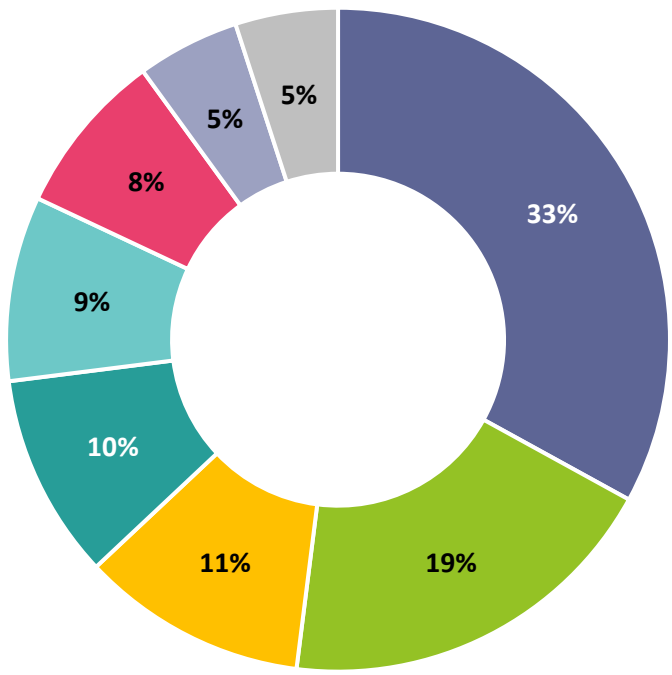
Global packaging market by material (%)



Paper ■ Rigid plastic ■ Flexible plastic ■ Metal ■ Glass ■ Other

Source: Financial Times, BNP Paribas

Global consumer packaging market by material (%)



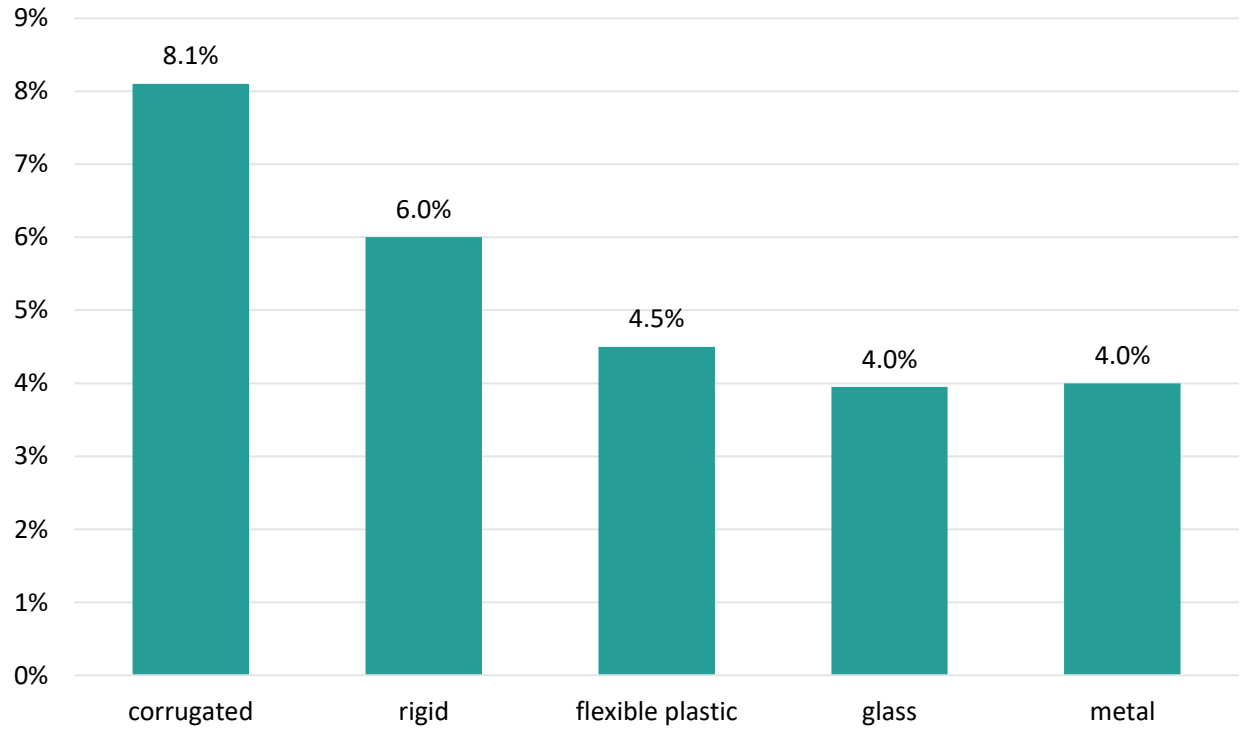
flexible plastics ■ rigid plastics ■ foil ■ paper containers
metal ■ glass ■ paper ■ other

Source: Citi Research, Flexible Packaging Association

GLOBALLY, PAPER USE FOR PACKAGING IS EXPECTED TO INCREASE SIGNIFICANTLY…

- The market for corrugated paper packaging is expected to increase the fastest among packaging materials, with an average annual growth rate of 8.1% between 2025. This is due primarily to the sustained growth of e-commerce.
- While growth is forecasted for all other major materials, including plastics, the more rapid growth of paper packaging means that it will have an increasingly larger share in the global packaging market.

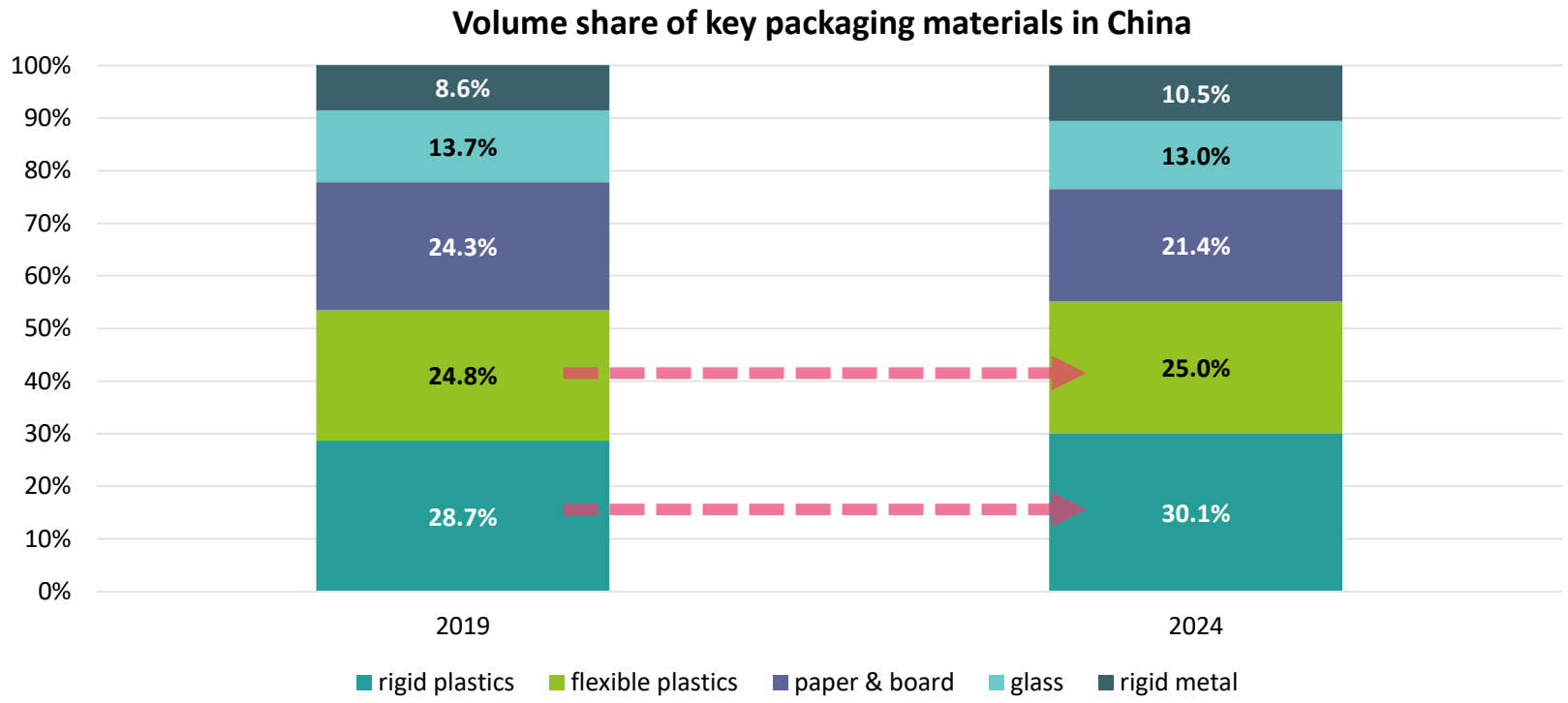
Annual average growth rates of the global packaging market, 2021-2025



Source: Packaging Strategies

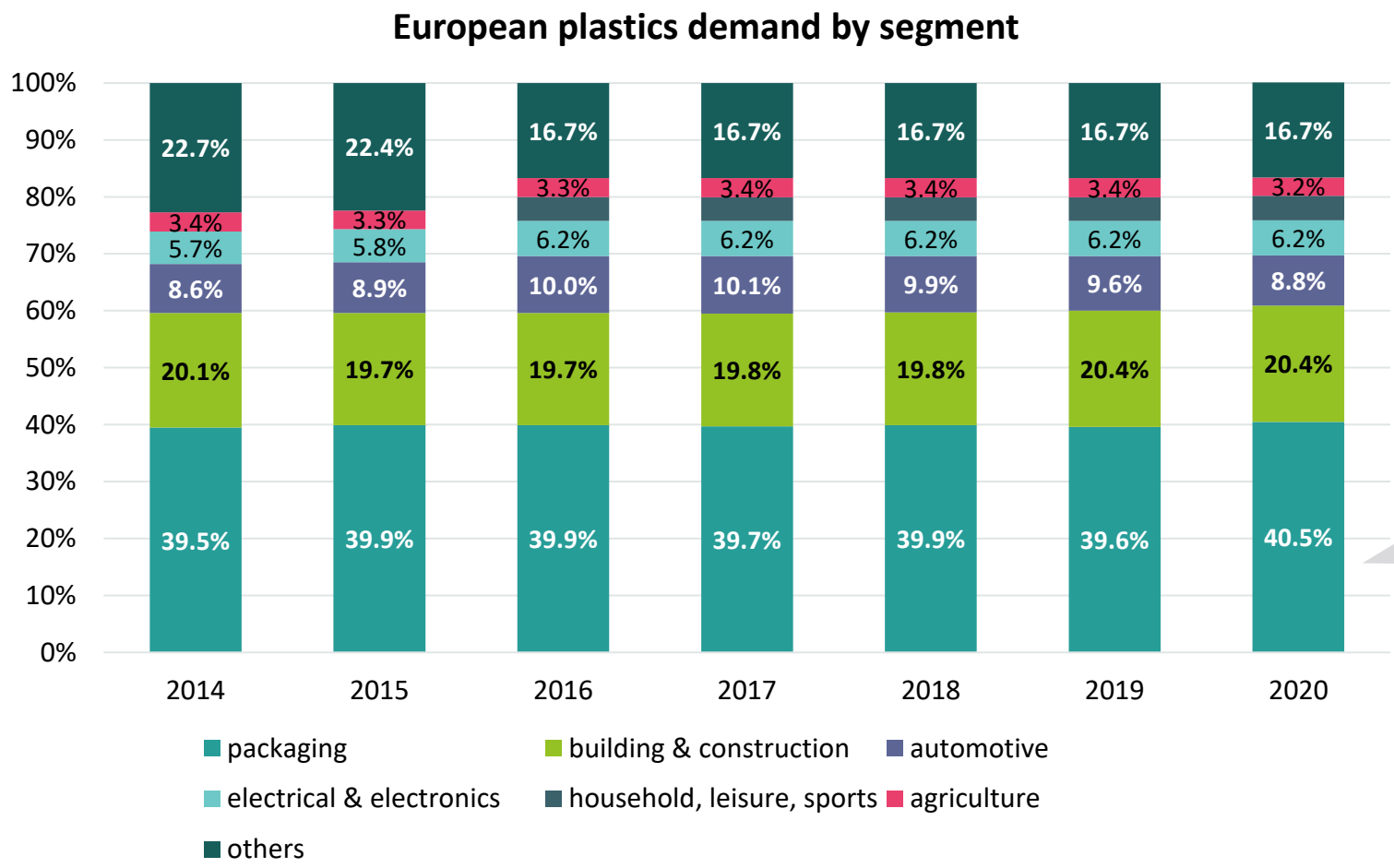
…BUT NOT NECESSARILY EVERYWHERE

- The Chinese market is forecasted to increase its consumption of both rigid and flexible plastic packaging considerably faster than paper. By 2024, the share of rigid plastics in the total Chinese packaging market is forecasted to grow to 30.1%, from 28.7% in 2019.



Source: Market Analyzer, GlobalData

PACKAGING IS THE MAIN APPLICATION OF PLASTICS FOR THE EUROPEAN MARKET, AND ITS IMPORTANCE HAS TENDED TO INCREASE OVER THE PAST DECADE



Packaging share increased during the pandemic

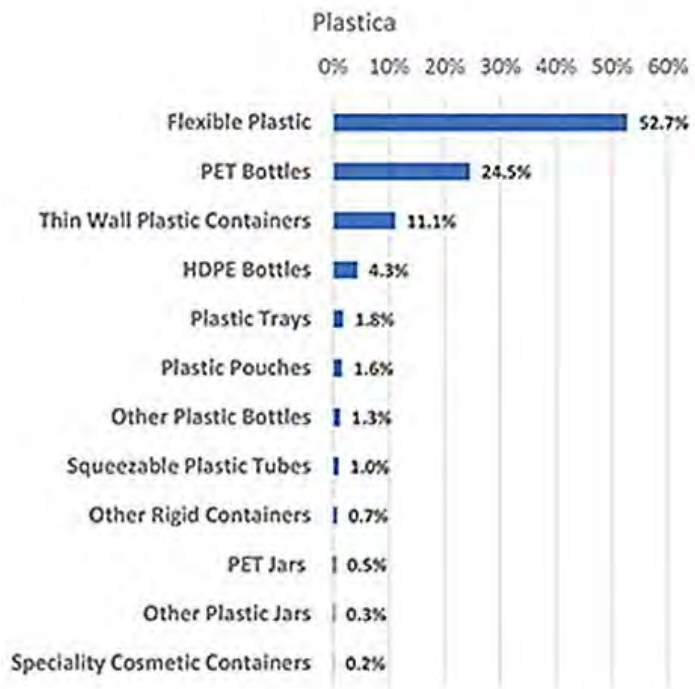
Source: Plastics Europe. Data is for EU28 + Norway and Switzerland.

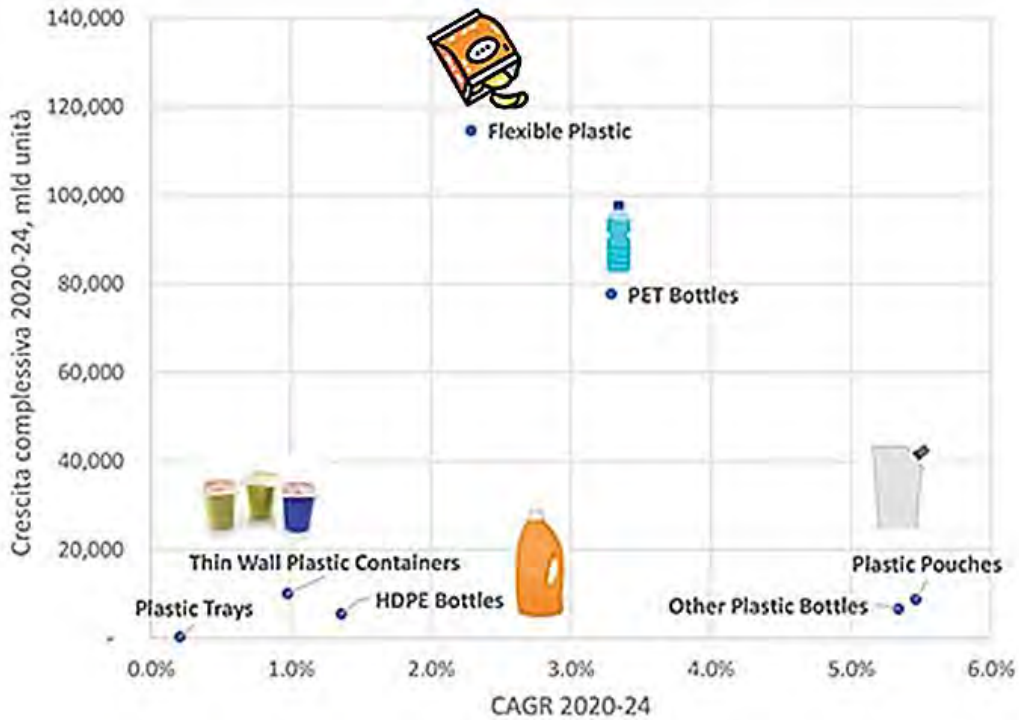
GLOBALLY, PLASTIC IS EXPECTED TO REMAIN THE MAIN PACKAGING MATERIAL, ESPECIALLY FOR CERTAIN APPLICATIONS

- Food is the primary application for flexible packaging and plastic is the main material for flexible packaging (around 80% of the flexible packaging market is plastic).
- The growth of the packaged food market has been boosted by the advance of modern retail chains over traditional retail. The health concerns associated with COVID-19 have provided an additional boost to the packaged food market.

Pack types / Materiali

La plastica

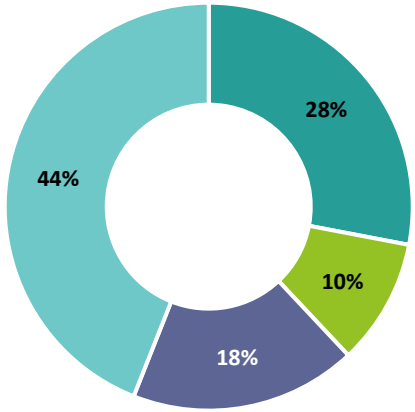




GLOBALLY, THE FOOD MARKET IS THE LARGEST CONSUMER OF PACKAGING. EUROPE AND NORTH AMERICA HAVE THE LARGEST CONSUMPTION OF PACKAGING PER CAPITA

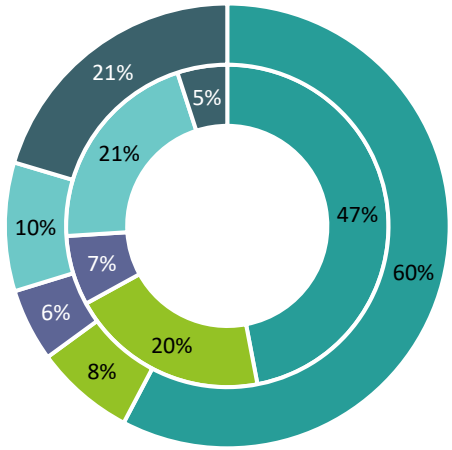
- Industrial/bulk packaging takes up 44% of the global packaging market. For consumer packaging, food is the major end-use, taking up 28% of the total (consumer + non-consumer) market.
- Globally, there are important asymmetries between regions. The Asia-Pacific region has 60% of the global population, but just 47% of the consumption of packaging paper and paper board, while North America has 8% of the global population and 20% of the global consumption of packaging paper and paper board.
- These asymmetries point to future growth potential: Europe and North America are mature markets with limited potential for growth, while Asia-Pacific, the Middle East and Africa have high growth potential.

End-user consumption share of global consumer packaging (%)



food | beverage | other consumer products | industrial/bulk packaging

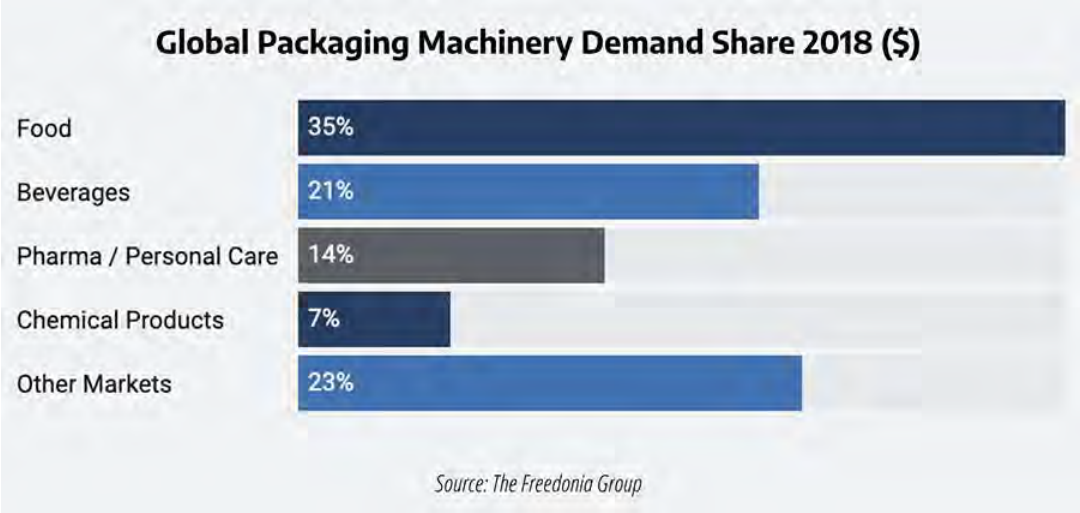
Population (outer circle) and demand for packaging paper and board (inner circle) per region

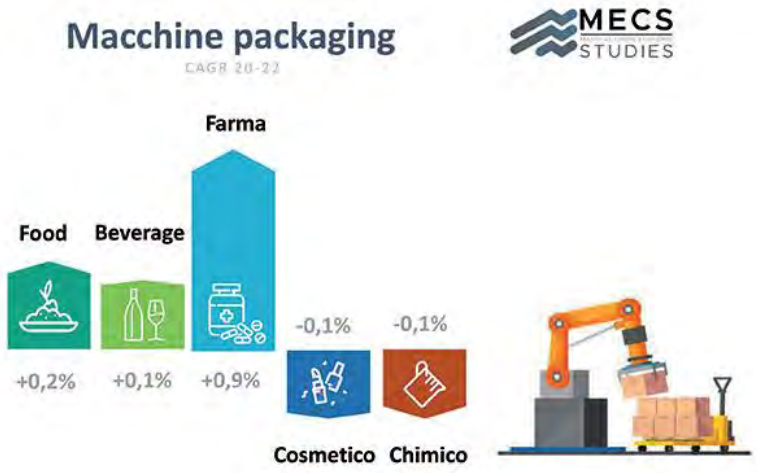


Asia Pacific | North America | South America | Europe | Middle East & Africa

Source: Televisory, Bloomberg, FAO (pre-pandemic data)

DEMAND FOR PACKING MACHINERY INDICATES WHICH END-USER MARKETS ARE SET TO GROW IN THE NEAR FUTURE

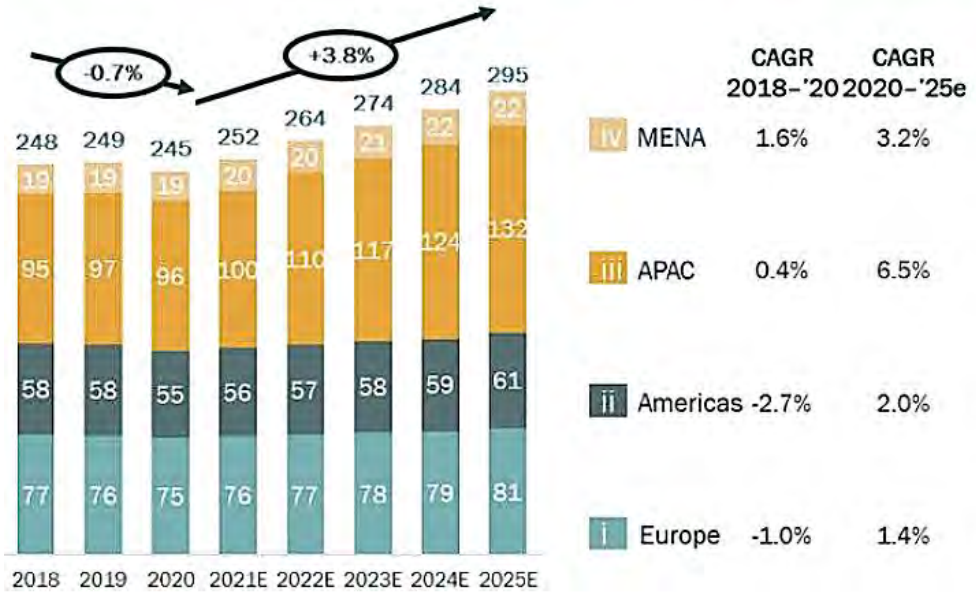




THE EUROPEAN PACKAGING MARKET IS HIGHLY MATURE, WITH LIMITED GROWTH POTENTIAL

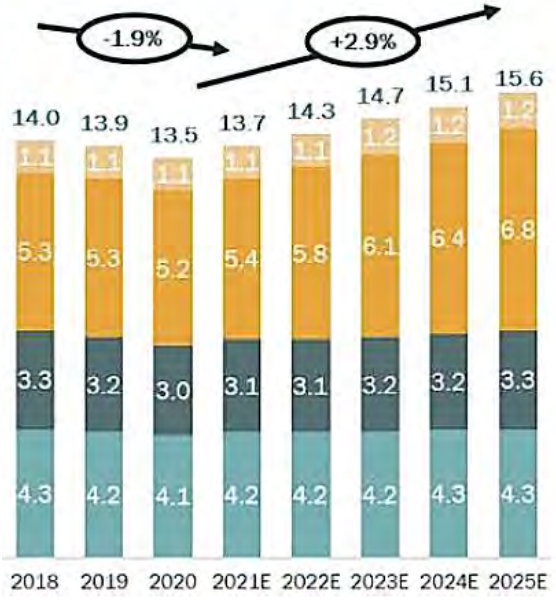
- A recent outlook for the global liquid carton market shows the European market growing at an average annual rate of 1.4% in volume, compared to 6.5% per year in Asia-Pacific. The Asia-Pacific market was 27% larger than the European market in 2019 and it is expected to be 63% larger by 2025.
- In terms of value, the global carton market is expected to grow slower than volumes, which means average prices are expected to decline. This is the case also for Europe.

Global total[1] cartons market by region (units bn)



	CAGR 2018–'20	CAGR 2020–'25e
iv MENA	1.6%	3.2%
iii APAC	0.4%	6.5%
ii Americas	-2.7%	2.0%
i Europe	-1.0%	1.4%

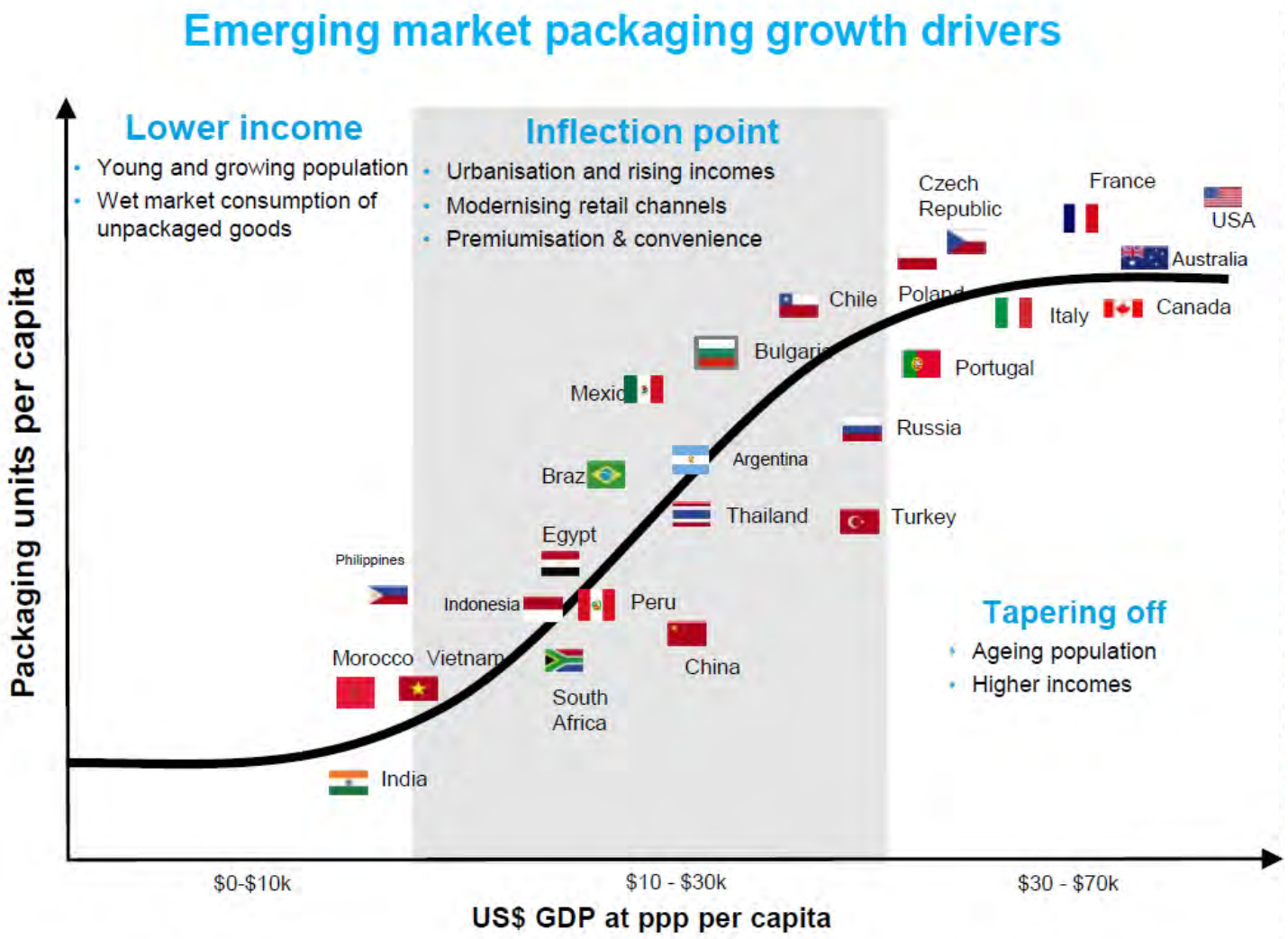
Global total[1] cartons market by region (EURbn)



	CAGR 2018–'20	CAGR 2020–'25e
iv MENA	0.0%	2.2%
iii APAC	-1.1%	5.5%
ii Americas	-3.7%	1.4%
i Europe	-2.0%	0.8%

Source: Roland Berger (2021)

DEMOGRAPHIC CHANGE, URBANIZATION AND RETAIL DEVELOPMENT ARE MAIN DRIVERS OF PACKAGING MARKET GROWTH

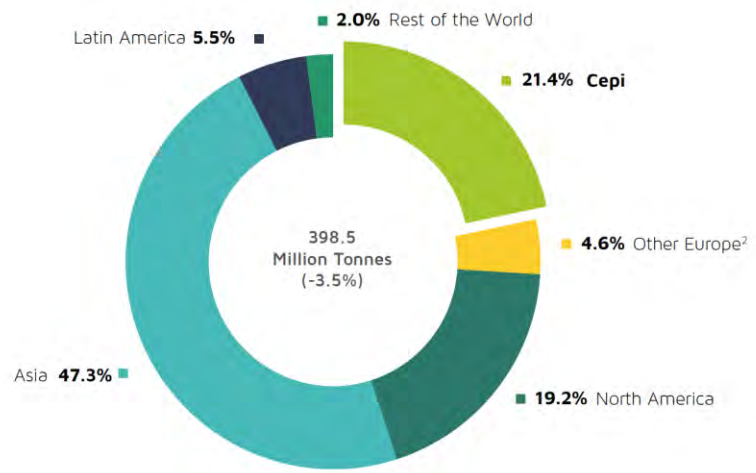


Source: Amcor

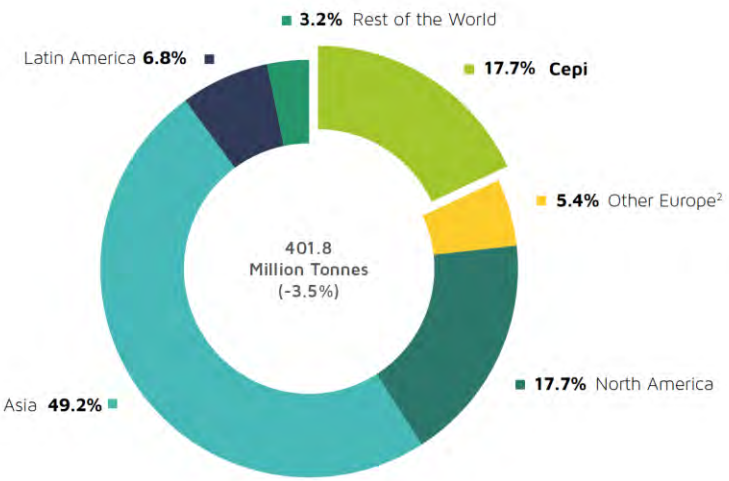
EU PACKAGING MARKET REGISTERING STRONG GROWTH, BUT CONSUMPTION REMAINS BELOW PRODUCTION

- In 2020, the combined production of paper and board in CEPI countries represented 21.4% of the global total, while consumption was at 17.7% of the total global market.
- Over the past decades the European paper and board market and industry has been shifting toward packaging and away from graphic paper.

Paper and Board Production by Region in 2020[1]

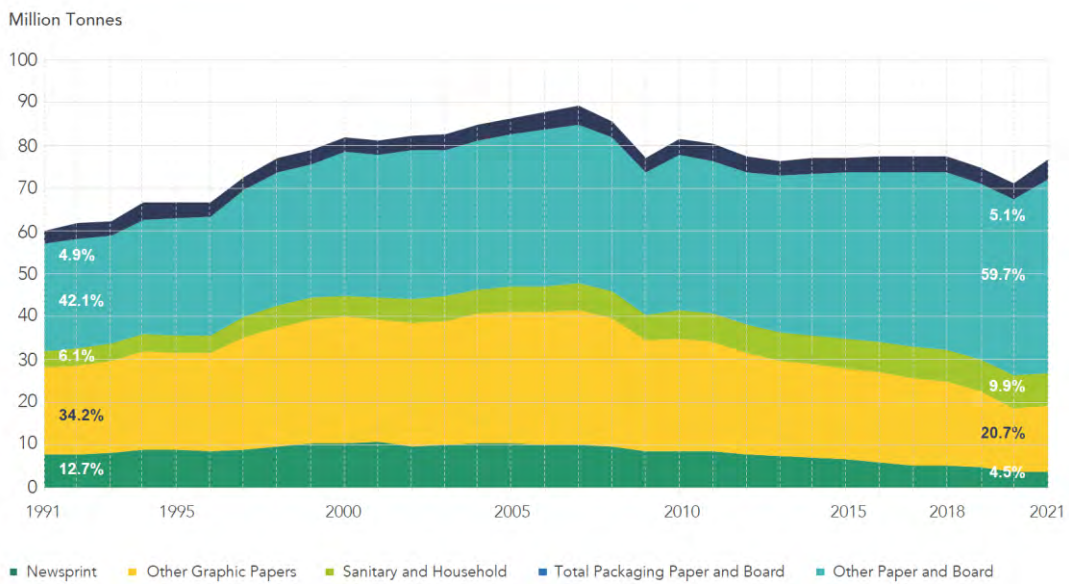


Paper and Board Consumption by Region in 2020[1]



[1] Sources: Cepi, Fastmarkets RISI – 2021 figures available end-2022
[2] Other Europe: total Europe excluding Cepi countries

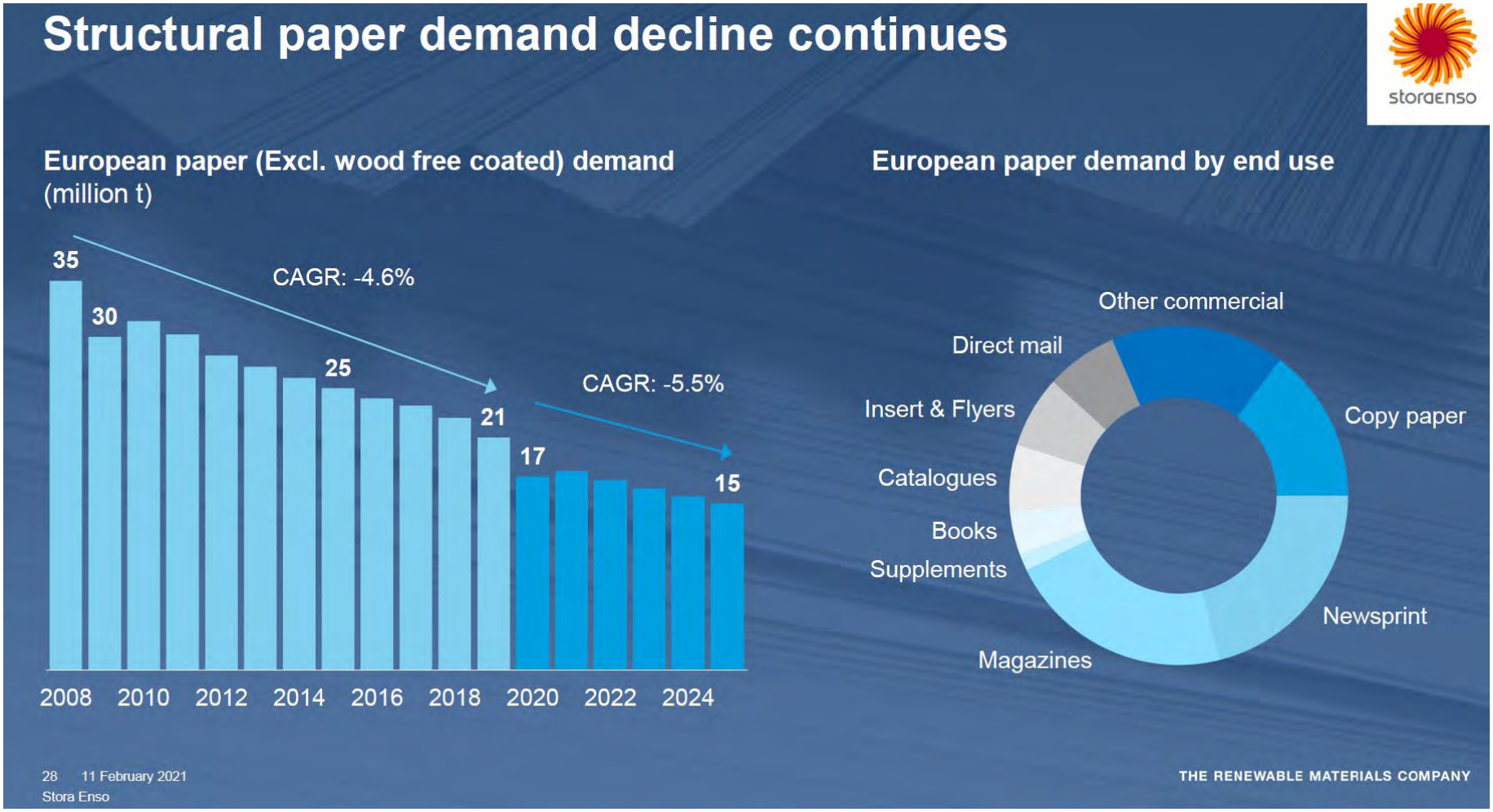
Paper and Board Consumption by Grade



Source: CEPI

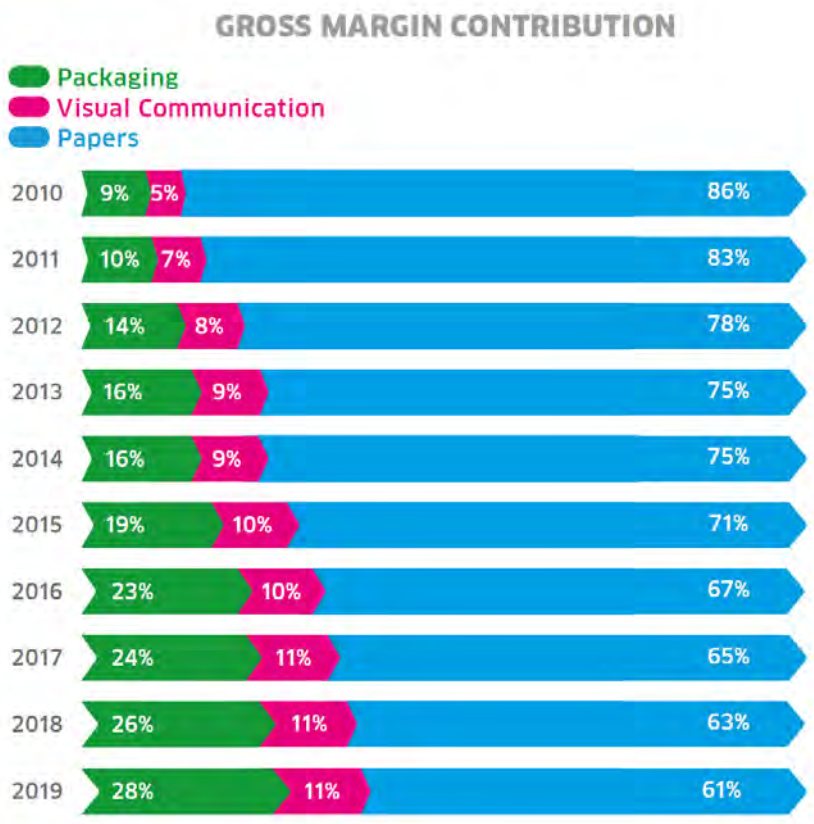
GRAPHIC PAPER DECLINE…

- The European demand for graphic paper is in structural decline, shrinking on average by 4.6% per year between 2018 and 2019. COVID-19 has accelerated this trend, with demand expected to decline by 5.5% on average each year until 2025.

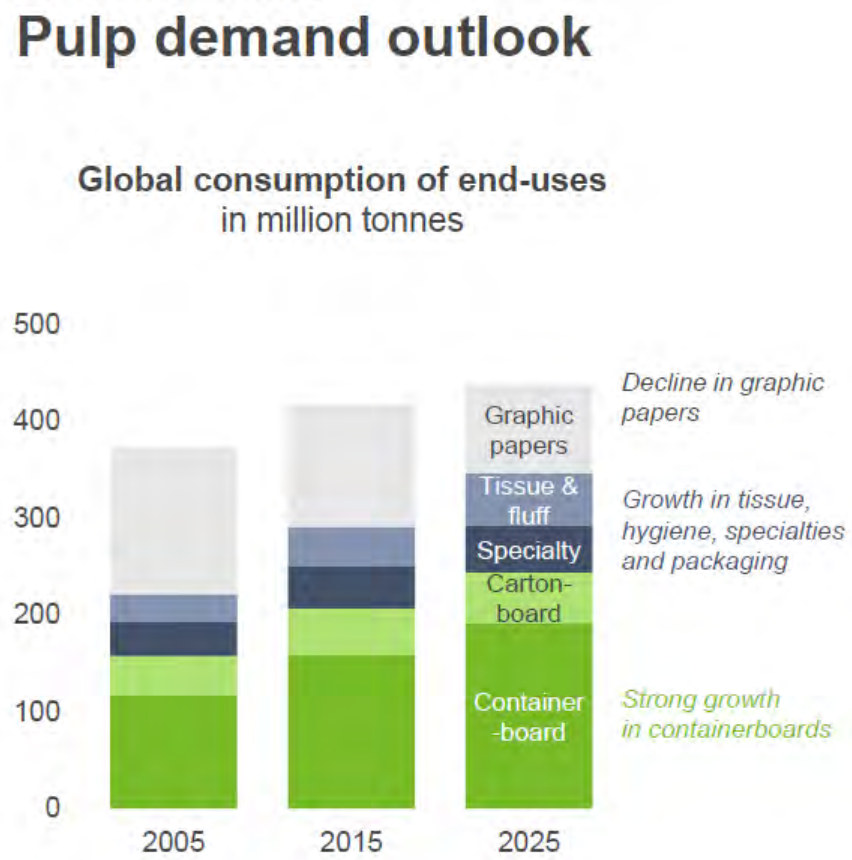


...IS A CATALYST FOR THE INDUSTRY'S REORIENTATION TOWARD PACKAGING

- In the context of graphic paper decline, companies have reoriented themselves toward packaging. This is visible in the financials of Antalis: in 2010, just 9% of the company's gross profit margin came from packaging, while in 2019 the share had increased to 28%.
- UPM's pulp demand forecast indicates this structural transformation will accelerate in the medium term.



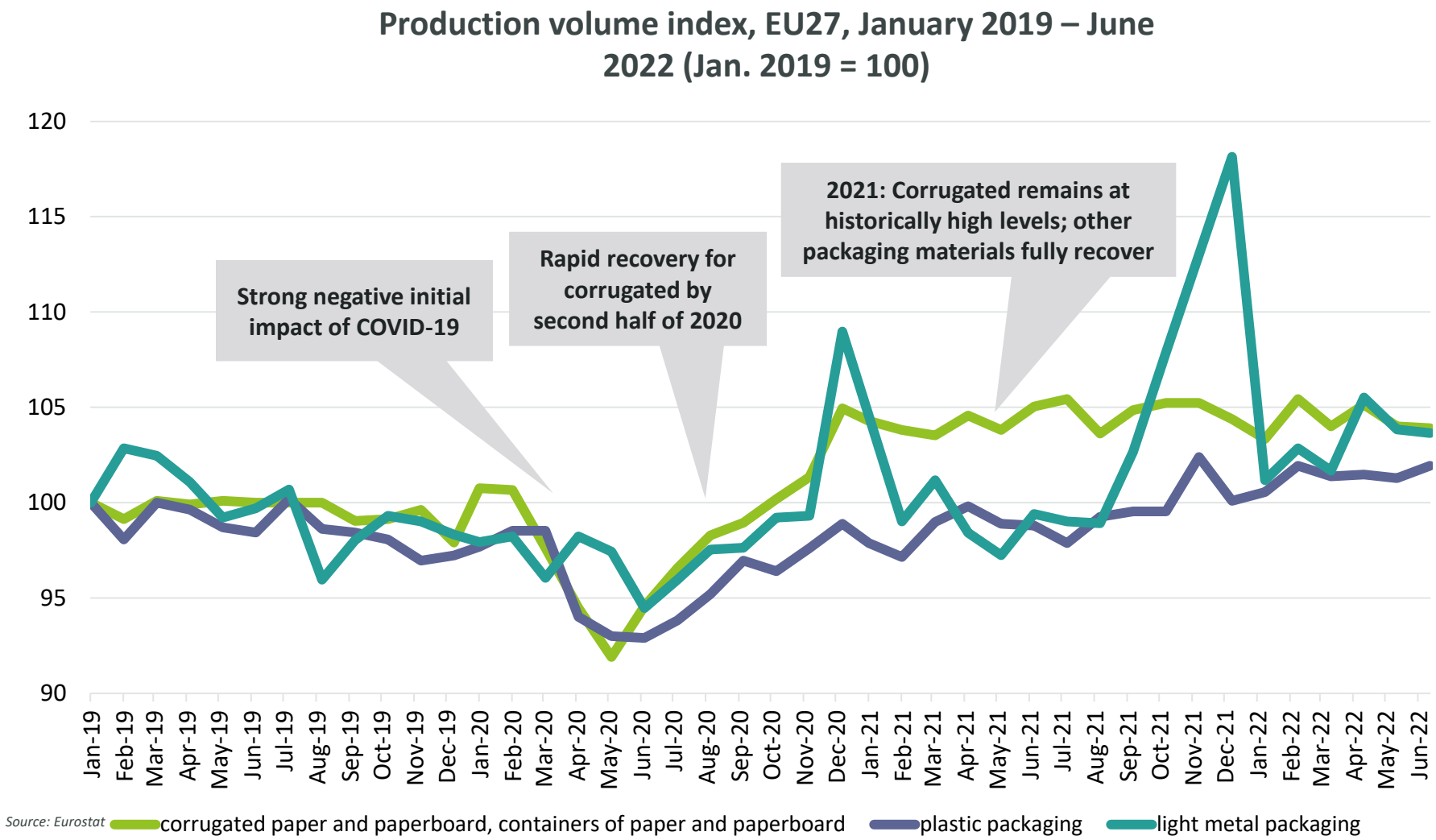
Source: Antalis



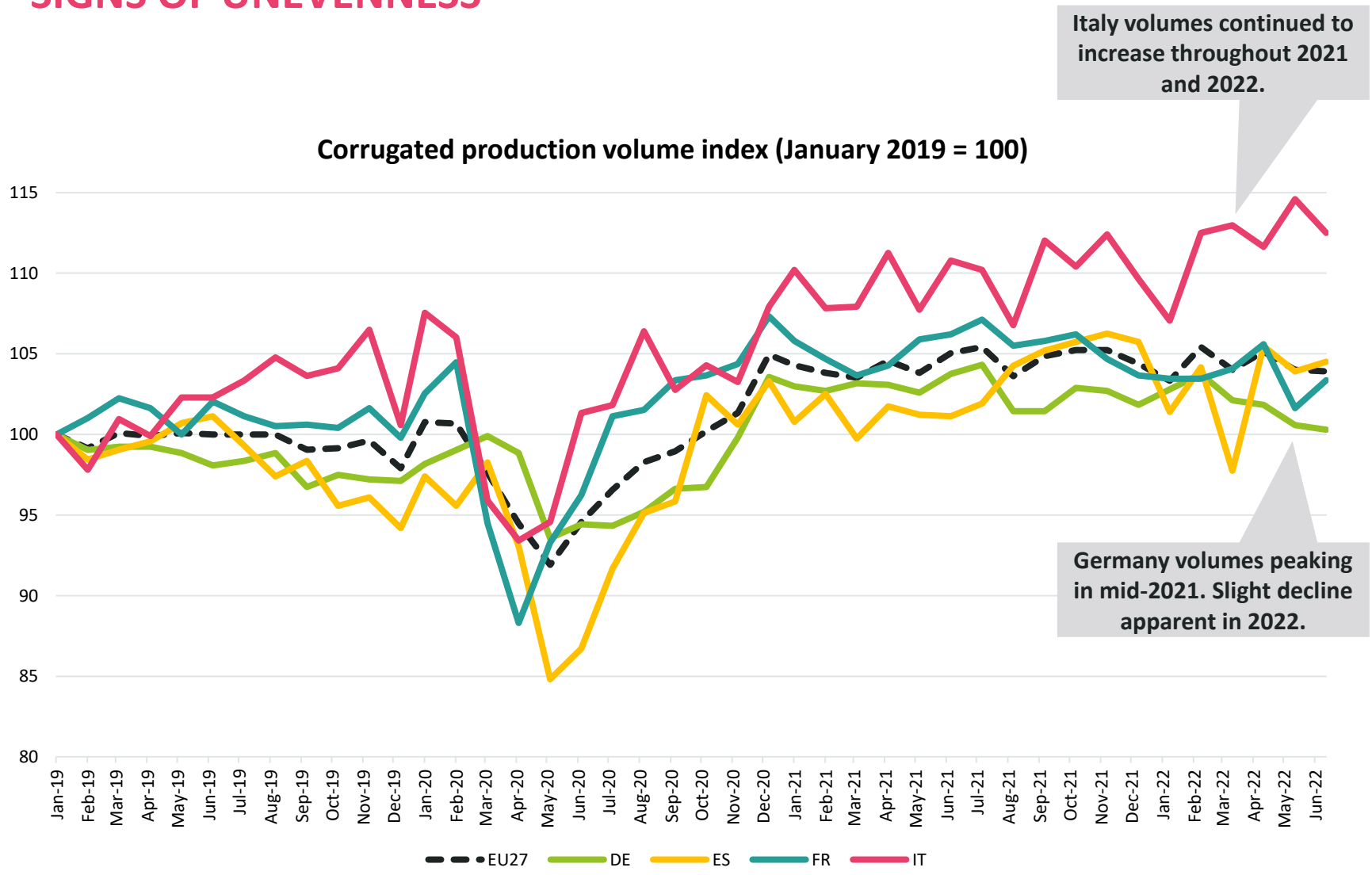
Source: UPM

#1.2 EUROPEAN OVERVIEW

PACKAGING VOLUMES FULLY RECOVERED BY THE END OF 2021, LED BY NEW HISTORICAL HIGHS FOR CORRUGATED IN 2021 AND 2022



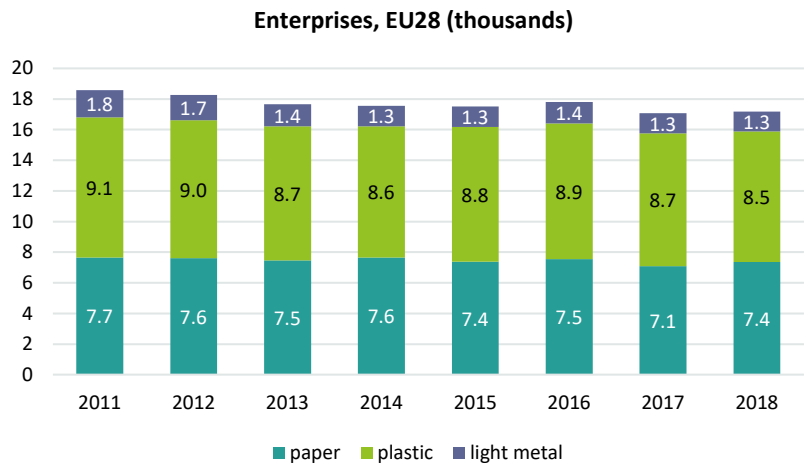
CORRUGATED RECOVERY ACROSS MAJOR MARKETS, WITH SOME SIGNS OF UNEVENNESS

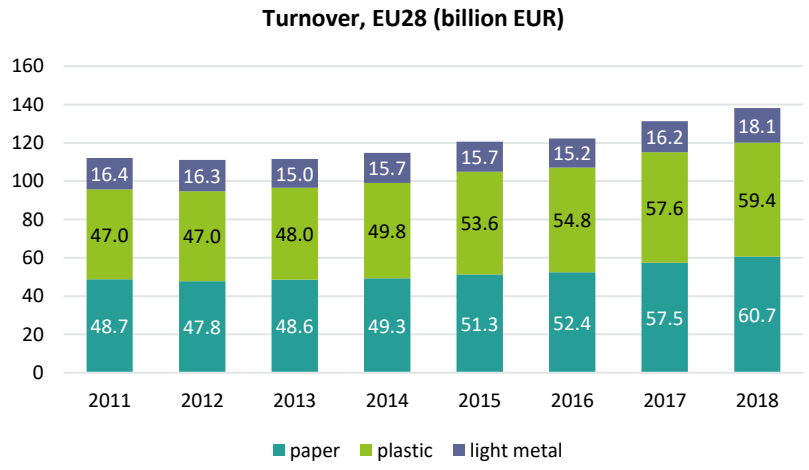


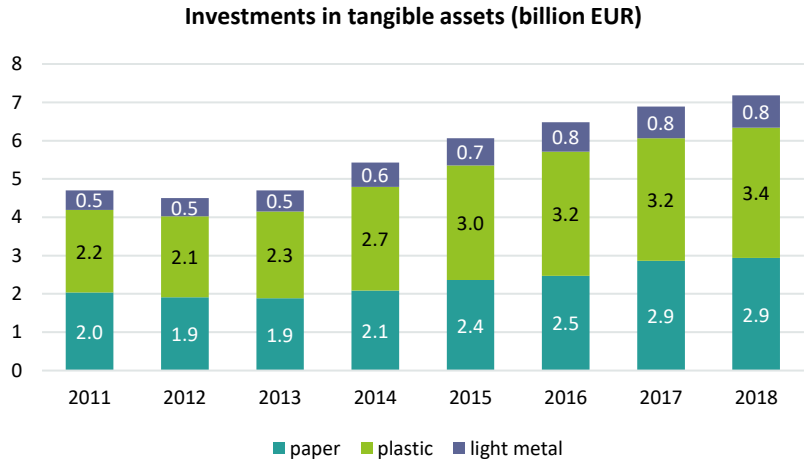
Source: Eurostat

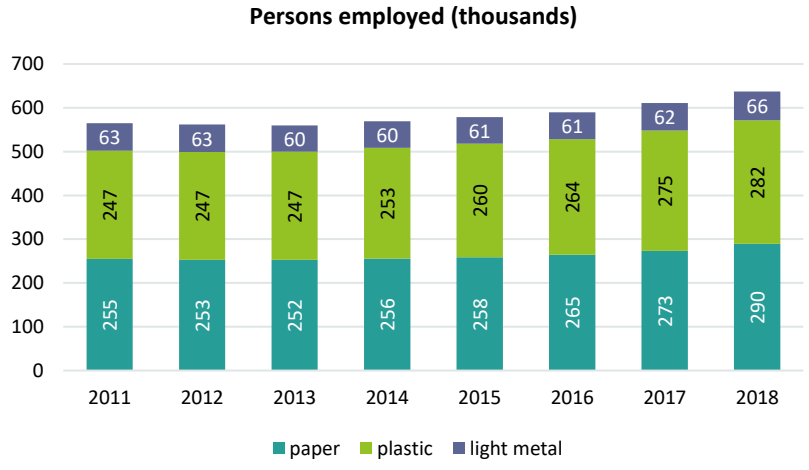
PRE-PANDEMIC DEVELOPMENTS IN THE EU PACKAGING INDUSTRY. CONSOLIDATION AND INCREASE FOR BOTH PAPER AND PLASTIC

- Clear consolidation trend before the pandemic indicated by combination of 1) declining number of enterprises and 2) increasing size of business (higher turnover, investments and employment).





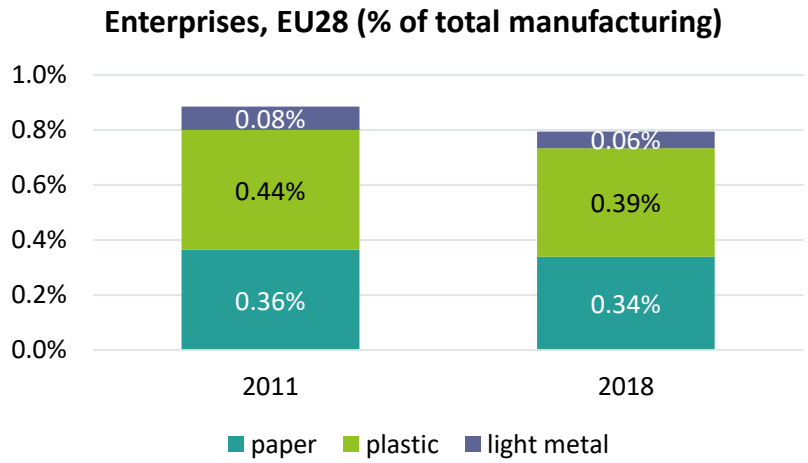


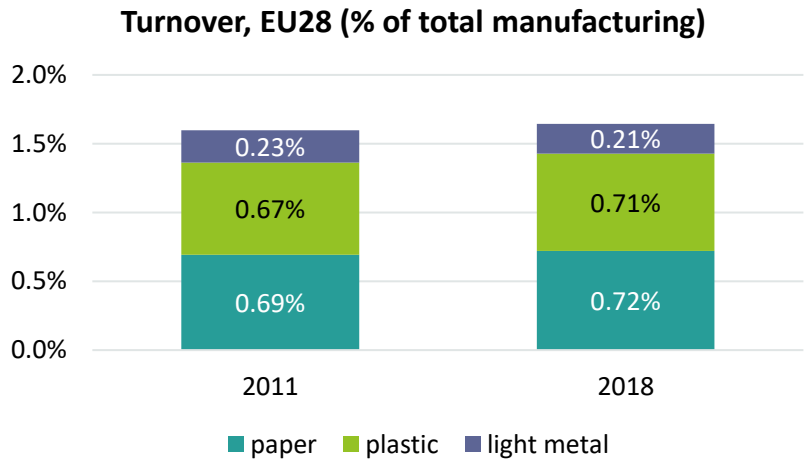


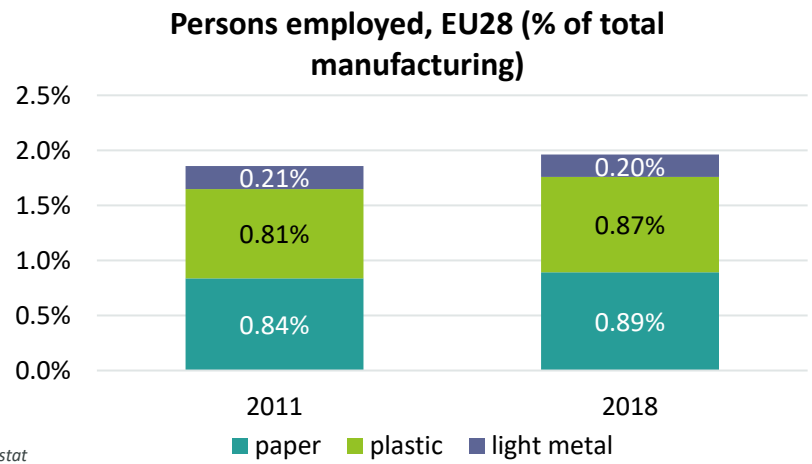
Source: Eurostat

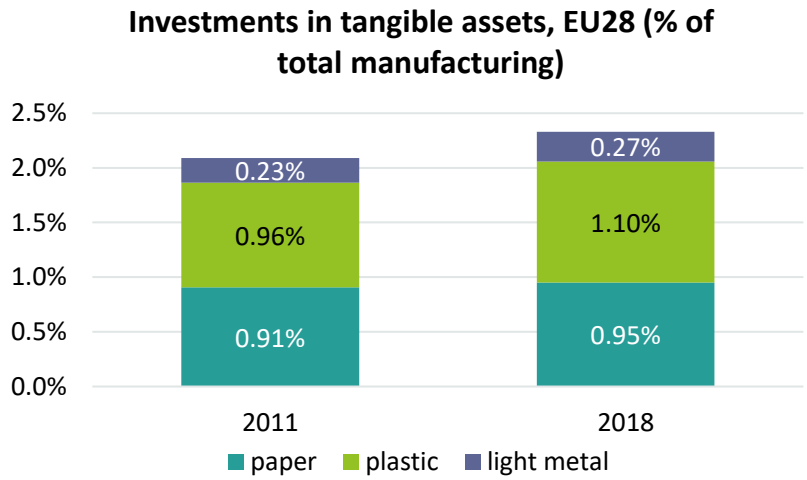
THE IMPORTANCE OF THE PACKAGING INDUSTRY FOR MANUFACTURING IN THE EU. RELATIVELY HIGH CONCENTRATION AND INVESTMENT RATES

- Consolidation in the packaging industry faster than in overall manufacturing: share of packaging enterprises in total manufacturing enterprises declining.
- Faster growth than rest of manufacturing: share of turnover, persons employed increasing.
- Packaging industry taking up 2.32% of total manufacturing investments in the EU, far more than the industry's weight in terms of number of enterprises, turnover or employment.









Source: Eurostat

COUNTRY PACKAGING MANUFACTURING PROFILES VARY WIDELY

- Germany has the largest paper, plastic and metal packaging industries in the EU in terms of turnover and employment. The German industry is relatively concentrated, being the fourth largest in terms of number of enterprises
- Poland has the second largest industry in terms of employment and has the largest number of enterprises in paper and plastic packaging.

ENTERPRISES

	paper	plastic	metal
PL	1510	1925	51
IT	1097	1475	134
ES	733	665	194
DE	642	629	131
FR	415	376	32
RO	385	403	13
UK	382	461	58
CZ	325	386	52
PT	256	155	69
HU	235	363	13
EL	214	328	78
NL	196	145	20
BG	180	240	21
HR	109	191	16
SK	105	68	303
BE	93	120	15
SE	77	101	7
SI	72	140	8
FI	58	52	4
DK	52	68	7
AT	50	47	9
IE	46	52	:
LT	46	64	5

TURNOVER (M EUR)

	paper	plastic	metal
DE	15848	11722	2901
IT	7901	9563	2215
FR	7013	9132	3135
UK	6589	4559	1637
ES	5457	5632	2495
PL	4084	5428	1559
NL	2351	2297	:
AT	1872	1256	343
SE	1553	630	:
BE	1195	1781	72
CZ	1156	956	465
PT	900	790	260
HU	840	978	321
DK	747	551	448
RO	721	719	143
EL	522	873	382
FI	315	356	37
IE	311	350	:
BG	258	466	92
LT	231	507	:
SK	231	238	235
HR	200	169	9
SI	191	236	45

EMPLOYEES

	paper	plastic	metal
DE	67861	54192	11424
PL	32111	41137	4923
UK	31543	23059	5787
FR	30224	32775	8816
IT	25562	30990	6954
ES	23135	21711	9019
CZ	8924	8291	2281
RO	8781	8638	583
HU	8584	8477	2329
NL	7685	5979	2118
PT	6431	3807	2124
AT	5401	4851	1285
SE	5260	2940	:
BE	4405	4554	210
BG	4374	8312	1721
EL	3524	5413	1346
DK	2781	2021	1519
LT	2229	3016	:
SK	2215	1988	1506
HR	2166	2154	182
IE	1820	1445	:
FI	1586	1549	192
SI	1471	1540	290

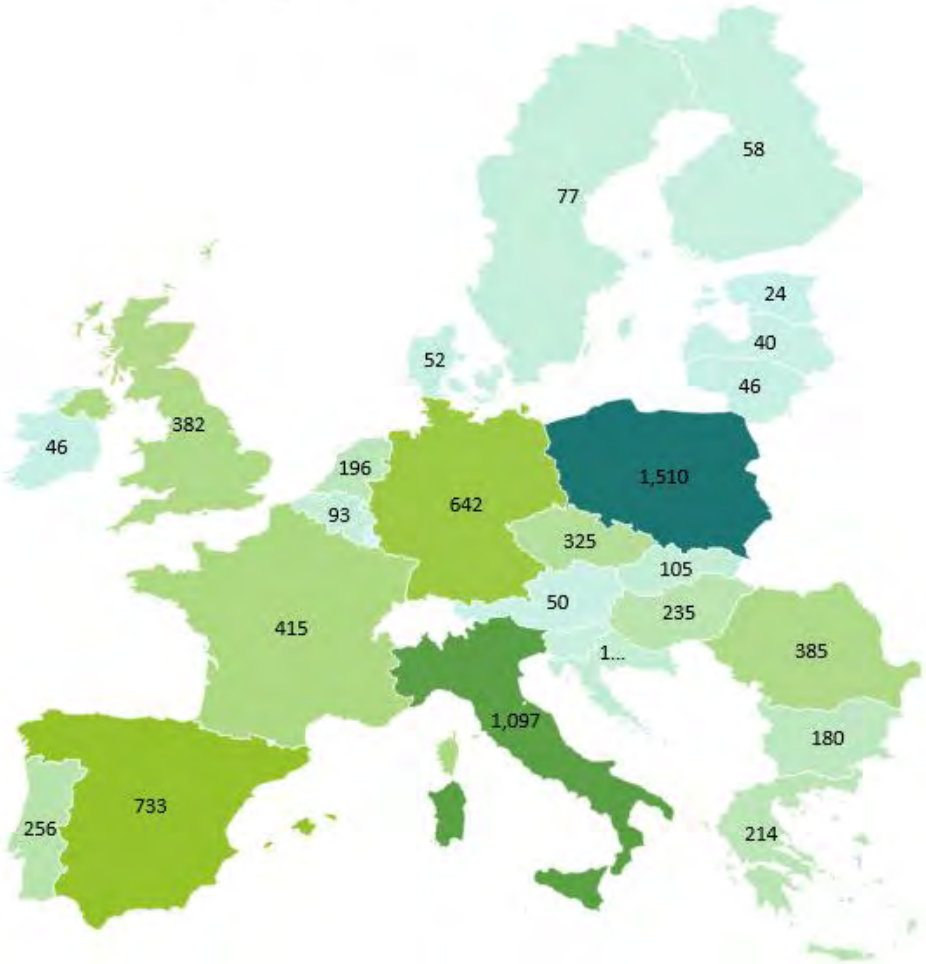
Source: Eurostat, 2018 data

#1.3 STRATEGIC FEATURES

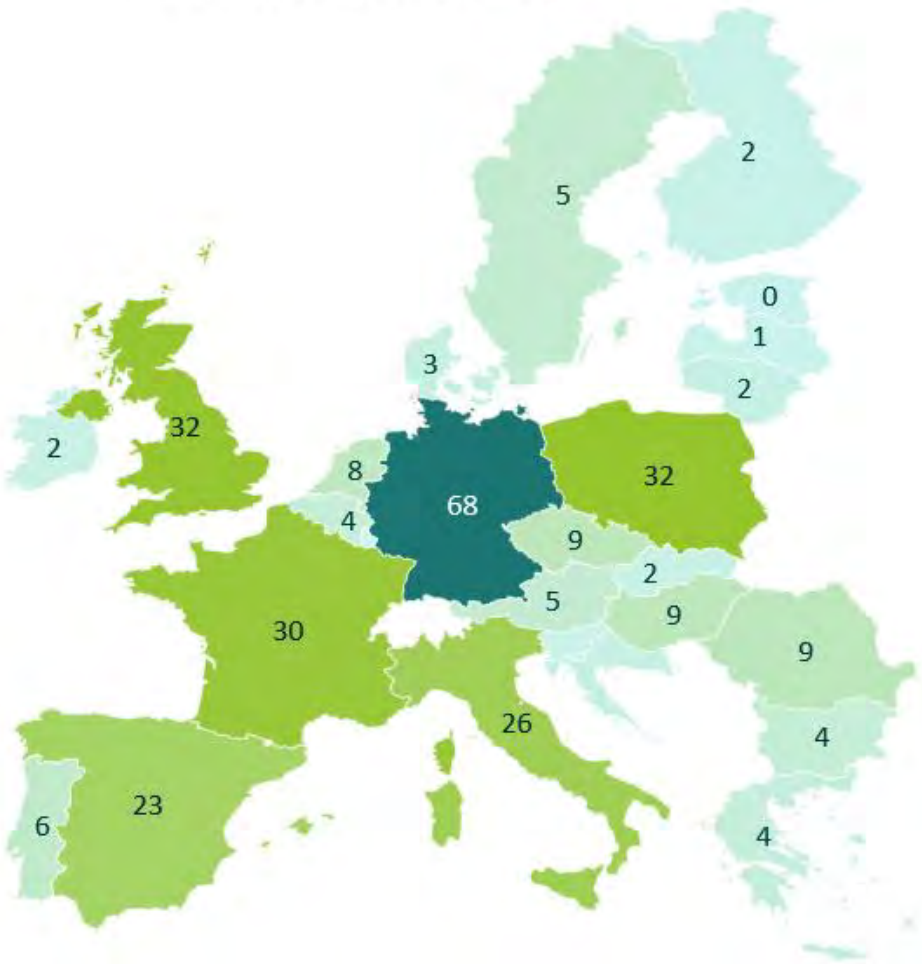
THE INDUSTRY IS COMPARATIVELY FRAGMENTED IN THE EAST AND SOUTH…

- Eastern and Southern European countries have significantly more enterprises active in the sector, but also comparatively smaller workforces. In other words, the industry is fragmented in the East and South relative to the West and North of Europe, with more numerous and smaller enterprises. This also means that there is plenty of room for consolidation in the East and South.

Enterprises



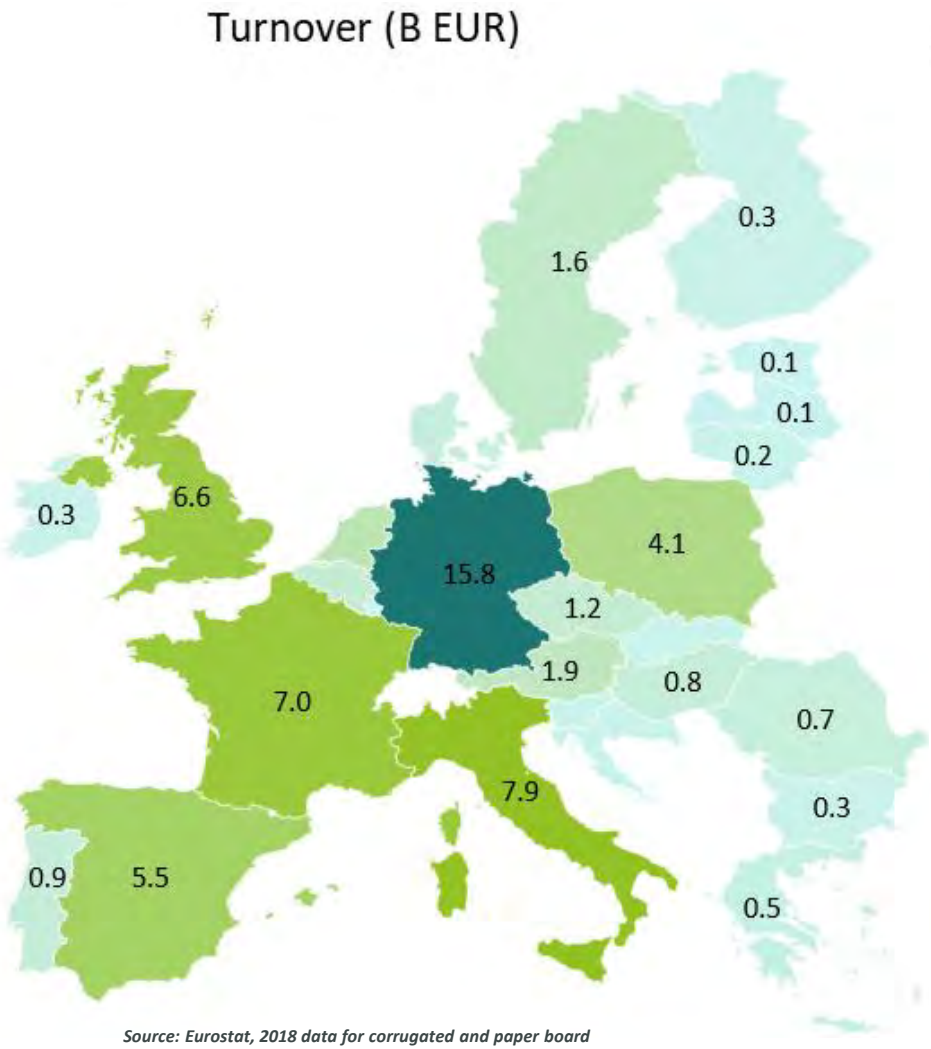
Employees (thousands)

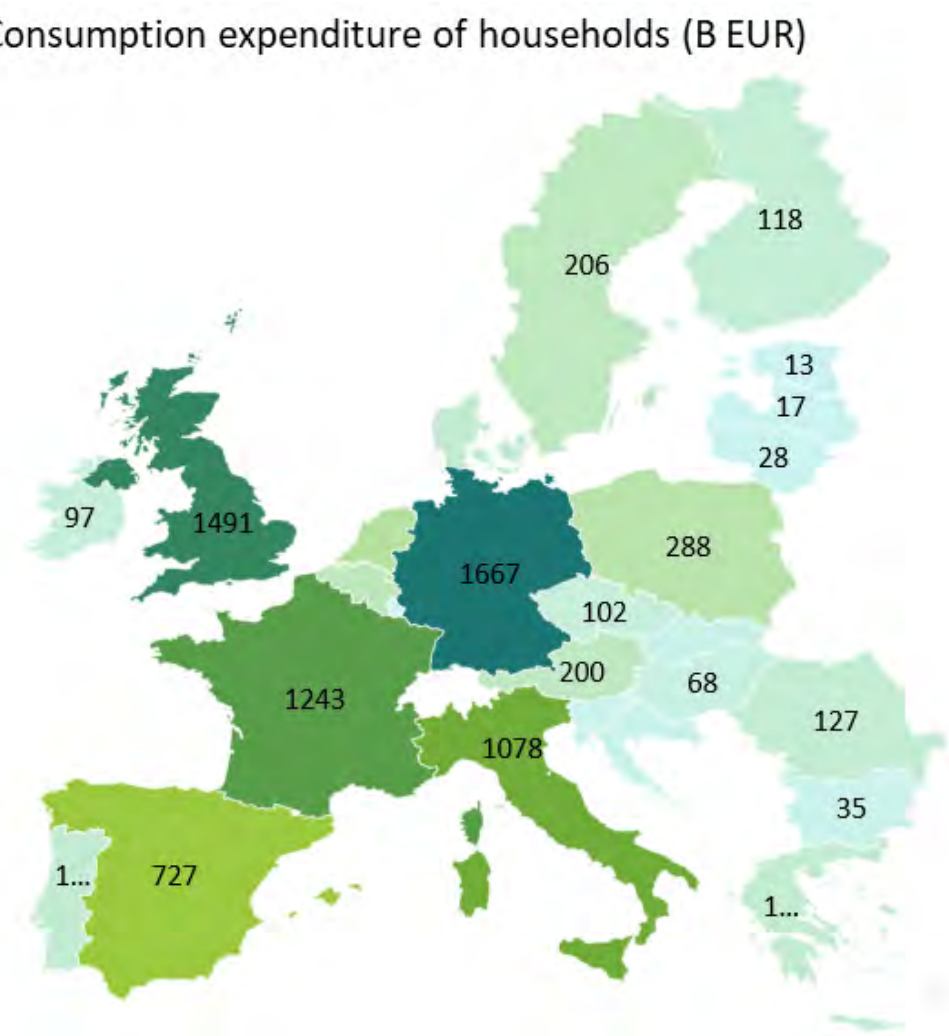


Source: Eurostat, 2018 data for corrugated and paper board

…WHILE ACTIVITY IS CONCENTRATED IN LARGE CONSUMER MARKETS. PROXIMITY TO END-USERS IS KEY

- Germany, France, Italy, the UK and Spain are the main markets, with industry turnover far above the rest of Europe.
- This corresponds to significantly larger household budgets.

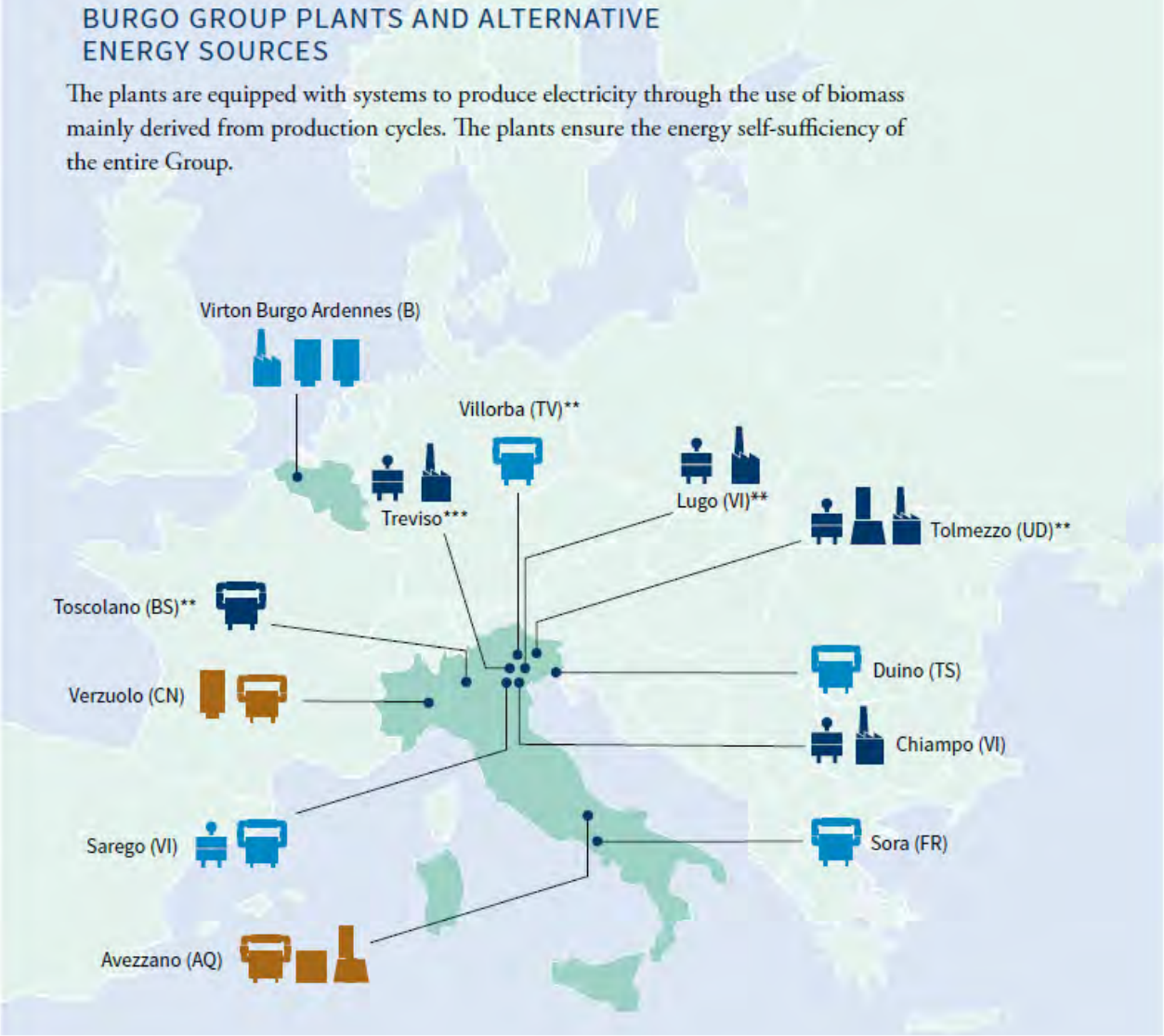




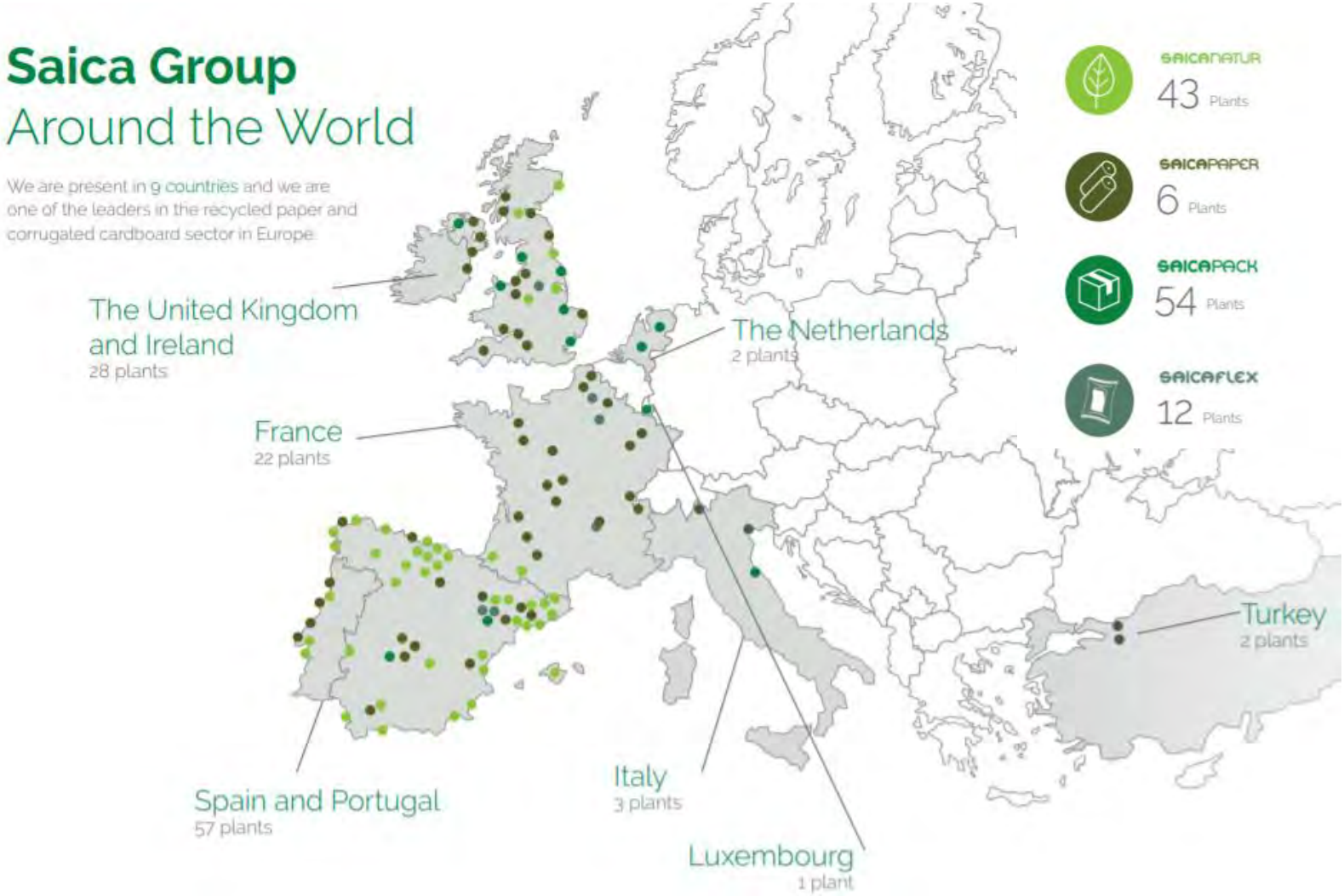
Source: Eurostat, 2018 data for corrugated and paper board

FOCUS ON NATIONAL DOMESTIC MARKET: BURGO

- The geographical presence of packaging companies is very diverse. Smaller companies like Burgo are focused on their national domestic markets, while larger companies tend to be regionally focused.



FOCUS ON WESTERN EUROPE: SAICA



FOCUS ON CONTINENTAL WESTERN AND CENTRAL EUROPE: MM KARTON

Global presence, focus on Europe

Products from our European cartonboard mills are sold worldwide. Due to the limited economic delivery radius, the business of individual packaging plants mainly focuses on the respective regional markets.

50 Production sites on **3** continents
6 Cartonboard mills
44 Packaging plants
Sales in more than **100** countries

(values year-end 2020)

MAYR-MELNHOF KARTON AG ANNUAL REPORT 2020 25

FOCUS ON CENTRAL EUROPE: MONDI

Production sites per business unit

Corrugated Packaging	▲ Mill (5) ● Converting plant (16)
Flexible Packaging	▲ Mill (5) ● Converting plant (57)
Engineered Materials	● Converting plant (15)
Uncoated Fine Paper	▲ Mill (6)

Group offices

London	⚑
Vienna	⚑

Production sites

Austria	●▲●●▲
Belgium	●
Bulgaria	▲
China	●
Colombia	●
Côte d'Ivoire	●
Czech Republic	●▲●●
Egypt	●
Finland	▲
France	●
Germany	●●●
Hungary	●
Iraq	●
Italy	●
Jordan	●
Lebanon	●
Malaysia	●
Mexico	●
Morocco	●
Netherlands	●●
Oman	●
Poland	▲●●
Russia	▲●●▲
Serbia	●
Slovakia	▲▲
South Africa	▲▲
South Korea	●
Spain	●
Sweden	▲●
Thailand	●●
Turkey	▲●●
Ukraine	●
USA	●●

Mondi Group Integrated report and financial statements 2020

FOCUS ON NORTHERN AND CENTRAL EUROPE: STORA ENSO

- Production unit
- Sales office
- Design Studio
- Innovation Centre
- Forests and plantations

MERGERS AND ACQUISITIONS ARE A CORE STRATEGIC FEATURE FOR LARGE ENTERPRISES IN THE PACKAGING INDUSTRY

- Packaging companies typically grow through mergers and acquisitions, and less via greenfield investments. This is due to the capital-intensive nature of the industry that makes new investments (and especially new investments in new markets) relatively costly and risky.
- Smurfit Kappa, for example, has been spending hundreds of millions of euro per year on acquisitions, both to consolidate its presence in existing territories and to expand geographically.

Expanding our scale and geographic footprint

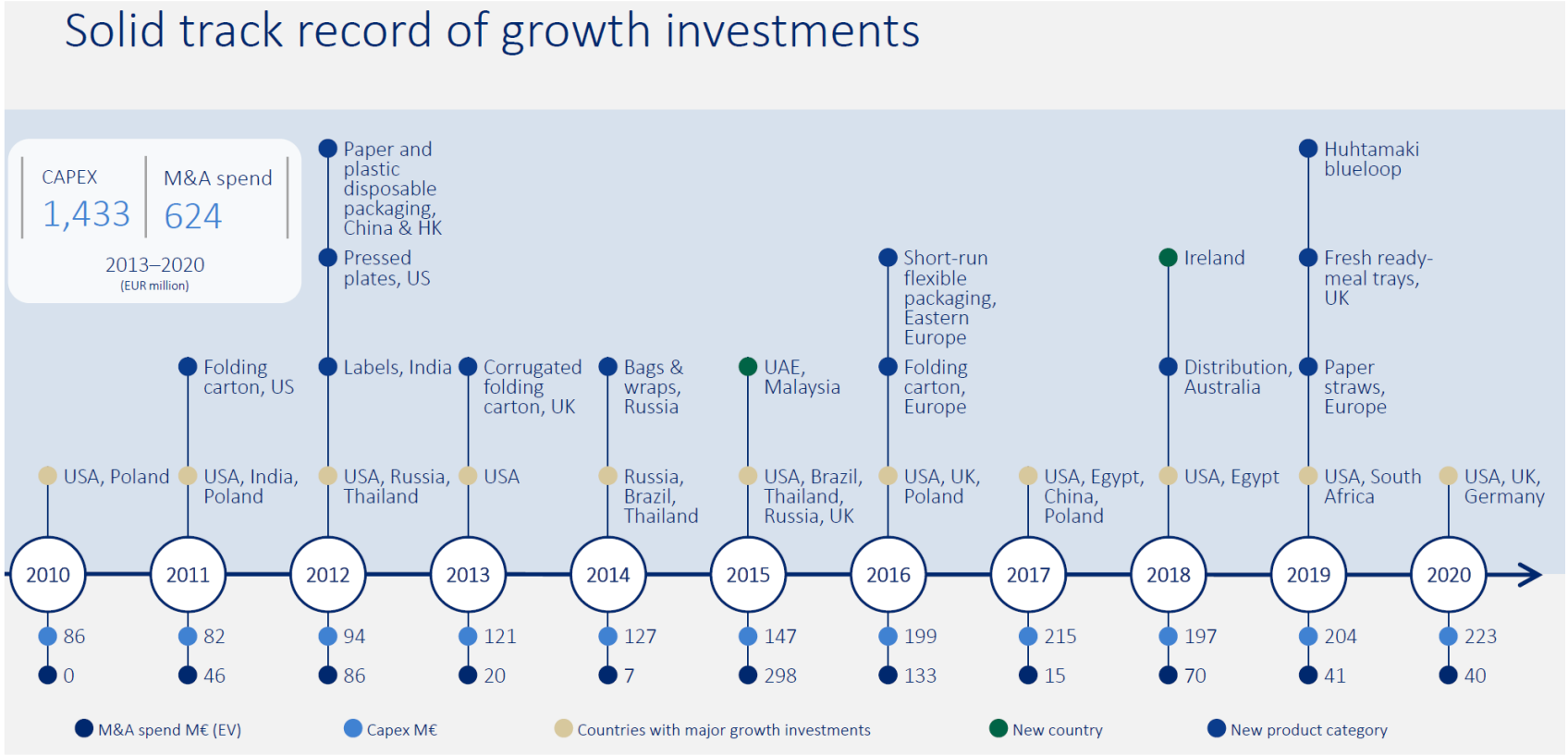
M&A to support growth and the integrated model

- Track record of disciplined and successful M&A
- Recent years M&A in existing territories
  - France (Corrugated)
  - Mexico (Folding Carton)
  - Netherlands (Containerboard)
  - Russia (Corrugated)
  - United States (Bag-in-Box)
- Recent years M&A in new adjacent territories
  - Brazil (Corrugated and containerboard)
  - Bulgaria (Corrugated)
  - Greece (Corrugated)
  - Peru (Corrugated)
  - Serbia (Corrugated and containerboard)
- Over €770m spent on M&A since 2018

Source: Smurfit Kappa

M&A SPEND IS CONSTANT AND CAN RIVAL ORGANIC CAPITAL EXPENDITURE

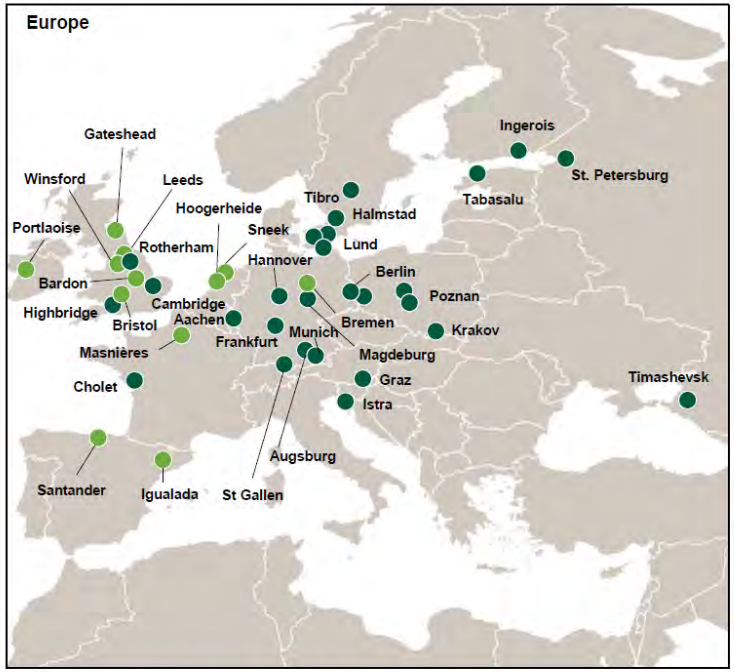
- Packaging giants typically have constantly large budgets allocated to acquisitions. These budgets can sometimes rival capital expenditure (CAPEX — expenditure on investments into maintaining or expanding existing capabilities).
- Between 2013 and 2020, Huhtamaki spend 624 million euro on acquisitions, versus 1.4 billion on CAPEX. Huhtamaki has sought to expand geographically and add new products to its portfolio.

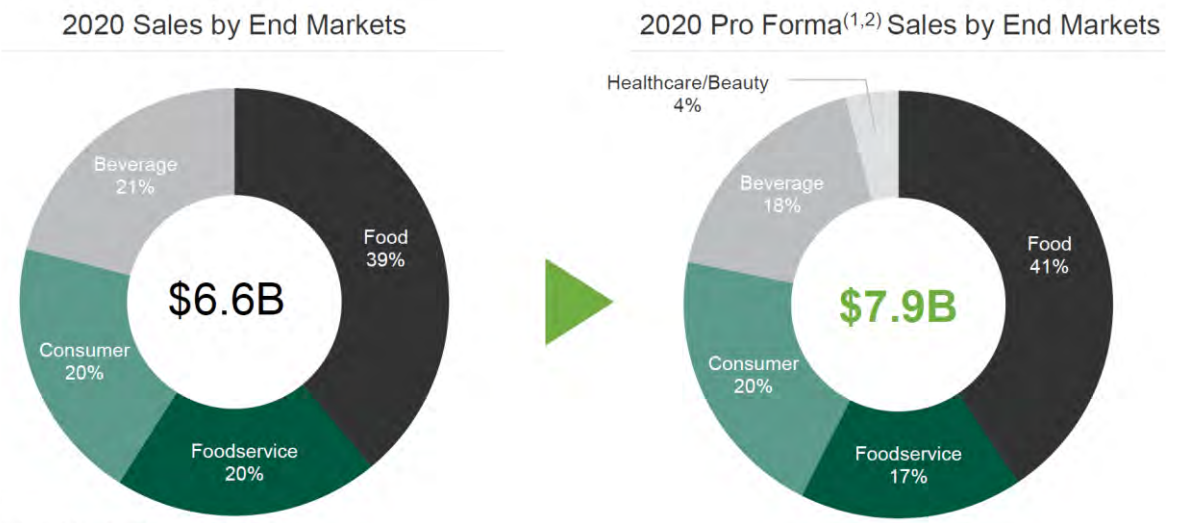


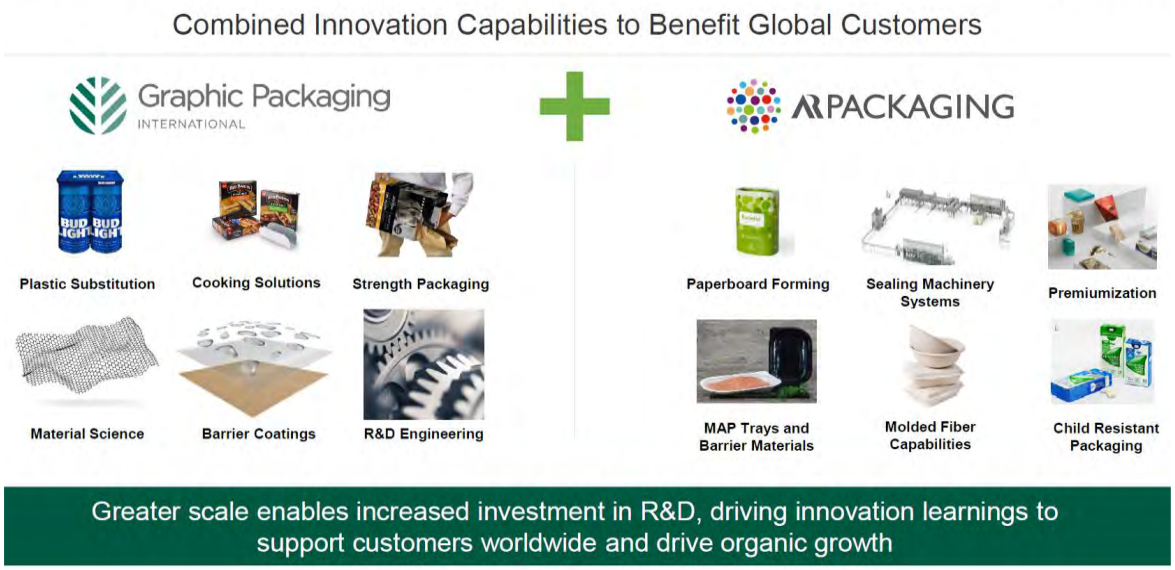
Source: Huhtamaki

M&A RATIONALE: THE ACQUISITION OF AR PACKAGING BY GRAPHIC PACKAGING (2021)

- Trough its 2021 acquisition of AR Packaging, Graphic Packaging aimed to:
  - Increase its size (from $6.6 billion to $7.9 billion).
  - Gain a significant presence in Central and Northern Europe
  - Expand its product portfolio and gain access to new technologies and end-markets.





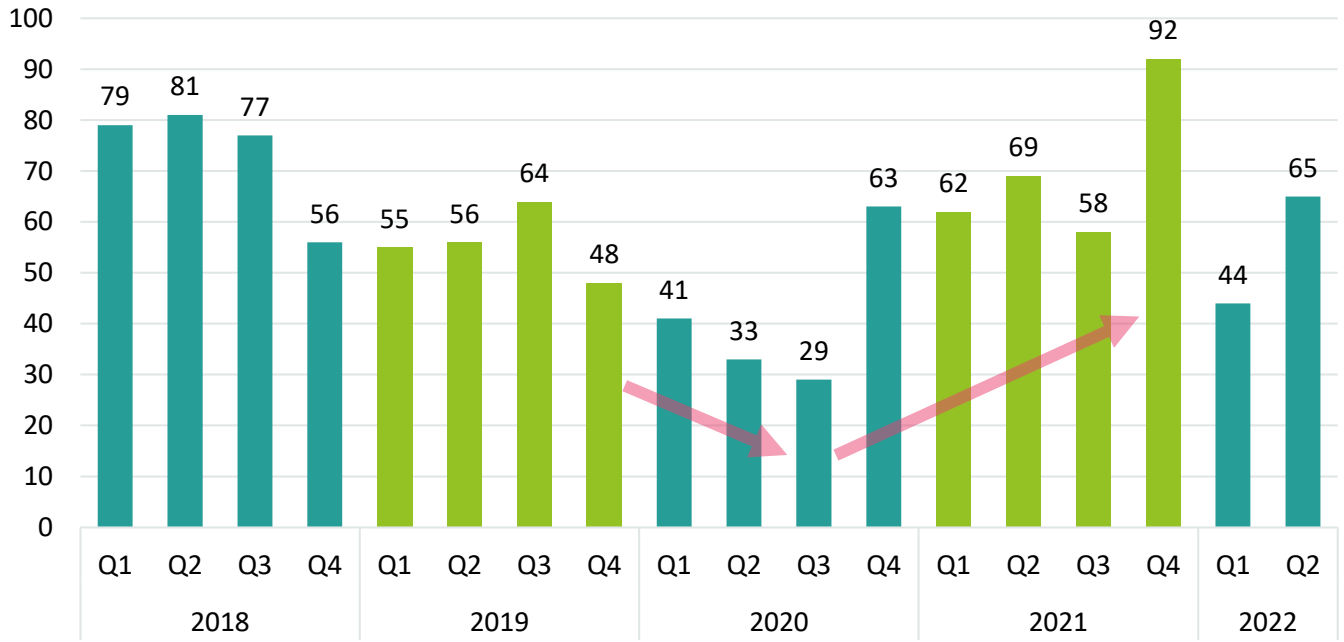


SLOWDOWN OF M&A ACTIVITY WITH COVID-19, WITH SHARP RECOVERY IN 2021

- The number of mergers and acquisitions in the global packaging sector dropped by more than 50% vs. 2018 in the first quarters of 2020. Some decline was already apparent in 2019, perhaps due to sustained consolidation in previous years.

- M&A activity recovered quickly at the end of 2020 and in 2021, with a record number of 92 deals completed in the final quarter of 2021. The quick recovery of the sector after the first pandemic waves might be responsible for the rapidly renewed attractiveness of mergers and acquisitions. This is confirmed by developments in the overall global M&A market, which bounced back in 2021 supported by sectors benefitting from the pandemic (tech, healthcare).

Number of M&A deals in the global packaging sector

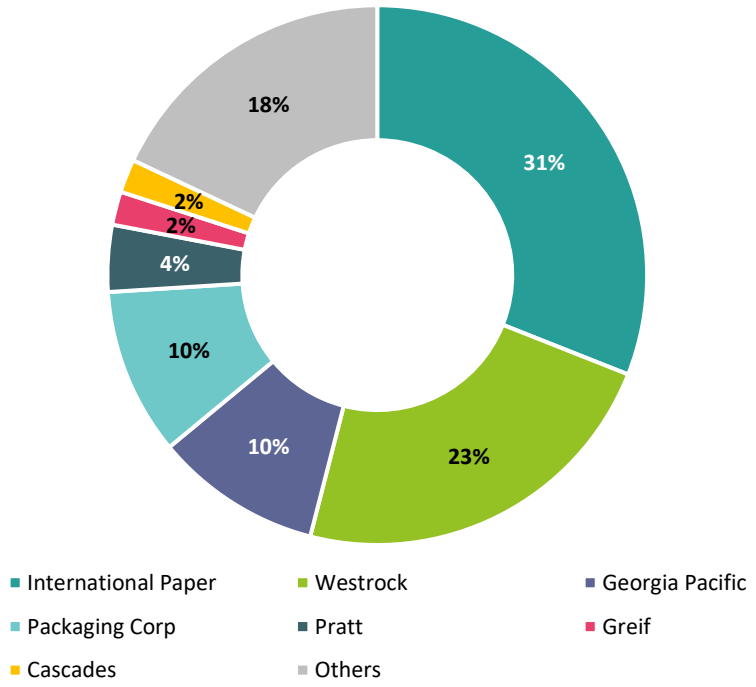


Source: R.L. Hulett & Company, Inc.

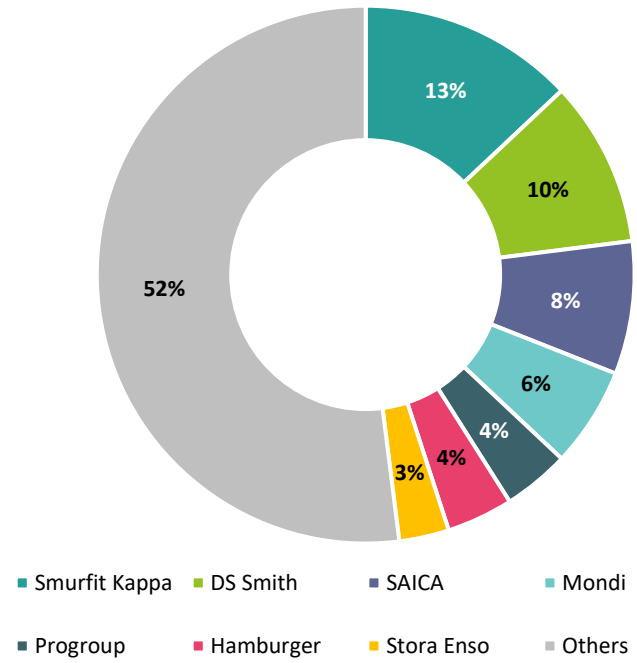
…BUT NOT NECESSARILY IN EUROPE, WHERE THERE IS PLENTY OF ROOM LEFT FOR CONSOLIDATION

- The European packaging sector remains fragmented by comparison to the US one. If we were to take the US as the benchmark, this means that in Europe there is still plenty of room left for consolidation via large M&A deals.
- In the USA, the largest two companies in the cardboard industry have a combined market share of 54%, while in Europe they have just 23%. The combined market share of the first seven companies in the US is of 82%, while in Europe it is just 48%

USA cardboard industry market shares, 2021



Europe cardboard industry market shares, 2021



Source: Financial Times, BNP Paribas

#1.4 COMPETITIVE LANDSCAPE

OVERVIEW OF MAJOR PACKAGING COMPANIES PRESENT IN EUROPE

	HQ	Focus	Products	Sales global	Sales Europe	EBITDA margin	Employees	Employees Europe	Countries (EU)	Plants Europe
Autajon	FR	Europe, global	paper packaging, labels	>0.6			4000		7	
Amcor	CH/US/AU	Global	flexible and rigid packaging, specialty cartons, closures, and services	10.9	3.2	15.3%	47000		13	55
Antalis	FR/JP	Europe (enlarged), South America	paper, packaging, visual comm	2.1	2.0		4158		24	
AR Packaging	SE	Europe	fold carton, flexible packaging	1.1		14.5%	4785	4080	9	26
Avery Dennison	US	Global	Labels, industrial& healthcare packaging	6.1	1.7	10.6%	32000		15	52
Burgo	IT	Europe	graphic papers, speciality papers and containerboard	1.3	1.3	5.5%	3336		2	12
DS Smith	UK	Europe, North America	corrugated packaging, recycled paper	6.7	6.1	13.5%	29000	27000	24	≈300
Elanders	SE	Europe, Asia	industrial packaging	1.1		13%	6800	4900	10	64
Elopak	NO	Europe, North America	carton for liquids	0.9	0.8	13.5%	2095	1777	4	37
Graphic Packaging	US	Global	paperboard packaging (integrated)	4.6	0.7		18775		6	14
Huhtamaki	FI	Global	food packaging	3.3			18227		13	23
International Paper	US	US, global	fiber, paper packaging	2.3	<1.5		38000		5	23
Lecta	ES	Europe	labels, flexible packaging, printing	1.0	1.0	2.1%	3033		7	21
Mayr	AT	Europe	paper board, packaging	2.5	2.2	15.8%	9938		14	52
Metsa	FI	Europe, global	tissue and cooking papers, board, pulp, wood products	5.1	3.4	17%	9213	8681	9	8
Mondi	UK	Global	corrugated, flexible, liners, coatings, paper	6.7	4.8	20.3%	25700	15300	14	22
SAICA	ES	Europe	corrugated, paper packaging, recycled paper	3.0	3.0		10000	10000	8	113
Smurfit Kappa	IE	Europe, Americas	paper packaging, corrugated	8.5	6.6	18.2%	46375	29969	20	310
Stora Enso	FI	Europe	paper packaging, biomaterials, wood, paper	8.6	7.6	14.8%	24455	17852	6	20
Tetra Pak (Tetra Laval)	SE	Global	carton for liquids, food packaging	10.8	<3		25309			
UPM	FI	Europe, global	labels, communication paper, wood products, biofuels (integrated)	8.6	5.4	16.8%	18014	14391	8	
Van Genechten	BE	Europe	folding carton	0.3	0.3		1500	1500	8	9
VPK	BE	Europe, North America, China	paper, paper packaging	1.4			6325			
Westrock	US	North America, global	corrugated, consumer packaging	17.6	1.0	16%	49300		11	46

24 companies TOTAL: ≈115 bn EUR, ≈440k employees

GEOGRAPHICAL FOOTPRINT OF LEADING PACKAGING COMPANIES IN EUROPE

COMPANY	SITES IN THE EU	SITES IN NON-EU EUROPE
Autajon	BE, ES, FR, IT, NL, PT	CH
Amcor	BE, CZ, DK, ES, FI, FR, IR, IT, NL, PL, PT	CH, RU, TR, UA, UK
Antalis	AT, BE, BG, CZ, DK, EE, FI, FR, DE, HU, IE, IT, LV, LT, NL, PL, PT, RO, SK, SI, ES, SE	NO, RU, CH
Avery Dennison	AT, BE, BG, CZ, DE, DK, ES, FI, FR, IE, IT, LU, NL, PL, RO, SE	CH, NO, TR, UK, TR, UK
Burgo	BE, IT	
DS Smith	AT, BE, BG, CZ, DE, DK, ES, FI, FR, GR, HR, HU, IT, LT, NL, PL, PT, RO, SE, SI, SK	BA, CH, MK, RS, TR, UK
Elanders	AT, CZ, DE, HU, IT, NL, PL, RO, SE	RU, UK
Elopak	DE, DK, NL	RU, UA
Graphic Packaging	AT, DE, EE, ES, FI, FR, HR, IE, NL, PL, SE	CH, RU, UK
Huhtamaki	CZ, DE, ES, FI, FR, IE, NL, PL	RU, TR, UA, UK
International Paper	ES, FR, IT, PT	
Lecta	ES, FR, IT	
Mayr	AT, DE, DK, ES, FI, FR, PL, RO, SE, SI	RU, TR, UA, UK
Metsa	DE, EE, FI, PL, SE, SK	UK, RU
Mondi	AT, BE, BG, CZ, DE, ES, FI, FR, HU, IT, NL, PL, SE, SK	RS, RU, TR, UA
SAICA	BE, ES, FR, IE, IT, NL, PT	UK
Smurfit Kappa	AT, BE, BG, CZ, DE, DK, ES, FR, GR, IE, IT, LT, LV, NL, PT, SE, SK	CH, NO, RS, RU, UK
Stora Enso	AT, BE, CZ, EE, FI, LT, LV, NL, PL, SE	RU
UPM	AT, DE, EE, FI, FR, PL	RU, UK
Van Genechten	BE, DE, FR, HU, LV, PL	RU
VPK	BE, CZ, DE, DK, ES, FI, FR, HU, IE, NL, PL, RO, SE	NO, TR, UK
Westrock	BE, CZ, DE, ES, FR, IE, NL, PL	UK

PRODUCT PORTFOLIOS OF LEADING PACKAGING COMPANIES IN EUROPE

COMPANY	PRODUCTS / END-USE MARKETS
Autajon	folding cartons, rigid boxes, industrial labels, wine & spirits labels
Amcor	beverage, food, healthcare, home, personal care, pet and technical application packaging, specialty cartons
Antalis	packaging, paper and visual communication products distributor
Avery Dennison	labels, packaging, performance polymers, tapes, healthcare packaging
Burgo	containerboard, graphic papers, specialty papers
DS Smith	corrugated packaging
Elanders	industrial packaging & printing
Elopak	liquid cartons
Graphic Packaging	folding cartons, foodservice packaging, paperboard
Huhtamaki	food, home care and personal products packaging
International Paper	cellulose fibers, containerboard, corrugated packaging
Lecta	flexible packaging, printing
Mayr	folding cartons, food & specialties packaging, printing
Metsa	paperboard packaging
Mondi	containerboard, corrugated products, functional films, industrial packaging, , printing papers, release liners
SAICA	cardboard packaging, flexible packaging, paper
Smurfit Kappa	consumer, eCommerce, industrial & retail packaging, containerboard
Stora Enso	biomaterials, paper, paper packaging, wood
Tetra Pak	liquid cartons, food packaging
UPM	biofuels, biomedicals, labels, paper packaging, specialty papers
Van Genechten	corrugated packaging, food packaging
VPK	cores and edge protectors, corrugated packaging, ecommerce packaging, solid board packaging, tubes
Westrock	containerboard, corrugated packaging, folding cartons, kraft paper, packaging recycling, pulp

OVERALL DECLINE IN REVENUES IN 2020, WITH SIGNIFICANT UNEVENNESS

- Combined global revenues of 125.5 billion USD for 19 companies disclosing financial data. This is 5.9% less than in 2019, indicating a significant overall negative impact of COVID-19. Before the pandemic, revenues were increasing at an annual average growth rate (CAGR) of 4.4%.

- The impact of COVID-19 on revenues has been uneven: companies like Amcor, DS Smith, Elopak, Elanders and Graphic Packaging saw their revenues increase, while others witnessed more or less substantial declines. Differences result primarily from exposure to different end markets, on which COVID-19 has had a very uneven impact.

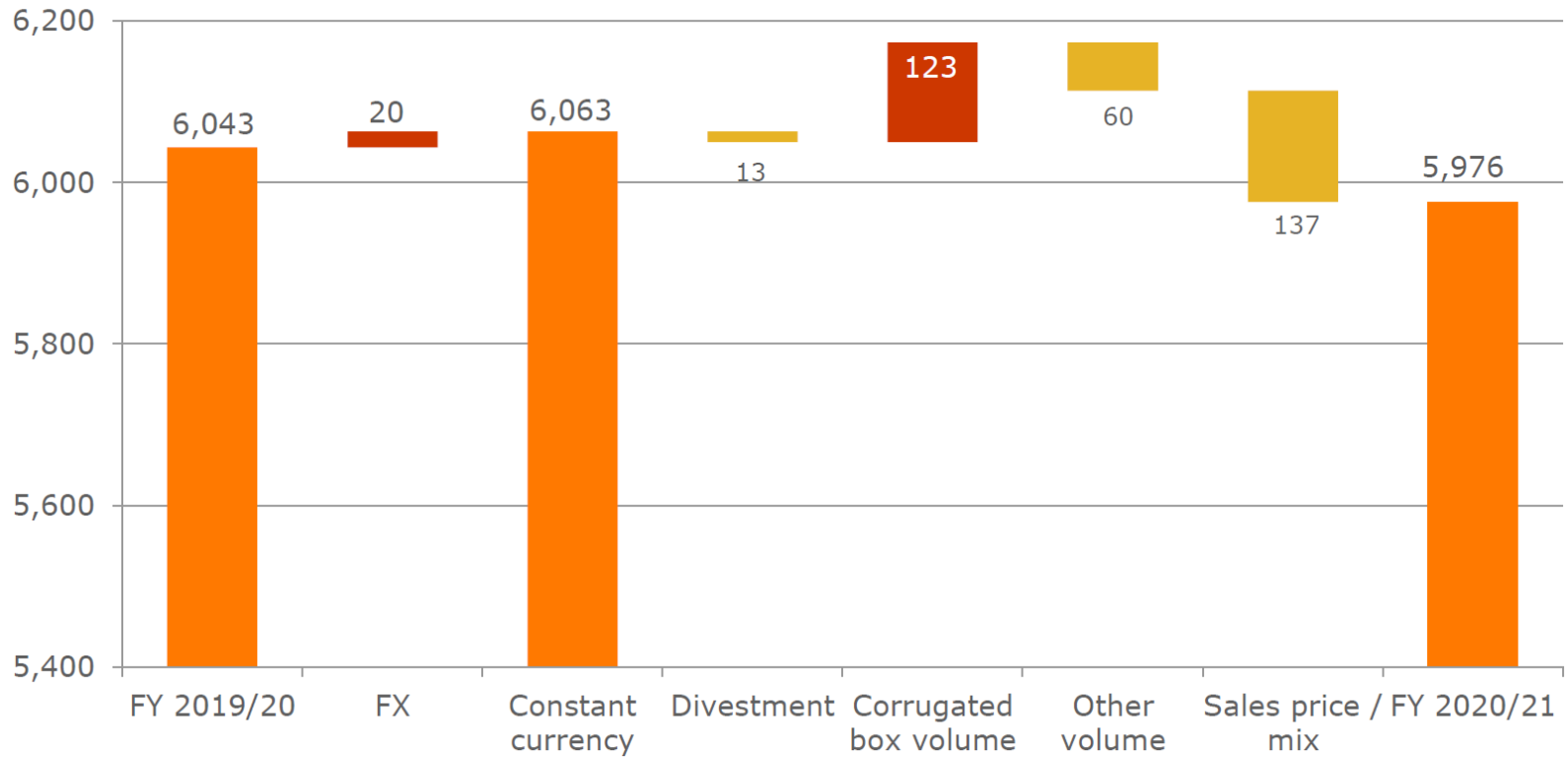
	REVENUE (BN USD)								
	2015	2016	2017	2018	2019	2020	CAGR 15-19	20 vs 19	Comments
Amcor	9.4	9.1	9.3	9.5	12.5	12.9	7.3%	3.2%	2019 acquisiton of Bemis
Antalis	2.9	2.7	2.7	2.7	2.3		-5.5%		acquisition by Kokusai
Avery Dennison	6.0	6.1	6.6	7.2	7.1	7.0	4.3%	-1.4%	
DS Smith	6.1	6.2	7.4	8.0	7.6	7.9	5.8%	2.9%	
Elopak			1.0	1.1	1.0	1.0		2.7%	
Elanders	0.5	0.7	1.1	1.2	1.2	1.2	24.1%	0.9%	
Graphic Packaging	4.2	4.3	4.4	6.0	6.2	6.6	10.3%	6.5%	2018 takeover of partnership with International Paper
Huhtamaki	3.0	3.2	3.4	3.7	3.8	3.8	5.9%	-1.1%	
International Paper	20.7	19.5	21.7	23.3	22.4	20.6	2.0%	-8.0%	
Kokusai	3.2	3.4	3.4	3.5	3.5	4.1	2.0%	-30.4%	2020 takeover of Antalis (not considered)
Lecta	1.7	1.6	1.6	1.8	1.5	1.1	-1.7%	-27.6%	
Mayr	2.4	2.5	2.6	2.8	2.8	2.9	4.1%	1.2%	
Metsa	2.2	1.9	2.1	2.3	2.2	2.2	-0.7%	-0.4%	
Mondi	7.6	7.4	8.0	8.8	8.1	7.6	1.8%	-6.6%	
SmurfitKappa	9.0	9.0	9.7	10.6	10.1	9.7	3.0%	-4.0%	
StoraEnso	11.1	10.8	11.3	12.4	11.3	9.7	0.3%	-13.4%	
UPM	11.2	10.9	11.3	12.4	11.5	9.8	0.5%	-14.7%	
Westrock	11.1	14.2	14.9	16.3	18.3	17.6	13.2%	-3.9%	
TOTAL	112.4	113.4	122.5	133.4	133.4	125.5	4.4%	-5.9%	

Source: Company reports. Figures include the impact of currency exchange rates.

2020 REVENUE DECLINE DUE AT LEAST IN PART TO LOWER PRICES

- Lower revenues during the pandemic do not necessarily mean that industrial activity has declined, since revenues are the combined result of volumes and prices.
- The case of DS Smith exemplifies how declining overall revenues (from 6.04 billion to 5.98 billion GBP) can happen despite a significant increase of volumes (additional corrugated volumes supplemented 2020/21 revenues by 123 million GBP), which did not compensate for a steeper decline in prices (negative impact of 137 million GBP on revenues).

DS Smith revenue development 2019/20 – 2020/21 (M GBP)



Source: DS Smith

PROFITABILITY REMAINS STRONG FOR MOST MAJOR PLAYERS…

- Relative to revenues, earnings before interest, taxes, depreciation and amortization (EBITDA — an indicator of a company's capacity to generate profits from its core activity) remained solid despite the pandemic.
- Profitability (EBITDA as % of sales) increased visibly for Amcor, Avery Dennison, Elopak, Huhtamaki and Metsa.
- The Japanese group Kokusai (owner of Antalis starting with 2020) and Lenta were the only two companies with significant problems when it comes to profitability.

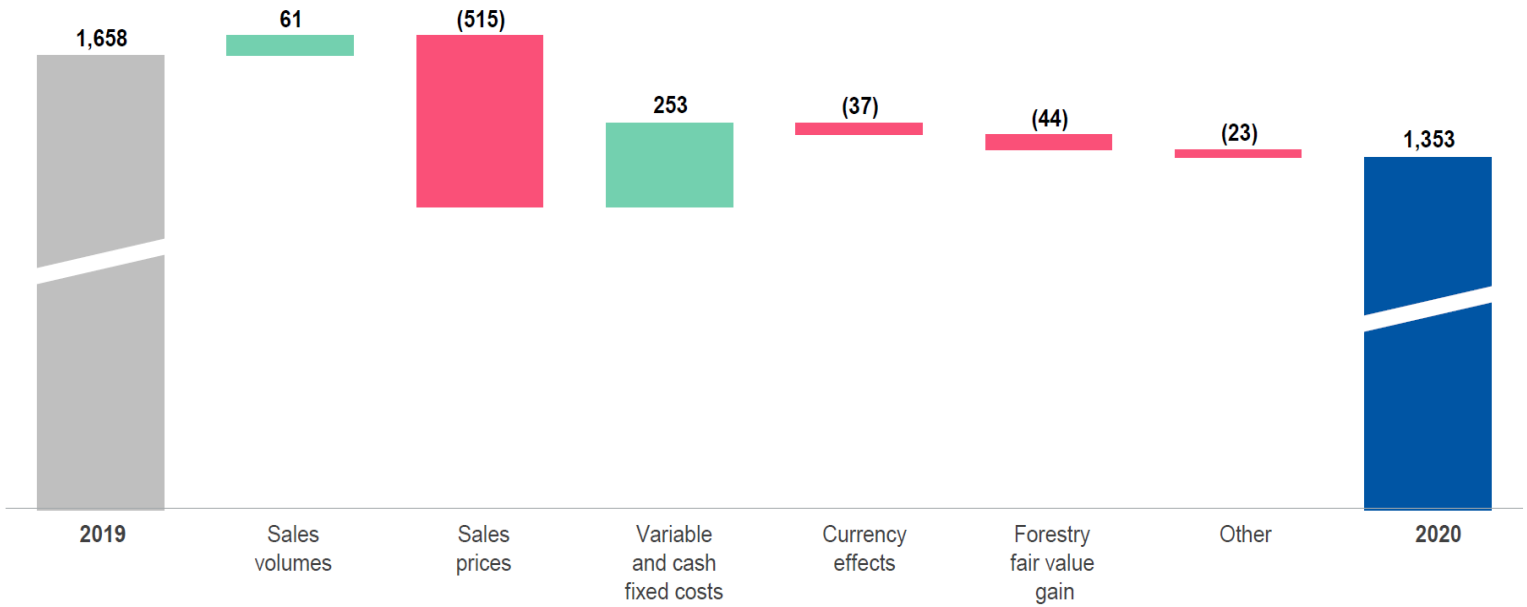
EBITDA margin (% of sales)						
	2015	2016	2017	2018	2019	2020
Amcor	15.0%	15.8%	14.9%	14.0%	13.8%	15.4%
Antalis	3.3%	3.2%	3.2%	2.7%	4.3%	
Avery Dennison	12.2%	12.9%	13.8%	13.2%	14.2%	15.3%
DS Smith	12.2%	12.2%	12.4%	13.4%	15.8%	13.5%
Elopak			8.8%	8.3%	9.7%	13.4%
Elanders	9.9%	8.6%	6.3%	6.7%	12.8%	12.6%
Graphic Packaging	17.7%	17.3%	15.7%	15.0%	16.5%	16.2%
Huhtamaki	11.6%	13.2%	14.2%	12.7%	13.3%	15.2%
International Paper	16.6%	13.3%	17.5%	18.4%	16.9%	15.0%
Kokusai	0.6%	0.5%	0.8%	0.8%	0.8%	-1.0%
Lecta	7.6%	9.1%	8.4%	8.0%	6.9%	2.3%
Mayr	13.5%	13.7%	13.2%	13.9%	15.5%	15.8%
Metsa	11.2%	11.3%	13.9%	11.0%	12.2%	16.5%
Mondi	19.5%	20.4%	20.8%	23.6%	22.8%	20.3%
Smurfit Kappa	14.2%	15.1%	14.4%	17.1%	17.7%	17.3%
Stora Enso	13.7%	13.4%	15.0%	16.5%	13.5%	13.1%
UPM	14.2%	15.7%	16.3%	17.1%	18.1%	16.5%
Westrock	15.7%	13.7%	14.4%	17.1%	17.4%	15.4%

Source: Company reports

…BUT LOWER PRICES HAVE HAD A VISIBLE NEGATIVE IMPACT ON PROFITABILITY

- Similar to the implications for revenues, price developments can likewise influence profits. If prices increase faster than costs, they will have a positive impact on profits — conversely, if prices developments lag behind costs, they will have a negative impact on profits.
- The case of Mondi exemplifies the potentially negative impact price declines had on profitability during the first year of the pandemic: Mondi registered a 18% decline of its EBITDA (from 1.66 to 1.35 billion EUR), with prices having a negative impact of 515 million EUR (partly compensated by higher volumes and cost reduction).

Mondi EBITDA development 2019 - 2020 (M EUR)



Source: Mondi

HIGHLY VARIED INVESTMENT DEVELOPMENTS

- Capital expenditure saw radically different developments during the first pandemic year: some companies (Graphic Packaging, Metsa, UPM) increased their investment budgets significantly, while others (Elanders, International Paper, Westrock) spend significantly less on investments.
- There are also wide variations in investment intensity between companies: some companies (Graphic Packaging, Mondi, Stora Enso) spend a relatively considerable part of their revenues on capital expenditures, while others (Amcor, Avery Dennison, Elanders, Kokusai) have smaller investment budgets relative to their revenues.

Capital Expenditures (% of sales)							
	2015	2016	2017	2018	2019	2020	2020 vs 2019
Amcor	3.7%	4.2%	3.9%	3.5%	3.2%	3.6%	17.1%
Antalis	0.6%	0.7%	0.8%	0.9%	0.7%		
Avery Dennison	2.5%	3.4%	3.4%	3.6%	3.6%	3.1%	-15.0%
DS Smith	5.6%	5.1%	5.9%	4.9%	6.2%	5.5%	-8.4%
Elopak			4.9%	5.0%	5.8%	5.5%	-2.9%
Elanders	1.3%	2.2%	2.3%	1.7%	1.3%	0.8%	-33.1%
Graphic Packaging	5.9%	6.9%	5.9%	6.6%	5.7%	9.9%	83.1%
Huhtamaki	5.4%	6.9%	7.2%	6.3%	6.0%	6.8%	11.6%
International Paper	8.1%	6.9%	6.4%	6.7%	5.7%	3.6%	-41.1%
Kokusai	0.2%	0.4%	2.3%	0.1%	0.5%	0.4%	-12.3%
Lecta	3.0%	3.0%	2.7%	5.0%	4.1%	4.8%	-14.5%
Mayr	6.0%	6.7%	6.5%	5.6%	5.3%	6.0%	14.3%
Metsa	8.7%	7.8%	3.5%	3.5%	4.9%	8.2%	66.5%
Mondi	9.5%	7.9%	9.3%	10.3%	11.2%	10.4%	-13.9%
Smurfit Kappa	5.4%	5.4%	5.3%	6.2%	7.0%	6.0%	-17.2%
Stora Enso	9.5%	8.1%	6.6%	5.0%	5.9%	7.7%	12.6%
UPM	4.3%	3.6%	3.0%	3.4%	3.9%	10.2%	121.1%
Westrock	5.3%	5.6%	5.2%	6.1%	7.5%	5.6%	-28.6%

Source: Company reports

STRONG CASH GENERATION, WITH SOME EXCEPTIONS

- A company's free cash flow represents the actual cash generated by the business after accounting for all of its activities (including investments). It is a key figure especially for shareholders, since dividends are paid from the free cash flow.

- Overall, cash generation has remained solid during the pandemic and has even increased in some cases (notably DS Smith, Metsa and Smurfit Kappa). In other cases, cash generation slowed down but remained positive (Graphic Packaging, Stora Enso, UPM). Lenta and Kokusai registered negative cash generation corresponding to their overall more precarious financial performance.

Free Cash Flow (% of sales)						
	2015	2016	2017	2018	2019	2020
Amcor	8.0%	5.8%	5.4%	4.3%	7.9%	7.7%
Antalis	2.5%	0.7%	1.2%	0.0%	1.1%	
Avery Dennison	5.4%	6.2%	6.3%	2.8%	6.9%	7.6%
DS Smith	3.3%	5.8%	2.0%	3.7%	4.3%	7.0%
Elopak			-0.3%	-0.8%	5.4%	5.7%
Elanders	5.1%	3.1%	-3.0%	2.6%	10.6%	14.8%
Graphic Packaging	8.3%	-5.1%	-10.3%	-12.8%	5.1%	2.7%
Huhtamaki	3.3%	3.4%	1.4%	2.5%	6.5%	6.2%
International Paper	4.3%	5.8%	1.7%	7.1%	10.4%	11.2%
Kokusai	1.1%	-0.1%	-1.2%	1.0%	0.7%	-1.9%
Lecta	3.1%	4.3%	5.6%	1.0%	-0.9%	-8.1%
Mayr	3.5%	3.0%	2.8%	5.1%	7.7%	6.5%
Metsa	3.6%	-3.3%	9.3%	4.3%	5.5%	8.1%
Mondi	7.0%	10.6%	7.8%	8.5%	7.9%	9.4%
Smurfit Kappa	4.2%	3.6%	3.3%	5.4%	5.9%	8.6%
Stora Enso	2.6%	5.7%	5.4%	5.4%	10.6%	5.5%
UPM	7.4%	13.6%	12.5%	9.3%	14.1%	1.5%
Westrock	5.6%	6.3%	4.6%	5.7%	5.1%	6.2%

Source: Company reports

OVERALL INDEBTEDNESS ON THE RISE, EXCEPT FOR MAJOR US PLAYERS

- The mixed impact of the pandemic is also visible in the degree of indebtedness of packaging companies. Indebtedness is typically measured as the ratio of net debt to EBITDA (in short, how many multiples of a year's profits would be necessary to pay a company's debts).
- Unsurprisingly, the Japanese group Kokusai has historically been heavily indebted, benefitting from very low interest rates for the Japanese yen. The other company with a high level of indebtedness is Lecta, again confirming the company's financial difficulties.
- US giants International Paper and Amcor significantly reduced their indebtedness during 2020.

Indebtedness (net debt / EBITDA)							
	2015	2016	2017	2018	2019	2020	2020 vs. 2019
Amcor	2.7	2.8	3.0	4.2	3.2	2.7	-0.5
Antalis	0.7	1.3	1.1	2.3	2.6		
Avery Dennison	1.2	1.4	1.5	1.8	1.7	1.7	+0.1
DS Smith	2.2	2.0	2.6	2.9	2.2	2.4	+0.1
Elopak			2.7	3.6	4.0	2.7	-1.3
Elanders	1.7	3.7	4.6	3.3	2.7	2.2	-0.5
Graphic Packaging	2.5	2.8	3.2	3.2	2.7	3.3	+0.6
Huhtamaki	1.7	1.7	1.8	2.3	2.0	1.9	-0.2
International Paper	2.4	4.0	2.7	2.3	2.4	0.9	-1.6
Kokusai	23.2	24.1	16.3	13.3	15.0		
Lecta	4.3	3.8	4.3	4.5	6.8	14.2	+7.3
Mayr	0.1	0.0	0.1	-0.1	0.6	0.3	-0.2
Metsa	1.5	2.3	1.3	1.5	1.3	0.8	-0.5
Mondi	1.1	1.0	1.1	1.2	1.3	1.4	+0.1
Smurfit Kappa	2.6	2.3	2.4	2.0	2.2	1.7	-0.5
Stora Enso	2.3	2.0	1.7	1.2	2.4	2.9	+0.5
UPM	1.7	0.9	0.3	-0.1	-0.1	0.2	+0.4
Westrock	3.1	2.8	2.9	2.1	3.1	3.4	+0.3

Source: Company reports

MANY COMPANIES REDUCED THEIR HEADCOUNT IN RESPONSE TO THE PANDEMIC

- In 2020, only Avery Dennison, Graphic Packaging and Metsa registered higher numbers of employees than in 2019, with the strongest declines registered for Elanders (-9.1%), Stora Enso (-7.8%) and Elopak (-4.5%).
- The overall negative employment developments in 2020 contrast with the positive trend between 2015 and 2019, when some companies registered two-digit annual average growth rates of their workforce: Amcor, 10.3%; Elanders, 20.3%; Graphic Packaging, 10.7%.

FULL TIME EMPLOYEES (THOUSANDS)									
	2015	2016	2017	2018	2019	2020	CAGR 15-19	20 vs 19	Comments
Amcor	31.8	35.2	33.3	50	47	46	10.3%	-2.1%	2019 acquisiton of Bemis
Antalis	5.7	5.6	5.6	5.2	4.5		-5.9%		acquisition by Kokusai
Avery Dennison	26	27	30	30	30	32	3.6%	6.7%	
DSSmith	26.1	25.7	25.2	27.6	29.4	29.3	3.1%	-0.3%	
Elopak					2.2	2.1		-4.5%	
Elanders	3.2	6.4	7	6.7	6.7	6.1	20.3%	-9.1%	
Graphic Packaging	12	13	13	18	18	18.8	10.7%	4.3%	2018 takeover of partnership with International Paper
Huhtamaki	15.8	17.1	17.4	17.7	18.6	18.2	4.1%	-2.0%	
International Paper	56	55	56	53	51	49.3	-2.3%	-3.3%	
Kokusai	1	1	1	1	1.3	5.5	6.2%	-4.0%	2020 takeover of Antalis
Mayr	9.9	9.9	9.9	9.4	10	9.9	0.2%	-0.8%	
Metsa	2.6	2.5	2.4	2.4	2.4	2.4	-2.5%	0.8%	
Mondi	25.3	25.4	26.3	26.1	25.9	25.7	0.6%	-0.8%	
SmurfitKappa	45	45	46	46	46	46	0.6%	0.0%	
Stora Enso	25.7	25.4	25.7	26.1	25.1	23.2	-0.5%	-7.8%	
UPM	19.6	19.3	19.1	19	18.7	18	-1.1%	-3.9%	
Westrock	41.4	39	44.8	45.1	51.1	49.3	5.4%	-3.5%	
TOTAL	347.0	352.6	362.5	383.2	387.9	381.8	2.8%	-1.6%	

Source: Company reports

SUMMARY: MAPPING

- The packaging industry is highly diverse in terms of base materials (and, therefore, industrial processes), end use markets, geographic scope etc.
- Until recently, no clear shift from plastic to paper packaging. The decline of graphic paper has been compensated by the rapid rise of corrugated packaging.
- Europe is a mature market, with limited growth potential for packaging demand overall. Important shifts can nonetheless occur in terms of base materials and end uses.
- In Europe, the packaging industry has fared relatively well during COVID-19, with rapid recovery in 2021, when volumes reached all-time highs. This has been largely confirmed by 2022 developments.
- The packaging industry is very different from country to country, but proximity to customers is key everywhere.
- There is still plenty of room for industry consolidation in Europe, especially in comparison to North America. M&A is a key growth lever for packaging companies.
- Companies have fared relatively well throughout the first pandemic year, but revenues and profitability were affected by lower prices.
- Figures relating to investment, cash generation and indebtedness show a highly varied picture, corresponding to the underlying strategic diversity of the industry.
- The pandemic appears to have had a negative impact on overall employment levels, with some exceptions.

#2 ONGOING ISSUES AND CURRENT TRENDS

#2.1 COVID-19

ACCELERATION OF TRANSFORMATIONS RELATED TO E-COMMERCE AND DIGITALIZATION

- An analysis by McKinsey on the impact of COVID-19 on the packaging industry indicates that sustainability and e-commerce have become issues of highest priority, followed by rapidly changing consumer preferences, pressures on profit margins from retailers.
- Hygiene concerns were not at all on the agenda of the packaging industry before COVID-19. The hygiene issue requires more packaging and might benefit materials such as plastics: the need to have additional packaging for fresh food is probably the best example of how the pandemic has created new packaging needs due to hygiene concerns.

Indicative

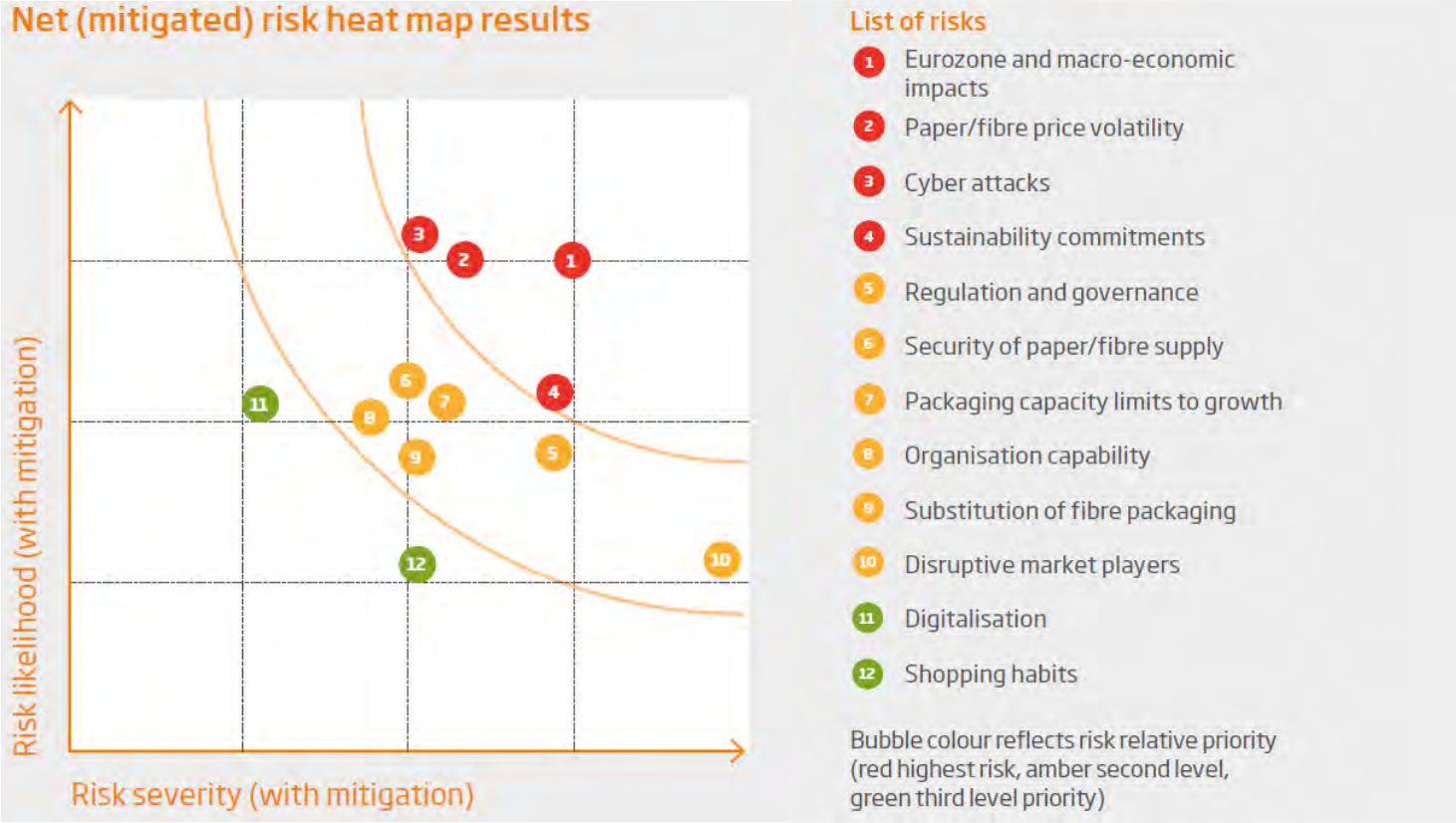
Moderate 1 2 3 4 5 Very high

Key Trend impacting the industry	Last 5 years	Before Covid-19	Current Covid-19	Shape of the Next Normal
1 Sustainability requirements increasing at every step of the value chain	2	5	4	4-5
2 E-commerce everywhere	2	5	5+	5+
3 Rapidly changing consumer & customer preference	3	4	4-5	4
4 FMCG and retail margin compression	2	4	4-5	5
5 Digitalization of packaging (IoT)	1	3	2	4
6 New: Hygiene concerns (Needs emerging in the light of Covid-19)			5	4

Source: McKinsey

MEGATRENDS AND COMPANIES' RISK PERCEPTION ARE NOT NECESSARILY ALIGNED

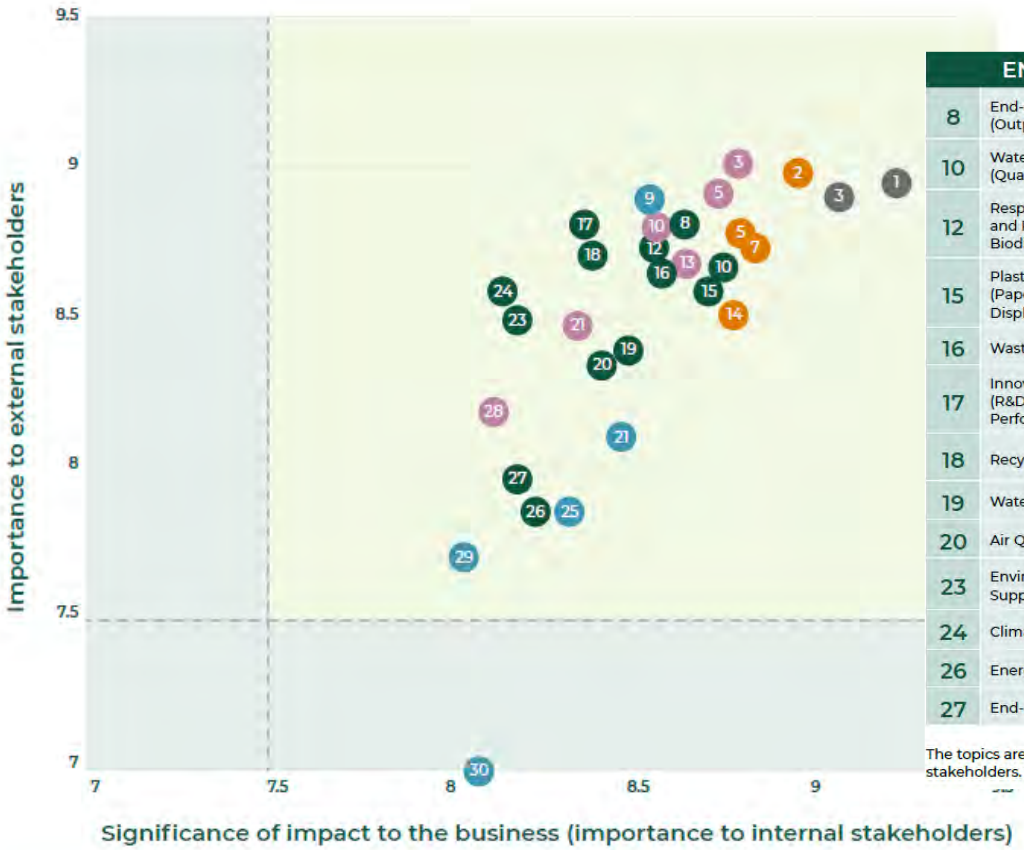
- Companies' own risk assessment might look very different from third-parties' understanding of what the priorities are for the packaging industry.
- As a first example, DS Smith cites eurozone economic turbulence, raw material price volatility, cyber attacks and sustainability as the major risks in terms of severity and likelihood. Digitalization and shopping habits are mentioned as risks, but are not considered priorities, despite a large part of DS Smith's activity depending on e-commerce-related demand of corrugated packaging.



Source: DS Smith

MEGATRENDS AND COMPANIES' RISK PERCEPTION ARE NOT NECESSARILY ALIGNED

- For Graphic Packaging, financial aspects are top priority.
- "People" are also relatively high on the company's agenda, but largely from a "soft" sustainability point of view (health and safety, a popular topic during the pandemic; diversity, training).
- Surprisingly or not, the supply of skilled labor and issues related to environmental sustainability are among the least important issues in the company's assessment.



ENVIRONMENT	
8	End-of-Use Recycling Rate (Output Circularity)
10	Water Discharge (Quality, Chemical Concentration)
12	Responsible Forestry for Paper and Paperboard (Deforestation, Biodiversity, Certification, etc.)
15	Plastic Displacement (Paper-based Packaging Displacing Plastic-based)
16	Waste (Total, Hazardous)
17	Innovation for Sustainability (R&D and Pipeline Sustainability Performance)
18	Recycled Content (Circular Inputs)
19	Water: Net Use
20	Air Quality (Air Emissions)
23	Environmental Impact of Supply Chain
24	Climate (Carbon/GHG)
26	Energy: Net Non-renewable Use
27	End-of-Use Composting Rate

SOCIAL	
9	Product Quality (Safety, Toxicity, Reliability)
21	Skilled Labor Pipeline and Economic Development (In Communities Where GPI Operates)
25	Racial Equity and Environmental Justice (External-focused)
29	Community Engagement
30	Corporate Giving & Employee Volunteerism

PEOPLE	
2	Employee Health and Well-Being
5	Diversity, Equity, Inclusion, Justice, and Belonging (Internal at GPI)
7	People/Talent Management: Recruitment, Engagement, Development, and Retention
14	Gender Equity/Equality (Internal at GPI)

GOVERNANCE	
3	Ethics & Compliance (e.g., Global Regulatory & Legal)
5	Supply Chain Responsibility: Human Rights, Social, Labor, (Procurement & Supplier Management)
10	Transparency & Disclosure
13	Corporate Governance
21	Demonstrating ESG Leadership (Collaborating to Address Systemic Challenges)
28	Advocating and Lobbying - Aligning Advocacy with Values

FINANCIAL	
1	Financial & Business Performance
3	Business Disruption and Resilience (in face of Cyber, Natural Disaster, etc.)

The topics are numbered based on their relative importance, calculated by averaging the level of importance between internal and external stakeholders. Topics with the same number received the same averaged importance rating. See "Analysis" section below for greater detail.

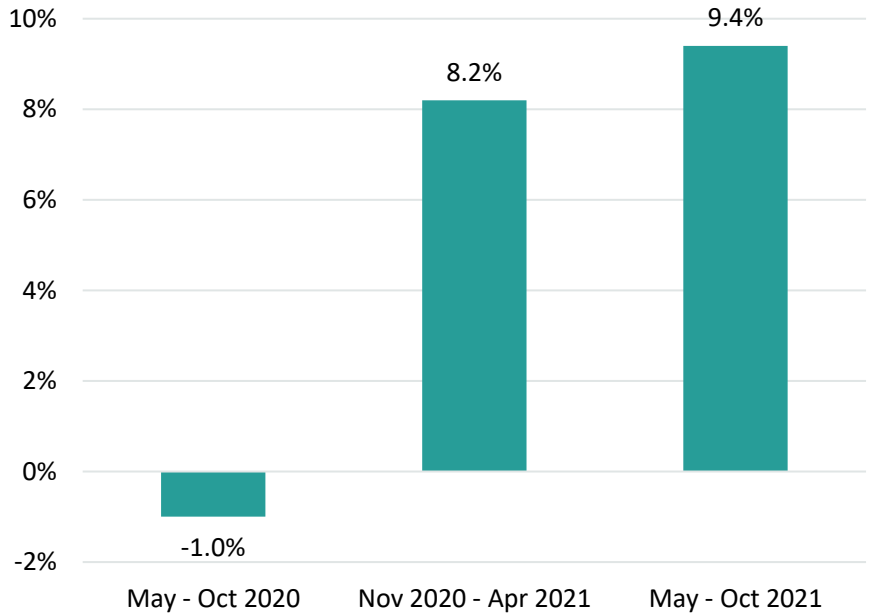
Source: Graphic Packaging

E-COMMERCE BOOM WITH VISIBLE IMPACT FOR PACKAGING SINCE THE SECOND HALF OF 2020

- In 2020, the online retail sales of goods grew by 31% in Europe vs. 2019, with national growth rates in Western Europe ranging from 22% in Germany to no less than 75% in Spain.
- The e-commerce boom has supplemented demand for the packaging industry overall, and especially for corrugated packaging.
- Companies specializing in corrugated packaging have posted significant growth rates. DS Smith saw its corrugated box volumes increase by 8.2% during the second half of the financial year 2021 (November 2020 – April 2021), while for the first half of the financial year 2022 (May – October 2021) the growth rate was of 9.4%. These two semesters of sustained growth followed a short period of relatively slow decline during the peak lockdowns in spring-fall 2020.

Growth of online retail sales of goods in 2020 (% vs. 2019)

DS Smith corrugated box volume growth

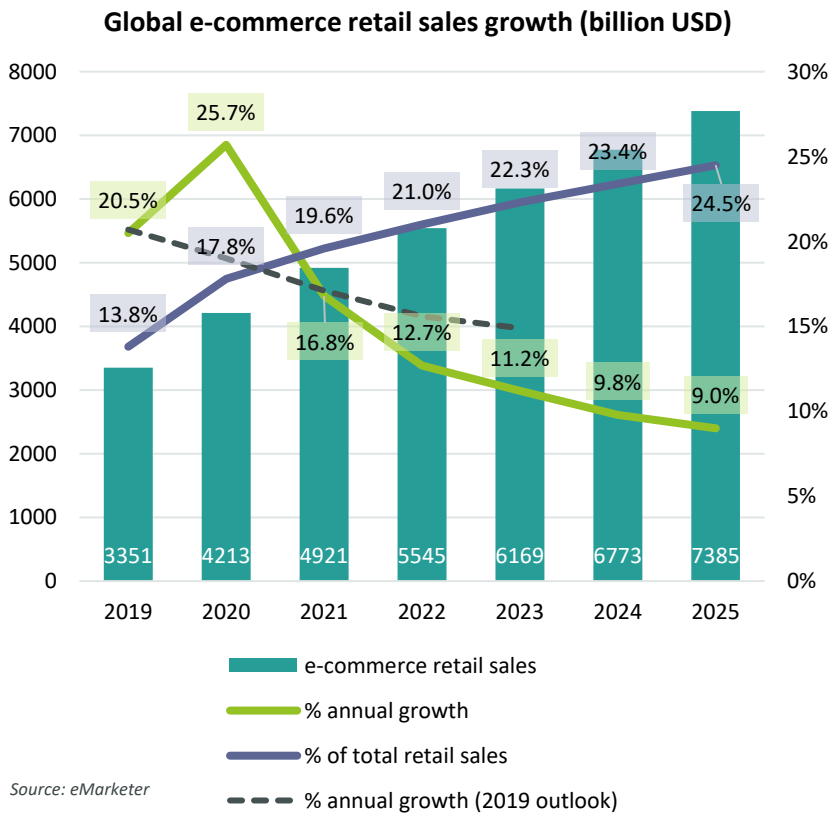


Source: DS Smith

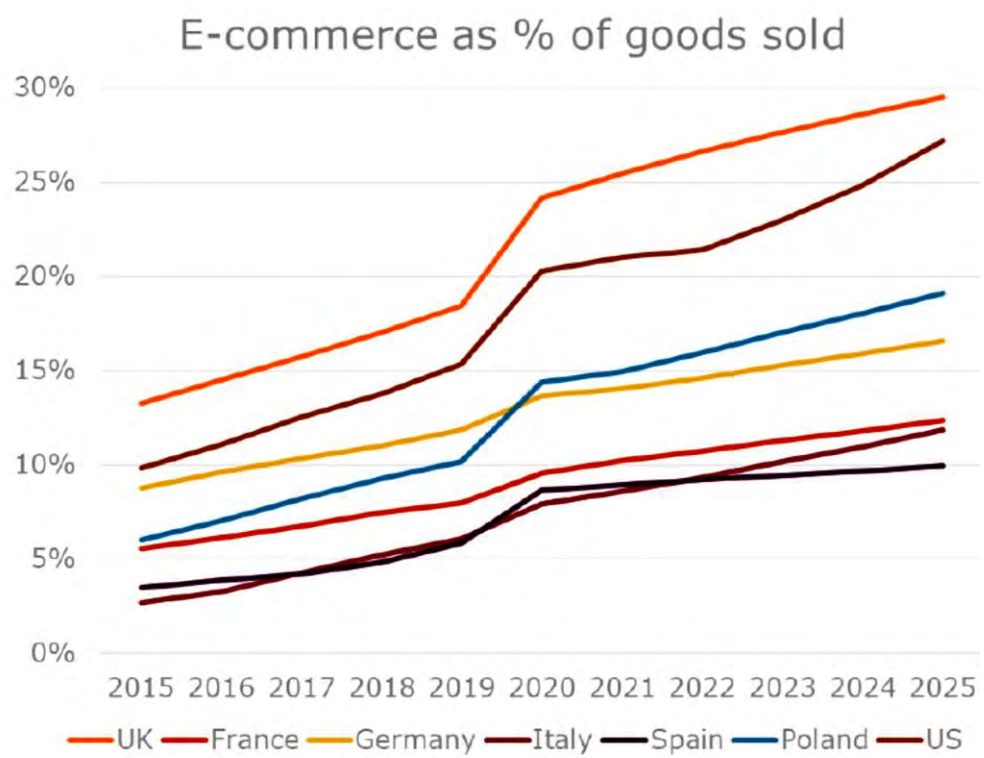
COVID-19 HAS GIVEN A MASSIVE SHORT-TERM BOOST TO E-COMMERCE, BUT THE MEDIUM-TERM TRAJECTORY REMAINS THE SAME

- Global e-commerce is estimated to have grown by 25.7% in 2020, surpassing 4 trillion US dollars. By 2025, they are estimated to comprise 24.5% of total retail sales worldwide. Forecasts indicate that this is a short-term boost, as e-commerce growth will return to its historical trajectory in the medium term. In other words, the pandemic has pushed forward the advance of e-commerce, which would have reached current levels anyway, only somewhat later.

- In Europe, e-commerce market shares reached 25% in the UK, 15% in Germany and Poland, and 10% in France, all significantly higher figures than before COVID-19.



Source: eMarketer

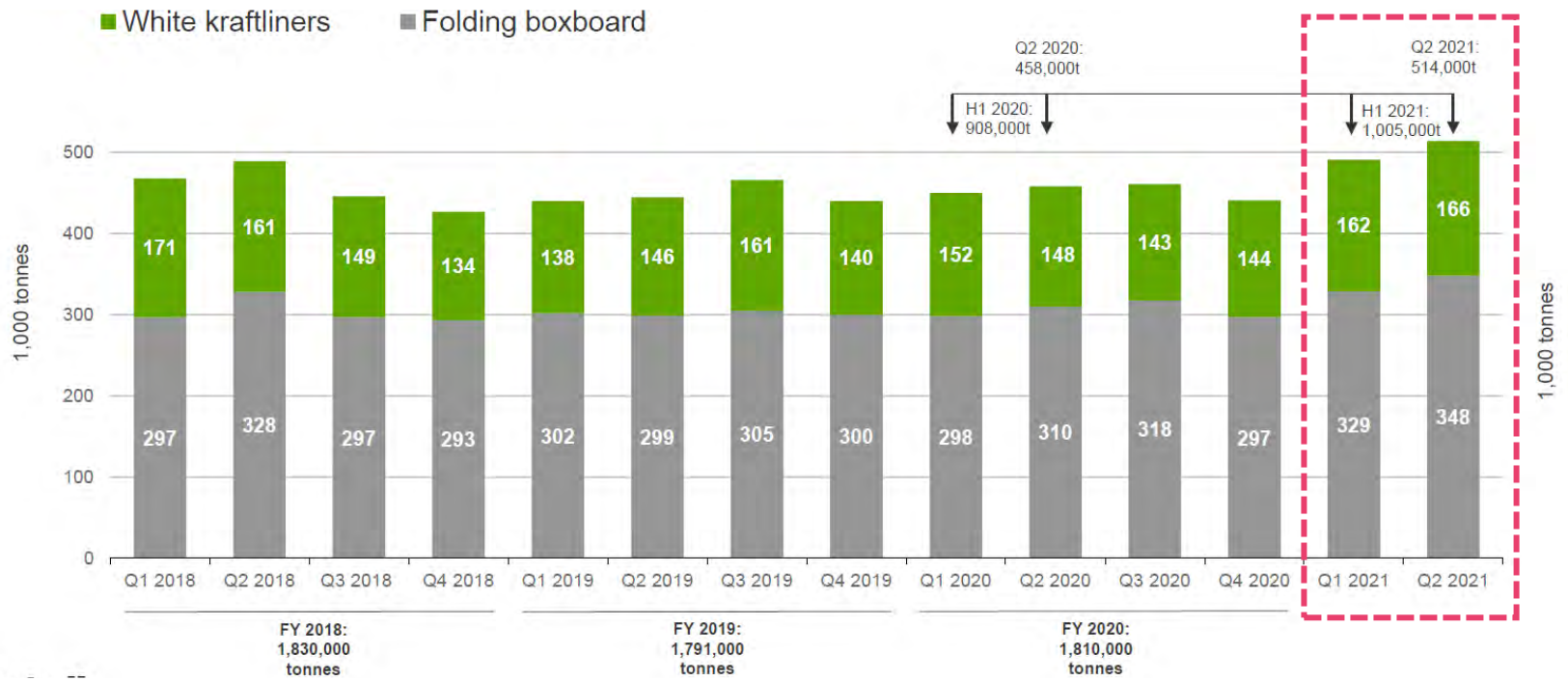


Source: DS Smith

E-COMMERCE HAS ALREADY PUSHED VOLUMES TO ALL-TIME RECORDS FOR PAPER PACKAGING MANUFACTURERS. ADDITIONAL CAPACITIES WOULD BE REQUIRED TO MEET EXPECTED DEMAND GROWTH

Deliveries continued at a record high level

Q2 2021 vs. Q2 2020: +12%, H1 2021 vs. H1 2020: +11%

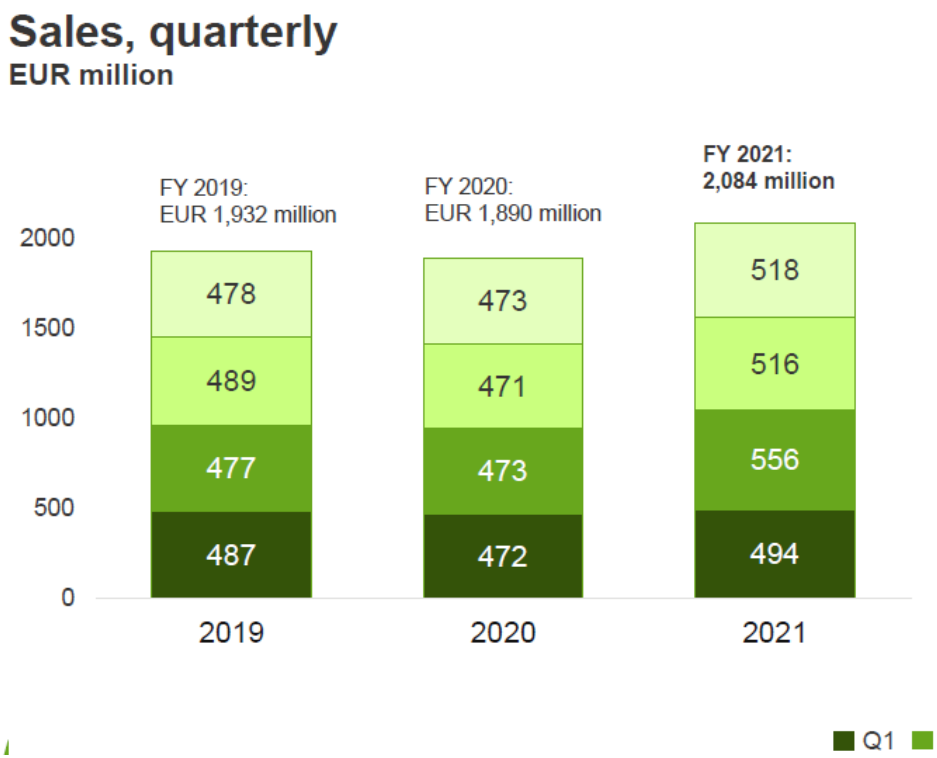


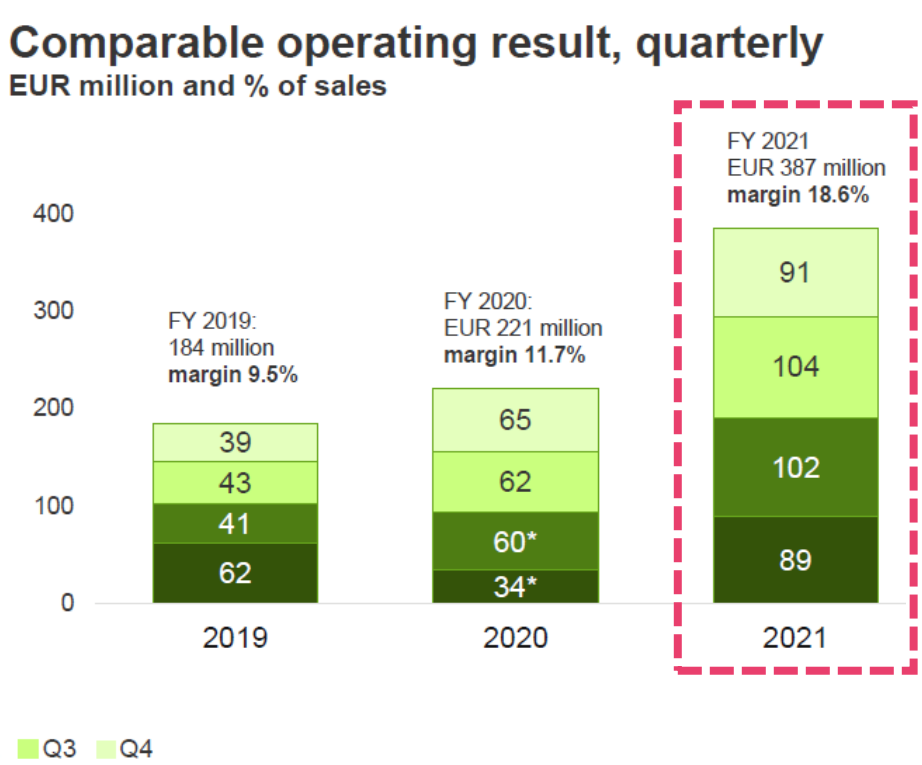
Source: Metsa

#2.2 PRICES AND COSTS

E-COMMERCE DEMAND HAS ALSO BOOSTED PROFITABILITY TO HISTORICAL LEVELS…

- Metsa Board:
  - Revenues up 10% in 2021 vs. 2020, surpassing 2 billion EUR.
  - Operating profit up by 75% in 2021 vs. 2020 (387 million EUR vs. 221 million EUR).
  - Record operating margin (operating profit as % of sales) of 18.6% in 2021, up from 11.7%. The 2020 operating margin was already considerably higher than in 2019 (9.5%).

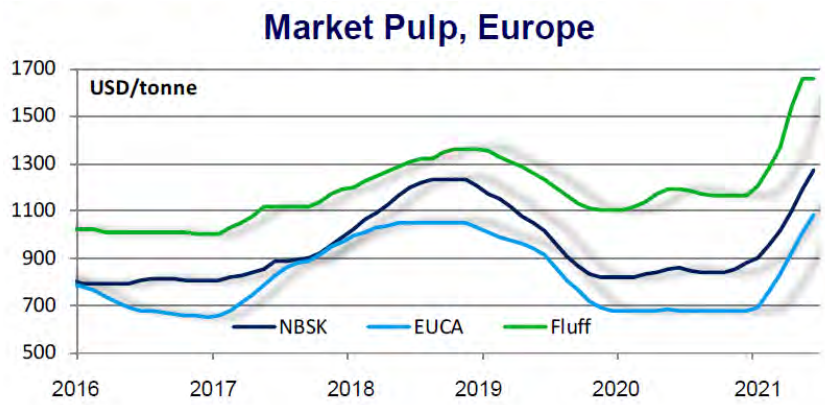


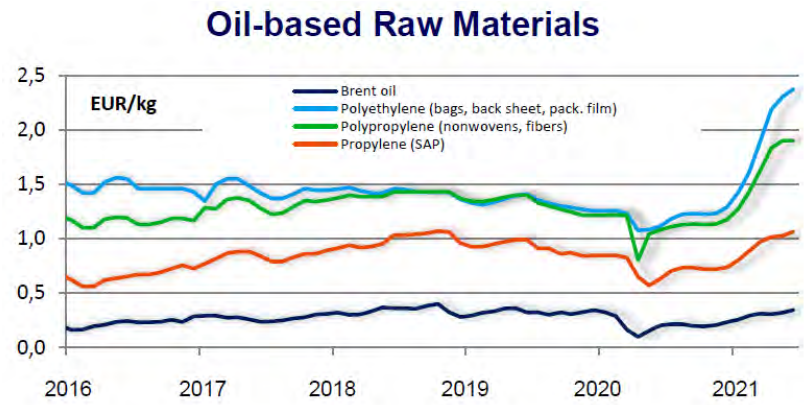


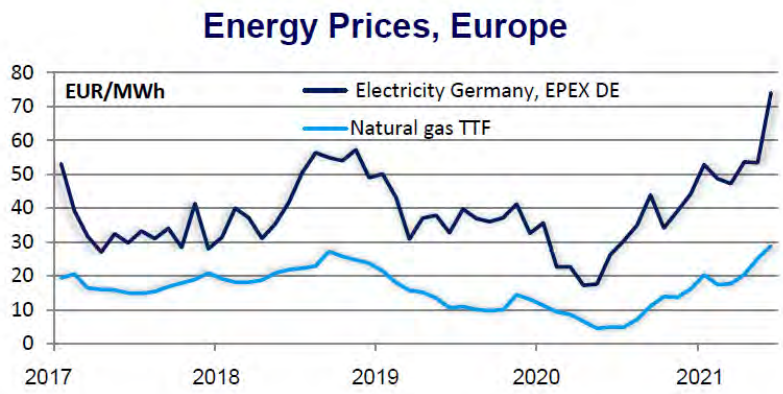
Source: Metsa Board

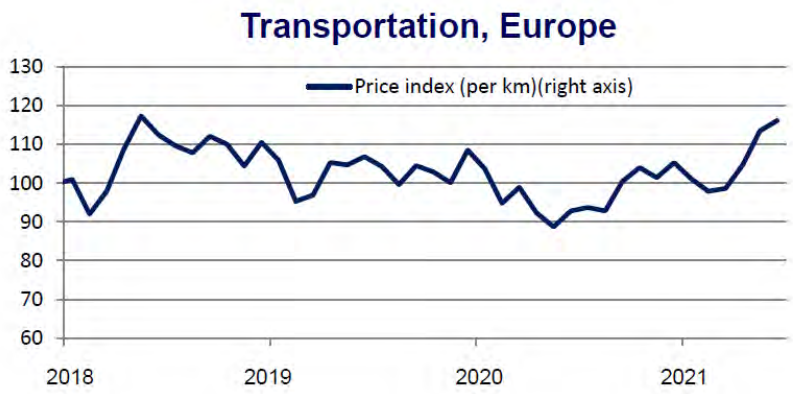
…BUT SOARING INPUT COSTS THREATEN TO OFFSET FINANCIAL BENEFITS FROM INCREASED DEMAND

- Costs of energy, raw material and transportation began to soar early in 2021, long before they became an issue of public concern.
- These cost increases threaten to cancel out the benefits reaped by the packaging industry from higher demand.





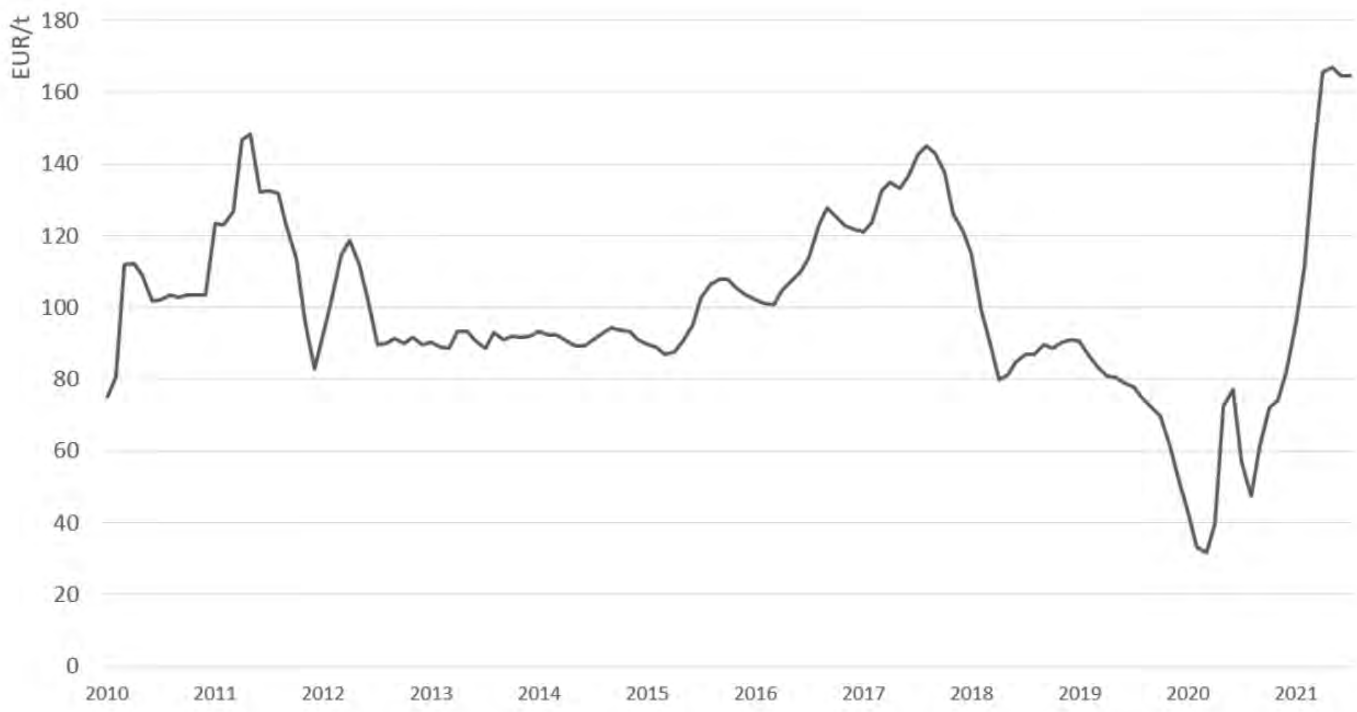




Source: Essity

…BUT SOARING INPUT COSTS THREATEN TO OFFSET FINANCIAL BENEFITS FROM INCREASED DEMAND

Development Recovered Paper Price
(mixed grades)



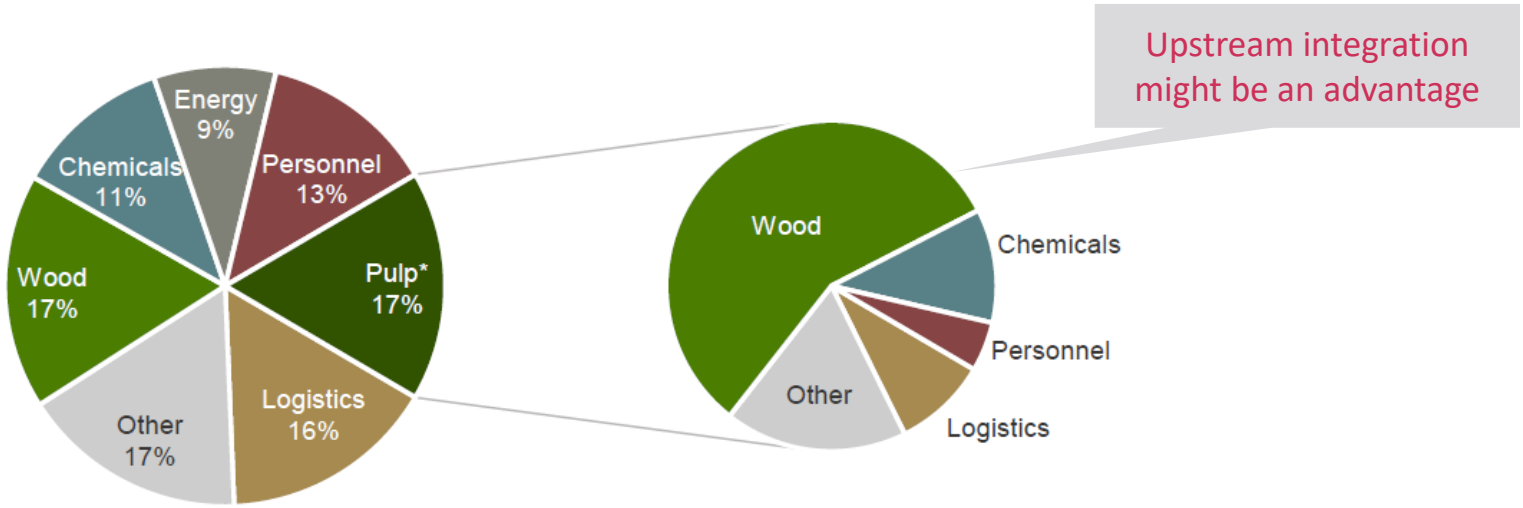
Source: MM Karton

THE COST STRUCTURE OF PAPER PACKAGING MANUFACTURERS IS SEVERELY AFFECTED BY INCREASES IN THE PRICES OF PULP, LOGISTICS, ENERGY

- Metsa Board is one of the few packaging companies publishing details on their cost structure: energy comprises 9% of total costs, while wood, pulp and chemicals together comprise 45%.
- Upstream vertical integration (having in-house sources of raw material) might be an advantage in an inflationary context.

Metsä Board's total costs in 2020
total EUR 1,560 million

Metsä Fibre's* pulp cost structure

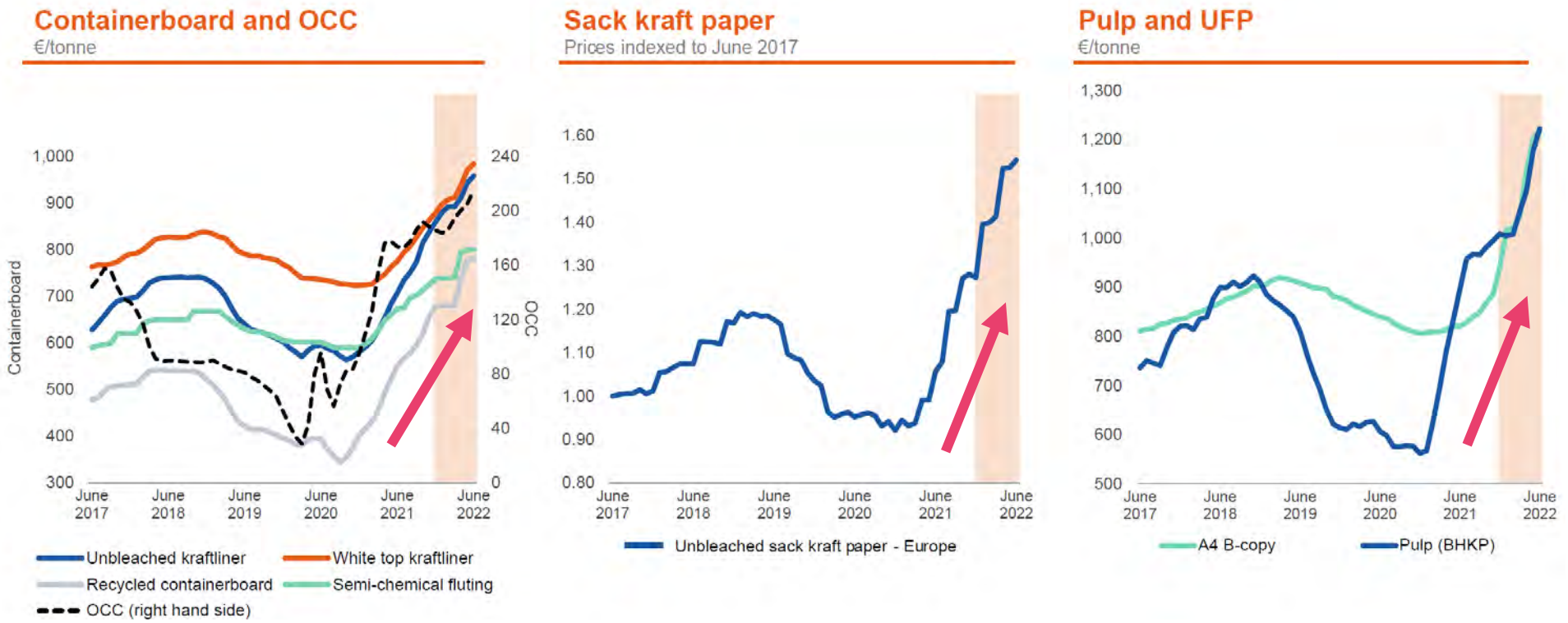


*) Metsä Board purchases the pulp from its associated company Metsä Fibre, of which Metsä Board owns 24.9%

IN REACTION, MANUFACTURERS HAVE BEEN INCREASING PRICES

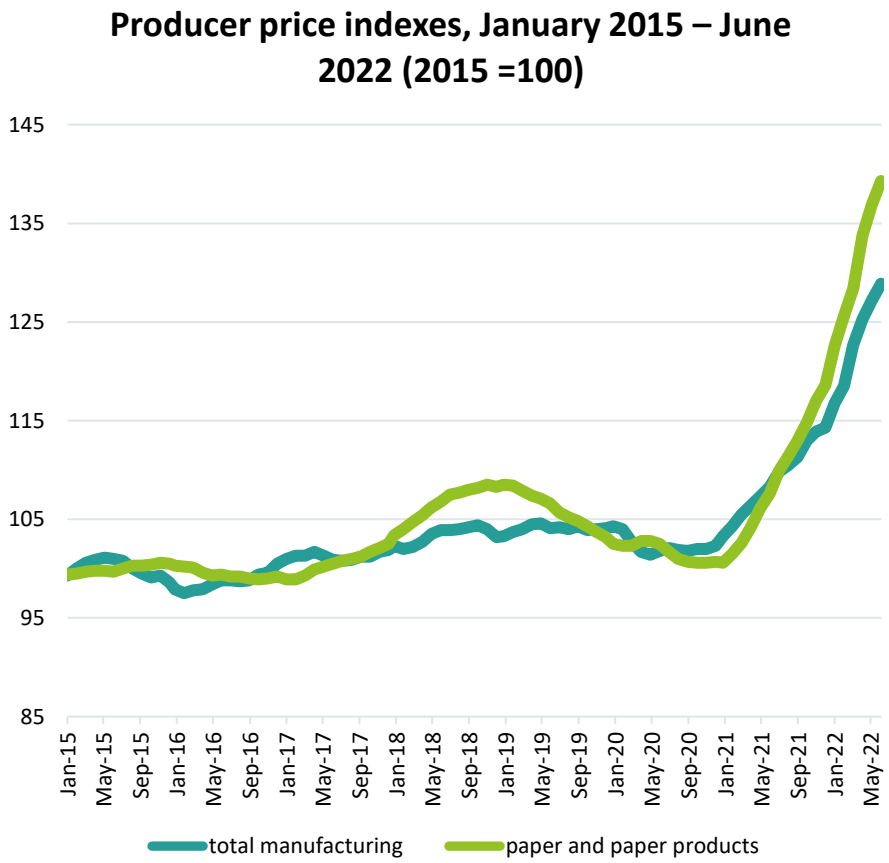
- Packaging companies were quick to increases prices in response to higher costs.
- Price for major product categories have been increasing more or less constantly since the middle of 2021.

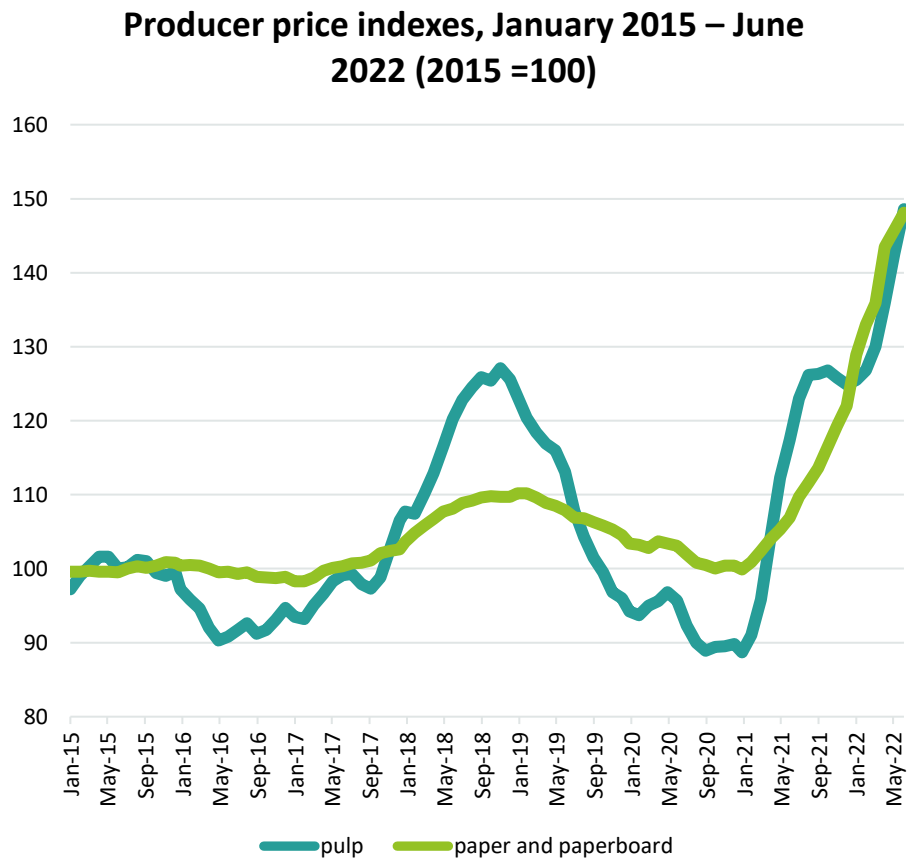
Key paper and pulp European selling prices



Source: Mondi

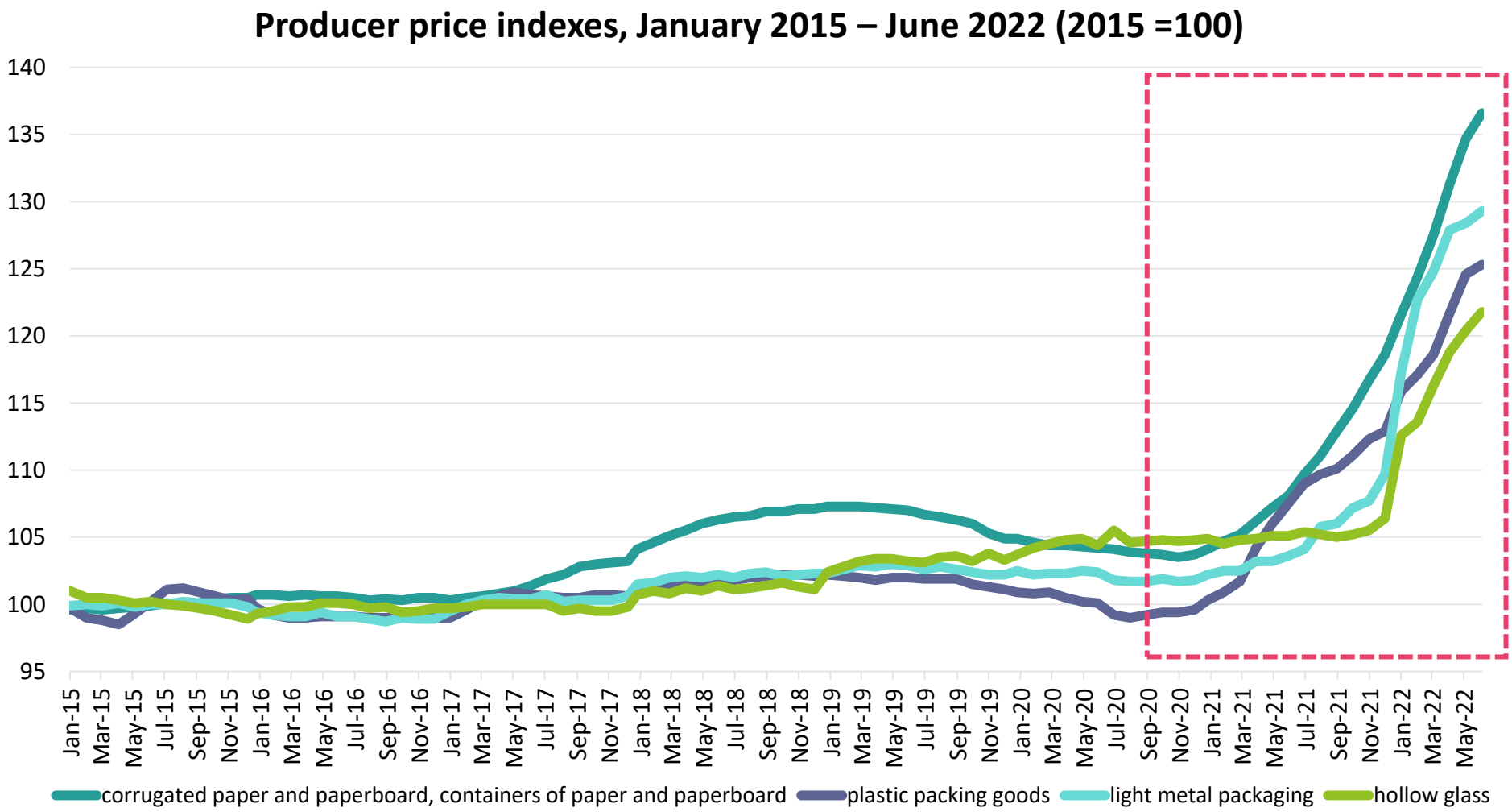
PRICE INCREASES ARE VISIBLE ACROSS EUROPEAN MANUFACTURING





Source: Eurostat

EUROPEAN PACKAGING PRICES HIGHEST IN HISTORY, REGARDLESS OF MATERIAL

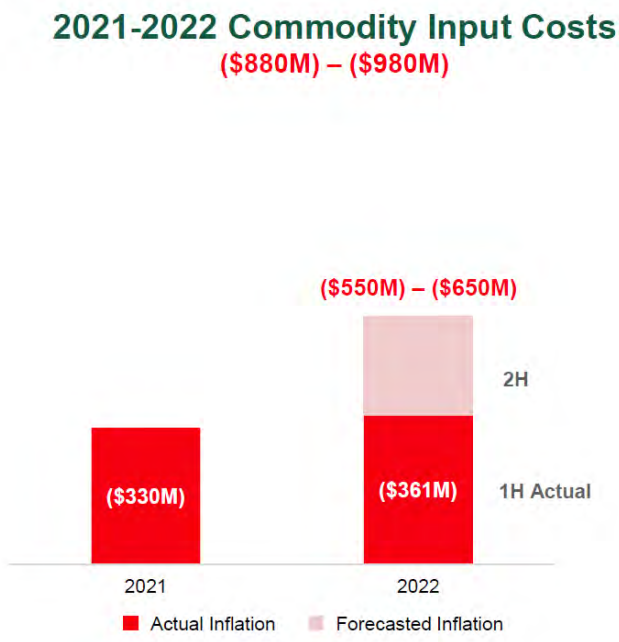


Source: Eurostat

PACKAGING MANUFACTURERS ARE INCREASING PRICES SIGNIFICANTLY ABOVE INFLATION

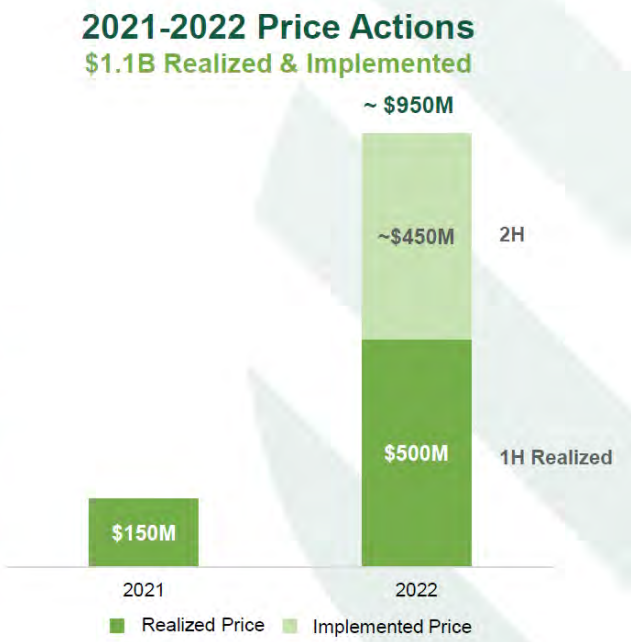
- Packaging companies were quick to increases prices in response to higher costs. Benefitting from sustained demand, they have so far (until summer 2022 included) succeeded in increasing prices above cost inflation, reaping additional profits as a result.
- In the first half of 2022, higher prices resulted in $500 million of additional revenue, while costs increased by $361 million. The company estimates costs will increase by $550 to $600 million for the entire year, but its price increases will add up to $950 million of additional revenue.

$1.1B IN PRICING REALIZED AND BEING IMPLEMENTED DURING 2021-2022 TIMEFRAME; INFLATION RANGE TIGHTENED, PRICE-COST RELATIONSHIP IMPROVED $50M AT MIDPOINT



2021-2022 Price-Cost	
2021A	($180M)
2022E	$300M - $400M

Current Est. 2023 Roll-Over	
Price	$300M - $400M
Cost[1]	($100M - $150M)



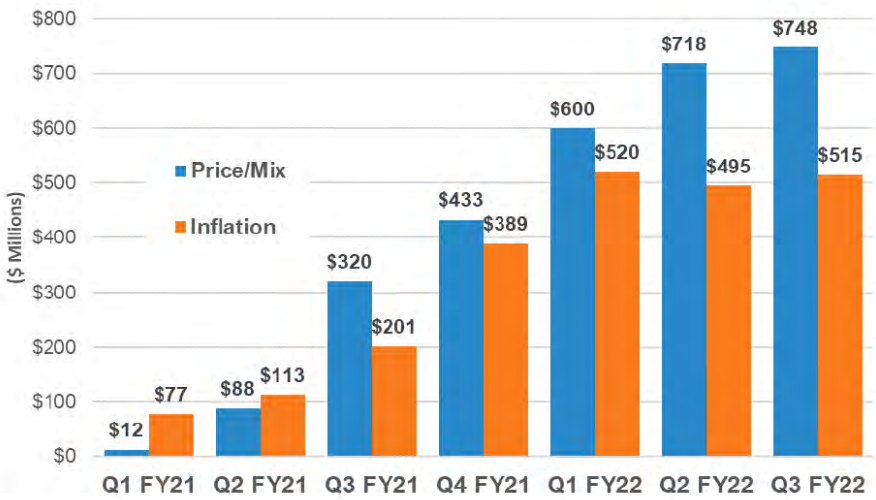
Source: Graphic Packaging (July 2022)

PACKAGING MANUFACTURERS ARE INCREASING PRICES SIGNIFICANTLY ABOVE INFLATION

- Westrock began increasing prices in the second quarter of the financial year 2021 and in the third quarter of that year it had already increased prices significantly above cost inflation. This situation has persisted into 2022, with the difference increasing in favor of prices.

PRICING AND MIX MANAGEMENT OUTPACING INFLATION YEAR-OVER-YEAR

YEAR-OVER-YEAR PRICE/MIX AND INFLATION



HIGHLIGHTS

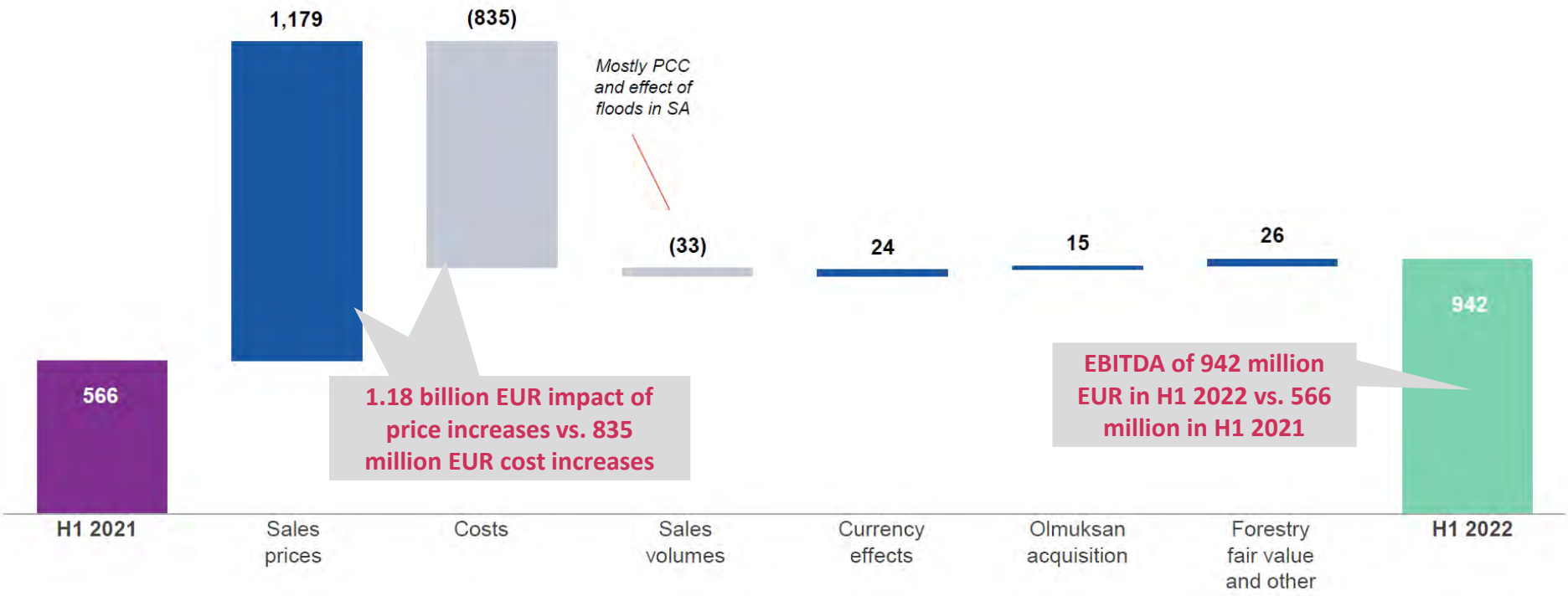
- Q3 FY22 price/mix realization of approximately $750 million year/year; more than $230 million in excess of inflation
- Published price increases since 4Q FY20[1]:
  - ✓ +$220/ton North America Containerboard
  - ✓ +$350/ton CNK
  - ✓ +$450/ton SBS folding carton grades
  - ✓ +$450/ton SBS plate and cup stock grades
  - ✓ +$420/ton CRB
- Key inflation drivers include fiber, labor, freight, energy and chemicals

PRICING FLOW-THROUGH EXPECTED TO OUTPACE INFLATION INTO FY23

Source: Westrock (August 2022)

HIGHER PRICES DIRECTLY TRANSLATE INTO ADDITIONAL PROFITS

Mondi earnings before interest, taxes, depreciation and amortization (EBITDA, million EUR)



#2.3 SUSTAINABILITY

SUSTAINABILITY IS PRIMARILY A REGULATION-DRIVEN OBJECTIVE

Regulators around the world are adopting various approaches for minimizing and managing packaging waste.

Regulation examples, not exhaustive

● Regulation currently in place ○ Recent moves/next steps on sustai

Australia

● Focus on optimizing recovery and recycling of packaging

○ Target o recyclab

China

● Banned/limited imports on packaging waste in 2017

Proposal to ban single-use bags by 2022

By 2030, all packaging in the EU is reusable or recyclable.

Circular Economy Action Plan

- reducing (over)packaging and packaging waste
- driving design for re-use and recyclability of packaging
- reducing the complexity of packaging materials
- regulations facilitating recycling (labeling, waste separation)

Canada

● Canada-wide Strategy for Sustainable Packaging

○ Implementing the Strategy on Zero Plastic Waste (passed in 2018), with 2030 goal

European Union

● Packaging-and-waste directive

○ Implementing a ban on selected single-use plastics

United States

● Important jurisdictions implementing bans on plastic bags

○ Introducing bills around reducing single-use-packaging waste and increasing recycling

Source: Expert interviews; press search; McKinsey analysis

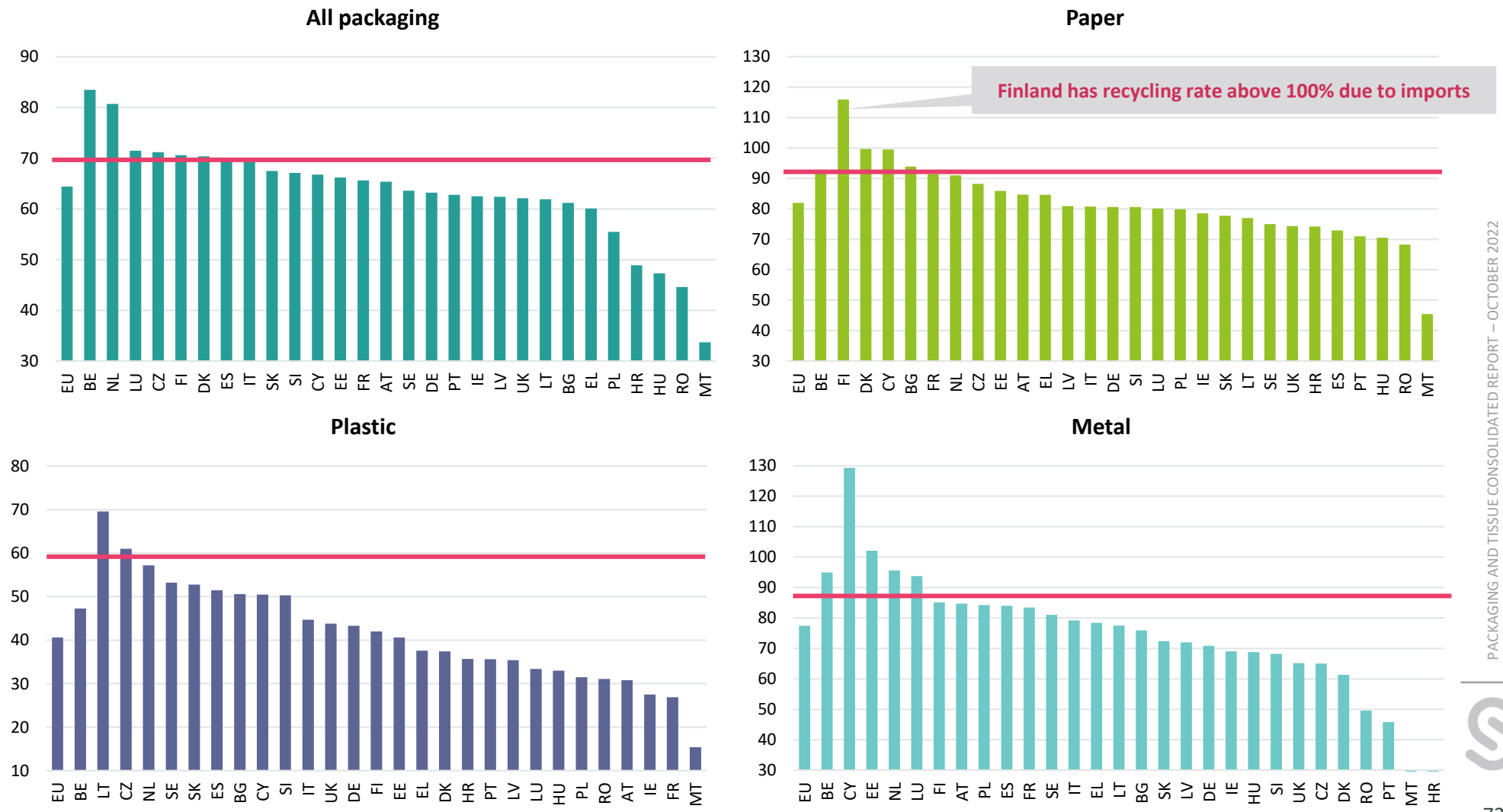
CURRENT PROVISIONS OF THE PACKAGING AND WASTE DIRECTIVE ARE SOON TO BE REVISED

Recycling rates (share of recycled packaging waste in all generated packaging waste)

	Current targets (%)	By 2025 (%)	By 2030 (%)	Latest values (EU28, 2018)
All packaging	55	65	70	65.7
Plastic	25	50	55	41.8
Wood	15	25	30	34.6
Ferrous metals	50 (incl. Al)	70	80	80.1
Aluminium	-	50	60	
Glass	60	70	75	74.7
Paper and cardboard	60	75	85	82.9

WITHIN THE EU, THE RECYCLING SITUATION VARIES DRAMATICALLY FROM COUNTRY TO COUNTRY. PLASTIC IS BY FAR THE WORST PERFORMER

Measured packaging recycling rates (%, 2019) and 2030 targets

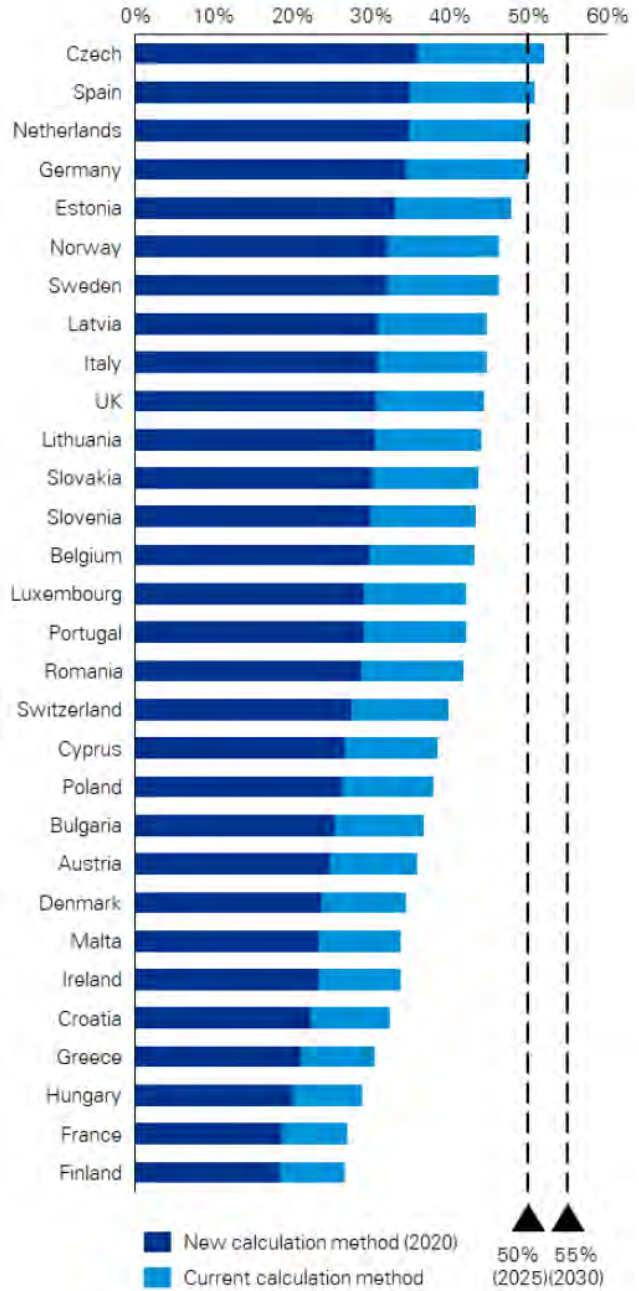


Source: Eurostat. UK data is for 2018.

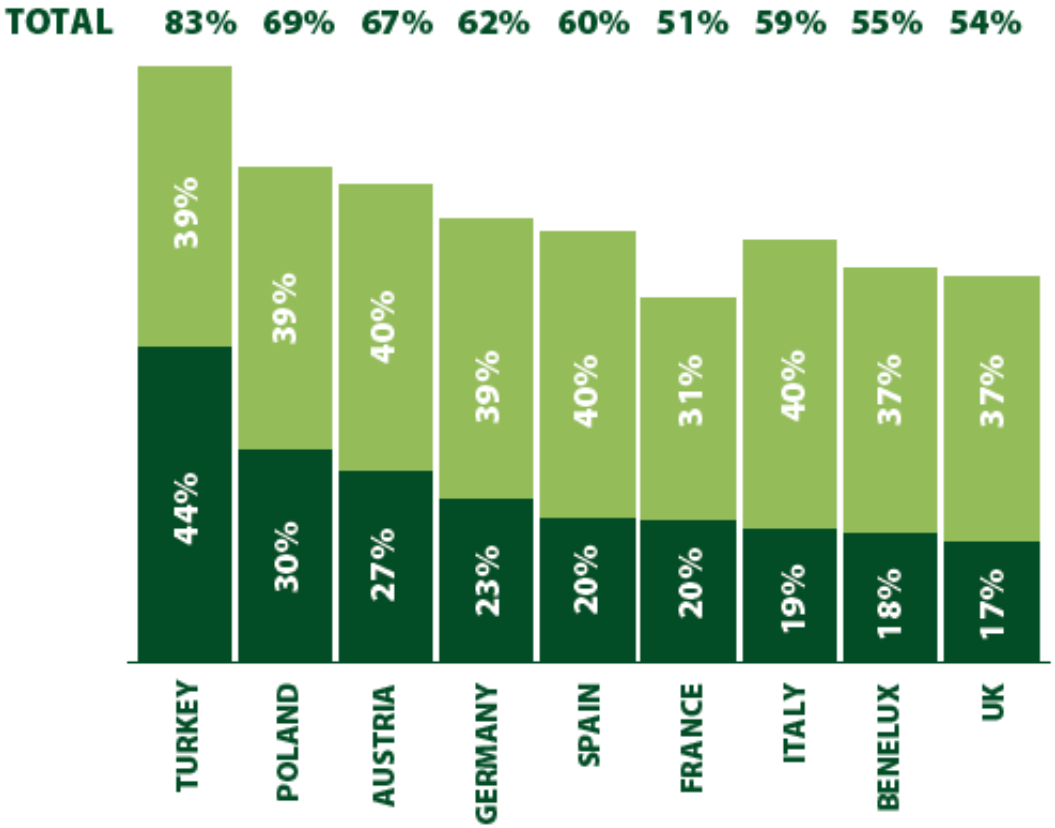
CHANGE OF CALCULATION METHOD IS LIKELY TO UNCOVER LOWER RECYCLING RATES

- The European Commission has announced it will change the packaging waste recycling rate calculation method in order to reflect reality more adequately.
- This is especially sensitive for plastic packaging, for which the reassessment of recycling rates is going to add to an already significant challenge in most (if not all) EU countries.

Plastic packaging waste recycling rate, 2018 (current versus new calculation method)[6]



PACKAGING SUSTAINABILITY IS PUSHED PRIMARILY BY REGULATION, BUT CUSTOMERS ARE ALSO INCREASINGLY LOOKING FOR PACKAGING THAT IS LESS HAZARDOUS FOR THE ENVIRONMENT



Percentage agreeing that the environmental impact of the packaging affects their purchasing decisions

STRONGLY AGREE AGREE

Source: Pro Carton (2021)

PACKAGING COMPANIES ARE IMPACTED BY SUSTAINABILITY STRATEGIES OF THEIR MAJOR CUSTOMERS, INCLUDING CONSUMER GOODS MANUFACTURERS AND SERVICE PROVIDERS

GPI SUSTAINABILITY INITIATIVES SUPPORT CUSTOMER ASPIRATIONS

Graphic Packaging

Recyclable Products
100% by 2025

Water Usage
-15%

Green house gases
-15%

Energy
-15%

LDPE usage
-40%

Coca-Cola

Recyclable Packaging
100% by 2030

Recycled Content
50% by 2030

McDonald's

Renewable / Recyclable Sources
100% by 2025

MOLSON Coors

Reusable / Recyclable / Compostable / Biodegradable
100% by 2025

Recycled Content
30% by 2025

Nestlé

Recyclable / Reusable Materials
100% by 2025

Elimination of 10 Problematic Plastics
100% by 2024

Unilever

Recyclable / Reusable / Compostable
100% by 2025

Recycled Content
25% by 2025

Walmart

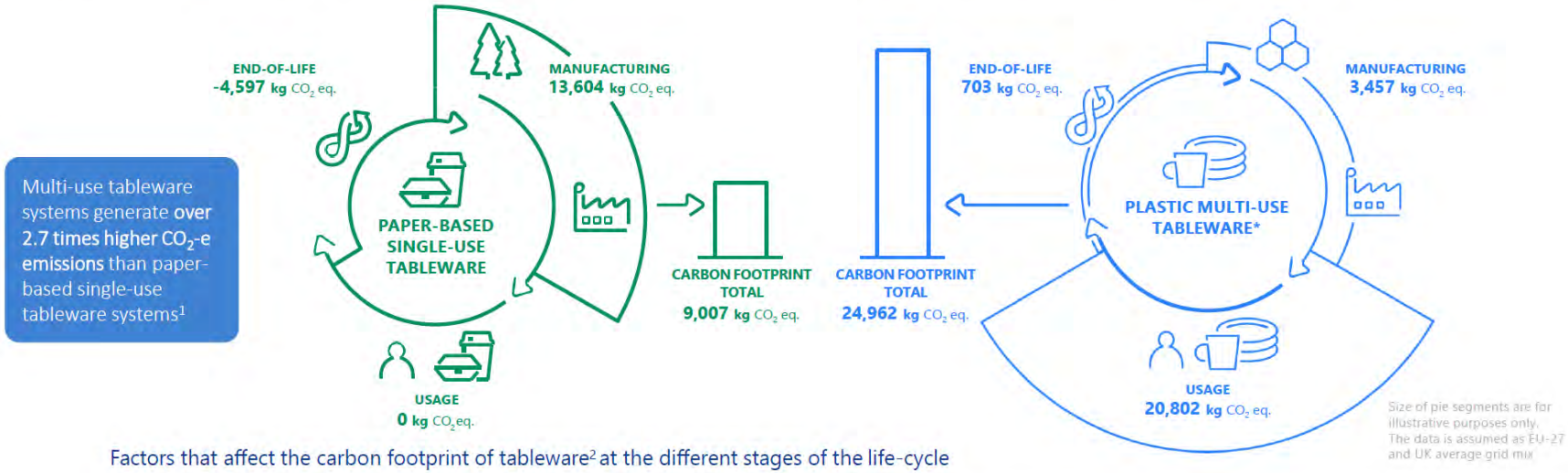
PBP Recyclable / Reusable / Compostable
100% by 2025

PBP Recycled Content
17% by 2025

ENVIRONMENTAL CONCERNS AND REGULATIONS ARE PUSHING FOR A MOVE AWAY FROM PLASTIC. PAPER IS WIDELY REGARDED AS THE PRIMARY ALTERNATIVE

- Due to the low recycling rates and overall environmental impact of plastic packaging, finding a more adequate replacement is a major topic in the packaging sustainability debate.
- Paper has emerged as the primary alternative to plastic, even for applications such as single-use tableware.

Comparing carbon footprints of single-use and multi-use systems



Factors that affect the carbon footprint of tableware[2] at the different stages of the life-cycle

MANUFACTURING
Manufacturing of raw materials and packaging, distribution of food and beverage tableware

Includes e.g.:
- Production of paper or plastic resin
- Transport

USAGE
Usage includes operations and use of multi-use tableware at Quick Service Restaurants (QSR) (e.g. in-house dishwashing and drying)

The electricity demand of the washing process is the single main contributor to climate change impact in the multi-use scenario, accounting for 83% of the total impact.

END-OF-LIFE
End-of-life treatment of multi-use and single-use tableware

Includes e.g.:
- Incineration of tableware with energy recovery
- Recycling of tableware materials
- Landfilling

Source: Huhtamaki

ENVIRONMENTAL CONCERNS AND REGULATIONS ARE PUSHING FOR SUBSTITUTING PAPER FOR PLASTIC IN MOST APPLICATIONS

Before

Smurfit Kappa
Better Planet Packaging

After

2013	2019	2020
	Major customers announced exits from foam	Next gen plant-based lined cup; now more cost effective
Foam Cups	PE Coated Paperboard Cups	PE-Free Cups (100% Plant-Based)
✗ Renewable	✓ 90% Renewable	✓ 90% Renewable
✗ Recyclable	✓ Recyclable	✓ Recyclable
✗ Compostable	✗ Compostable	✓ Commercially Compostable
	+40% cost premium to foam	*+50% cost premium to PE coated, reduced to +10% to +15% at scale*

HIGH RECYCLING RATES ARE MAKING PAPER ATTRACTIVE FOR REPLACING OTHER PACKAGING MATERIALS, NOT JUST PLASTIC

Carlsberg puts bio-based fibre bottle into its largest-ever trial

By Rachel Arthur

22-Jun-2022 - Last updated on 22-Jun-2022 at 09:07 GMT

Pic:Carlsberg

Source: beveragedaily.com

SOME PACKAGING COMPANIES SEE A HUGE MARKET OPPORTUNITY IN SUBSTITUTING PAPER FOR PLASTIC…

INCREASING TOTAL ADDRESSABLE MARKET AGAIN FROM $7.5 BILLION TO $9 BILLION DRIVEN BY NEW CAPABILITIES IN PLASTIC SUBSTITUTION

$9B Addressable Market

Plastic Substitution

Cups and Cartons

Multi-Packs

Food Trays
(non-cooking)

Canisters

Strength Packaging

Club Stores, Mass Retailers, E-Commerce (SIOC)

Cooking Solutions

Microwave

Cooking Containers

Platform Enablers: Design & Premiumization

Graphic Packaging INTERNATIONAL

©2022 Graphic Packaging International 38

Source: Graphic Packaging

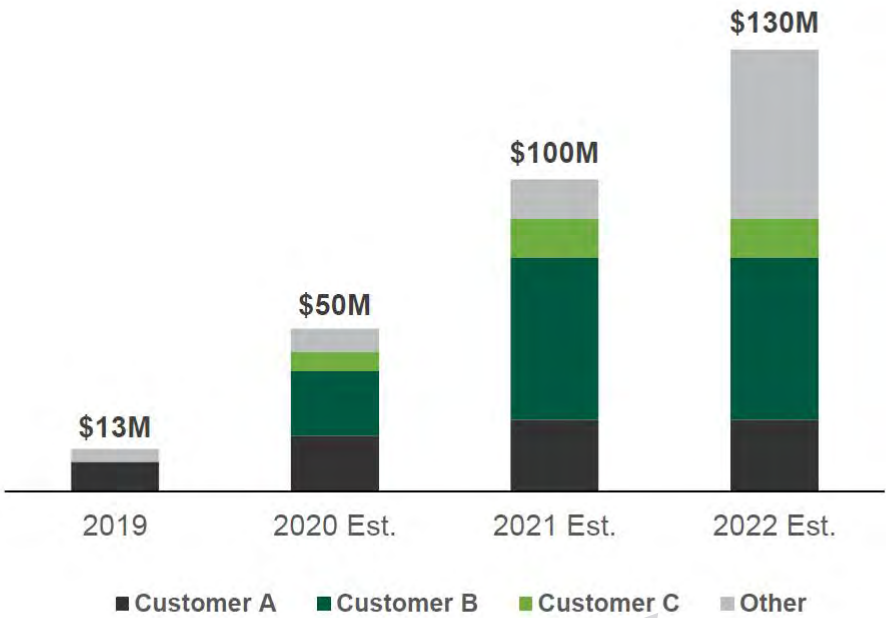
…WITH ALREADY TANGIBLE RESULTS

INSULATED PAPERBOARD CUP AND BOWL GROWTH IS ACCELERATING

VALUE DRIVERS

- Consumers' negative perception of foam and plastic are driving replacement actions
- Lowest cost option with similar functional characteristics

CUMULATIVE GROWTH PLAN (CUSTOMER COMMITTED)



~$50M
Conversion from foam food containers

~$10M
Plastic bowl conversion

~$50M
Hot cup from foam to paperboard

~$20M
Single wall paper and polypropylene cups to double wall cold cup

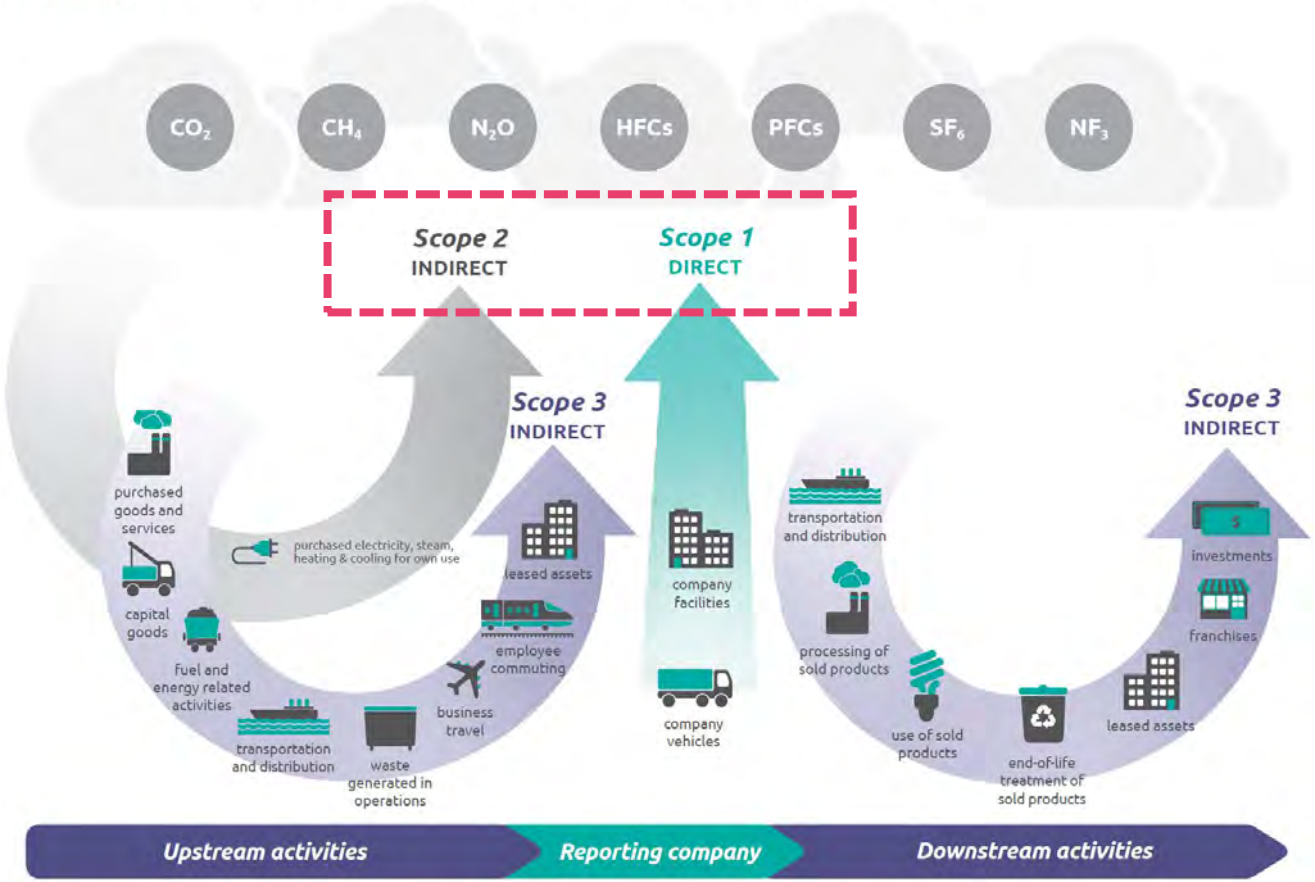
Source: Graphic Packaging

Graphic Packaging is estimating that it will gain increasingly larger annual revenues as a result of customers' seeking to replace plastic packaging solutions.

“FIT FOR 55”: 55% REDUCTION OF GREENHOUSE GAS EMISSIONS BY 2030 (VS. 1990). CHALLENGE VARIES FROM INDUSTRY TO INDUSTRY

- European regulations impose a reduction of Scope 1 (purchased electricity, steam, heating, cooling) and Scope 2 (company facilities) emissions. Scope 3 (upstream and downstream value chain) emissions are not covered.
- The implications vary from industry to industry, depending on their energy intensity and particularities of their processes.

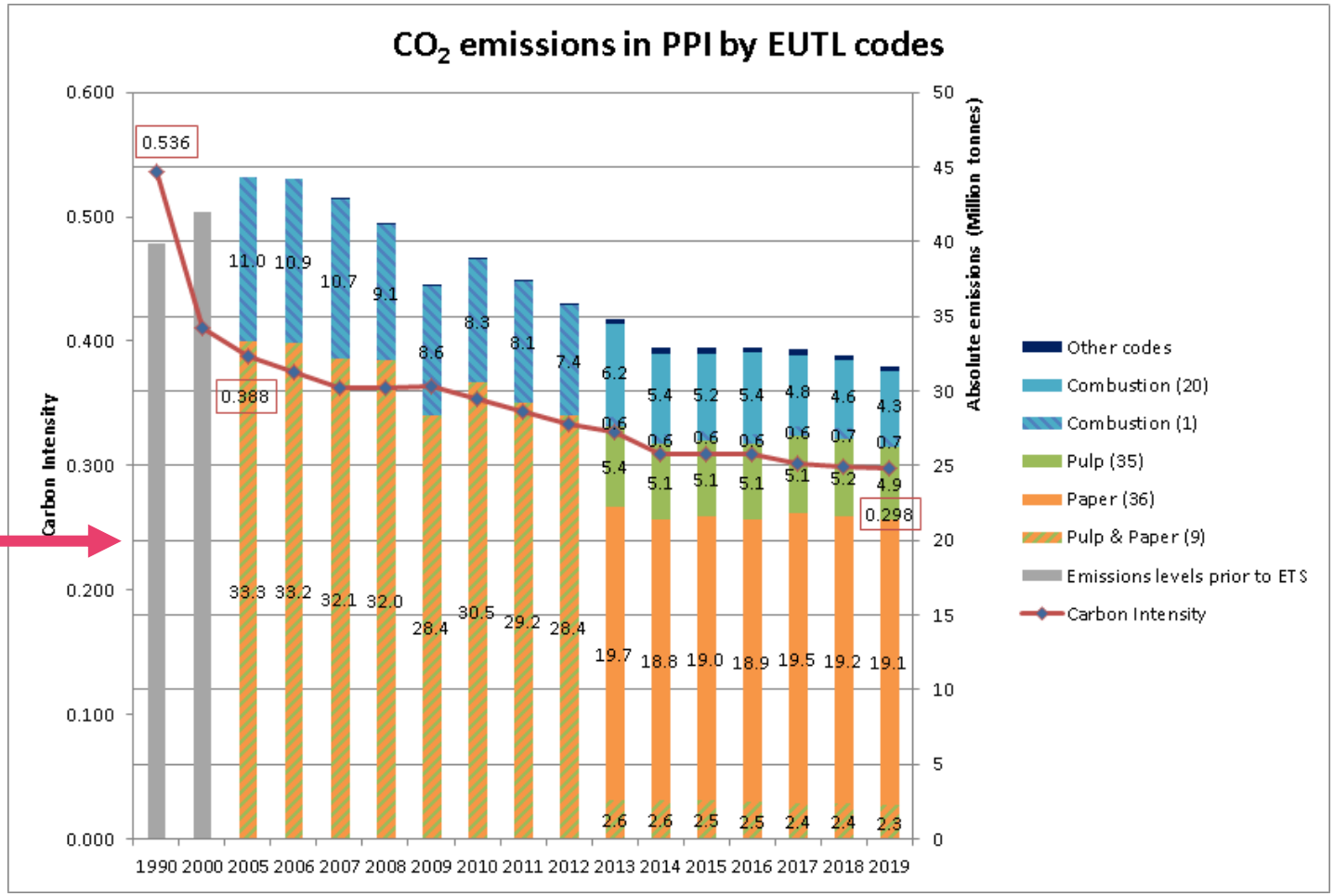
Figure [I] Overview of GHG Protocol scopes and emissions across the value chain



THE PAPER INDUSTRY IS ENERGY INTENSIVE. SUBSTANTIAL ADDITIONAL EMISSIONS REDUCTION IS NECESSARY UNTIL 2030

- While paper packaging might benefit from replacing other materials, emission reduction targets are an important challenge.
- According to CEPI, Scope 2 CO2 emissions in the European pulp and paper industry must decrease significantly in order to reach Fit for 55 goals.

50% of 1990 level

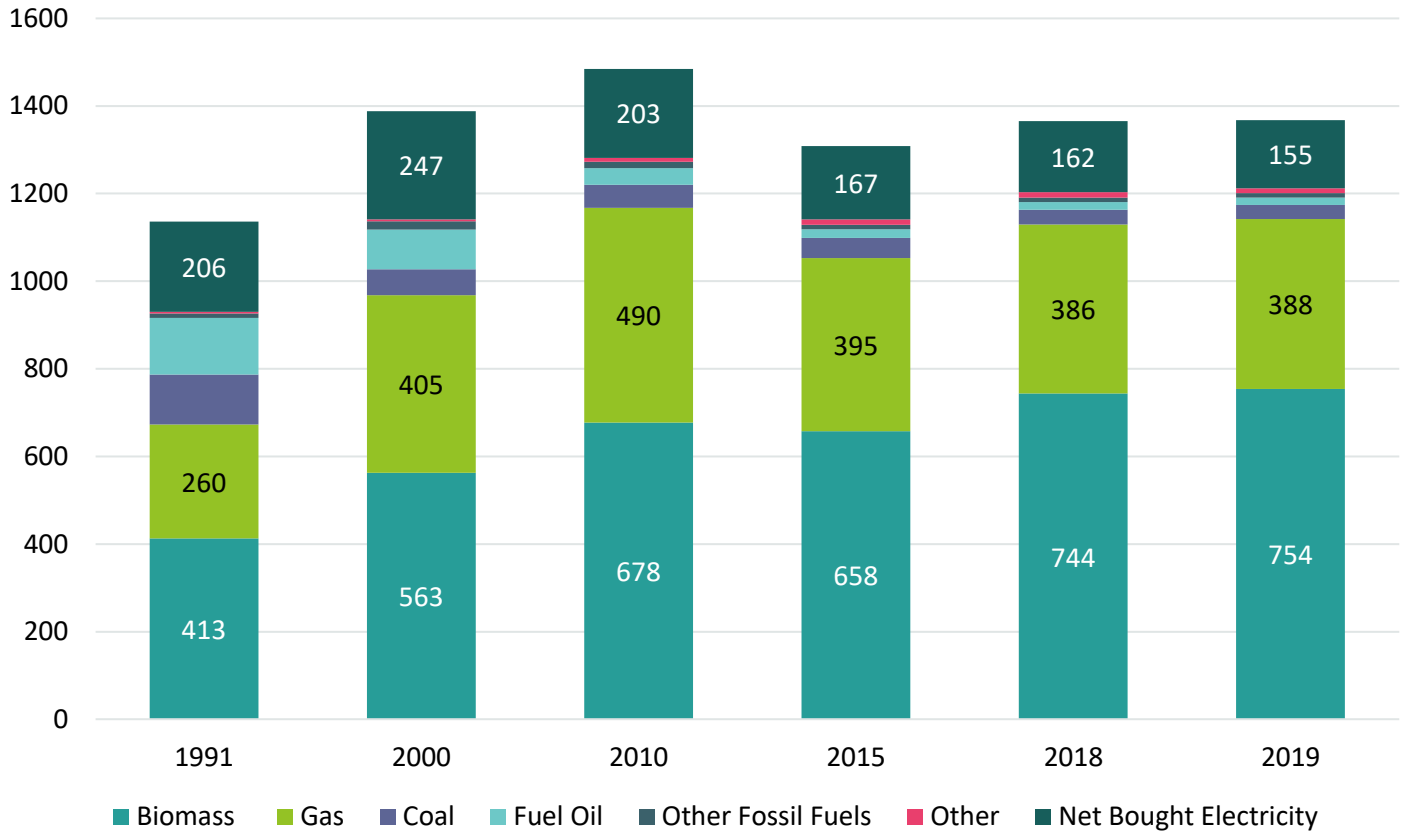


Source: CEPI

PRESSURE ON USE OF FOSSIL FUELS TO INCREASE EXPONENTIALLY

- Emissions targets mean fossil fuel use should become increasingly limited. Gas, which in 2019 supplied over 28% of the total energy consumed by the EU pulp and paper industry, is considered a "greener" option than other fossil fuels and until the war in Ukraine was looked at as a transitional option until new energy sources, like hydrogen, would become available and affordable at industrial scale.
- Biomass use has come under increased scrutiny, questioning its status as a sustainable energy source.

Primary energy consumption of the EU pulp and paper industry (kTJ)

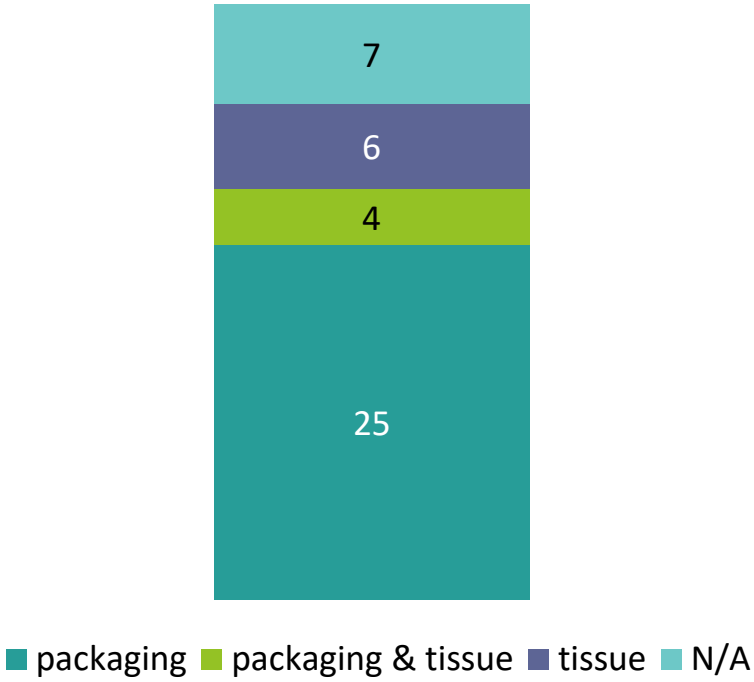


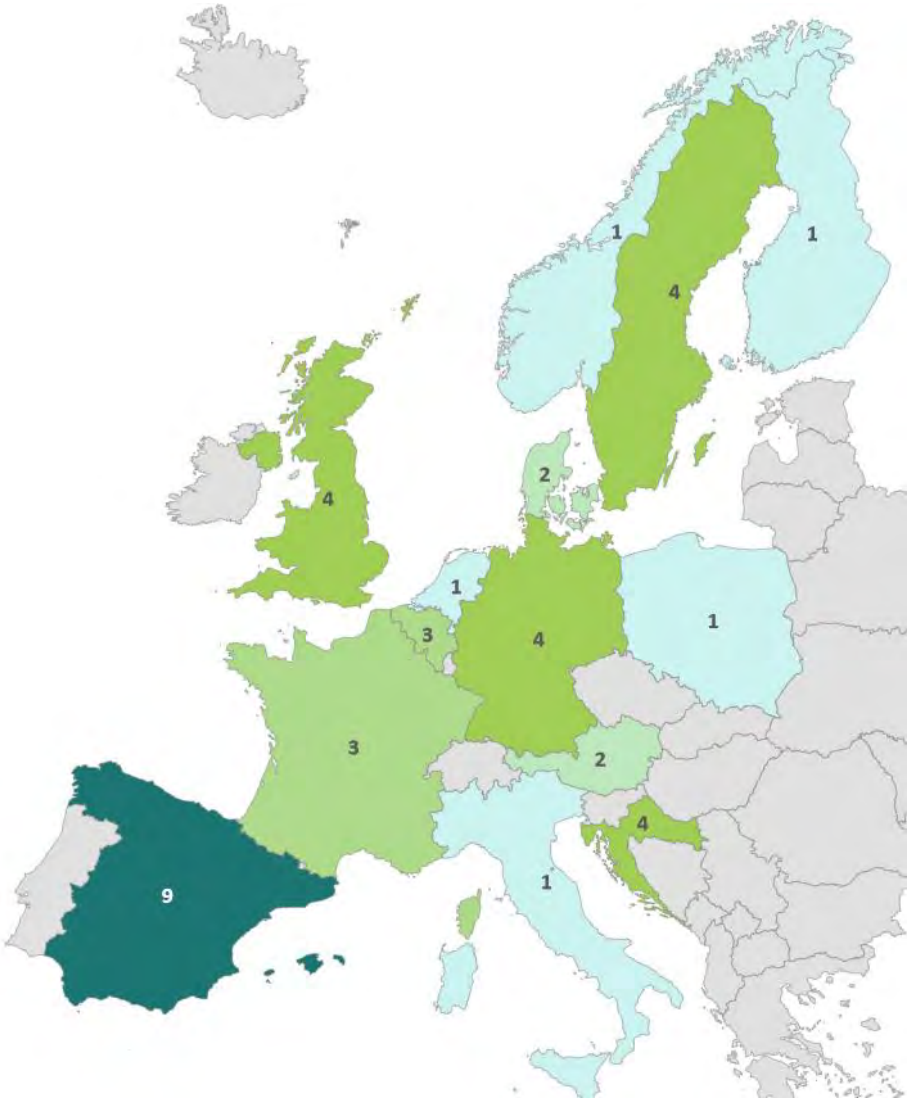
Source: CEPI

#2.4 SURVEY RESULTS (Phase 1, results until September 2021)

SURVEY AMONG TRADE UNION REPRESENTATIVES IN THE PACKAGING AND TISSUE INDUSTRIES

42 respondents in total (by companies' primary activity)

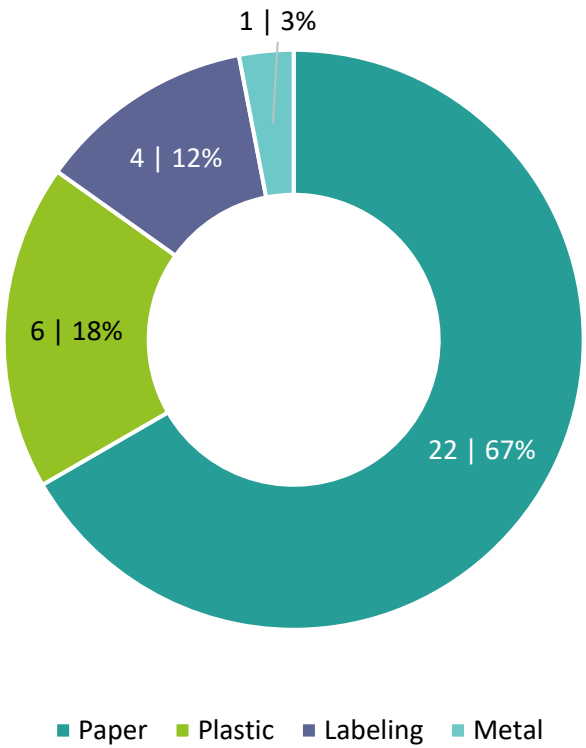


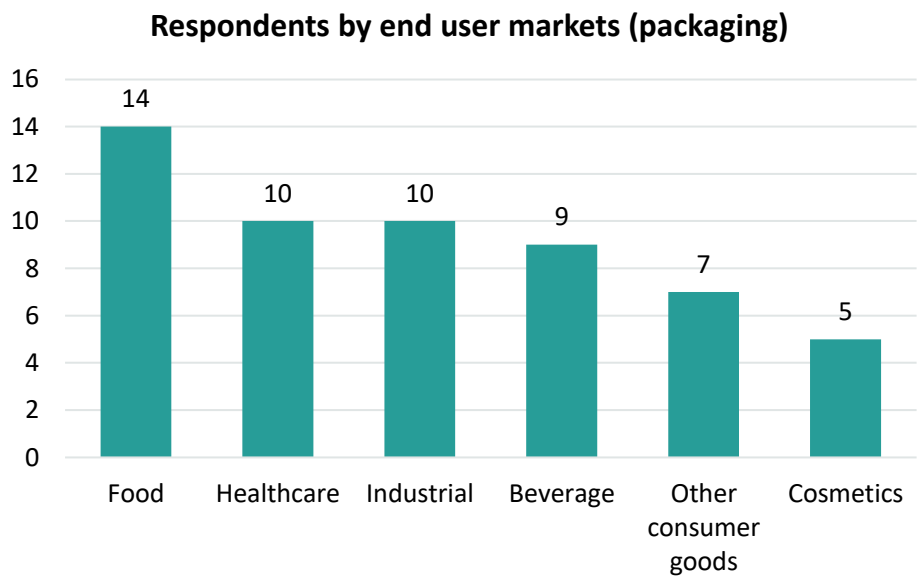


SURVEY AMONG TRADE UNION REPRESENTATIVES IN THE PACKAGING AND TISSUE INDUSTRIES

- Companies covered: AR Packaging, Amcor, Bakrotisak, DS Smith, Essity, International Paper, Metsa, Pyroll, Saica, Sappi, Smurfit Kappa, Sofidel, WEPA, Westrock

Respondents from packaging companies

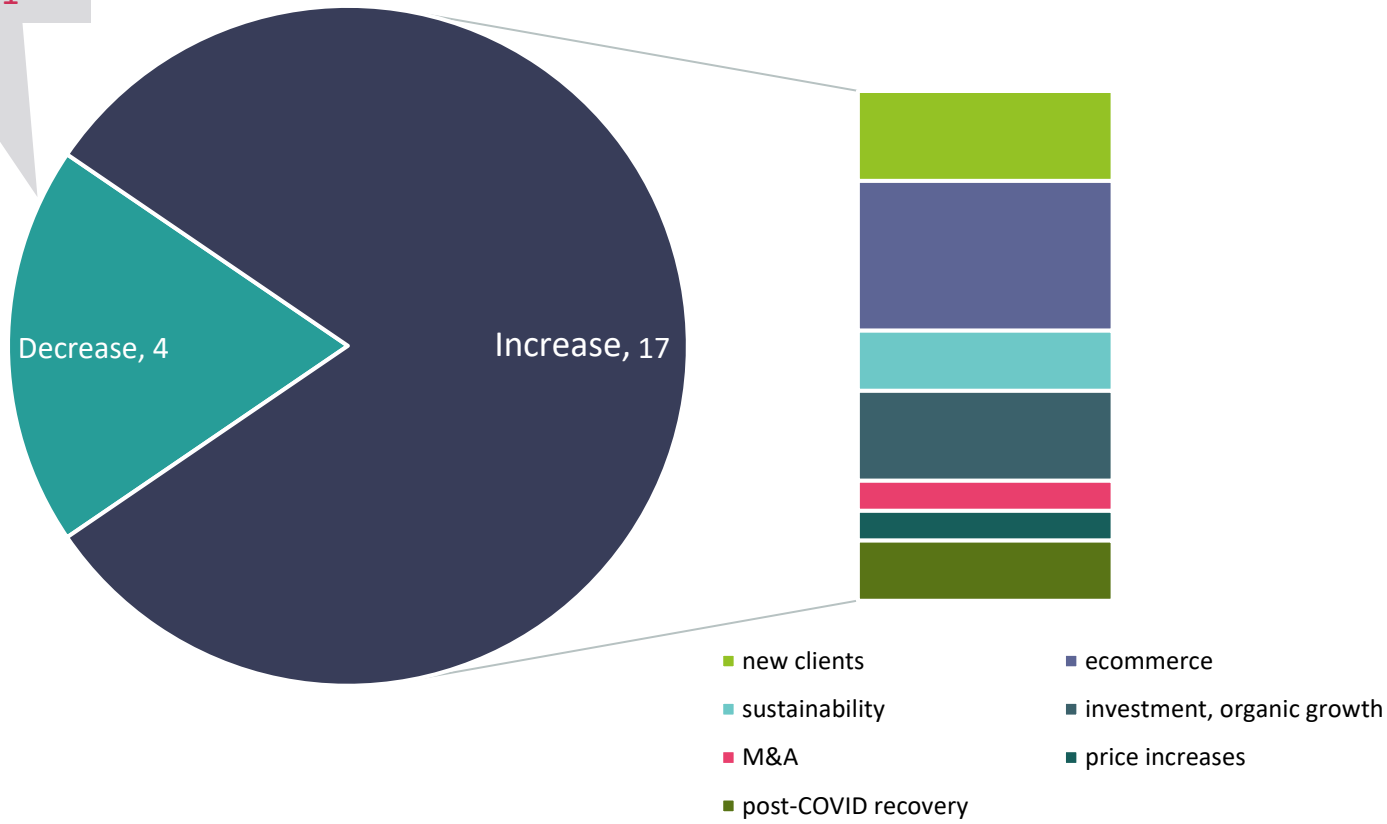




SALES INCREASE FOR ALL PACKAGING COMPANIES COVERED

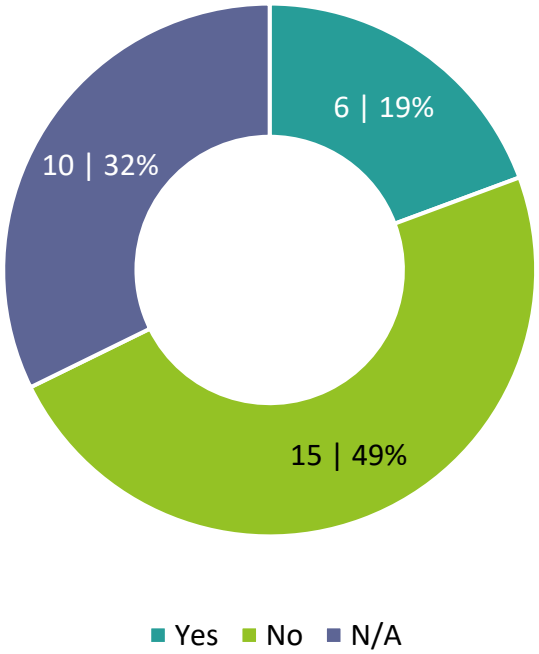
3 Tissue, 1 Packaging reporting "visible recovery" in 2021

Sales developments recently

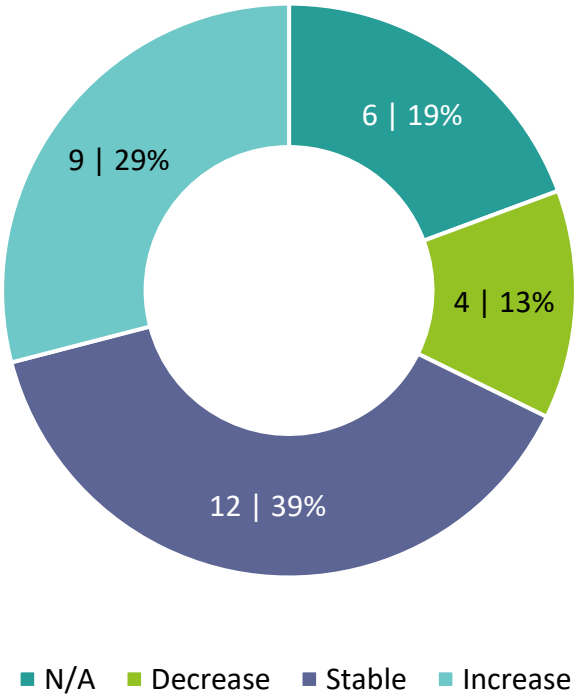


EMPLOYMENT LARGELY NOT AFFECTED BY COVID-19, WITH SOME COMPANIES NEEDING TO HIRE IN ORDER TO ADDRESS INCREASED DEMAND AND LABOR TURNOVER

Job retention schemes in response to COVID-19

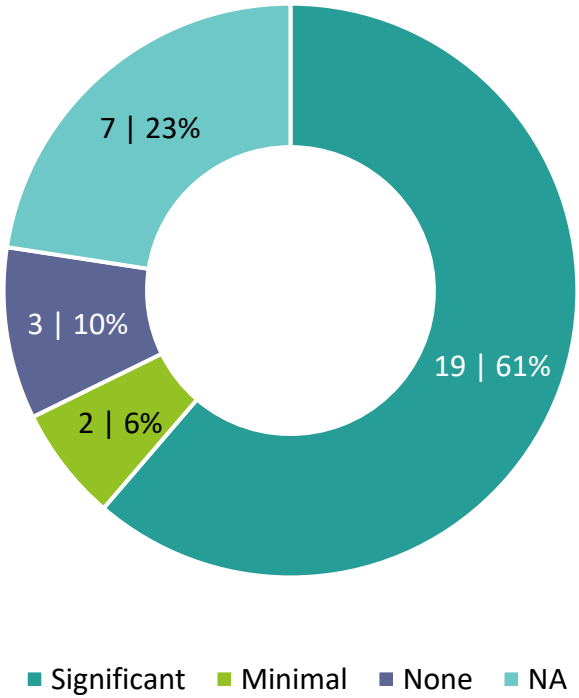


Evolution of employment



DIGITALISATION HAS ALREADY HAD A VISIBLE IMPACT IN PRODUCTION FOR MOST COMPANIES, WITH CONSEQUENCES FOR EMPLOYMENT LEVELS, WORKING CONDITIONS, JOB CONTENT AND SKILL REQUIREMENTS

Perceived impact of digitalisation



Skills demand	
Increasing	**Decreasing**
highly skilled , experienced, adaptable personnel	lower skilled jobs
IT	printing (non-printing is in demand)
process technology	support workers
technicians	office workers
R&D	administrative and other workers
machine operators	warehouse, sales
graphic specialists	simple activities, sales
engineers	single skilled people
manual workers	assistants
technically trained (digitalization)	auxiliary workers
machine operators with maintenance skills	low-paid jobs
factory and office workers	manual labor
technicians, operators	

ONGOING ISSUES AND CURRENT TRENDS: SUMMARY

COVID-19 has accelerated pre-existing trends, especially in relation to to e-commerce and overall digitalization.

E-commerce has substantially increased the demand for corrugated packaging, leading to record volumes, revenues and profitability for companies in the first half of 2021.

- Future growth will likely require additional capacities.

Rising input costs, especially for energy and raw material, threaten to limit the benefits arising from sustained demand.

- Packaging companies have already significantly increased prices and they plan to continue doing so.

Sustainability is a major driver for change in the industry.

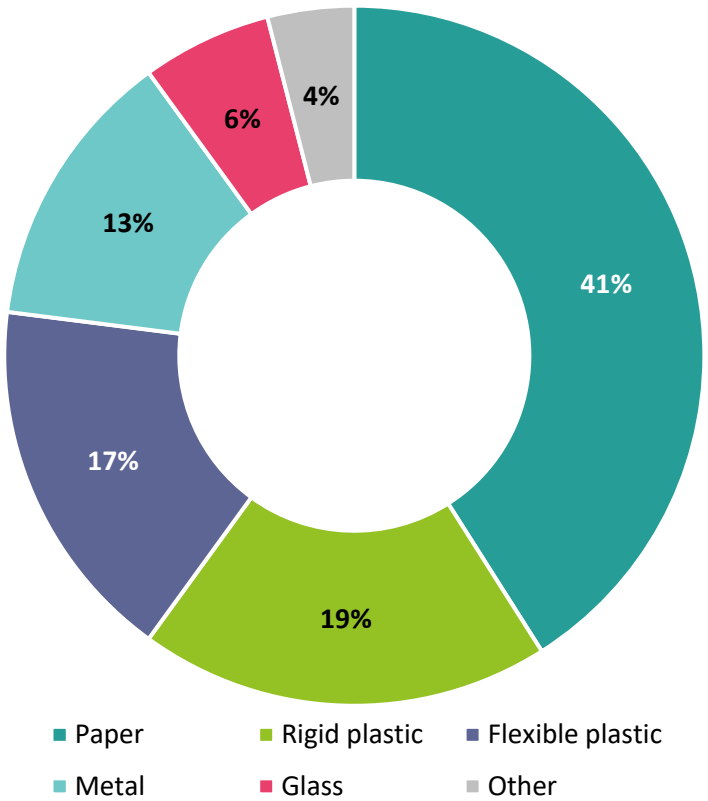
- Shift from plastic to paper, especially in Europe.
- The paper packaging industry performs very well when it comes to recycling its products
- Regulations concerning scope 1 and notably scope 2 emissions are particularly challenging.

#3 GLOBAL UPDATE ON THE PACKAGING SECTOR

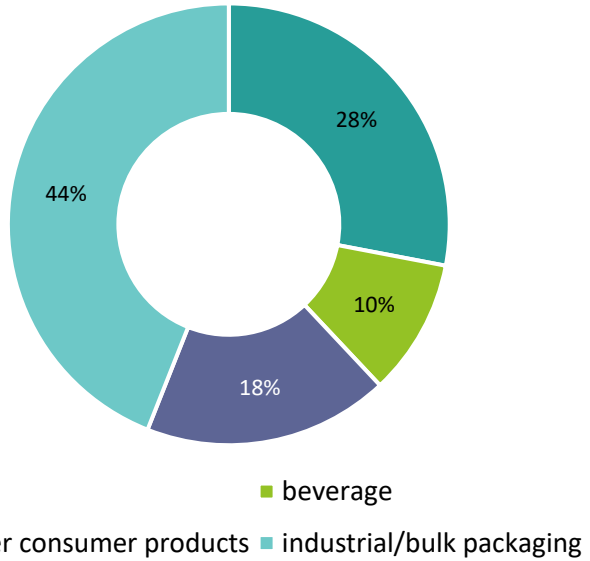
#3.1 GLOBAL OVERVIEW

PACKAGING MEANS MULTIPLE MATERIALS, MARKET APPLICATIONS, MANUFACTURING PROCESSES. FUTURE PERSPECTIVES VARY ACCORDINGLY

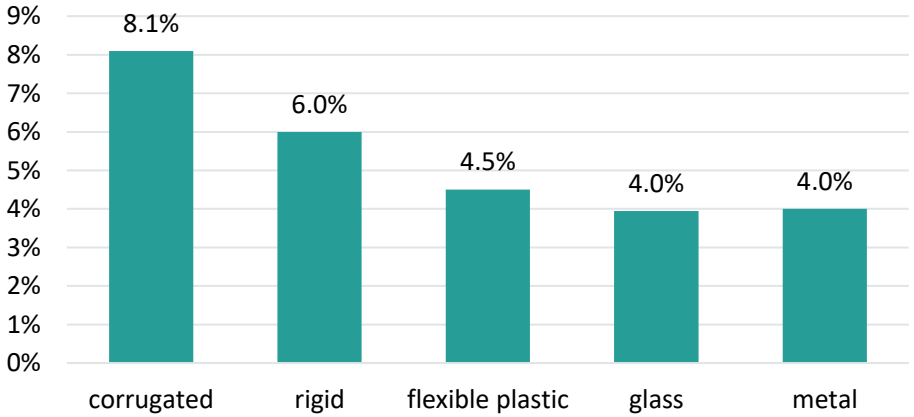
Global packaging market by material (%)



End-user consumption share of global packaging (%)

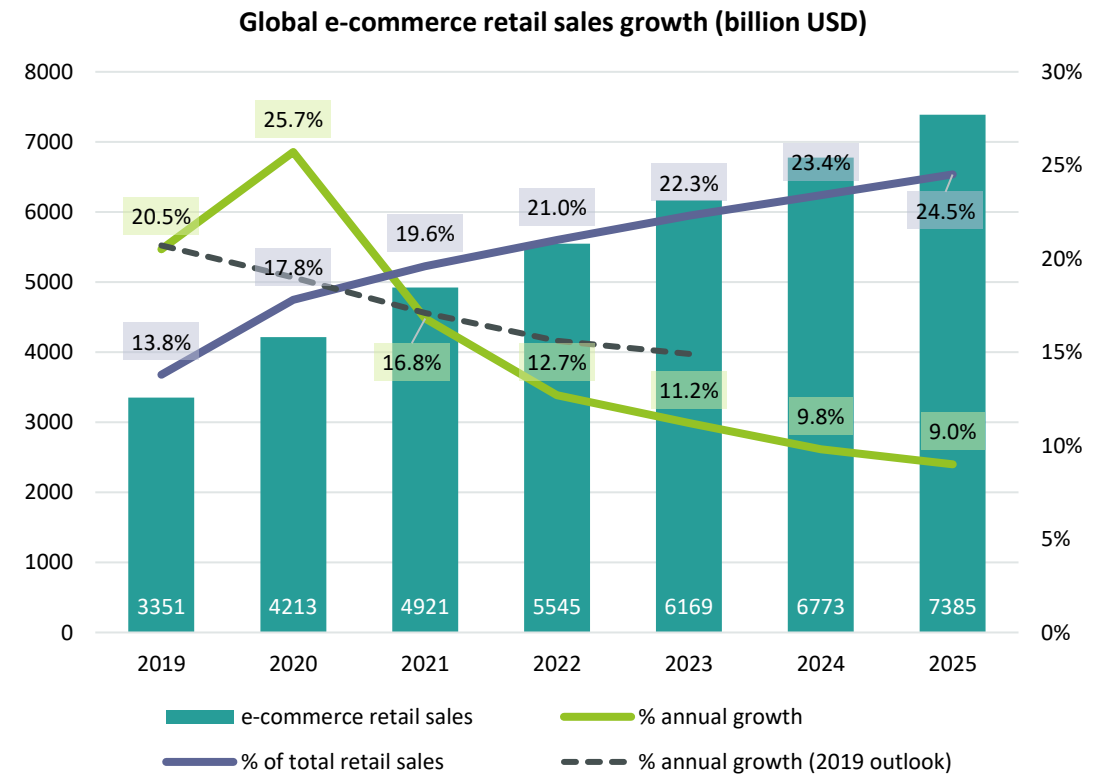


Annual average growth rates of the global packaging market, 2021-2025



OVERALL, THE PACKAGING SECTOR HAS BEEN BOOMING DUE TO THE COVID-19 IMPACT ON E-COMMERCE

- Globally, e-commerce retail sales grew by 25.7% in 2020, surpassing 4 billion USD, or 17.8% of total retail sales.
- By 2025, e-commerce retail sales are estimated to comprise a quarter of total retail sales.
- The growth of e-commerce increases demand especially for corrugated paper packaging. Therefore, unlike other sectors, the aggregate impact of COVID-19 on the packaging sector has been positive.

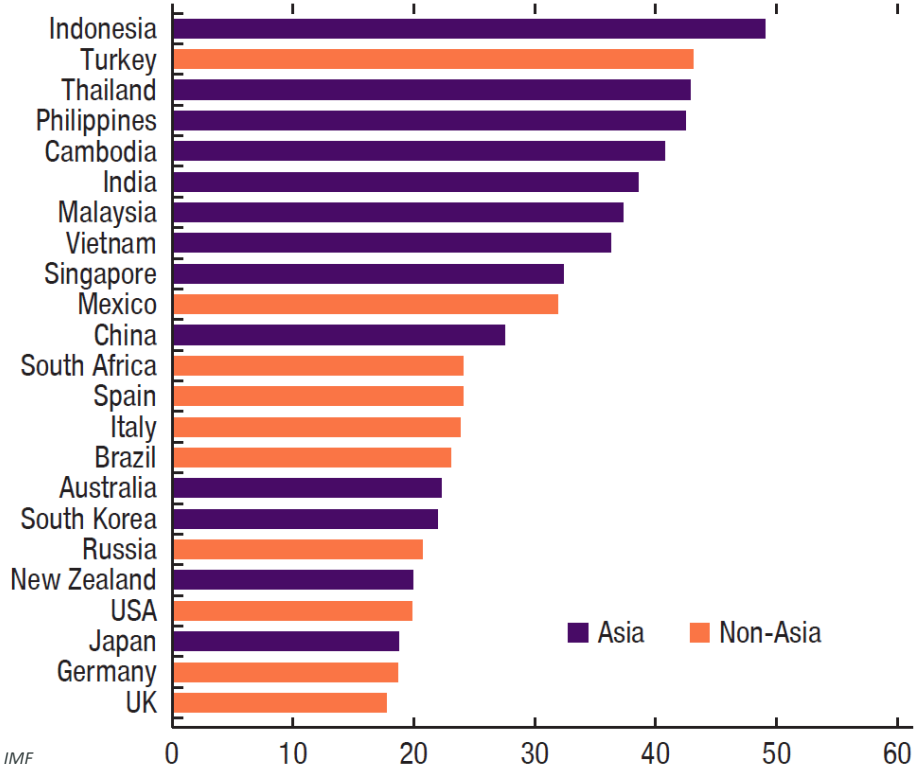


Source: eMarketer

THE IMPACT OF E-COMMERCE GROWTH HAS BEEN UNEVEN ACROSS REGIONS. ASIA HAS PROVED THE MOST DYNAMIC

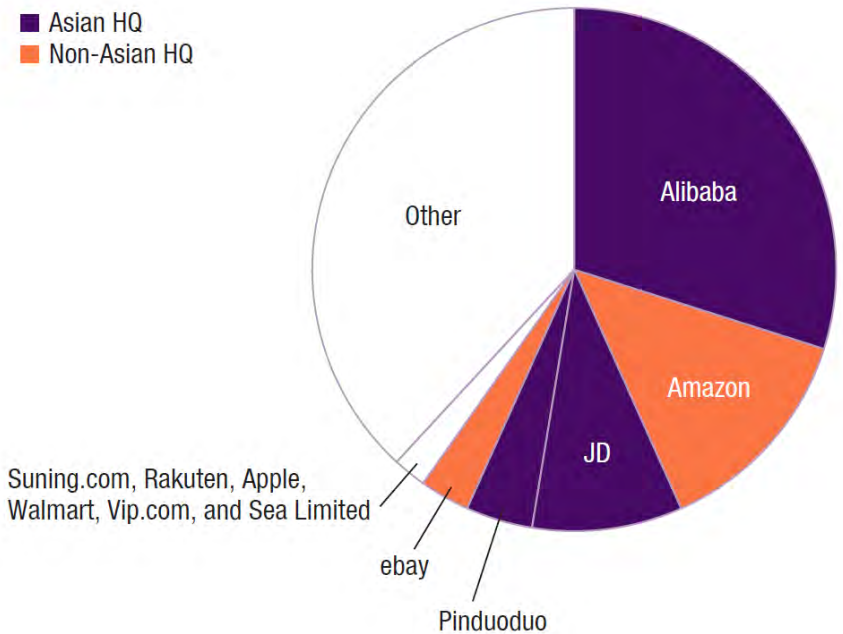
- Asian markets have seen far higher e-commerce growth rates during COVID-19. E-commerce increased by over 40% in Indonesia, Thailand and the Philippines.
- This does not necessarily have to do with a low starting point. Countries like Indonesia or China have among the highest e-commerce shares in total retail in the world.
- Asian (namely, Chinese) e-commerce companies (Alibaba, JD.com) have grown into regional giants with global aspirations, more than matching the likes of Amazon or ebay.

4. E-Commerce Sales
(Annual percentage change, 2020)



Source: IMF

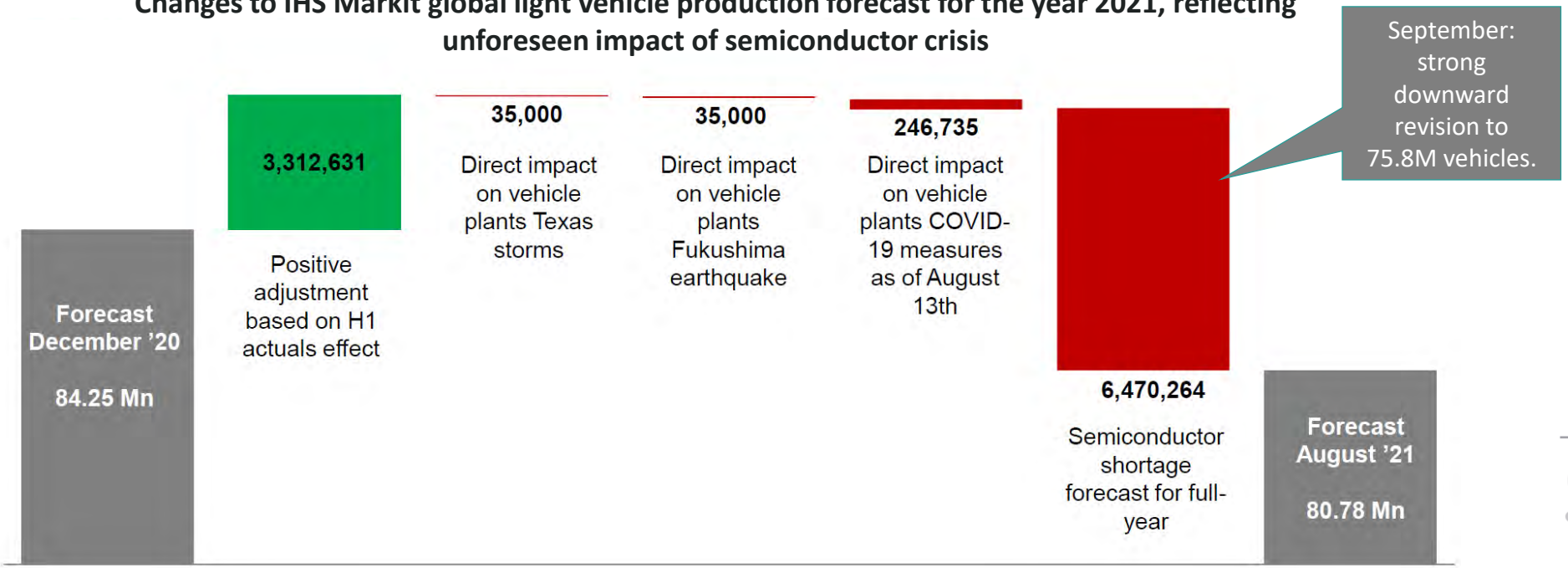
Figure 6. Global Market Share: E-Commerce Companies (Public)
(Percent of total, by gross merchandise volume, 2019)



BEYOND E-COMMERCE, SUPPLY CHAIN DISRUPTIONS HAVE HAD A STRONGLY NEGATIVE IMPACT ON SOME MARKETS

- Throughout 2021, global manufacturing was strongly affected by the shortage of semi-conductors. This affected notably the automotive industry.
- The impact of the semiconductor crisis on automotive production was as severe as it was unexpected. The global production forecast at the end of 2020 was for 84 million light vehicles, counting on somewhat of a recovery after the initial impact of COVID.19. By August, the forecast had been revised downward by 4 million vehicles. The actual impact of the semi-conductor crisis was of 6.5 million vehicles (or 7.5% of total global production as forecasted in December 2020).

Changes to IHS Markit global light vehicle production forecast for the year 2021, reflecting unforeseen impact of semiconductor crisis



Source: IHS Markit

SUPPLY CHAIN DISRUPTIONS AND CHANGES IN CONSUMER BEHAVIOR HAD A NEGATIVE IMPACT ON SOME PACKAGING COMPANIES. FOCUS: ELANDERS

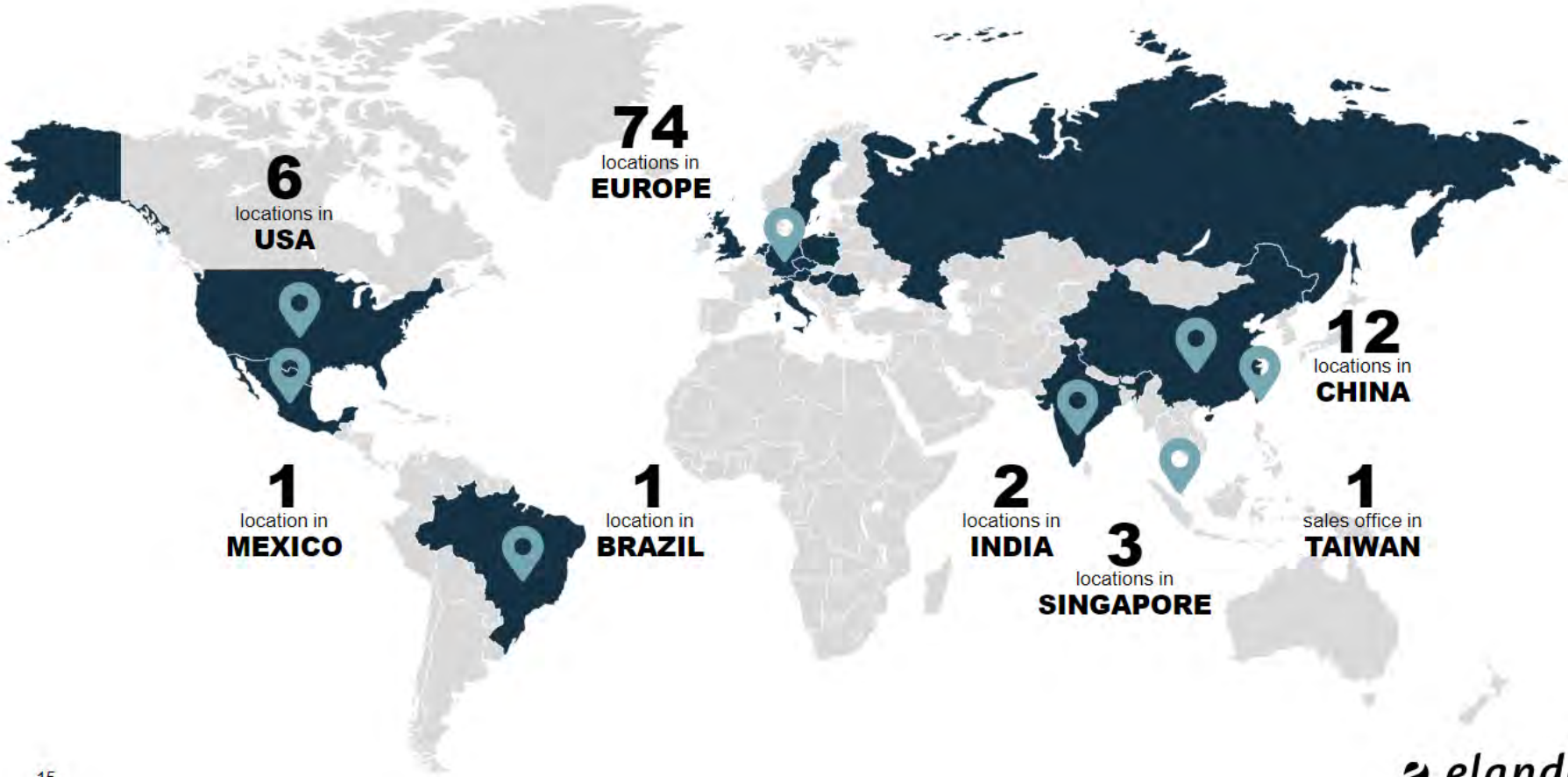
- Elanders has two business segments: supply chain (78% of revenues) and print & packaging (22%).
- The printing business (marketing material, photobooks, calendars) was strongly affected by COVID-19.
- Elanders specializes in packaging for semi-conductors for automotive and industrial clients. It was significantly impacted by the global shortage: print & packaging revenues for the automotive segment were down by 11.1% in 2021 vs. 2020.

Elanders revenues by segment and geographic markets, 2021 vs. 2020 (M EUR)

M EUR		Supply chain solutions			Print & Packaging Solutions			Group		
		2020	2021	21 vs. 20	2020	2021	21 vs. 20	2020	2021	21 vs. 20
Customer segments	Automotive	168	184	9.3%	31	28	-11.1%	200	212	6.1%
	Electronics	314	315	0.3%	6	9	66.4%	319	324	1.5%
	Fashion & Lifestyle	128	188	47.0%	105	83	-20.3%	232	271	16.6%
	Health Care & Life Science	85	41	-51.9%	6	7	17.8%	91	48	-47.4%
	Industrial	93	100	7.5%	61	46	-25.2%	154	146	-5.4%
	Other	38	48	26.4%	54	70	29.5%	92	118	28.2%
	Net sales	826	875	6.0%	263	244	-7.4%	1089	1119	2.8%
Main revenue streams	Sourcing and procurement services	272	204	-24.9%	–	–		272	204	-24.9%
	Freight and transportation services	209	280	34.5%	73	54	-25.1%	281	334	18.9%
	Other contract logistics services	320	345	7.9%	35	38	8.9%	355	383	8.0%
	Other work/services	25	45	79.3%	156	152	-2.3%	181	198	9.1%
	Net sales	826	875	6.0%	263	244	-7.4%	1089	1119	2.8%
Geographic markets	Europe	478	553	15.6%	146	144	-1.5%	624	697	11.6%
	Asia	239	227	-4.8%	2	3	37.1%	241	231	-4.4%
	North and South America	108	94	-12.7%	114	96	-15.7%	222	190	-14.2%
	Other	1	1	24.4%	0	0	-3.2%	1	1	12.9%
	Net sales	826	875	6.0%	263	244	-7.4%	1089	1119	2.8%

Source: Elanders

ELANDERS: GEOGRAPHIC FOOTPRINT

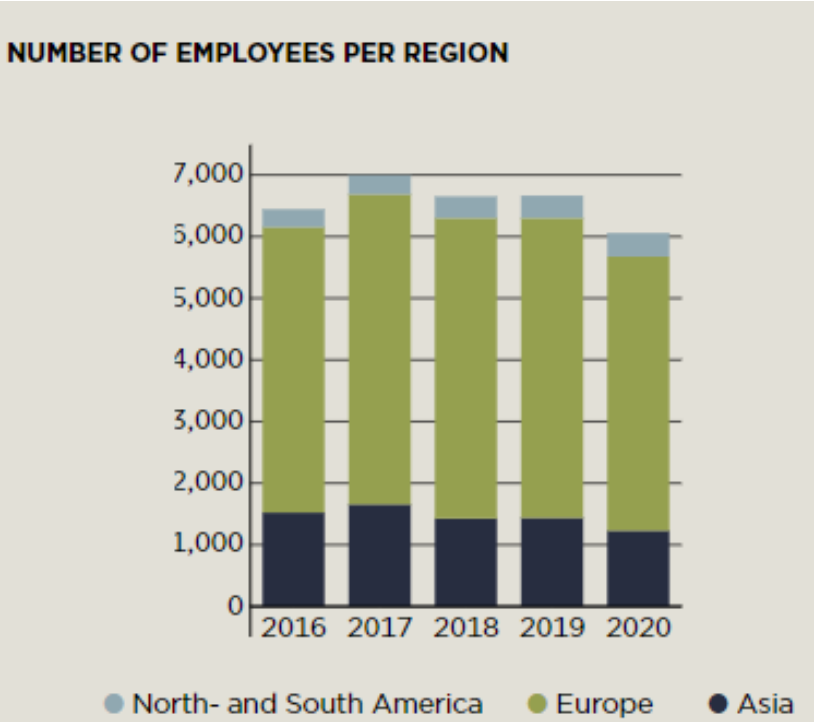


15

Source: Elanders

ELANDERS: EMPLOYEES

- Most employees are in countries with a strong manufacturing sector (Germany, China, Singapore, Central and Eastern Europe), close to the company's final customers.
- The company significantly reduced its number of employees in most countries during the first pandemic year. Along reduced personnel turnover, this is attributed to fewer temporary and seasonal staff.



Personnel turnover %	2020	2019	2018
All employees	18.5	24.1	39.8

Source: Elanders

Elanders employees by country

	2019	2020	20 vs. 19
Sweden (HQ)	11	10	-9%
Germany	3419	3151	-8%
China	661	588	-11%
Singapore	583	536	-8%
Hungary	327	332	2%
Czechia	326	322	-1%
Poland	332	310	-7%
USA	303	308	2%
India	208	193	-7%
United Kingdom	199	186	-7%
Sweden	141	133	-6%
Netherlands	46	50	9%
Brazil	49	46	-6%
Austria	44	43	-2%
Italy	20	22	10%
Mexico	19	19	0%
Taiwan	5	5	0%
Romania	1	4	300%
Russia	2	2	0%
France	0	1	
TOTAL	**6696**	**6260**	**-7%**

GLOBAL MEGA-TRENDS AFFECTING PACKAGING: SUSTAINABILITY, E-COMMERCE, DIGITALIZATION AND CHANGING RELATIONSHIP WITH FMCG CLIENTS AND FINAL CONSUMERS

Indicative

Moderate 1 2 3 4 5 Very high

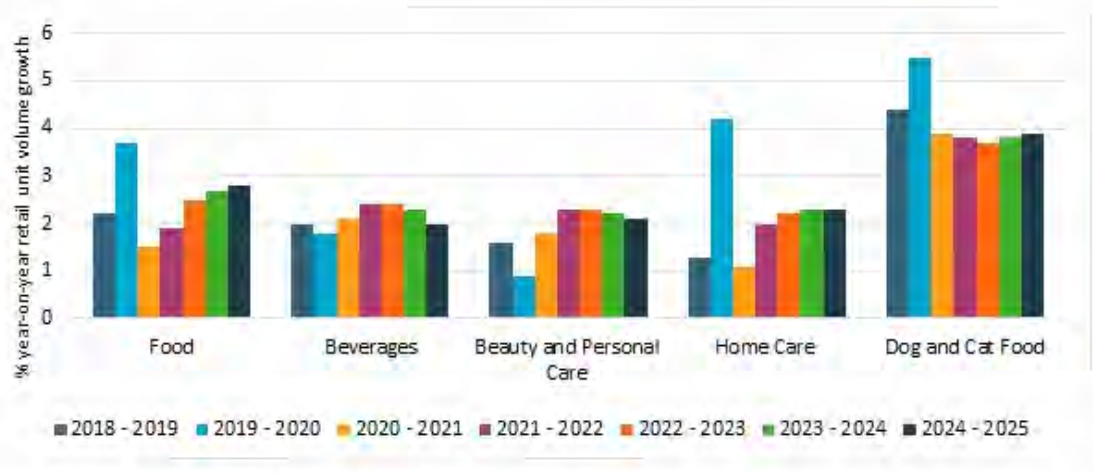
Key Trend impacting the industry	Last 5 years	Before Covid-19	Current Covid-19	Shape of the Next Normal
1 Sustainability requirements increasing at every step of the value chain	2	5	4	4-5
2 E-commerce everywhere	2	5	5+	5+
3 Rapidly changing consumer & customer preference	3	4	4-5	4
4 FMCG and retail margin compression	2	4	4-5	5
5 Digitalization of packaging (IoT)	1	3	2	4
6 New: Hygiene concerns (Needs emerging in the light of Covid-19)			5	4

Source: McKinsey

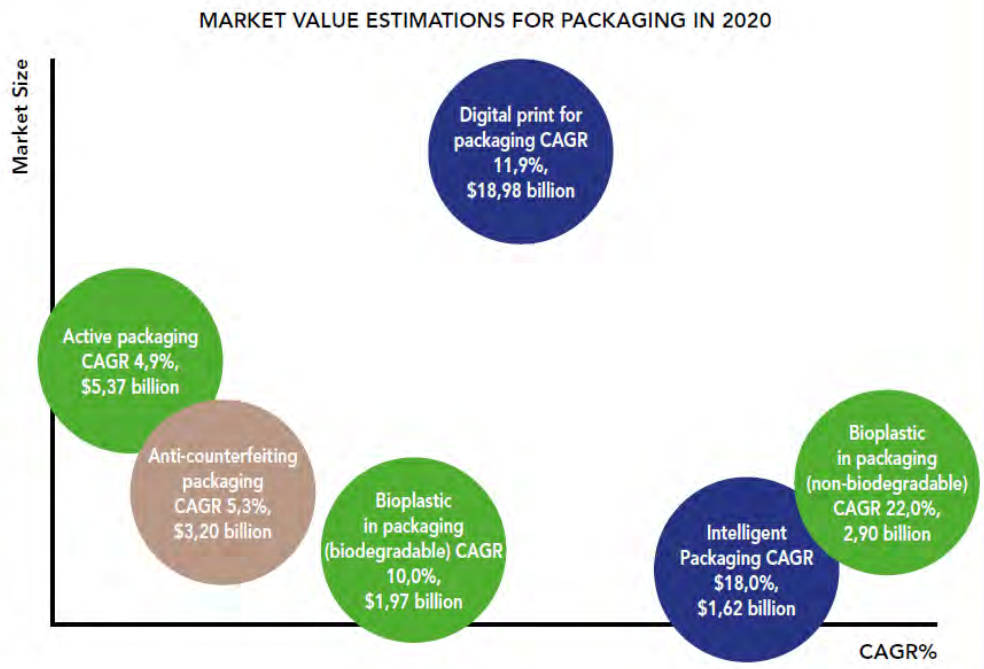
MEGA-TRENDS HAVE IMPLICATIONS FOR TYPES OF PACKAGING PRODUCTS

- COVID-19 significantly boosted demand for food, home care and pet food packaging.
- With increased attention paid to hygiene and increasingly home-oriented lifestyles, packaging demand for these end-uses is expected to continue to increase faster than others.
- Digitalisation is visible in the development of various types of "intelligent" and "active" packaging products.
- Sustainability concerns have implications for materials used in packaging. The market for "bioplastics" has been rising very fast.

Consumer Packaging Growth by Industry 2018-2025



Source: Euromonitor International, Passport Packaging 2021 edition

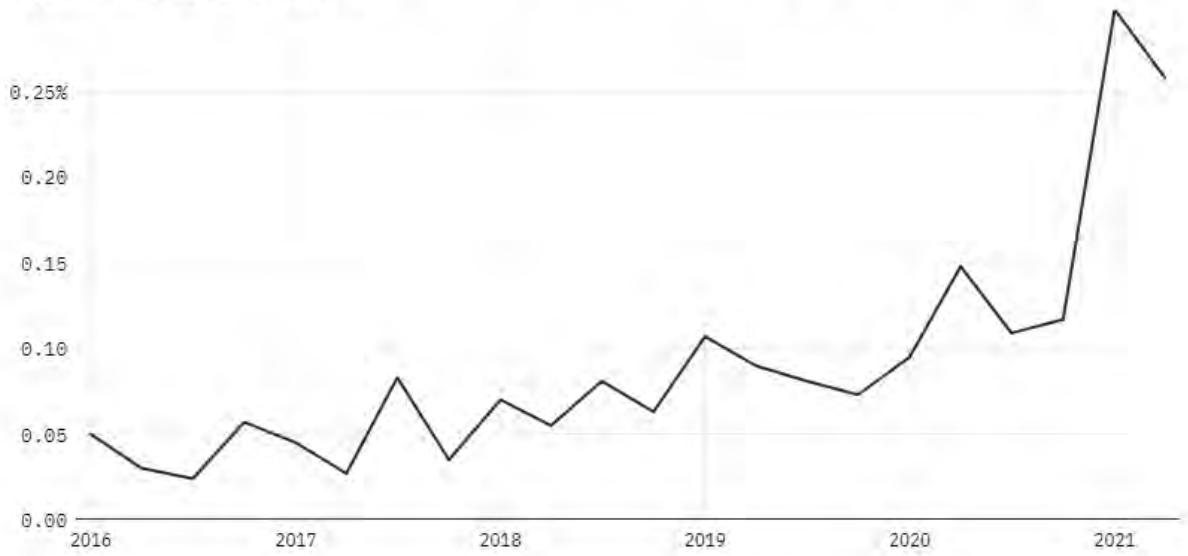


Source Smithers Pira

COVID-19 HAS MASSIVELY INCREASED EMPLOYERS' INTEREST IN DIGITALIZATION, ESPECIALLY IN EUROPE

Digitalization mentions have increased 434% since 2016

% of all sentences in the filings of companies in the packaging industry which refer to digitalization, by quarter

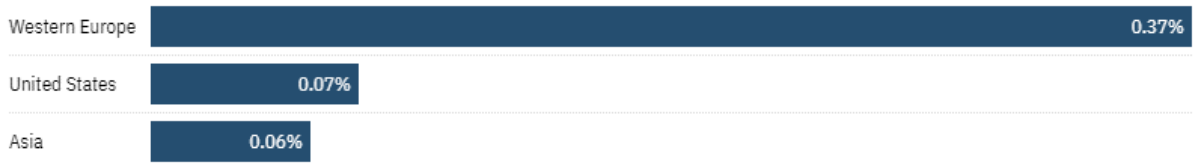


Source: GlobalData

PACKAGING GATEWAY

Companies based in Western Europe mentioned digitalization the most during Q2 2021

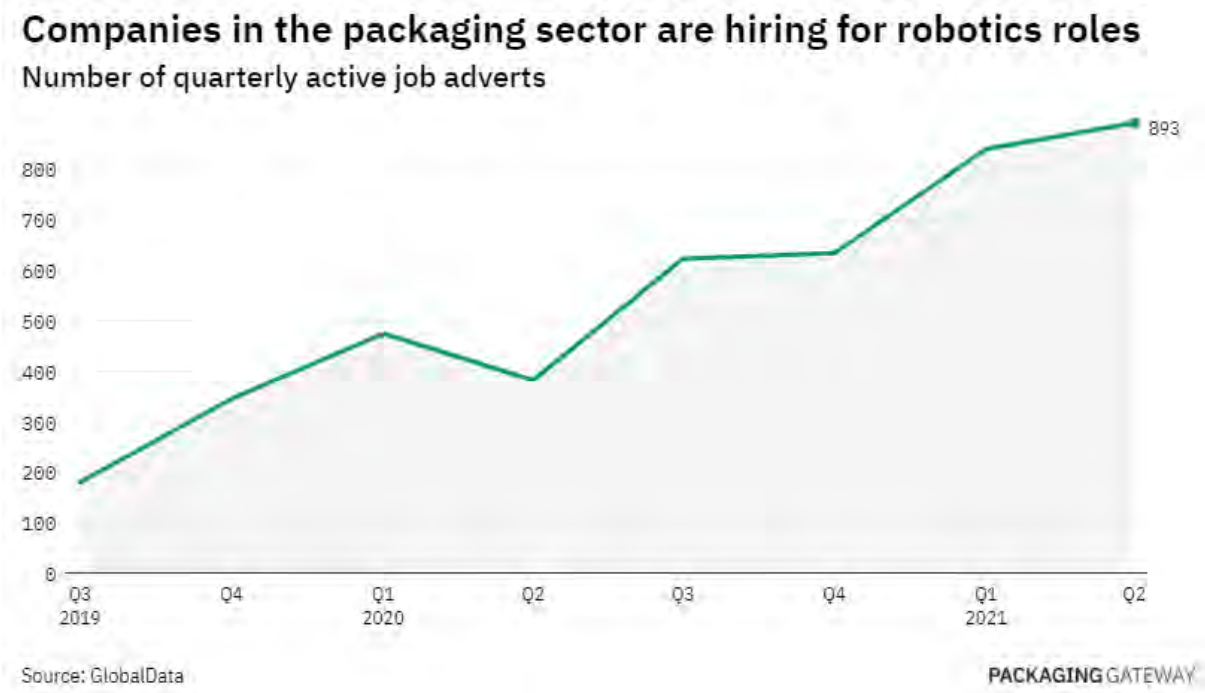
% of all sentences in the filings of companies in the packaging industry which refer to digitalization, by company headquarters



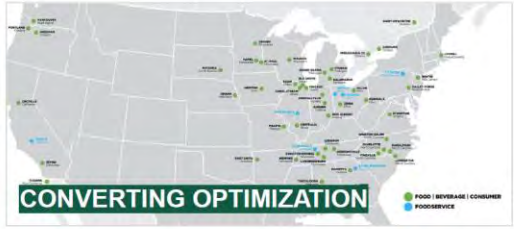
Source: GlobalData

PACKAGING GATEWAY

DIGITALIZATION IS CHANGING EMPLOYEE SKILL REQUIREMENTS AND INVESTMENT PRIORITIES



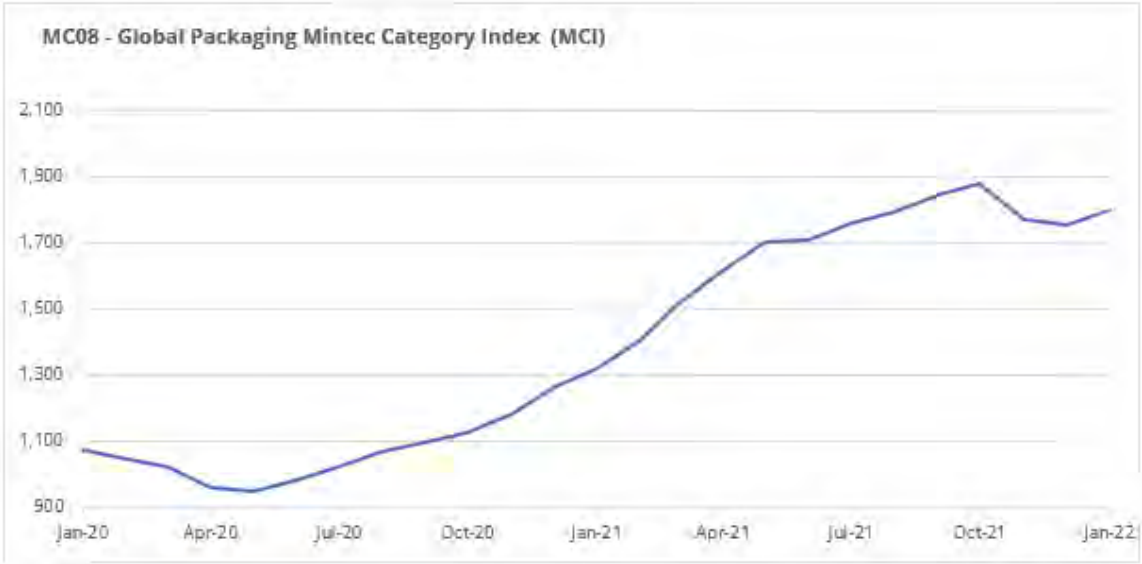
$50-70M IN ANNUALIZED PRODUCTIVITY ACHIEVABLE OVER THE VISION 2025 TIME HORIZON



Graphic Packaging INTERNATIONAL
©2022 Graphic Packaging International 47

2021 WAS MARKED BY STRONG PRICE INCREASES

- The IHS Markit Materials Price Index is influenced by developments in the price of raw materials and energy.
- The Materials Price Index clearly shows a significant increase in the price of packaging inputs throughout 2021.
- Packaging prices have increased in response, as shown by the Mintec Global Packaging price Index.
- Prices growth has became less pronounced in the winter, but prices remained at historically high levels.
- Prospects for 2022 are for continued cost/price increases.

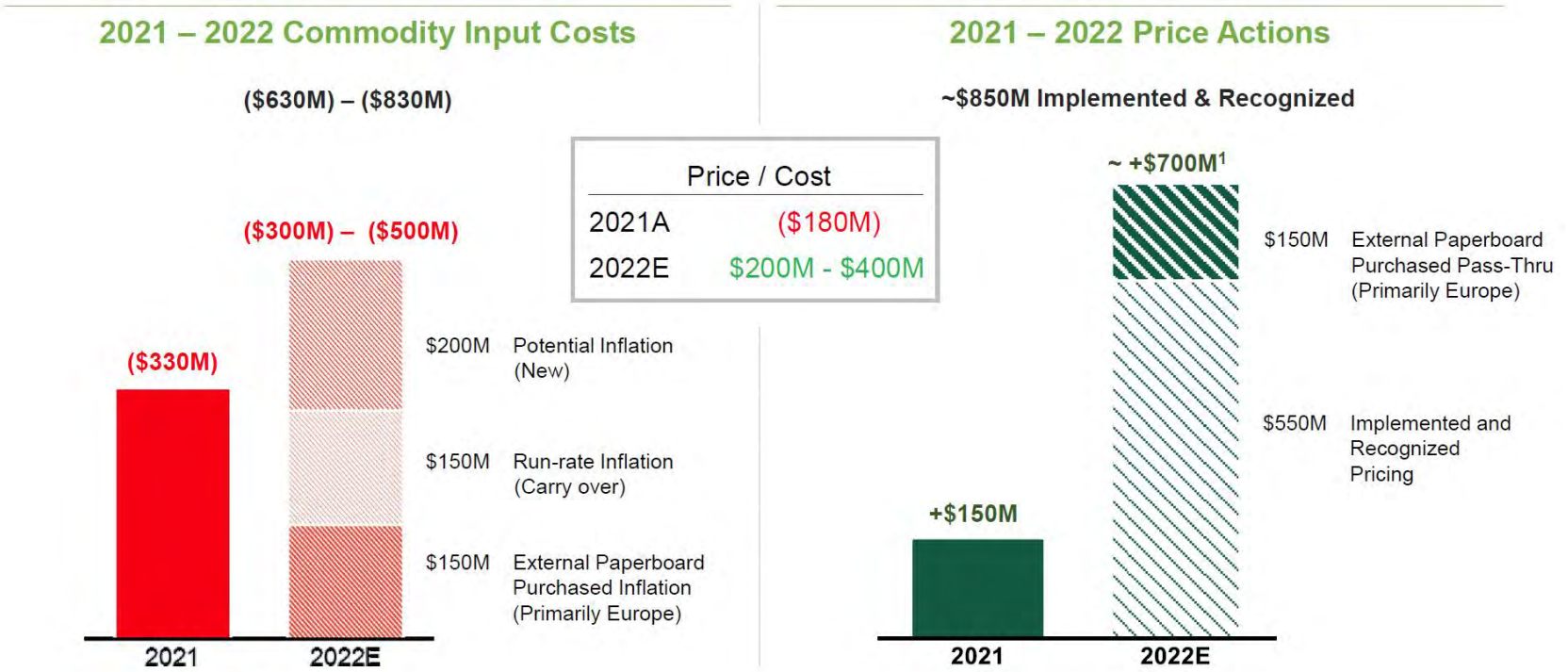


Source: Mintec Analytics

PACKAGING COMPANIES ARE INCREASING PRICES

- Graphic packaging has announced price increases with a total impact of 850M USD over 2021 and 2022, in response to cost inflation.
- Price increases are expected to compensate cost inflation and add a smaller or bigger margin: 850M USD price increase versus 630-830M cost increase.
- Companies may thus be profiting from the overall inflationary context to increase prices above cost inflation, which would directly improve their profitability.

Graphic Packaging price increases announced in February 2022



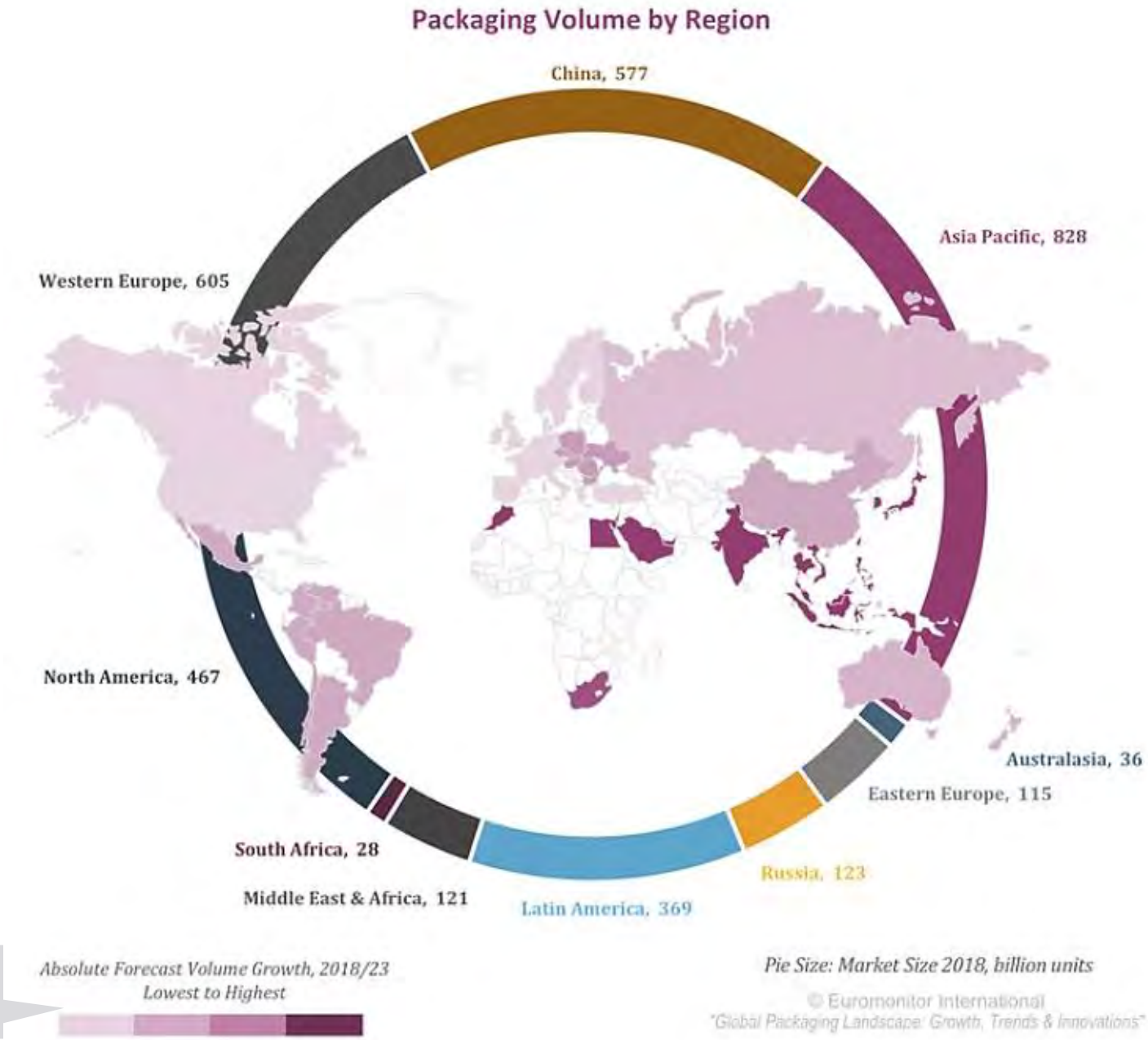
Graphic Packaging INTERNATIONAL

Note: Excludes AR Packaging
(1) Excludes GPK announced $50 per ton CRB, CUK, SBS February price increases

©2022 Graphic Packaging International 28

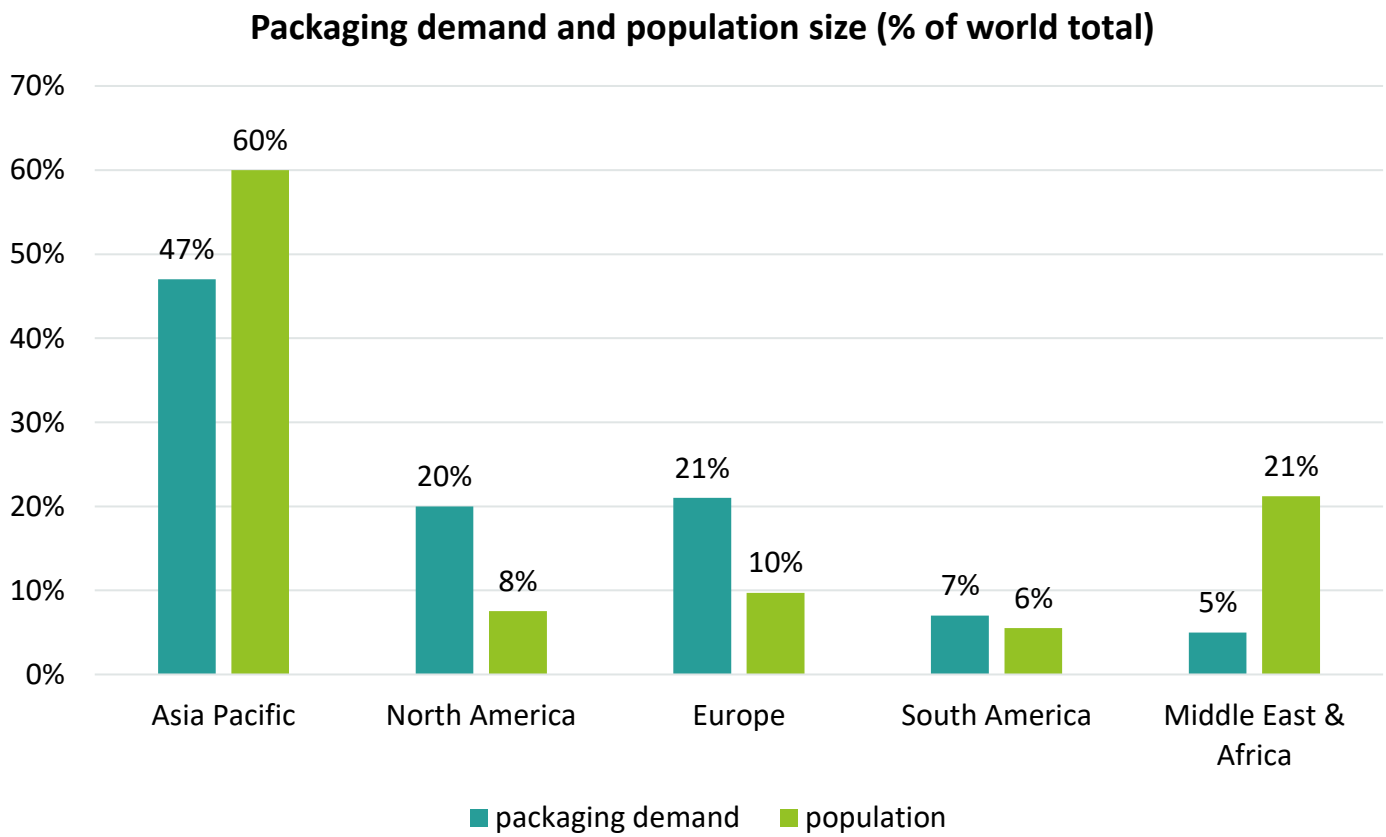
#3.2 REGIONAL PERSPECTIVE

OVERVIEW OF REGIONAL PACKAGING CONSUMPTION AND GROWTH POTENTIAL



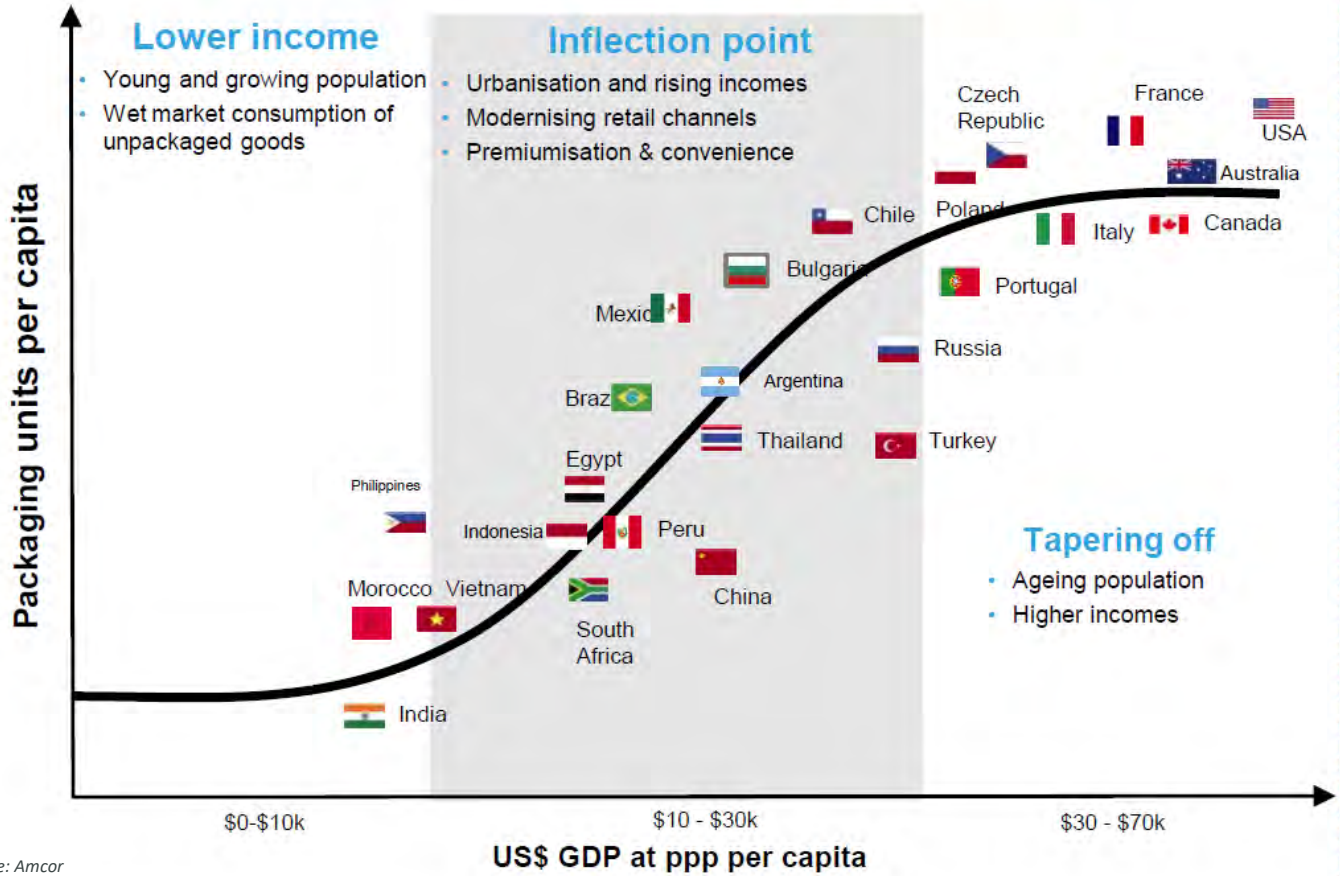
Pre-pandemic situation

MARKET MATURITY AND GROWTH POTENTIAL EXEMPLIFIED BY ASYMMETRY BETWEEN SIZE OF POPULATION AND PACKAGING MARKET



DEMOGRAPHIC CHANGE, URBANIZATION AND RETAIL DEVELOPMENT ARE MAIN DRIVERS OF PACKAGING MARKET GROWTH

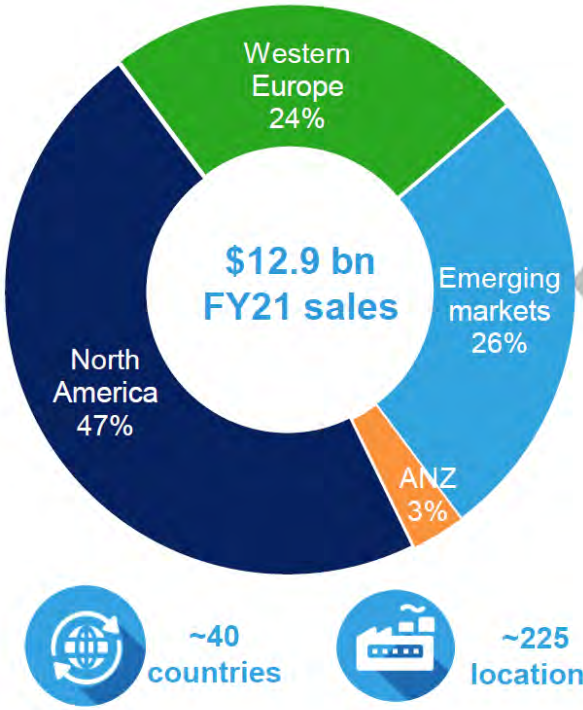
- Mature markets, with limited growth potential: North America, Western Europe.
- Peaking markets: Central and Eastern Europe, Southern Europe.
- Markets with high potential: China, Southeast Asia, Latin America.
- Undeveloped markets with potential for high growth in the future: India, Africa, some Asian countries.



Source: Amcor

A FEW COMPANIES ARE TRULY GLOBAL. FOCUS: AMCOR

- With 12.9 billion USD in sales in 2021, Amcor is one of the largest packaging companies in the world and one of the few present in all regions.
- Amcor has a strong presence in North America and is well established in Europe. It is looking to Latin America, Asia and Eastern Europe for future growth potential.

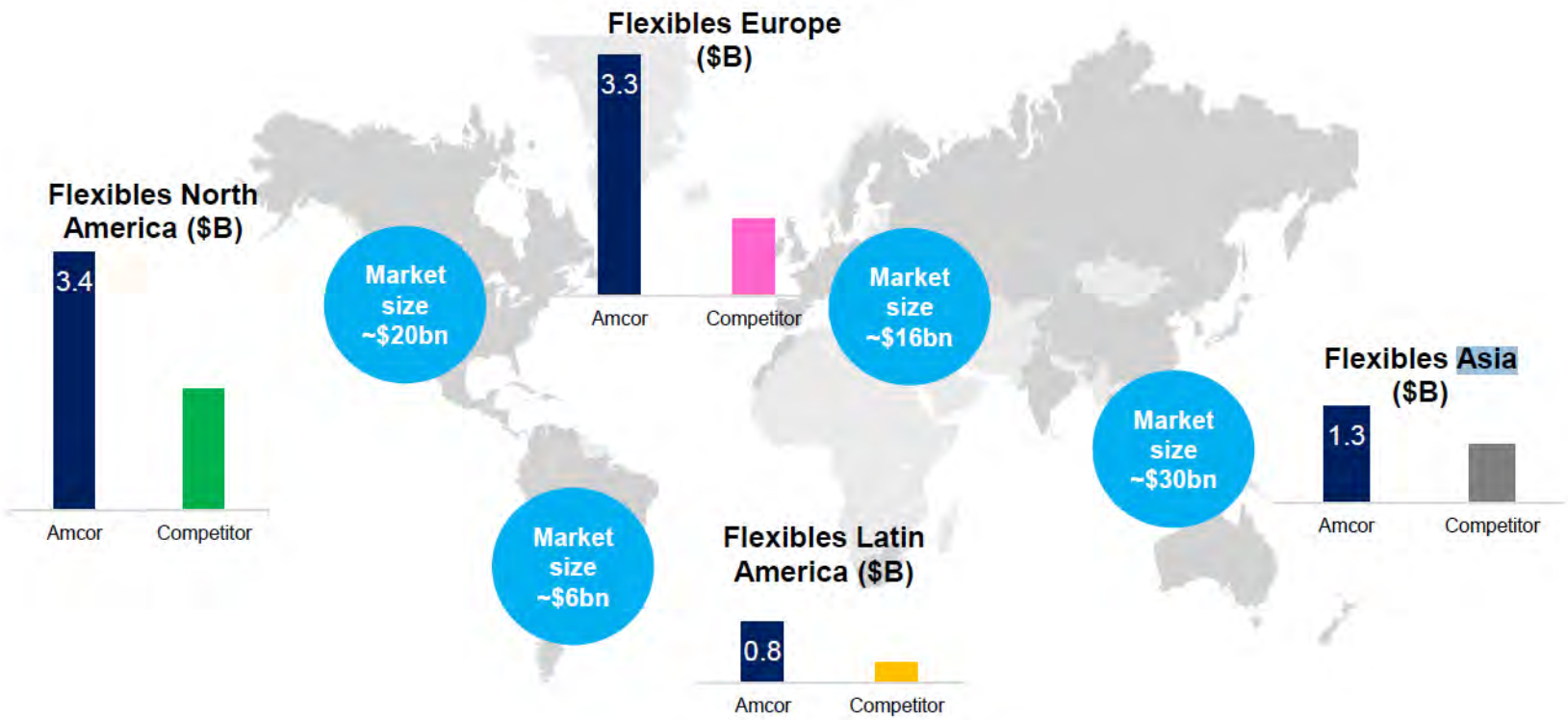


	Sales ($B)	Plants	Countries
Latin America	1.4	47	10
Asia	1.2	30	8
Eastern Europe	0.7	16	9

Source: Amcor

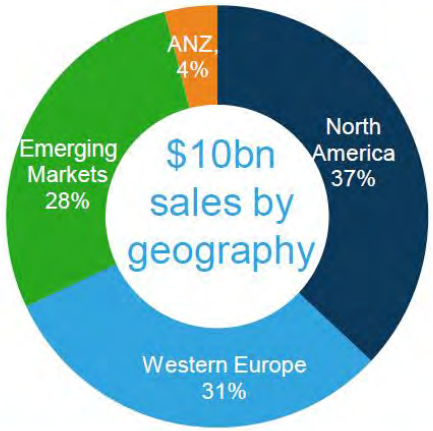
FOCUS: AMCOR FLEXIBLES

- Amcor is the global leader in flexible packaging. It has an almost global footprint (Africa is not in its focus for now), but its business in Latin America and Asia is far smaller than either North America or Europe.
- This is not necessarily due to a smaller market in emerging regions. In Asia, Amcor has a market share of just 4%, in a market worth 30 billion USD, while in Europe it has a market share of 21%, in a market worth 16 billion USD. In other words, Amcor's market position in Asia is much more fragile than it is in Europe or the Americas.



Source: Amcor

AMCOR FLEXIBLES GEOGRAPHIC FOOTPRINT

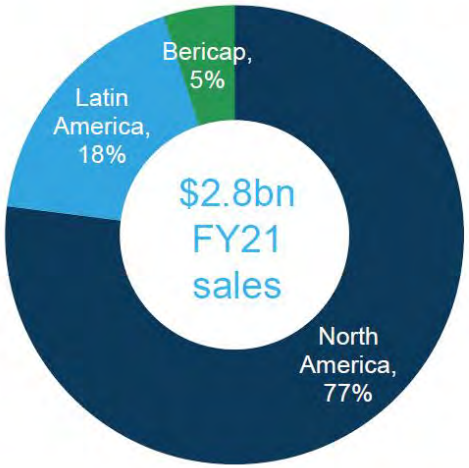


Plants	Countries	Employees
~175	39	~40,000

FY21 Adjusted EBIT - $1.4 billion

Source: Amcor

AS OPPOSED TO FLEXIBLES, AMCOR RIGID IS A REGIONAL PLAYER



Plants	Countries	Employees
~50	11	~6,000

FY21 Adjusted EBIT - $299 million

Source: Amcor

AMCOR'S GROWTH STRATEGY: SECURING OPPORTUNITIES IN LARGE GROWING MARKETS (CHINA, MEXICO, BRAZIL)

Investing in multiple drivers of organic growth

Priority Segments

>$4 bn sales in higher growth, higher value segments:

Healthcare

Protein

Pet food

Premium Coffee

Hot-fill beverage

Emerging Markets

>$3 bn Emerging Markets sales across 27 countries:

MSD volume growth across Emerging Markets portfolio

Innovation

Driving value through differentiated packaging:

THE SCHOOL OF PACKAGING
MICHIGAN STATE UNIVERSITY

World class global innovation center network

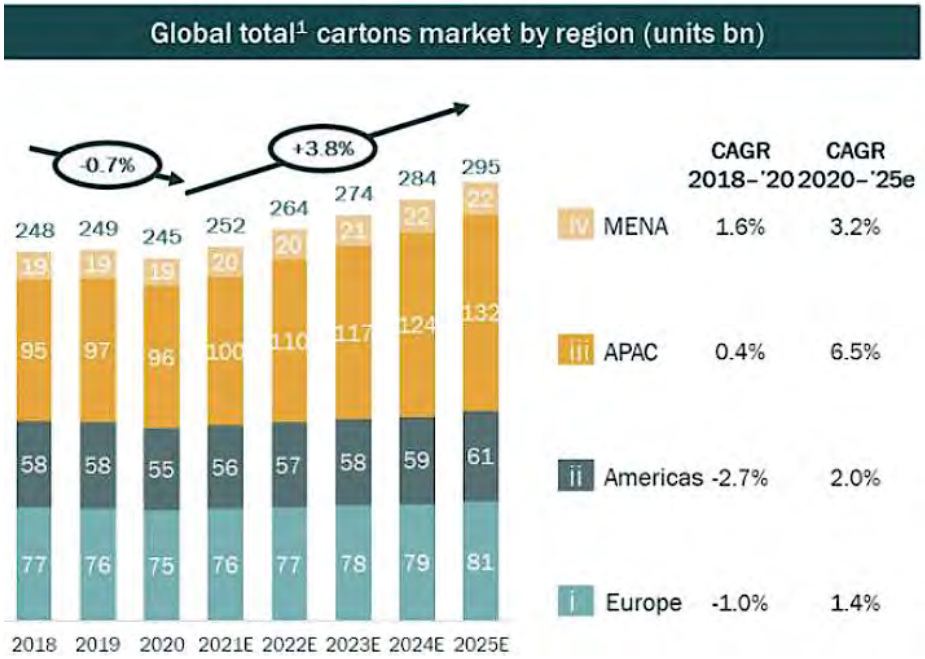
More sustainable packaging

To preserve food and healthcare products, protect consumers and promote brands

Source: Amcor

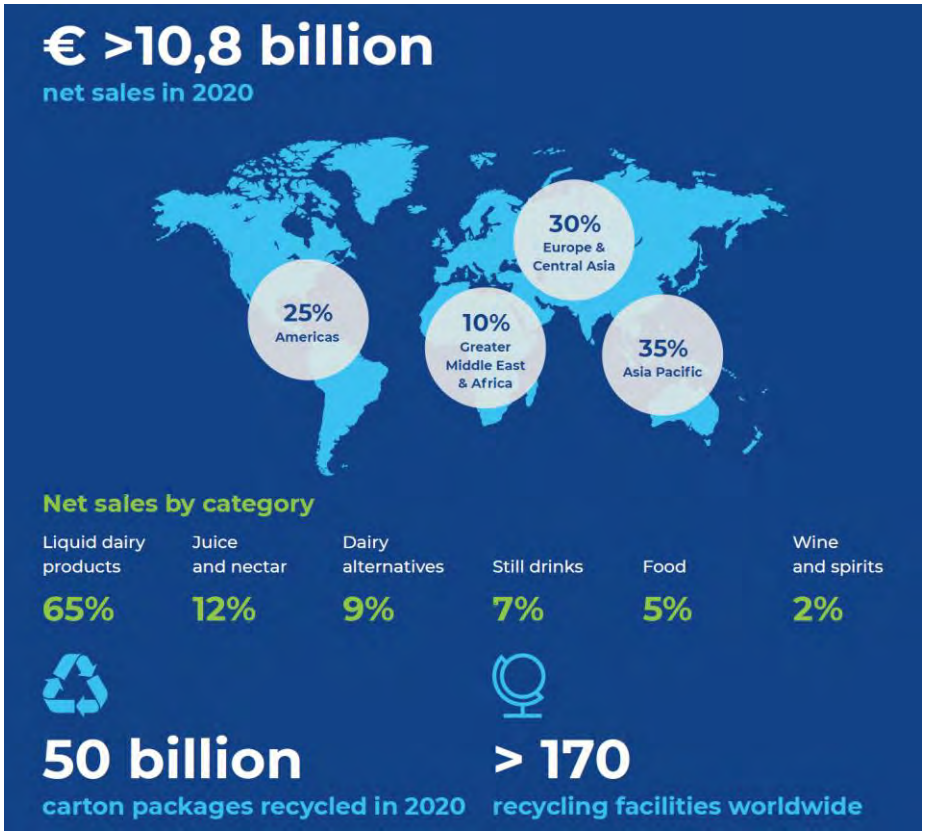
SOME PACKAGING SPECIALISTS HAVE GROWN INTO GLOBAL GIANTS IN THEIR MARKET NICHE. FOCUS: TETRA PAK

- With some packaging products, the market hierarchy is even more skewed in favor of Asia. This is the case with cartons (fork milk, juice etc.), where the Asian market is much larger than the European market or the American market (North and South combined). This asymmetry is expected to grow even further.
- In this market niche, a European player like Tetra Pak has grown into a truly global giant, present across the globe and whose footprint broadly mirrors regional market sizes.



Source: Elopak

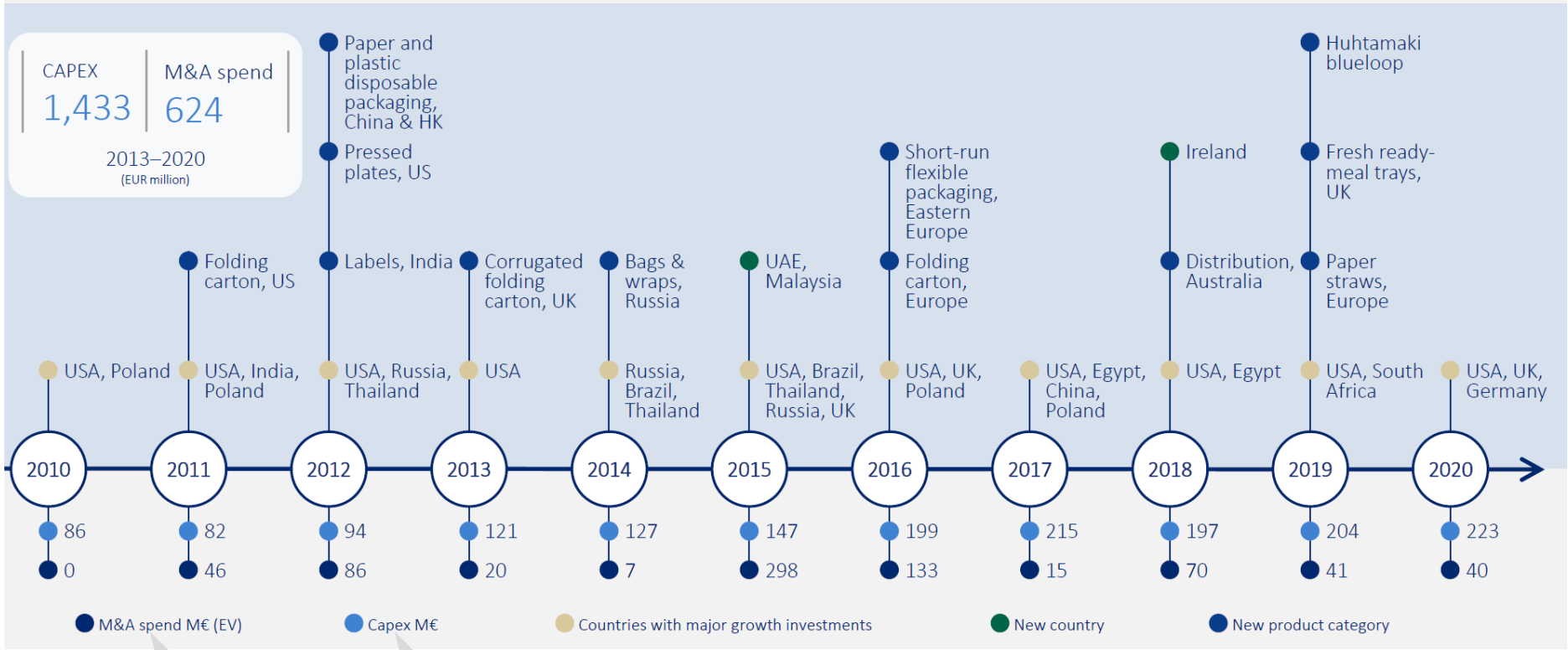
Tetra Pak sales by region



Source: Tetra Pak

EXPANSION STRATEGIES ARE HEAVILY RELIANT ON ACQUIRING SMALLER PLAYERS WHO HAVE AN ESTABLISHED FOOTPRINT IN TARGET MARKETS

Huhtamaki growth strategy



Source: Huhtamaki

Acquisitions of other companies

Investments in ongoing operations

THE EXAMPLE OF AMCOR'S EXPANSION IN LATIN AMERICA

- 2016: Amcor acquired South American flexible packaging business, Alusa, from Techpack SA and Nexus Private Equity.
- The sale included Alusa, Peruplast, Aluflex and Flexa for a total of 435 million USD.

BRAZIL AND MEXICO ARE THE MOST IMPORTANT MARKETS IN LATIN AMERICA, WITH IMPORTANT DIFFERENCES BETWEEN THEM

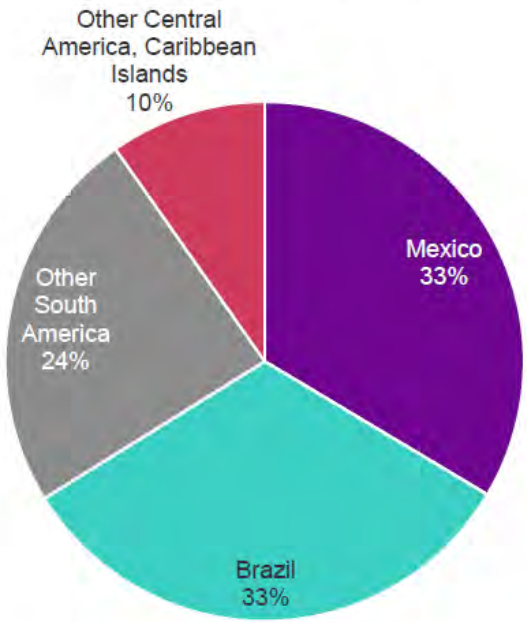
- The structure of the Latin American market is visible in multinationals' expansion strategies.
  - Graphic Packaging is present with 3 converting plants in Mexico and 1 in Brazil.
  - Westrock is focused on Brazil.

BUT EACH COUNTRY AND REGION HAS DIFFERENT DYNAMICS

- Brazil is **self-sufficient**
- Mexico has **strong ties** to the US market
- Chile and Argentina have *some* domestically relevant production
- **Limited capacity** in the rest of Latin America

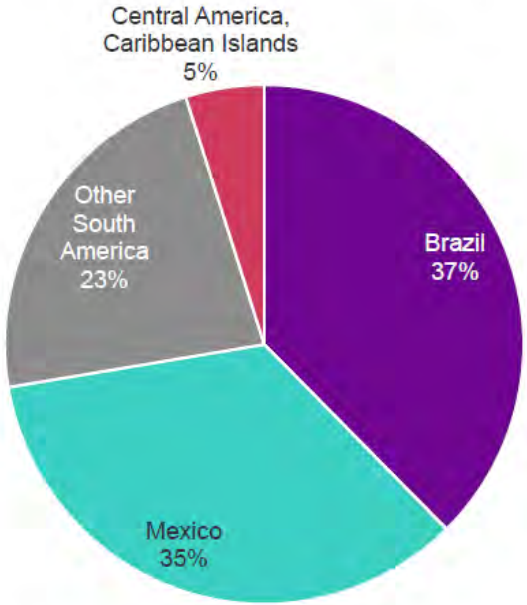
DEMAND SPLIT, 2019

CONTAINERBOARD



Source: Fastmarkets RISI.

OTHER PAPER PACKAGING



Source: Fastmarkets RISI.

WITH SOME EXCEPTIONS, THE LARGEST PACKAGING COMPANIES IN LATIN AMERICA ARE LOCAL OR REGIONAL COMPANIES

TOP 10 MÉXICO

EMPRESAS LÍDERES DEL SECTOR DE EMPAQUES Y ENVASES

PUESTO	EMPRESA	SECTOR
1	Coca-Cola FEMSA	Plantas envasadoras
2	Arca Continental	Plantas envasadoras
3	Vitro	Vidrio y envases
4	Bio Pappel	Papel y cartón
5	Dow México	Química y petroquímica
6	Braskem Idesa SAPI	Química y petroquímica
7	Smurfit Kappa México	Papel y cartón
8	Kuo Químico	Química y petroquímica
9	Crown Envases México	Vidrio y envases
10	Rockwell Automation de México	Maquinaria y equipo

TOP 10 COLOMBIA

EMPRESAS LÍDERES DEL SECTOR DE EMPAQUES Y ENVASES

PUESTO	EMPRESA	SECTOR
1	Esenttia	Plásticos primarios
2	Mexichem Resinas Colombia	Plásticos primarios
3	Cartón de Colombia (Smurfit Kappa)	Papel y cartón
4	Cristalería Peldar	Vidrio y envases
5	Dow Química Colombia	Plásticos primarios
6	Enka de Colombia	Plásticos primarios
7	Carvajal Empaques	Papel y cartón
8	Crown Colombiana	Productos de metal
9	Papelsa	Papel y cartón
10	Autoadhesivos Arclad	Manufacturas varias

TOP 10 ARGENTINA

EMPRESAS LÍDERES DEL SECTOR DE EMPAQUES Y ENVASES

PUESTO	EMPRESA	SECTOR
1	Coca Cola FEMSA	Plantas envasadoras
2	Papelera del Plata	Papel y cartón
3	Cartocor	Papel y cartón
4	Celulosa Argentina	Papel y cartón
5	Dow Química Argentina	Química
6	Dupont Argentina	Otras manufacturas
7	Tetra Pak	Envases de cartón
8	Smurfit Kappa Argentina	Papel y cartón
9	Clariant	Química
10	Inesa Argentina	Envases metálicos

TOP 10 PERÚ

EMPRESAS LÍDERES DEL SECTOR DE EMPAQUES Y ENVASES

PUESTO	EMPRESA	SECTOR
1	Arca Continental	Plantas envasadoras
2	OPP Film	Petroquímica
3	Trupal	Celulosa y papel
4	San Miguel Industrial PET	Envases rígidos
5	Corporación Peruana de Productos Químicos	Petroquímica
6	INDECO	Envases rígidos
7	Peruana de Moldeados PAMOL SA	Envases rígidos
8	Peruplast	Envases flexibles
9	Embotelladora San Miguel del Sur	Plantas envasadoras
10	Industrias del envase	Manufactura (varios)

Source: Elempaque (2020)

WITH THE COVID-19 OUTBREAK, E-COMMERCE SALES HAVE SOARED IN BRAZIL

Temporary imports of packaging were required to meet booming demand.

Brazilian e-commerce sales index

Index 1Q17 = 100, inflation adjusted (L); year-over-year % change (R)

Slowing e-commerce trends could indicate less packaging demand and the possibility of oversupply in the future with the new additions of capacity from machine conversions.

Source: Fastmarkets • * Forecasted based on total retail sales and e-commerce vendors' market shares versus total retail sales variation.

US GIANTS ARE ALREADY WELL ESTABLISHED ON THE BRAZILIAN PACKAGING MARKET

- The Brazilian packaging market is relatively fragmented by North American standards. This feature and its overall high potential has attracted US packaging multinationals.
- Westrock, Sonoco and Graphic Packaging are in the top 5 packaging companies present in Brazil. The largest packaging company in Brazil is Nefab (European-owned).
- Only one domestically-owned company (Klabin) features in the top 5. In 2020, Klabin bought the Brazilian operations of International Paper for 64 M USD. It has also been making investments into additional capacities.

Brazilian packaging competitive landscape

AIMING FOR BRAZIL EXPANSION. FOCUS: WESTROCK

- Westrock has 1 mill (Tres Barras) and 4 converting plants in Brazil.
- In recent years, the company has invested into increasing its corrugated capacities in the country.
- Despite ongoing investments, Latin America (mostly Brazil and Argentina) still represents under 3% of Westrock's total revenues (and under 4% for corrugated packaging).

(In millions)	Year Ended September 30, 2021				
	Corrugated Packaging	Consumer Packaging	Land and Development	Intersegment Sales	Total
Primary Geographical Markets					
North America	$ 11,813.7	$ 5,218.3	$ —	$ (299.1)	$ 16,732.9
South America	457.6	82.5	—	—	540.1
Europe	5.1	1,101.2	—	(0.3)	1,106.0
Asia Pacific	67.3	300.7	—	(0.9)	367.1
Total	$ 12,343.7	$ 6,702.7	$ —	$ (300.3)	$ 18,746.1

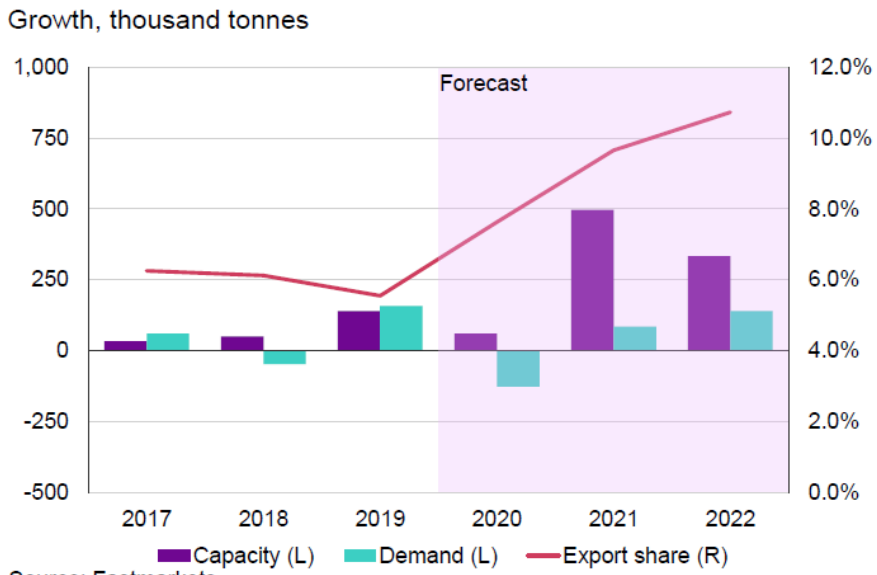
Source: Westrock

FOR NOW, THE BRAZILIAN MARKET CANNOT FULLY ABSORB INVESTMENTS IN NEW CAPACITIES, WHICH WILL FUEL EXPORTS

Assessment of Brazilian containerboard market

CONTAINERBOARD

Capacity growth should be led by exports



Source: Fastmarkets

2020

- **Higher e-commerce sales**, **basic goods** consumption partially supported demand
- Financial aid fueled demand from **low-income families**
- **Production** grew, driven by **exports**

2021-2022

- Demand recovery tracking GDP
- Poor momentum for **durable goods, industrial production**
- **Reliance** on commodity exports
- **E-commerce to support demand**

KLABIN AND WESTROCK CONTAINERBOARD PROJECTS TO COME ON LINE IN 2021

MULTINATIONALS' INVESTMENTS IN LATIN AMERICA ARE SOMETIMES HIGHLY CONTROVERSIAL. FOCUS: SMURFIT KAPPA

- For some multinationals, Latin American countries are seen as a source of cheap and accessible raw material.
- In Colombia, Smurfit Kappa's presence has become highly controversial due to violent clashes with indigenous people. Smurfit Kappa has 67 thousand hectares of forest in Colombia, the largest in any country.
- Smurfit Kappa aims to have a pan-regional presence in Latin America. It continues to expand by acquiring local companies: in 2021, it bought Cartones del Pacifico, a paper packaging company from Peru.

Business & Human Rights Resource Centre

Story Timeline

18 Aug 2021 Article
Colombia: Young farmer allegedly murdered during occupation of land controlled by Smurfit Kappa Cartón de Colombia →
Available languages: español

17 Aug 2021 Company Response
Response Smurfit Kappa Cartón de Colombia →
Available languages: español

14 Aug 2021 Article
Colombia: Indigenous protests for the recovery of land allegedly monopolized by Smurfit Kappa →
Available languages: español

9 Aug 2021 Article
Colombia: Misak people and peasant organizations denounce alleged land grabbing by Smurfit Kappa Cartón de Colombia →
Available languages: español

9 Aug 2021 Article
Colombia: Misak indigenous people and peasants from northern Cauca announce seizure of land under the control of Smurfit Kappa →
Available languages: español

IN AFRICA, MULTINATIONALS' LIMITED PRESENCE GIVES MORE ROOM FOR MANEUVER FOR LOCAL PLAYERS

- Among the major packaging multinationals, only Tetra Pak has a presence across Africa (Northern, Western and Southern).
- Amcor has one facility in Morocco and four in South Africa, gaining the latter after buying Nampak Flexibles in 2015.
- Similar to other industrial sectors, the African packaging industry is concentrated in South Africa.
- Sappi is a major South African packaging companies, one of the few with a presence outside the continent. It has been engaged in acquisitions of European and US mills since the 1990s.

Sappi North America

Capacity[1] ('000 tons)

Mills	Products produced	Paper	Pulp
Cloquet Mill	Dissolving pulp, kraft pulp for own consumption and kraft pulp*		370
	Coated woodfree paper	340	
Matane Mill	High yield hardwood pulp for own consumption and kraft pulp		270
Somerset Mill	Bleached chemical pulp for own consumption and kraft pulp		525
	Coated woodfree and packaging paper	970	
Westbrook Mill	Speciality paper; casting and release paper	23	
Total Sappi North America		**1,333**	**1,165**

Sappi Europe

Capacity[1] ('000 tons)

Mills	Products produced	Paper	Pulp
Alfeld Mill	Bleached chemical pulp for own consumption		120
	Speciality paper; flexible packaging paper, paperboard, containerboard, release liner, label paper, functional papers	275	
Carmignano Mill	Speciality paper; dye sublimation paper, flexible packaging paper, inkjet paper and label paper	100	
Condino Mill	Speciality paper; dye sublimation paper, flexible packaging paper, inkjet paper and silicone base paper	60	
Ehingen Mill	Bleached chemical pulp for own consumption and kraft pulp		140
	Coated woodfree paper and containerboard	280	
Gratkorn Mill	Bleached chemical pulp for own consumption		250
	Coated woodfree paper	980	
Kirkniemi Mill	Bleached mechanical pulp for own consumption		300
	Coated mechanical paper	750	
Lanaken Mill	Bleached chemi-thermo mechanical pulp for own consumption		165
	Coated woodfree paper	530	
Maastricht Mill	Coated woodfree paper and paperboard	260	
Stockstadt Mill	Bleached chemical pulp for own consumption and kraft pulp		145
	Coated woodfree paper and uncoated woodfree paper	220	
Total Sappi Europe		**3,455**	**1,120**
Other operation		Capacity[1] (million m²)	
Rockwell Solutions	Coated barrier film and paper		100

Sappi Southern Africa

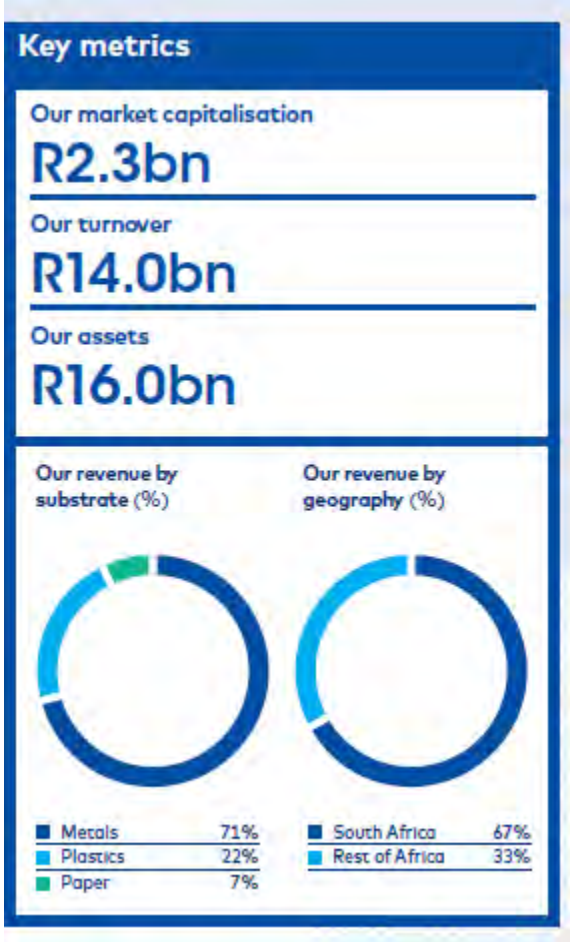
Capacity[1] ('000)

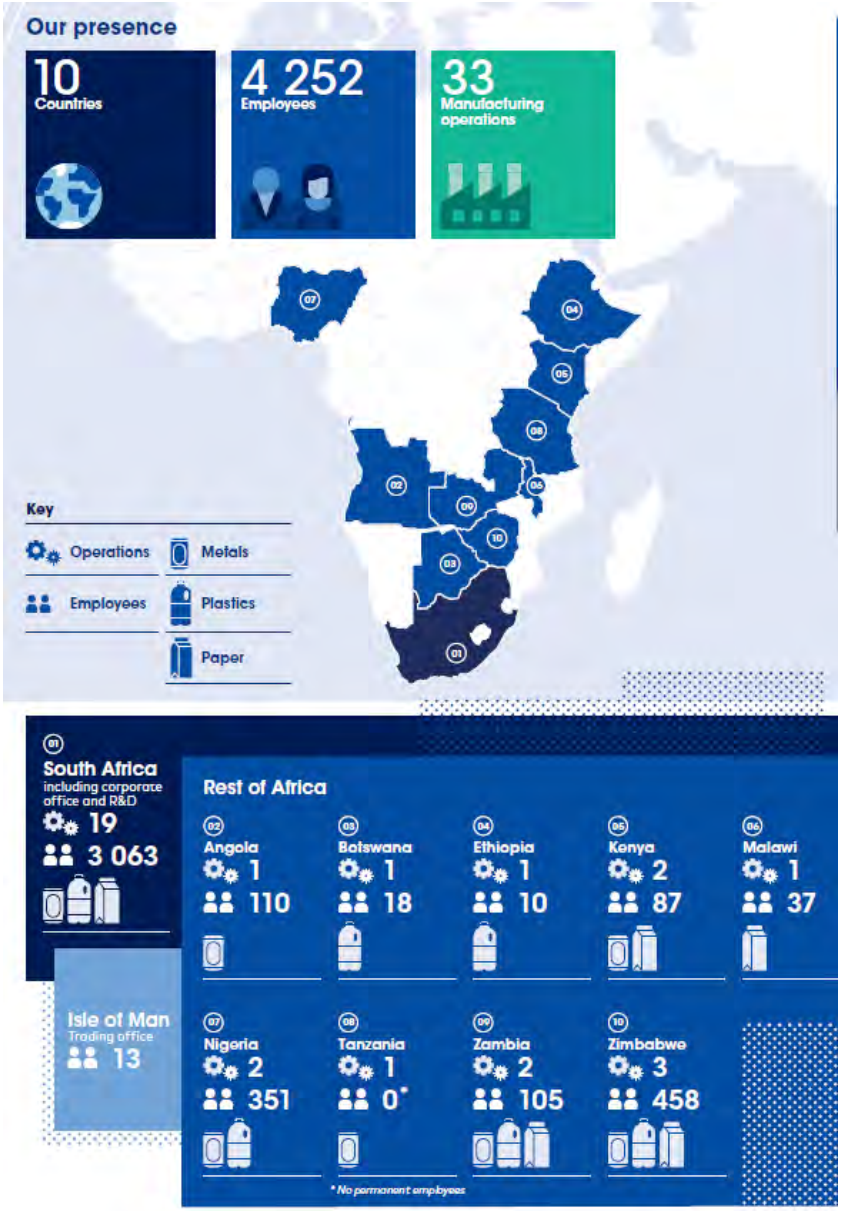
Plantations**	Products produced	Hectares	Standing tons
KwaZulu-Natal	Plantations (pulpwood and sawlogs) (tons)***	159	10,526
Mpumalanga	Plantations (pulpwood and sawlogs) (tons)***	235	17,128
Total Sappi Forests (owned and leased supply)		**394**	**27,654**

Mills	Products produced	Capacity (m³) Timber	Capacity ('000 tons) Paper	Pulp
Lomati Sawmill	Sawn timber (m³)	93		
Ngodwana Mill	Unbleached chemical pulp for own consumption			210
	Mechanical pulp for own consumption			110
	Kraft linerboard		240	
	Newsprint		140	
Stanger Mill	Bleached bagasse pulp for own consumption			60
	Office paper and tissue paper		110	
Tugela Mill	Neutral Sulphite Semi Chemical pulp for own consumption			155
	Corrugating medium		200	
Sappi ReFibre****	Waste paper collection and recycling for own consumption			89
Total Sappi Paper and Paper Packaging			**690**	**624**
Ngodwana Mill	Dissolving pulp			255
Saiccor Mill*****	Dissolving pulp			800
Total Dissolving pulp				**1,055**
Total Sappi Southern Africa		**93**	**690**	**1,679**

Source: Sappi

DIVERSIFIED LOCAL AFRICAN PLAYERS: NAMPAK (SOUTH AFRICA)





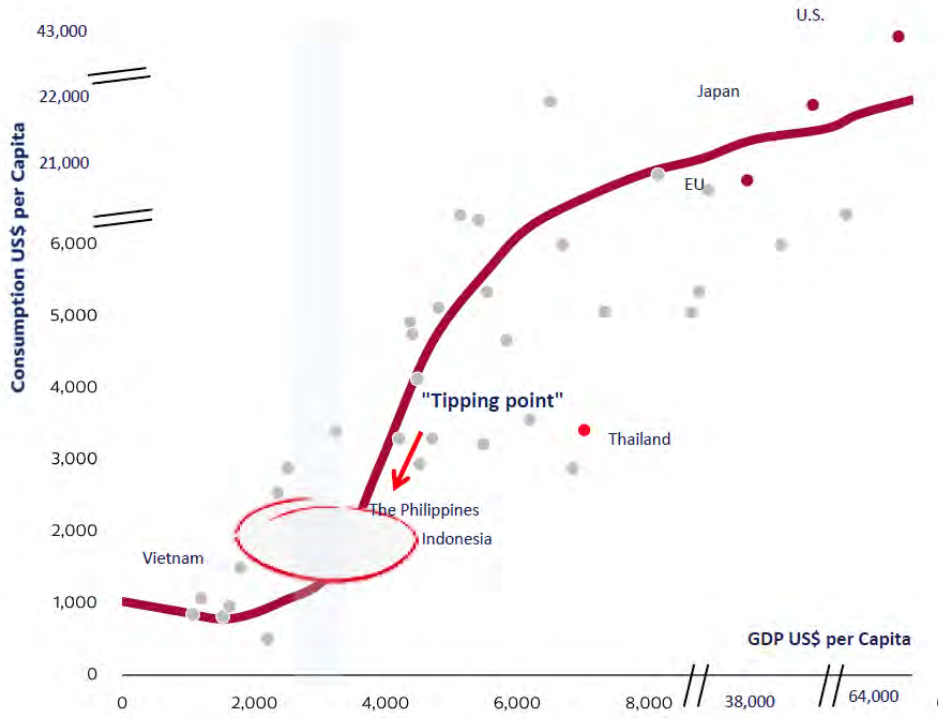
Source: Nampak

SOUTH AND SOUTHEAST ASIA ARE CONSIDERED TO HAVE HUGE POTENTIAL FOR FUTURE GROWTH

Growing consumer spending

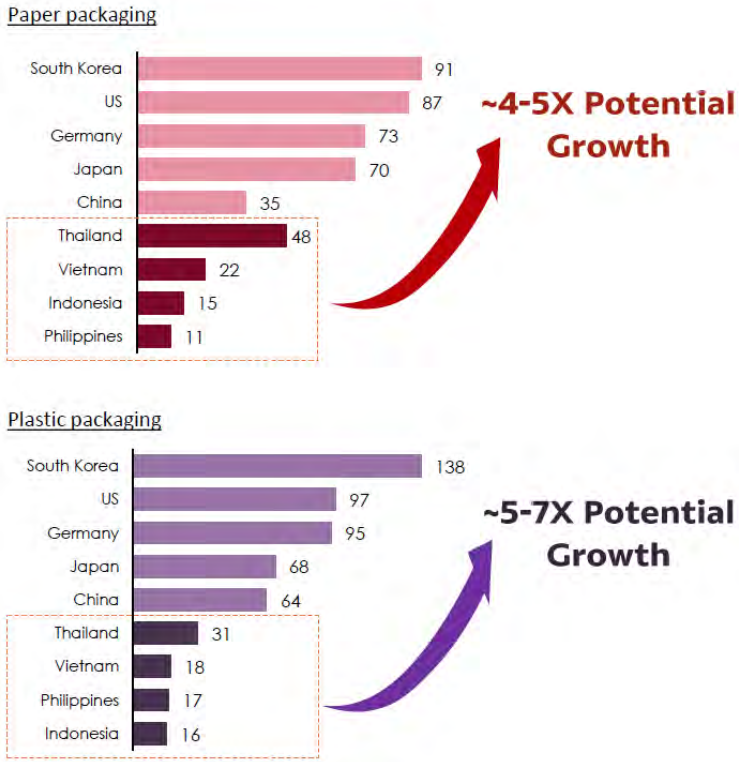
Illustrative GDP per capita S-Curve

When GDP per capita exceeds approximately US$2,500 to US$3,000, consumption per capita begins to grow exponentially



High growth opportunity in ASEAN

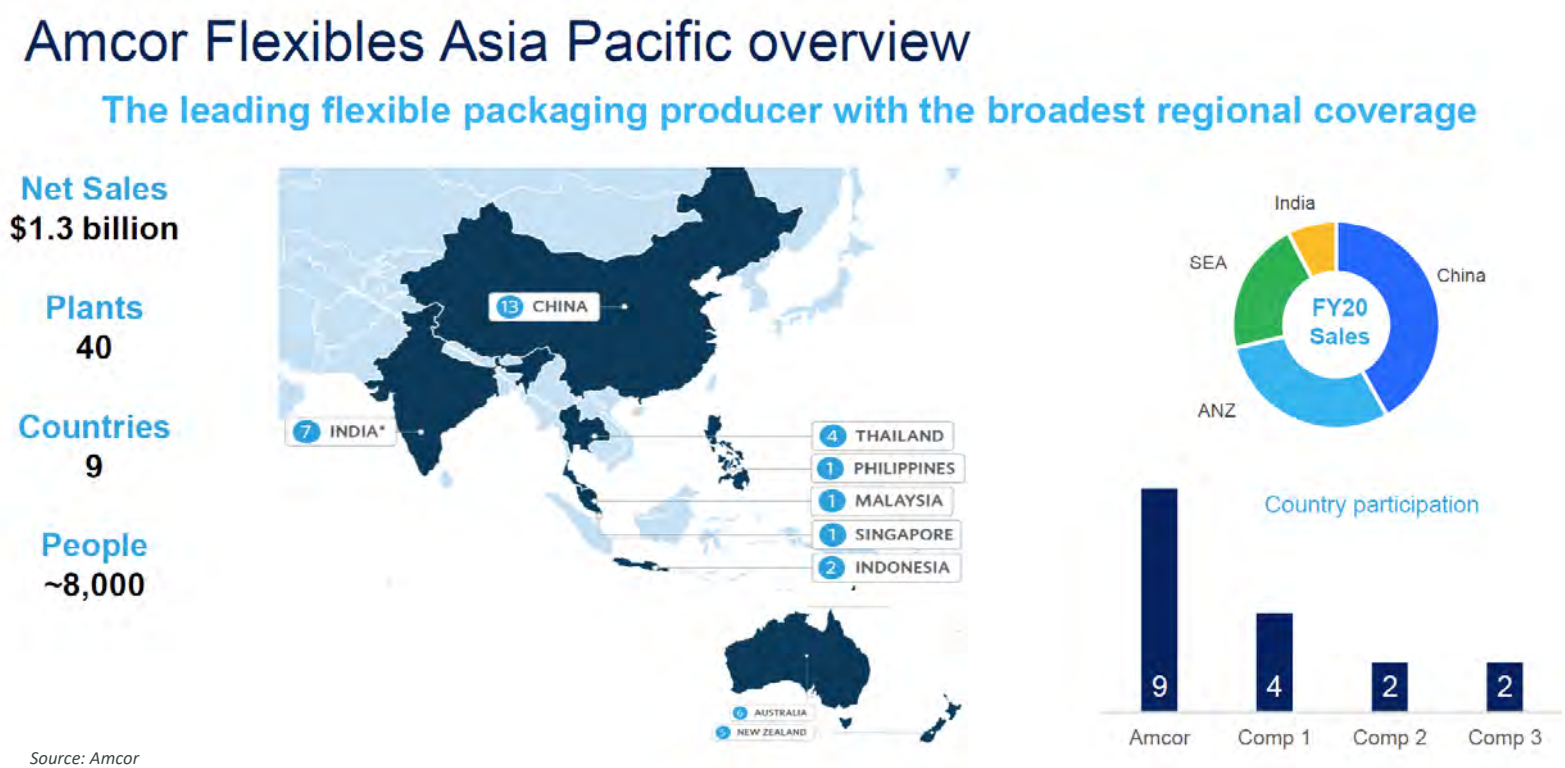
Penetration rate (2019, kg per capita)



Source: SCGP

GLOBAL GIANTS ARE TRYING TO EXPAND INTO ASIAN MARKETS

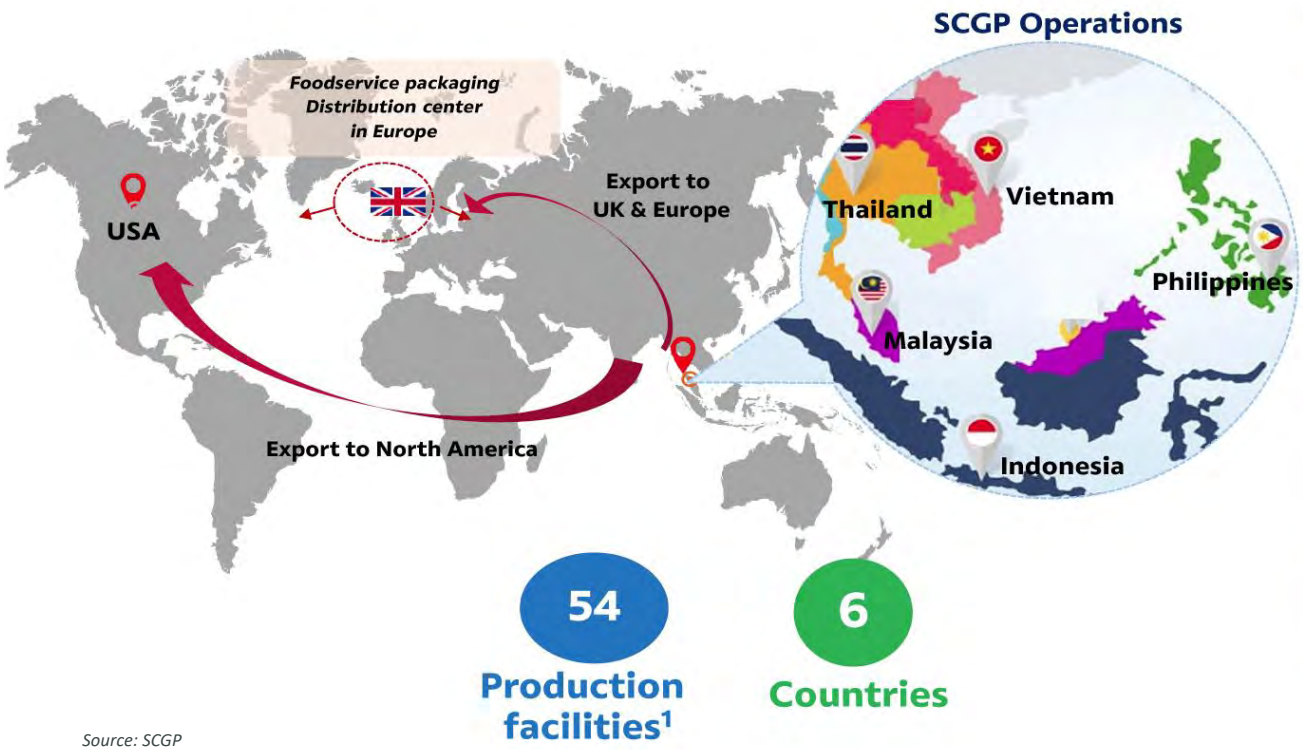
- Select M&A activity of Amcor in Asia:
  - Thailand (2012): Amcor acquired the Aperio Group packaging company, adding further capability in Australia, New Zealand and Thailand. This company also acquired Uniglobe Packaging, a business based in Daman, north of Mumbai, India, in the same year.
  - Indonesia (2014): Amcor acquired Bella Prima Packaging, an Indonesian flexible packaging business for $27 million.
  - India (2015): Amcor acquired Packaging India Private Limited (PIPL), an Indian flexible packaging company, for US$26.4 million.



Source: Amcor

BUT LOCAL PLAYERS ARE GAINING IN SCALE AND HAVE AGGRESSIVE EXPANSION PLANS. FOCUS: SCGP (THAILAND)

SCGP's Business operations in ASEAN and Europe



Source: SCGP

Integrated Packaging Chain

Polymer-packaging

11 plants
2 countries (TH &VN)

Fiber-based packaging

29 plants
3 countries (TH,VN,ID)

Packaging paper

8 plants
4 countries (TH,VN,PH,ID)

Fibrous Chain

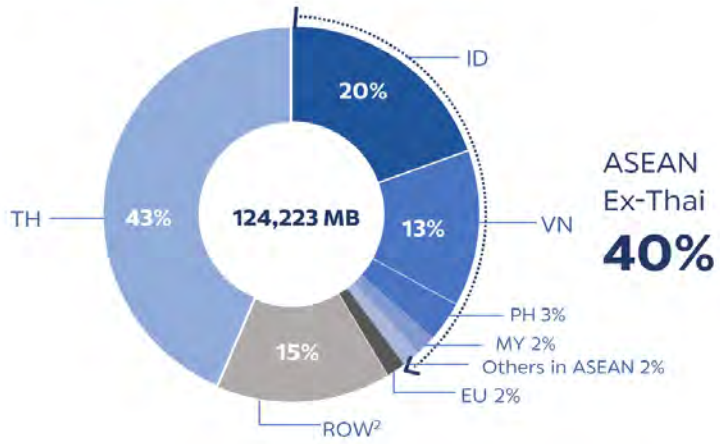
Foodservice packaging
Pulp & paper

6 plants
4 countries (TH,MY,VN,UK)

FOCUS: SCGP

- Siam Cement Group Packaging (SCGP) plans to double its revenues between 2020 and 2025 relying heavily on continued acquisitions in Southeast Asia (Indonesia, Vietnam, the Philippines).
- SCGP plans to expand to Europe. In December 2021, it acquired Deltalab, a Spanish company of medical supplies.
- Foodservice packaging is another area of strategic growth. SCGP plans to export both paper and plastic products from SE Asia to Europe and North America.

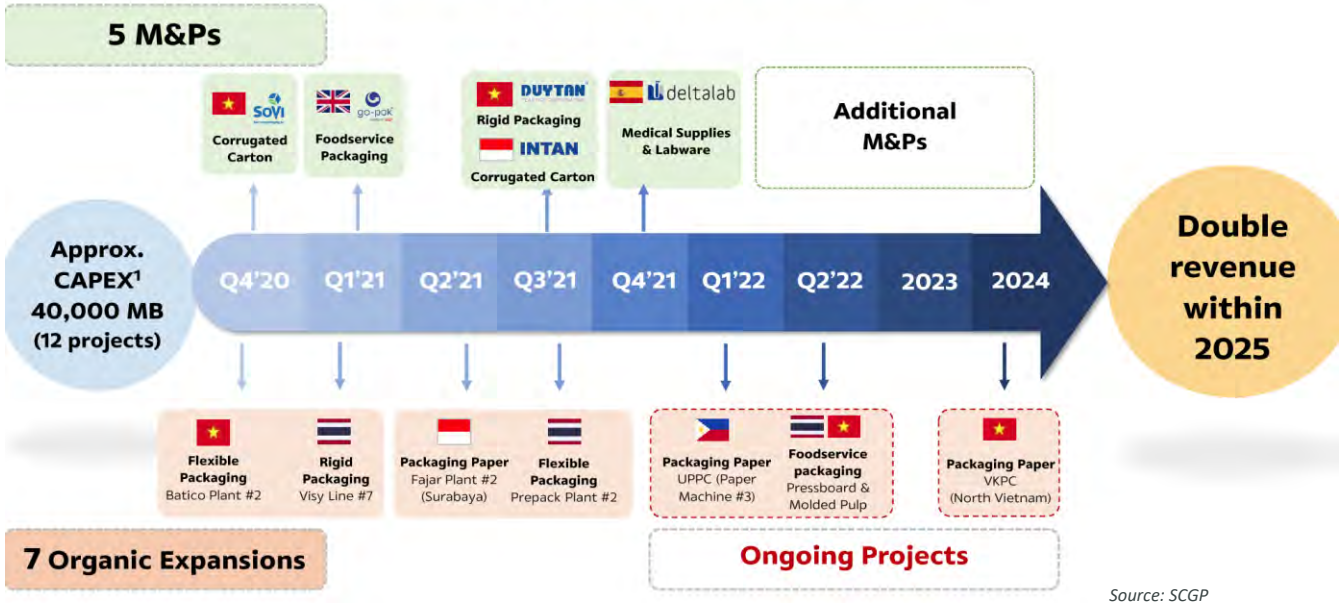
Revenue from sales by end destinations



- **Growth of ASEAN Ex-Thai: 40% from 32% last year**

Key Business Drivers

Fuel up future growth with high quality M&Ps and organic expansions

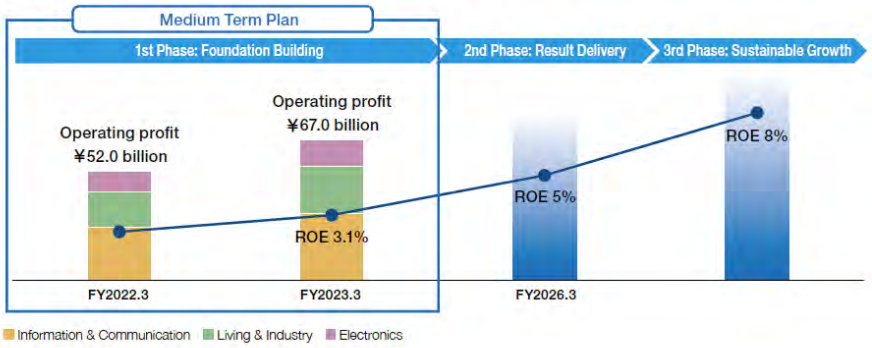


Source: SCGP

PACKAGING DEMAND GROWTH IN ASIA IS ALSO ATTRACTIVE FOR REGIONAL ESTABLISHED PLAYERS. FOCUS: TOPPAN

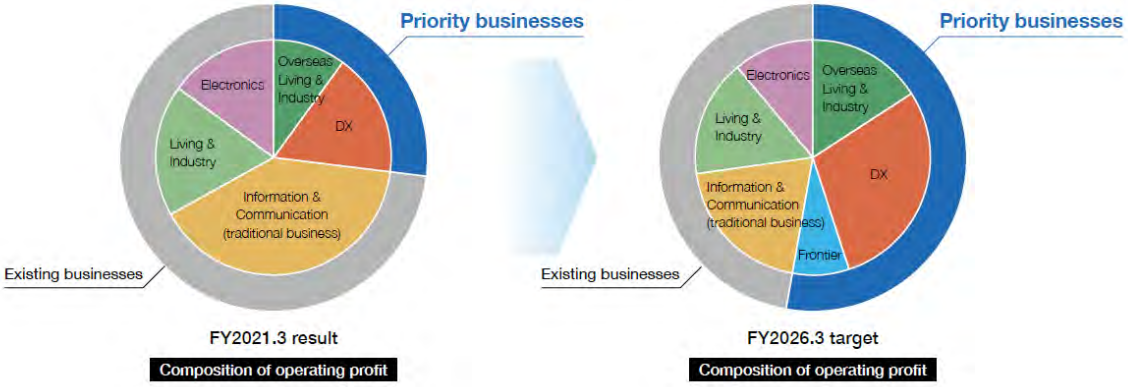
- The Japanese printing & packaging company Toppan has been expanding into Southeast Asia, notably in Indonesia (for the huge market size) and in Thailand (for its export-oriented food industry).
- Target is for existing printing business to shrink from 20% of total revenues to 10%. The company will prioritize so-called "Digital Transformation" (DX) solutions and especially Business Process Outsourcing (BPO).
- Packaging ("Living & Industry") is also a priority growth domain for Toppan, but only outside Japan.

■ Positioning of Medium Term Plan and Management Target Roadmap



■ Composition of Operating Profit: Target for the Fiscal Year Ending March 31, 2026

For our operating profit composition, we are aiming to transform our business portfolio so that in the fiscal year ending March 31, 2026, priority businesses account for more than half of total operating profit, with DX-related business accounting for 30%.



Toppan Integrated Report 2021

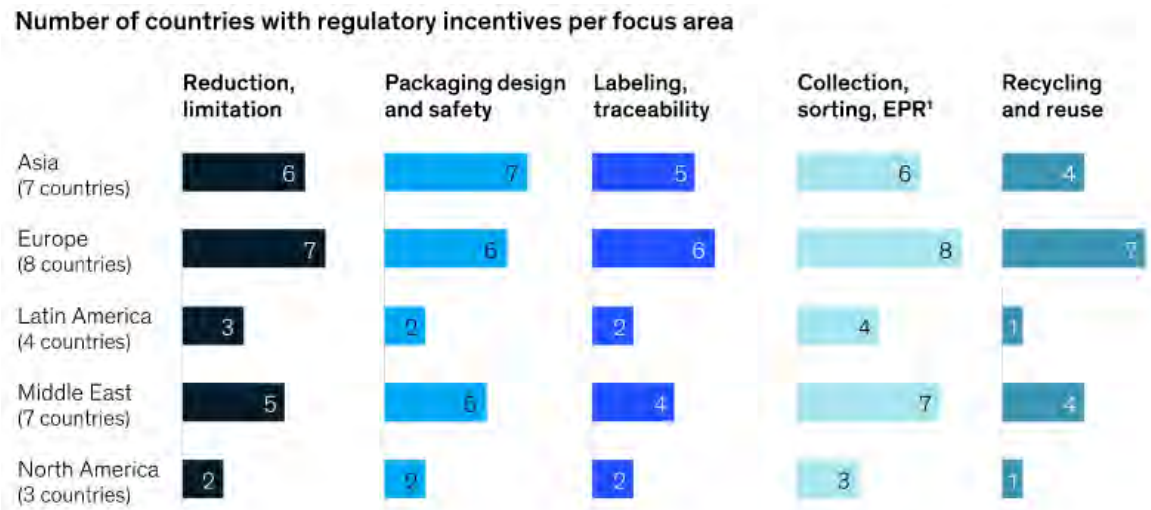
#3.3 SUSTAINABILITY: A GLOBAL CHALLENGE

THE IMPACT ON THE PACKAGING INDUSTRY IS PRIMARILY REGULATION DRIVEN

PACKAGING SUSTAINABILITY REGULATIONS ARE ADVANCING RAPIDLY ACROSS THE GLOBE

- Compared to 2020, at the beginning of 2022 regulatory initiatives tackling packaging sustainability have multiplied not just in mature markets (Europe, North America), but also in growing markets (Latin America, Middle East).

Overview of packaging sustainability regulation initiatives (February 2022)



¹Extended producer responsibility. EPR schemes are regulatory incentives that aim at encouraging packaging producers (eg, manufacturers, sellers, or importers) to manage the end of life (collection, sorting, recycling) of the packaging they place into the market.
Source: Regulations in the countries surveyed; McKinsey analysis

Most countries surveyed worldwide are stepping up efforts to tackle packaging waste management.

Prevalence of regulatory measures, by type

	Reduction, limitation	Packaging design and safety	Labeling, traceability	Collection, sorting, EPR¹	Recycling and reuse
Number of countries (of 30 studied)	24	22	19	28	18
Number of regulatory measures	81	72	46	91	54
Countries with most regulatory measures (total)	Argentina (8) India (8)	France (8)	Egypt (5) US (5)	Brazil (10)	Belgium (15)

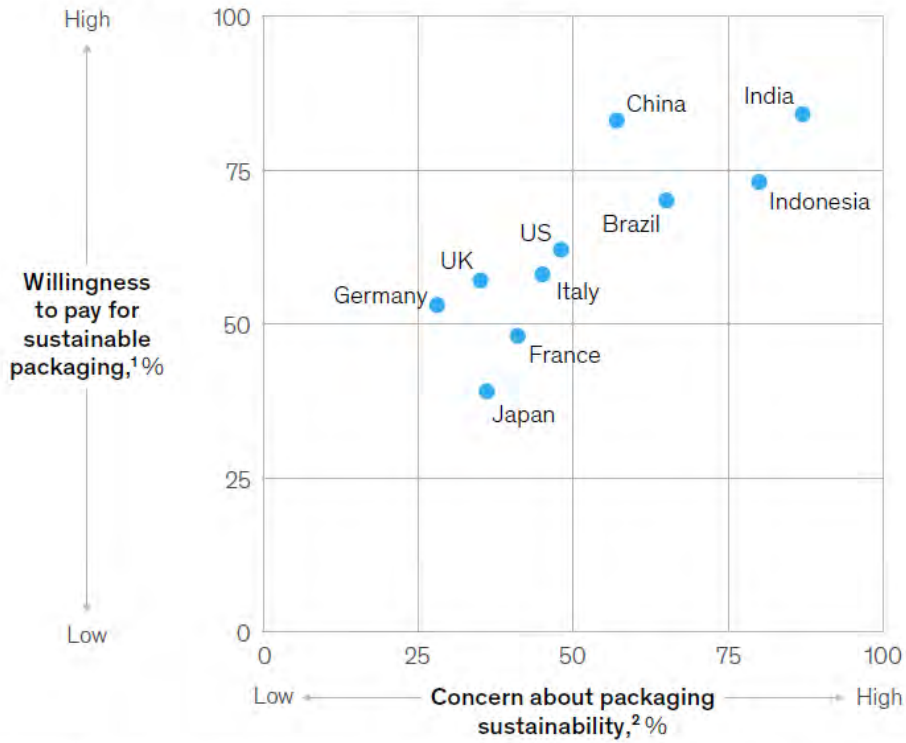
¹Extended producer responsibility. EPR schemes are regulatory incentives that aim at encouraging packaging producers (eg, manufacturers, sellers, or importers) to manage the end of life (collection, sorting, recycling) of the packaging they place into the market.
Source: Regulations in the countries surveyed; McKinsey analysis

Source: McKinsey

CONSUMERS IN GROWING MARKETS ARE MORE THAN AWARE OF SUSTAINABILITY IMPERATIVES

McKinsey consumer survey (February 2022)

Share of survey respondents, selected countries, %



[1]Question: To what extent would you be willing to pay more for sustainable packaging [in packaged food]? Share answering a "little" or a "lot more."
[2]Question: How do you currently perceive the importance of packaging sustainability compared with the time before COVID-19? Share answering "more concerned."

Source: McKinsey

THE ISSUE OF PACKAGING MATERIAL SUSTAINABILITY IS MULTIDIMENSIONAL AND NOT ENTIRELY STRAIGHTFORWARD

Consumer perception of recyclability doesn't always align with the actual carbon impact of packaging.

Packaging and food service, preliminary estimates

Example applications	Alternative materials	Greenhouse-gas impact, kg CO_2e[1] per functional unit (High – Low)	Global recycling rate, % (High – Low)	Key considerations
Beverage container (eg, soda)	PET bottle (27 g)	250–300	40–50	Material production Material disposal Recycling rate Transportation cost Breakage
	Aluminum can (13 g)	550–600	65–75	
	Glass bottle (208 g)	1,650–1,700	40–50	
Food-service cup (eg, cold drink)	PET cup (24 g)	300–350	5–10	Material production Material disposal Lifetime estimate for glass cup Cleaning cost for each use (including water, chemicals)
	Paper cup (18 g)	150–200	0–5	
	Glass cup (400 g, reused 1,000 times)	100–150	0–5	

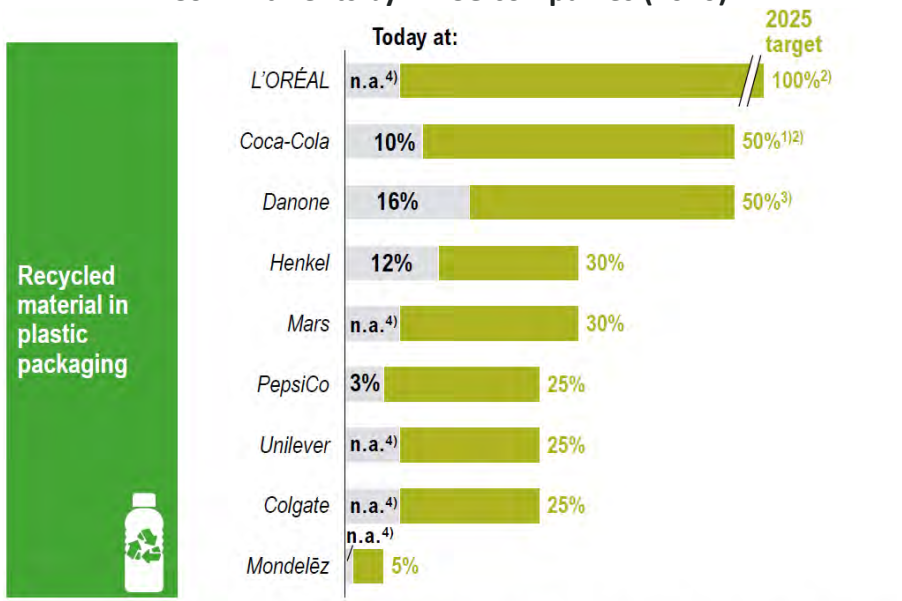
[1]Carbon dioxide equivalent.
Source: Can Manufacturers Institute; EPA WARM; European PET Bottle Platform; Glass Packaging Institute

Source: McKinsey

CONSUMER GOODS COMPANIES ARE ALSO PRESSURING THE PACKAGING SECTOR TO FIND MORE SUSTAINABLE SOLUTIONS

- While most FMCG companies stick to the low-hanging fruit of packaging "recyclability", some have announced clear intentions to "reduce" packaging use.
- Moving away from plastics, either partially or totally, is a major feature of many FMCG companies' sustainability strategies

Commitments by FMCG companies (2020)

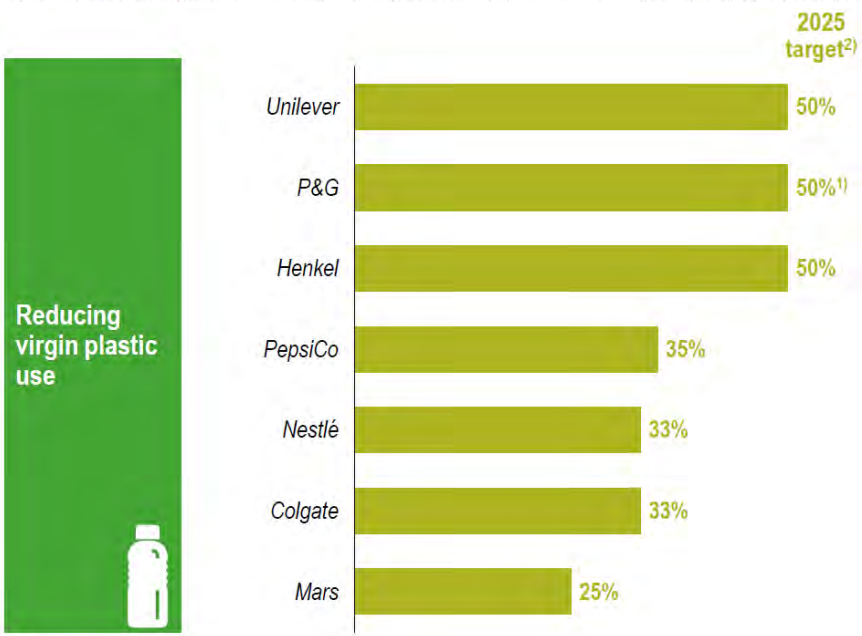


1) In all types of packaging 2) 2030 target 3) Recycled plastic in beverage bottles, 25% for all plastic packaging 4) No progress data

Fast-moving-consumer-goods industry efforts to promote sustainability are led by a focus on high recyclability and recycled content.

Share of commitments by fast-moving-consumer-goods/consumer-packaged-goods companies to support sustainability, by type, % (n = 94)

Source: McKinsey



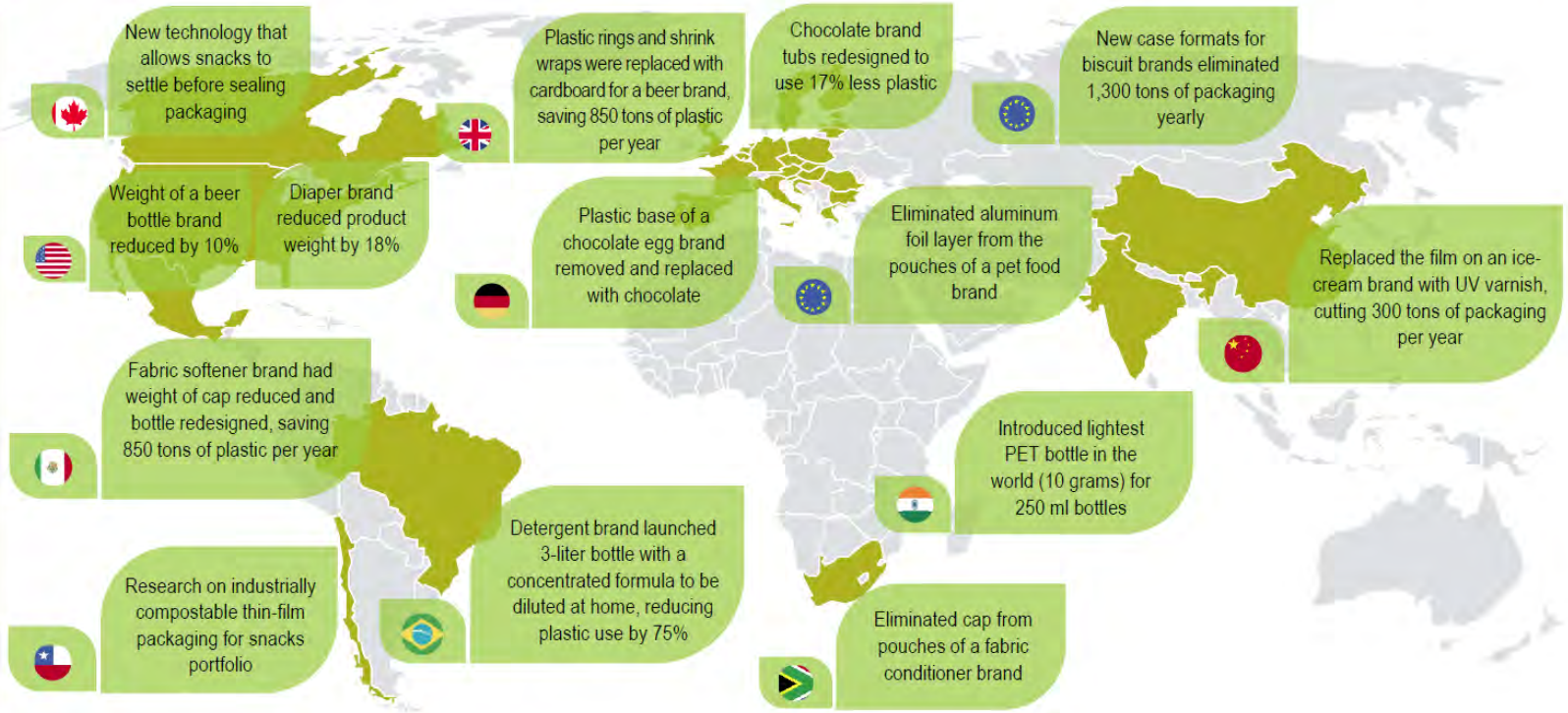
1) 2030 target 2) No progress data available

Source: Roland Berger

PACKAGING REDUCTION INITIATIVES FOCUS ON PLASTICS

Packaging reduction objectives – Examples of initiatives for a selection of key global FMCG producers

Anheuser-Busch InBev
Coca-Cola
Unilever
Heineken
Nestlé
PepsiCo
Danone
Mars
Ferrero
Mondelēz International
Procter & Gamble
Colgate-Palmolive Company
Henkel
L'ORÉAL



Source: Roland Berger

PACKAGING COMPANIES ARE RESPONDING TO CUSTOMERS' SUSTAINABILITY OBJECTIVES…

Graphic Packaging

Recyclable Products
100% by 2025

Water Usage
-15%

Green house gases
-15%

Energy
-15%

LDPE usage
-40%

Coca-Cola

Recyclable Packaging
100% by 2030

Recycled Content
50% by 2030

McDonald's

Renewable / Recyclable Sources
100% by 2025

MOLSON Coors

Reusable / Recyclable / Compostable / Biodegradable
100% by 2025

Recycled Content
30% by 2025

Nestlé

Recyclable / Reusable Materials
100% by 2025

Elimination of 10 Problematic Plastics
100% by 2024

Unilever

Recyclable / Reusable / Compostable
100% by 2025

Recycled Content
25% by 2025

Walmart

PBP Recyclable / Reusable / Compostable
100% by 2025

PBP Recycled Content
17% by 2025

Source: Graphic Packaging

…AND SOME SEE THE SUSTAINABILITY DRIVE AS A HUGE OPPORTUNITY FOR BUSINESS GROWTH

LARGE $5 BILLION ADDRESSABLE MARKET ESTIMATED IN NORTH AMERICA AND EUROPE FOR PAPERBOARD CONVERSIONS

CURRENT MARKET OFFERING

Foam Cups

$1B

Plastic Cups

$1B

Foam Containers

$1B

Beverage Packaging

$1B

CPET Trays, Bowls

$500M

Stand-up Pouches

$250M

Source: Graphic Packaging

II. OVERVIEW OF THE EUROPEAN TISSUE INDUSTRY (PHASE 1)

#1 MAPPING

#1.1 GLOBAL INDUSTRY CONTEXT AND STRUCTURAL FEATURES

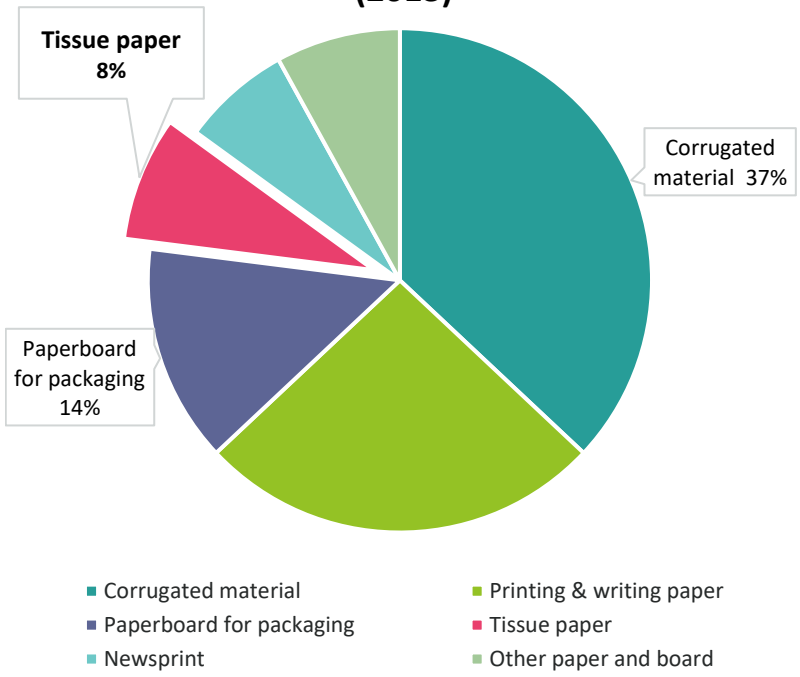
MAIN STRUCTURAL FEATURES OF THE TISSUE INDUSTRY

- **≈10% of the global paper industry; slow but constant growth.**
- **Price-driven industry**:
  - wood pulp prices – relatively high dependency on market pulp.
  - energy prices – up to 70% of energy used for tissue thermal drying (energy intensive process).
- **Localized production**:
  - most tissue products are low density and low value, which means transportation costs have a high impact on profitability.
  - manufacturing facilities generally close to consumer markets.
  - a US company specializing in private label tissue estimates that shipping is only feasible within 1500km of a production site.
- **Two clearly-defined market segments**:
  - Consumer/At Home: 70%-80% of total consumption.
  - Away from Home: 20%-30% of total consumption.
- **Diverse range of products**: toilet paper, hand towels, facial napkins, kitchen towels, baby napkins, tampons, hospital articles, tablecloths and serviettes.
- **Historical trends incurred by mutations in consumer behaviour and distribution**:
  - Quantitatively, demand is driven by population growth coupled with changes in purchasing power and changing life styles of rising middle classes.
  - Qualitatively, transformations in the retail market (rise of global/regional commerce players, shift from traditional to modern retail) have deep implications for the development of the tissue industry.

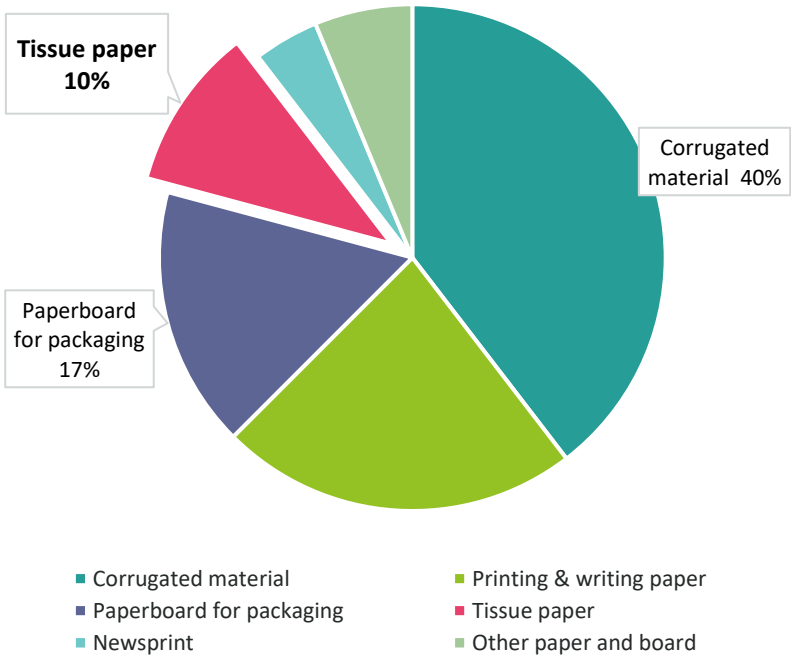
A RELATIVELY SMALL, BUT GROWING PART OF THE GLOBAL PAPER INDUSTRY

- In 2019, tissue accounted for **10% of the global paper production**, compared to 57% for packaging (40% corrugated + 17% other) and 26% for graphic paper (22% printing & writing paper + 4% newsprint).
- Global production volumes for tissue paper have registered **slow but stable growth (8% in 2013)**, in contrast to explosive growth for packaging (51% in 2013: 37% corrugated + 14% other) and significant decline for graphic paper (33% in 2013: 26% printing & writing paper + 7% newsprint).

Global paper production by grade (2013)



Global paper production by grade (2019)

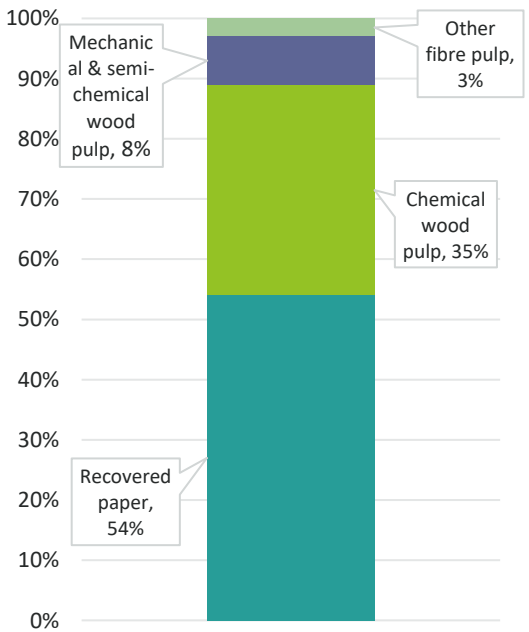


Source: Swedish Forest Industries Association (2013), FAOSTAT (2019)

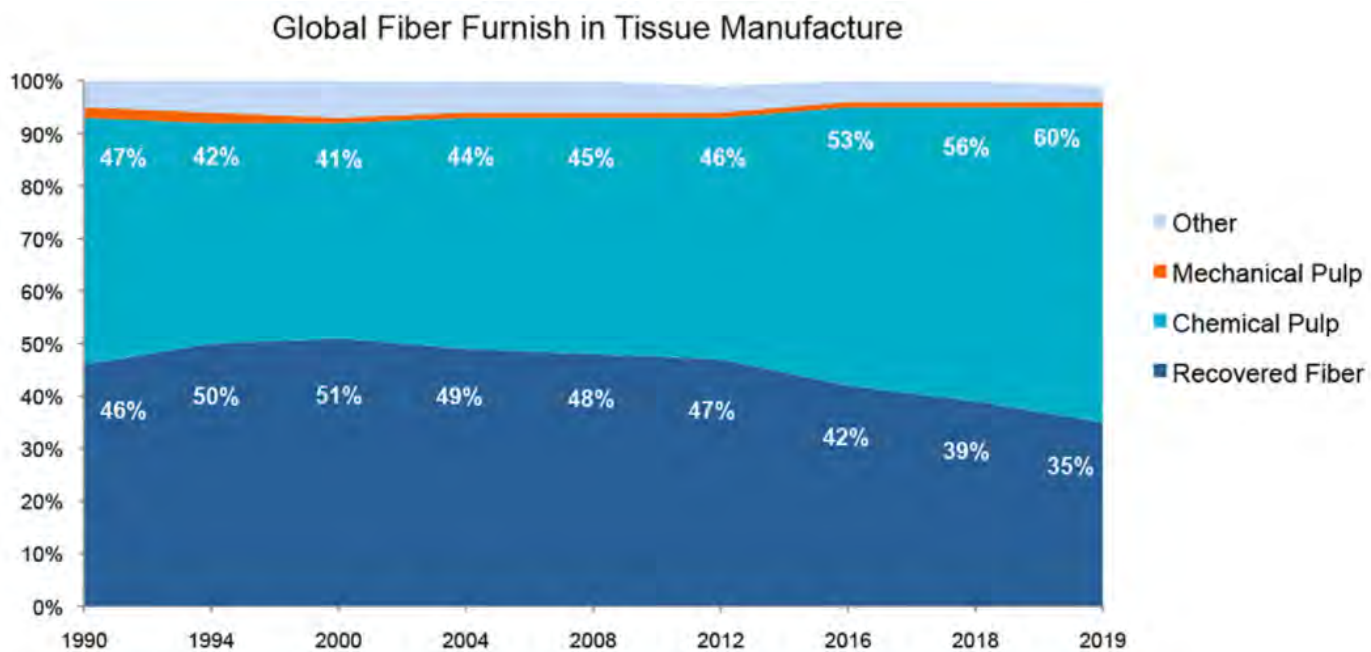
AS OPPOSED TO PAPER PACKAGING, THE TISSUE INDUSTRY IS (STILL) HIGHLY DEPENDENT ON THE SUPPLY OF VIRGIN PULP…

- Recovered paper comprises just over half of the total raw material used by the paper industry, with virgin pulp accounting for the rest.
- For tissue, the share of recycled pulp is much lower (just 35% in 2019) and has been declining constantly for the past two decades. Globally, the tissue industry consumes ≈6% of the total recycled pulp.
- A major driver of this trend has been product development and the increased sophistication of modern retail (cultivation and growth of more high-end products).

Global distribution of fiber furnish for the paper industry, 2018



Source: FAO

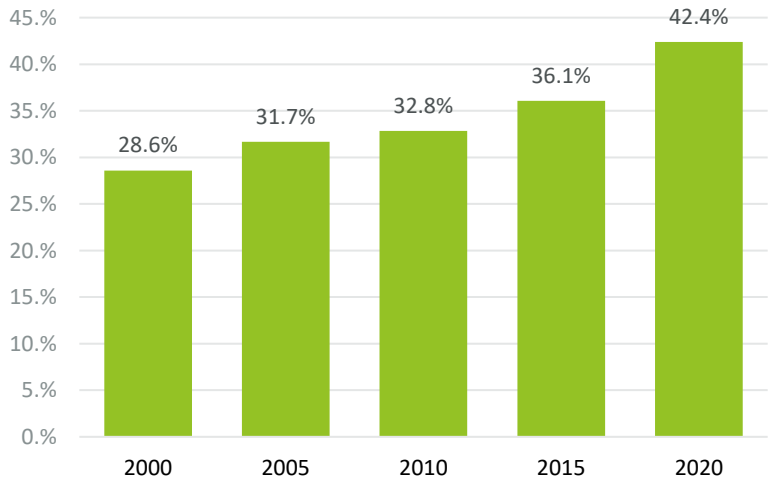


Source: Tissue World Magazine July 2020

…WHICH IT TYPICALLY OBTAINS ON THE MARKET

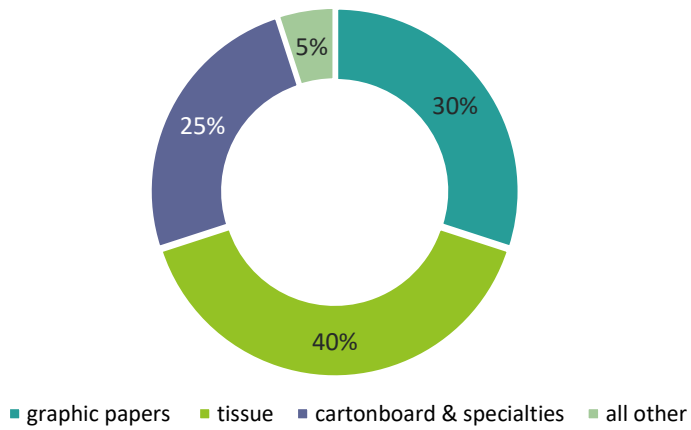
- The degree of vertical integration varies among manufacturers of paper products and between different parts of the paper industry: some companies/segments typically produce pulp themselves, while others buy it on the market. Pulp bought on the market is defined as "market pulp". Globally, China has the largest market pulp demand (36% of global demand), followed by Western Europe (24%).
- In 2019, market pulp in Europe (CEPI countries) comprised 40.5% of total pulp production, a 12 percentage points increase since 1991. In other words, the European paper industry has become increasingly less vertically integrated and downstream manufacturers of paper products have increasingly bought pulp on the market, thus becoming more vulnerable to the relatively high volatility of pulp prices.
  - One mechanism behind this transformation has been the separation of previously integrated companies: in the tissue industry, the split of Essity from SCA in 2017 has been a particularly high-profile example of this trend.
- One peculiarity of the tissue industry is that it is relatively dependent not just on virgin pulp, but specifically on market pulp: globally, the tissue industry consumes around 40% of the market pulp.

Market pulp production in CEPI countries (% of total pulp production)



Source: CEPI

End-use share of global market pulp 2019

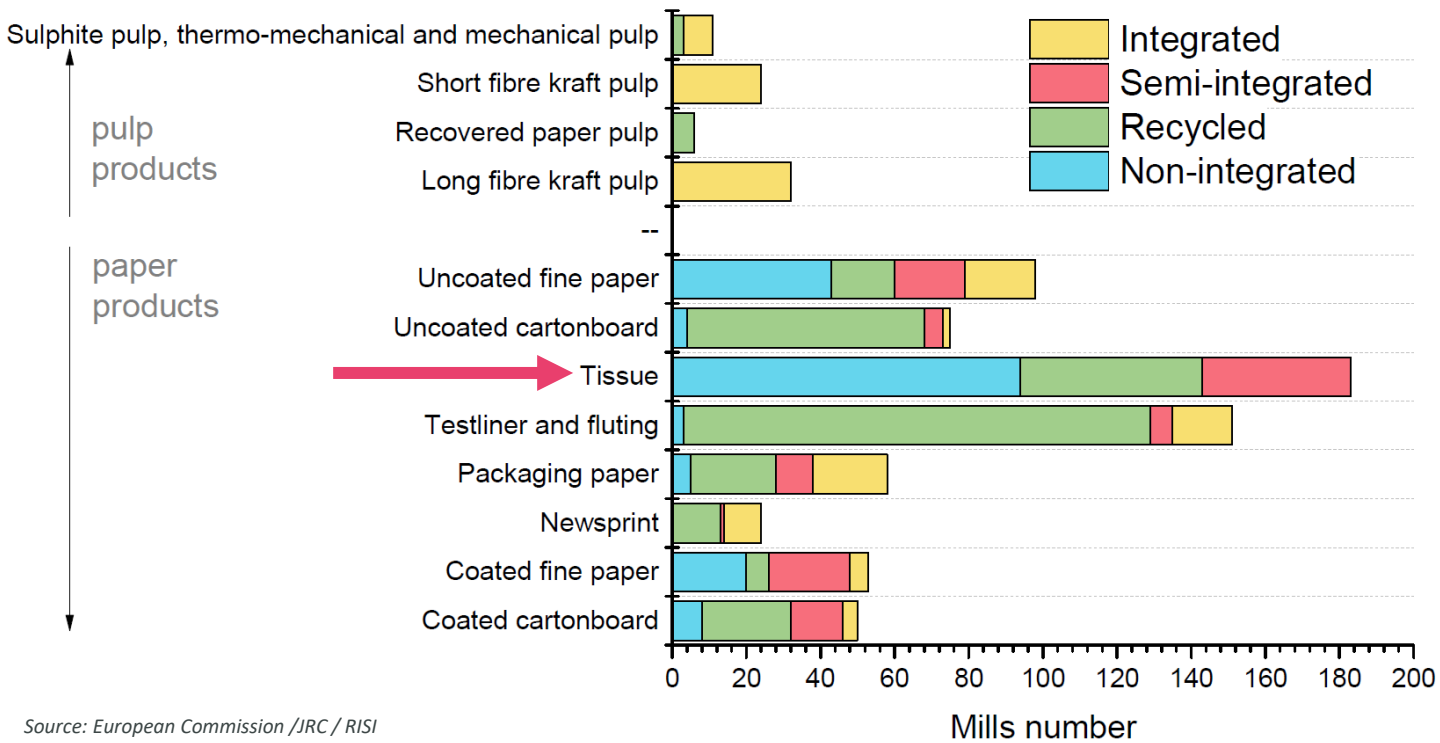


Source: Fastmarkets 2020

DEPENDENCE ON MARKET PULP IS DUE TO THE TISSUE INDUSTRY'S PRIMARILY NON-INTEGRATED PRODUCTION AND SPATIAL DISPERSAL

- Around 50% of the tissue mills in the EU are non-integrated, meaning more than 90% of the fiber used in production is brought from off-site. The tissue industry is the only paper product industry in Europe without any fully integrated mills.
- With almost 200 mills in the EU, the tissue industry has by far the highest spatial dispersal. Small and disparate industrial operations make integration much more difficult.

Type of mills for pulp and paper products in the EU, 2016

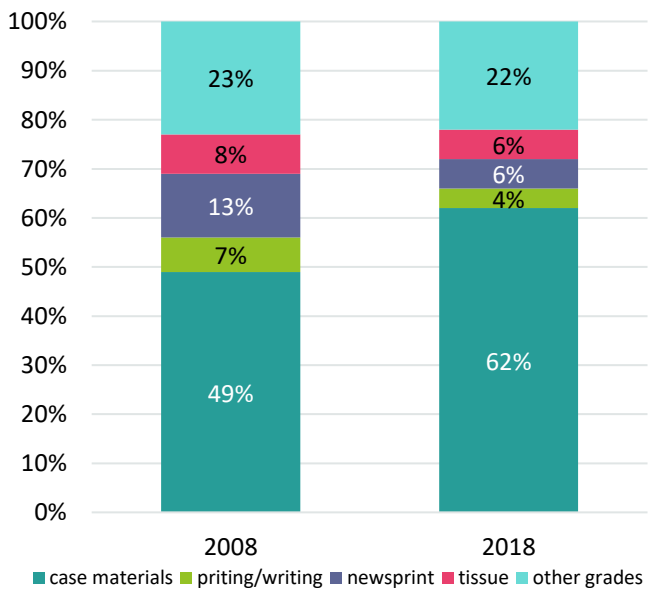


Source: European Commission /JRC / RISI

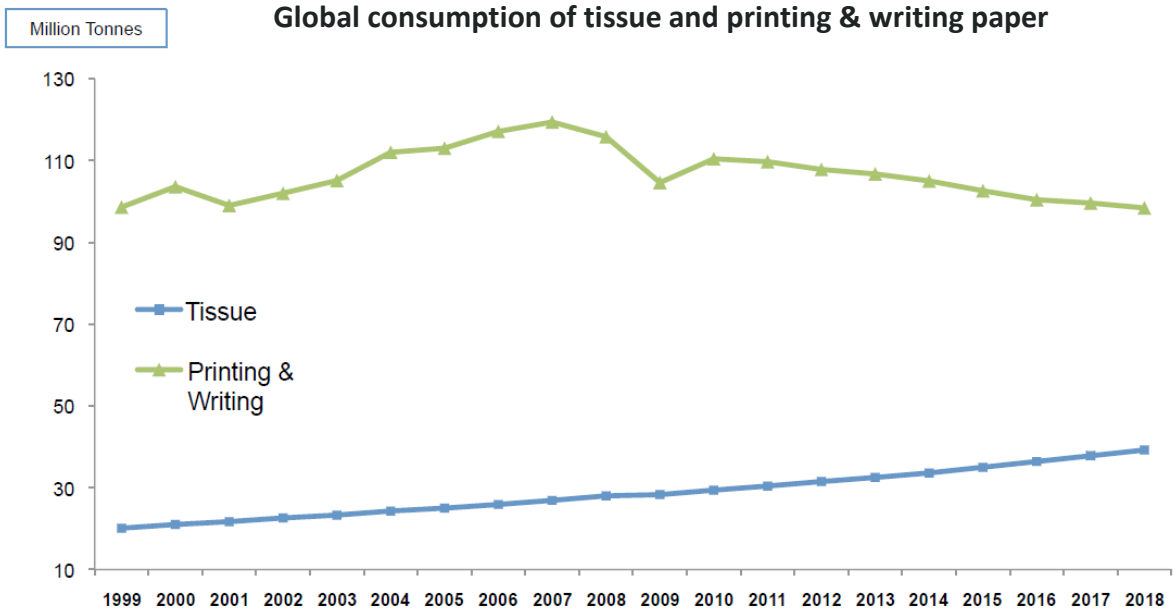
THE USE OF RECYCLED PAPER IN THE TISSUE INDUSTRY IS UNDER CONFLICTING PRESSURES

- While sustainability is quickly becoming a major strategic objective for the paper industry as a whole, there are several structural obstacles to the increased use of recycled paper in tissue manufacturing.
- Apart from the global growth of modern retail or consumer inertia, the secular decline of graphic paper demand and production plays a major role, since graphic paper has historically been the most important source of recycled fiber for the tissue industry.
- One of the major challenges for the tissue industry is to identify alternative sources of sustainable fiber that meet the quality standards required for contemporary tissue products.

Global use of recycled paper by product



Global consumption of tissue and printing & writing paper

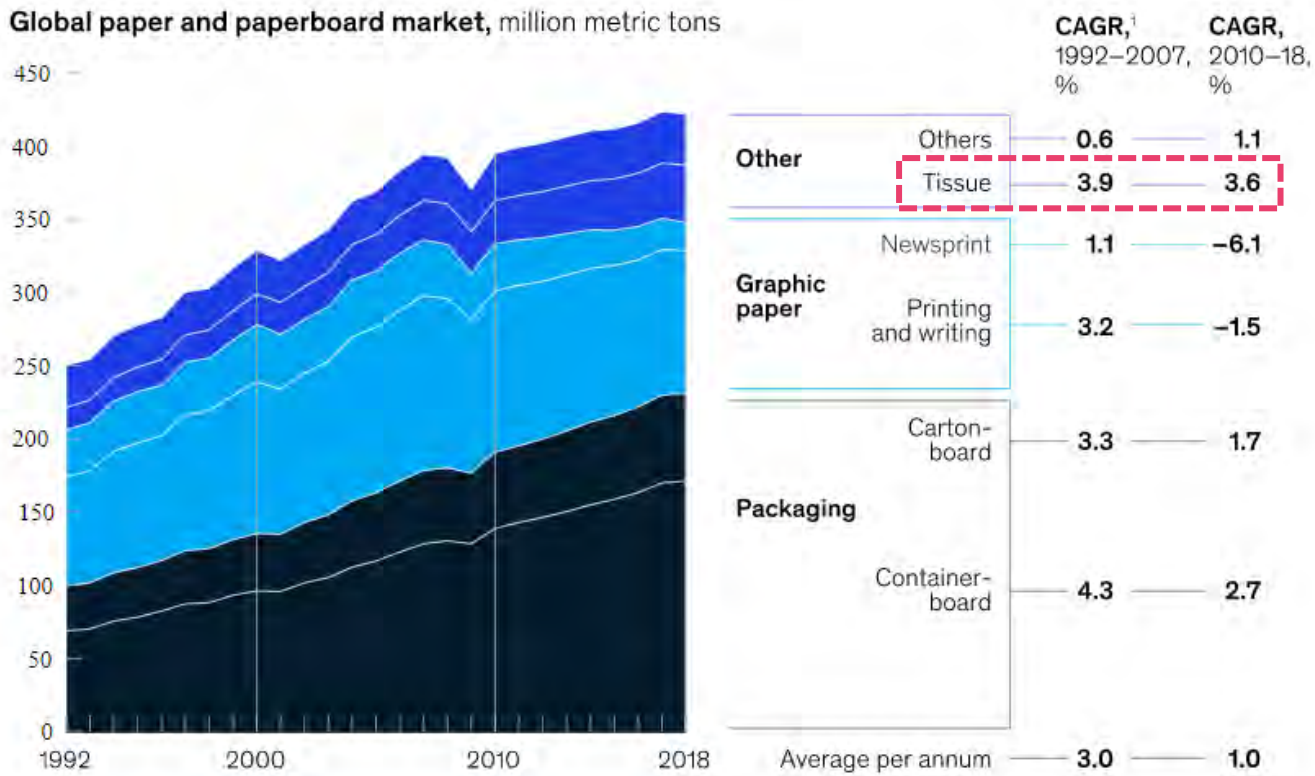


Source: Tissue World Magazine, July-August 2020

TISSUE DEMAND CONTINUES TO GROW AT A STEADY RATE, ABOVE THAT OF THE TOTAL PAPER INDUSTRY

- Over the past decade, tissue consumption has been the fastest growing among the paper industry segments, despite an obvious slowdown in all other subsectors.
  - Annual average growth rate (compound average growth rate — CAGR) of 3.6% between 2010 and 2018 vs. just 1% for the paper industry on average.

- Similar to packaging, tissue consumption growth is largely due to rising incomes. In contrast to packaging, tissue consumption has not been boosted by extraordinary developments such as the rise of e-commerce.

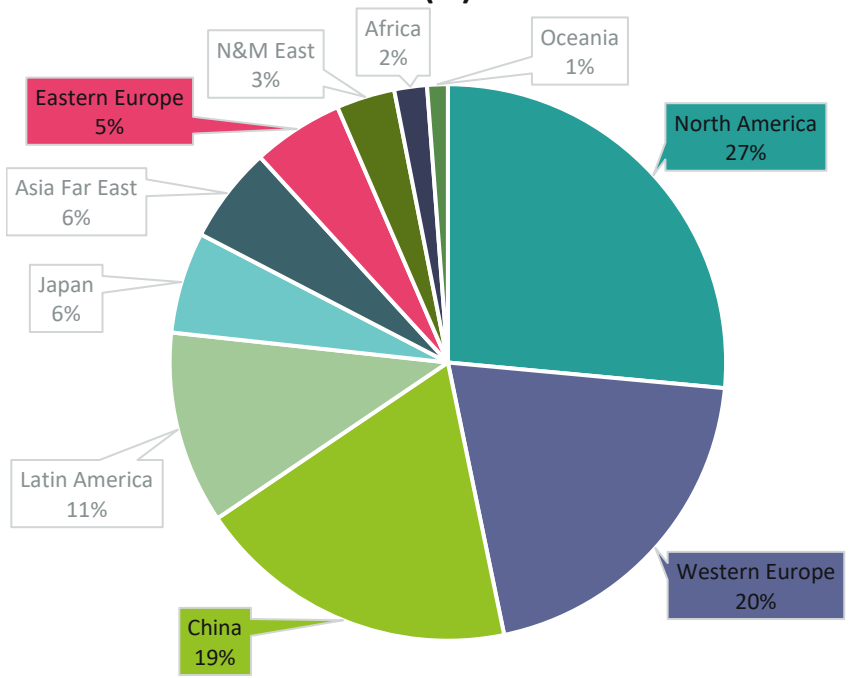


Source: McKinsey

WORLDWIDE, CHINA IS THE MOST DYNAMIC MARKET. IN EUROPE, GROWTH HAS BEEN APPARENT PRIMARILY IN THE EAST

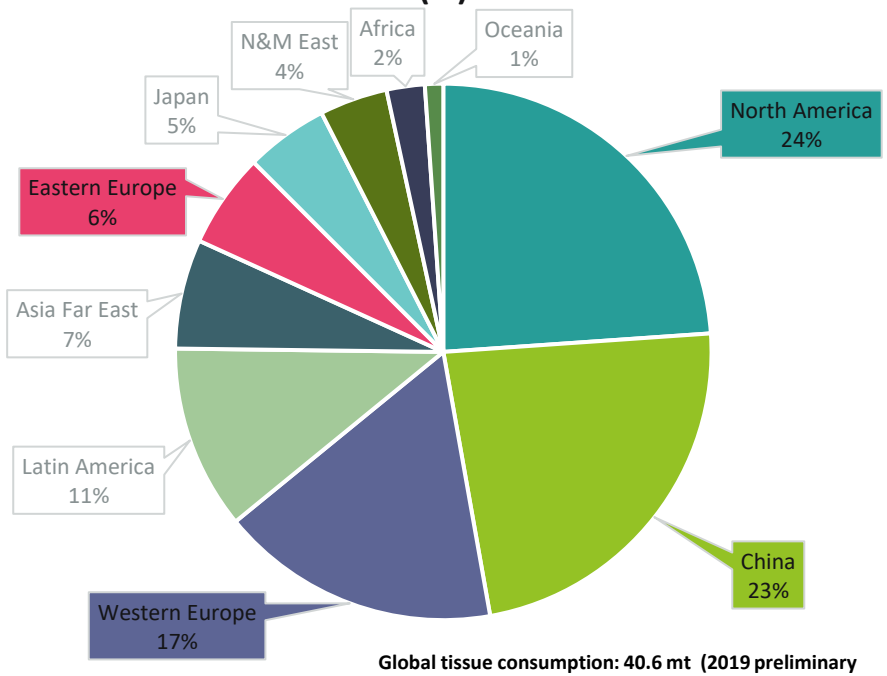
- In 2019, the Chinese tissue market comprised almost one fourth of the global market, compared to less than one fifth in 2012. The rapid rise of the Chinese market has eclipsed a slowly growing Western European market and is bound to surpass the North American market in the foreseeable future.
- The slight share increase of Eastern Europe (in an enlarged sense — including Russia and CIS countries), from 5% to 6% between 2012 and 2019, indicates a substantially faster growth than Western Europe.

Global tissue consumption by region 2012 (%)



Global tissue consumption 31.8 mt (2012 preliminary figure)

Global consumption of tissue by regions 2019 (%)



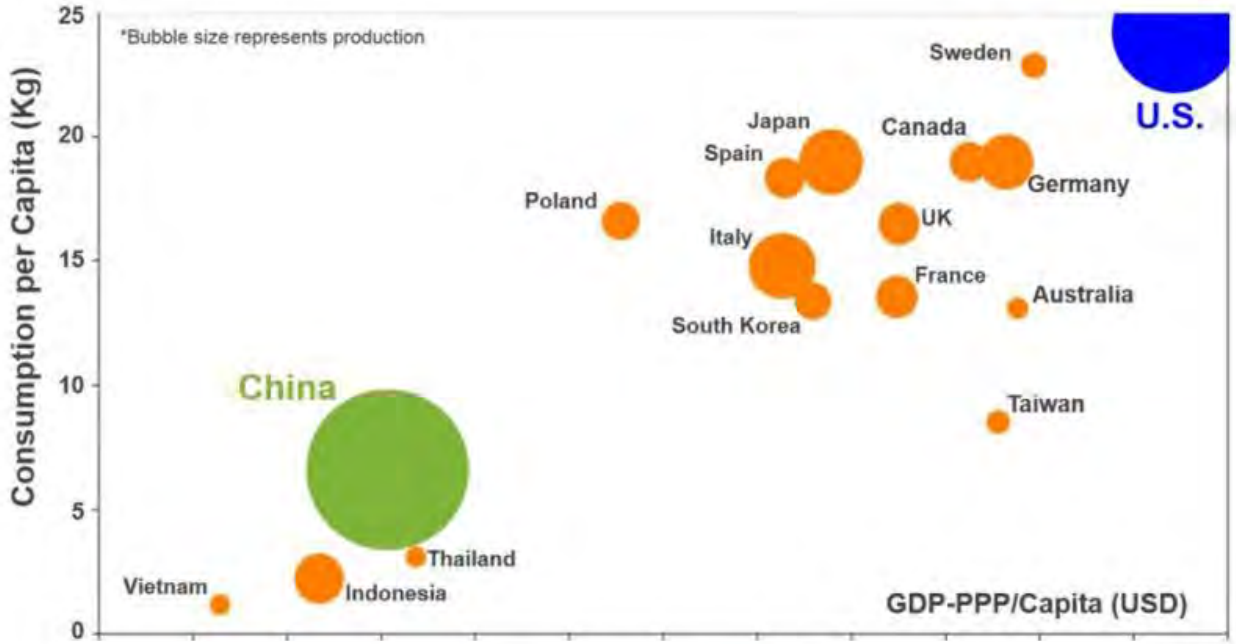
Global tissue consumption: 40.6 mt (2019 preliminary

Source: Fastmarkets RISI

SOCIOECONOMIC DEVELOPMENT TO CONTINUE DRIVING TISSUE DEMAND GROWTH

- Even though it is already huge, the potential for future growth of the Chinese market is considerable, since consumption per capita is still relatively low and the Chinese economy is expected to continue to grow much faster than European or North American economies.
- By 2025, Chinese consumption per capita (in the retail channel) is forecasted to be at less than 60% relative to North America and 75% relative to Western Europe.
- Large Asian countries such as Vietnam or Indonesia are likewise considered to drive the future growth of tissue demand at global level.
- While the relationship between overall socioeconomic development and tissue consumption is very strong, there are exceptions: Poland has a relatively high consumption, while Taiwan has relatively low consumption.

Tissue consumption per capita, 2019



Source: Fisher

Table 2: China vs North America and Western Europe, retail tissue per capita, kg per capita, 2020/2025

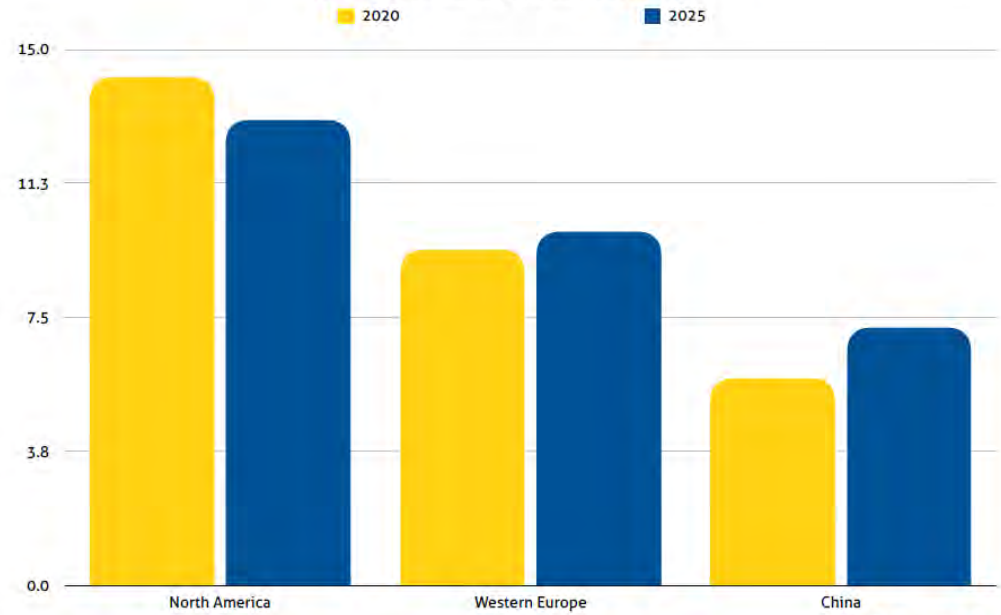


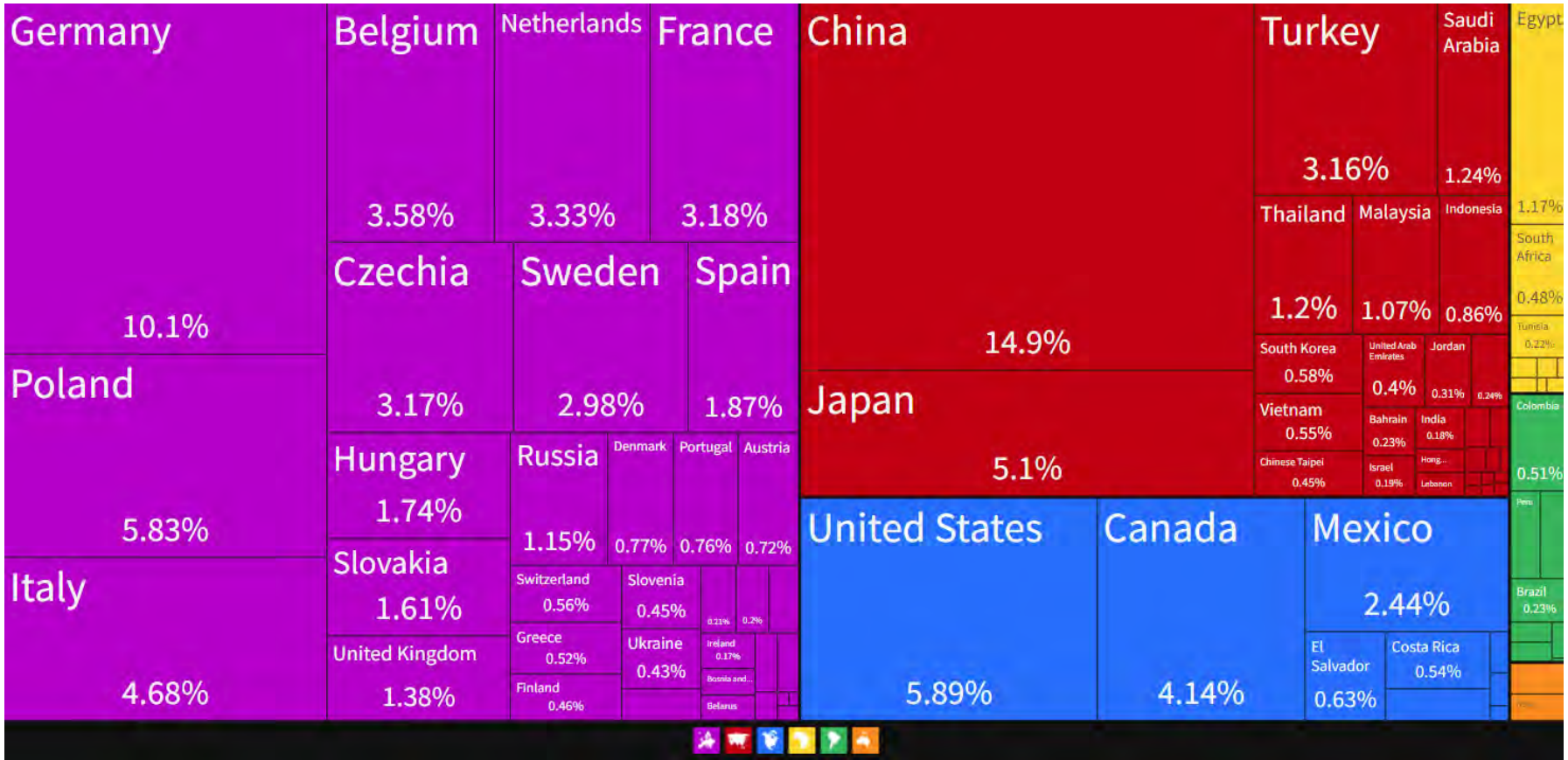
Table 2

Source: Euromonitor International

EUROPEAN COUNTRIES ACCOUNT FOR HALF OF THE 28 BILLION DOLLARS IN GLOBAL TOILET PAPER EXPORTS...

- Germany, Poland and Italy account for over a fifth of global toilet paper exports. Germany exports as much toilet paper as the US and Canada combined, while Poland exports as much as the US.
- With almost 15% of total global exports of toilet paper, China is the world's largest toilet paper exporter. If over 90% of German exports are to European countries, less than half of Chinese exports go to Asia and almost a quarter go to North America.

Global exports of toilet paper, 2019 ($28bn total)

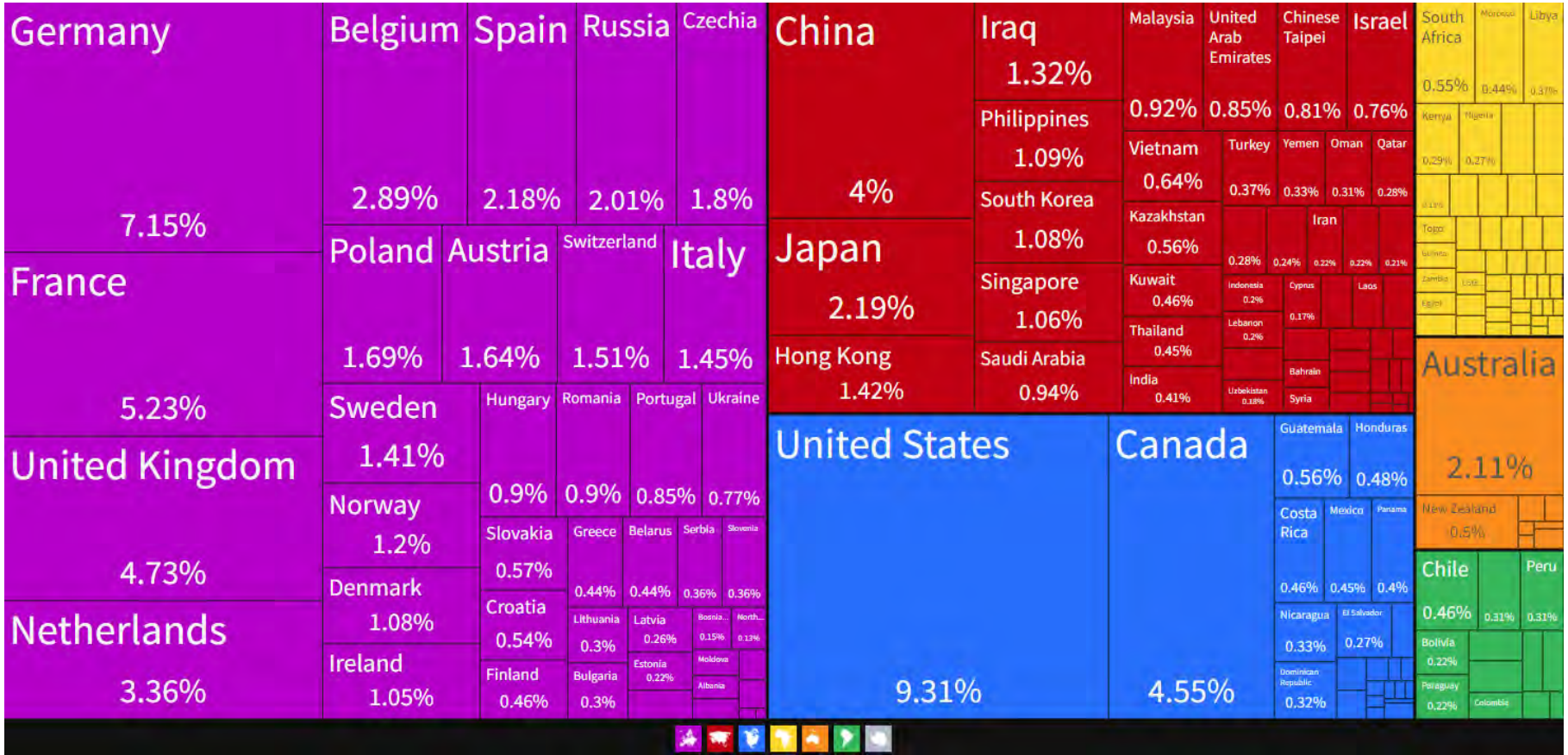


Source: Observatory of Economic Complexity

...BUT ASIA IS THE MAJOR NET EXPORTER GLOBALLY, WITH THE US RUNNING A 1-BILLION-DOLLAR ANNUAL TRADE DEFICIT ON TOILET PAPER ALONE

- In 2019, Asia had a $2.1bn trade surplus, four times more than Europe.
- In Europe, France and the UK run the highest trade deficits in toilet paper.

Global imports of toilet paper, 2019 ($28bn total)



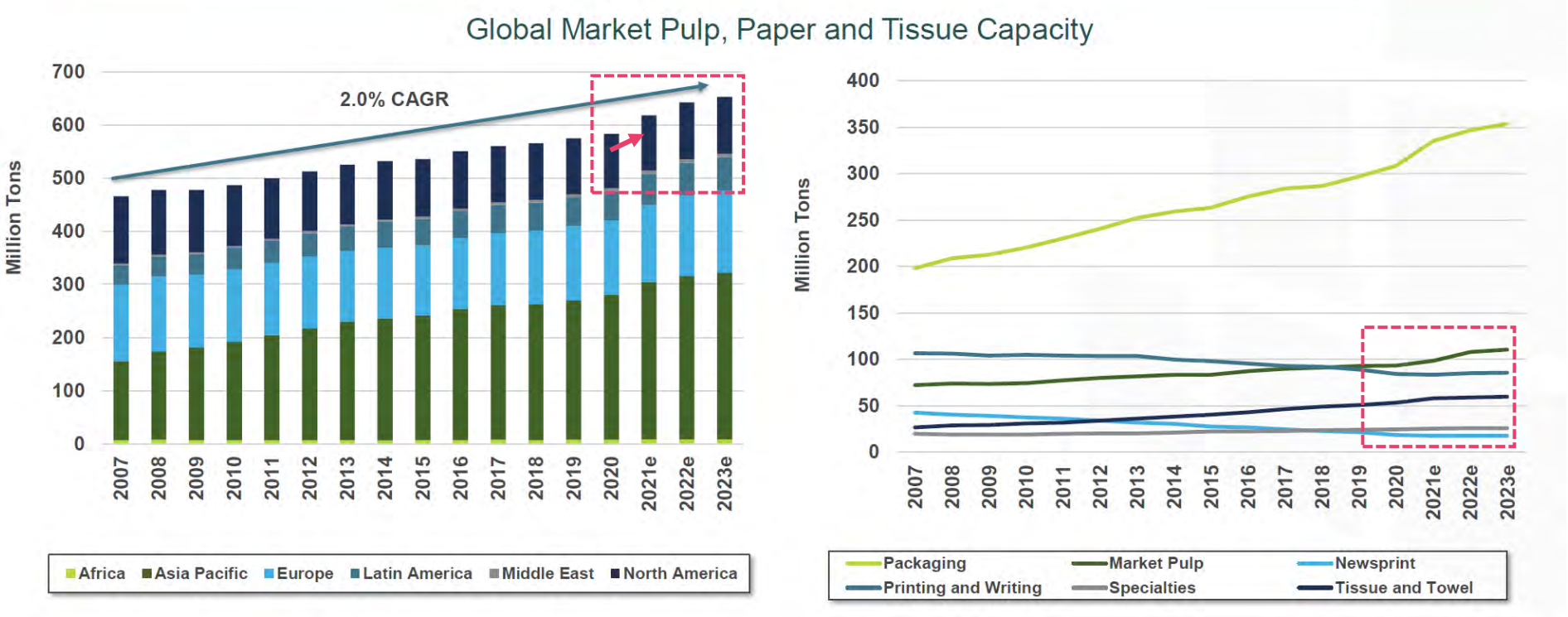
Source: Observatory of Economic Complexity

TRADE DYNAMICS VARY FROM PRODUCT TO PRODUCT, ALBEIT WITH SOME VISIBLE COMMONALITIES

- **Facial tissue**: $4.4bn foreign trade globally in 2019.
  - Indonesia is the main exporter, with 18.2% of global exports, followed by China (7.6%) and Turkey (7.3%). In Europe, Italy is the largest exporter with 9.6% of global exports ($419M), followed by Germany (5.3%) and Sweden (4%).
  - The US is the largest importer, with 12.1%, followed by the UK (9%) and Germany (6.6%).
  - Europe has a slight trade deficit (-$230M). While European countries trade primarily intra-regionally, over a third of Chinese exports go to Oceania and the US is a major export destination for Asian countries.
  - In Europe, the largest importer is the UK. Exceptionally, Germany and Poland have trade deficits of $55M and $67M, respectively.
- **Sanitary articles of paper, sanitary towels, diapers**: $16bn foreign trade globally in 2019.
  - China is the largest exporter (12.1%), followed by Germany (9%), Japan (8.6%) and Poland (6.7%). The US is the largest importer, with 8.2% of total imports, followed by China (6.6%), Germany (5.8%) and the UK (5.5%)
  - Apart from Asia and the US, Africa is an important destination for Chinese exports (approximately one quarter).
  - Overall, Europe accounts for 49% of exports and 46% of imports (trade surplus of $530M).
  - In Europe, the largest importers are Germany, the UK and France, with Eastern European countries like Poland, Czechia and Hungary being among the continent's top 5 exporters and running significant trade surpluses.

TARGETED CAPACITY INVESTMENTS TO SUPPORT INDUSTRY GROWTH

- The total global market pulp, paper and tissue industry capacity is expected to continue to grow above its historical trend in the short run, pushed primarily by growth in Asia and in the packaging sector.
- While the gap between packaging and tissue is set to increase at an accelerated rate, it should be noted that tissue is the only other paper product segment expected to attract investments in new capacities.

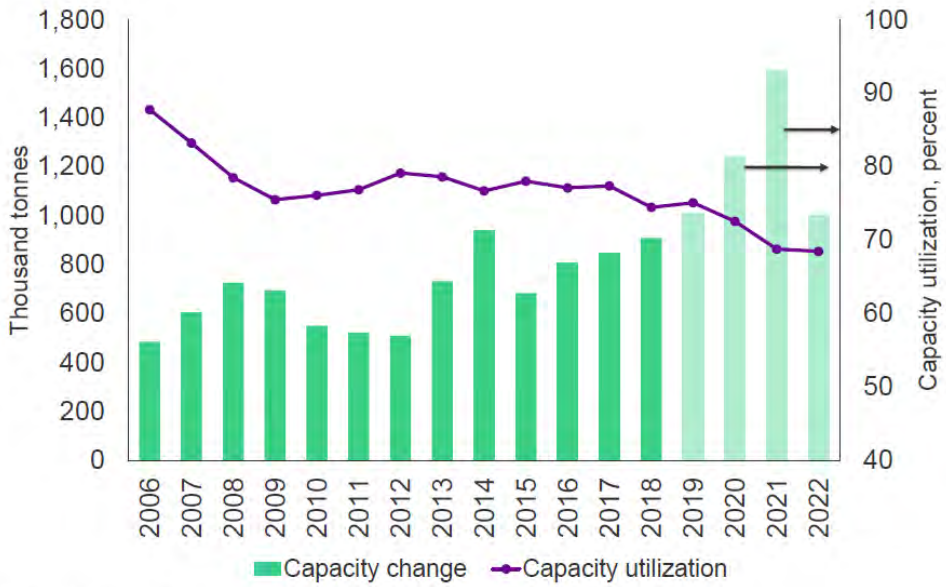


Source: Maine Forest Council

GLOBAL GROWTH ASYMMETRIES COULD CONTINUE TO FUEL FOREIGN TRADE IMBALANCES

- Chinese capacity additions at historical highs. Despite high potential of Chinese market, new capacities are forecasted to put further pressure on capacity utilization. If Chinese investment growth is larger than what can be absorbed via domestic market growth, the only alternative for maintaining capacity utilization are exports.
- Capacity investments on the US market are cyclical, with a periodic high reached in 2020/21. Peaking capacity utilization means the US should rely on imports to cover for demand spikes.

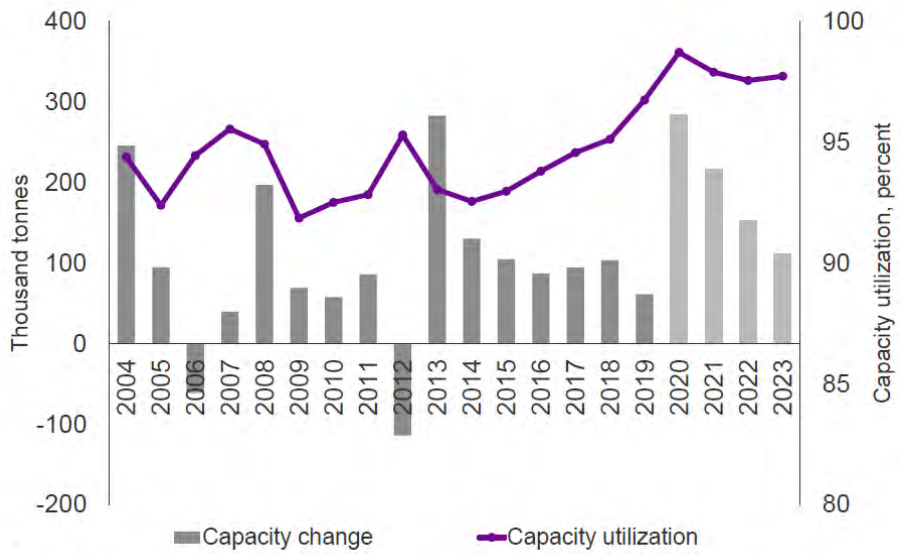
Net capacity change and tissue operating rate in China, forecast 2020-2022



1. Based on committed projects only, learning curves considered.

Source: Fastmarkets 2020

Net capacity change and tissue operating rate in North America, forecast 2020-2022

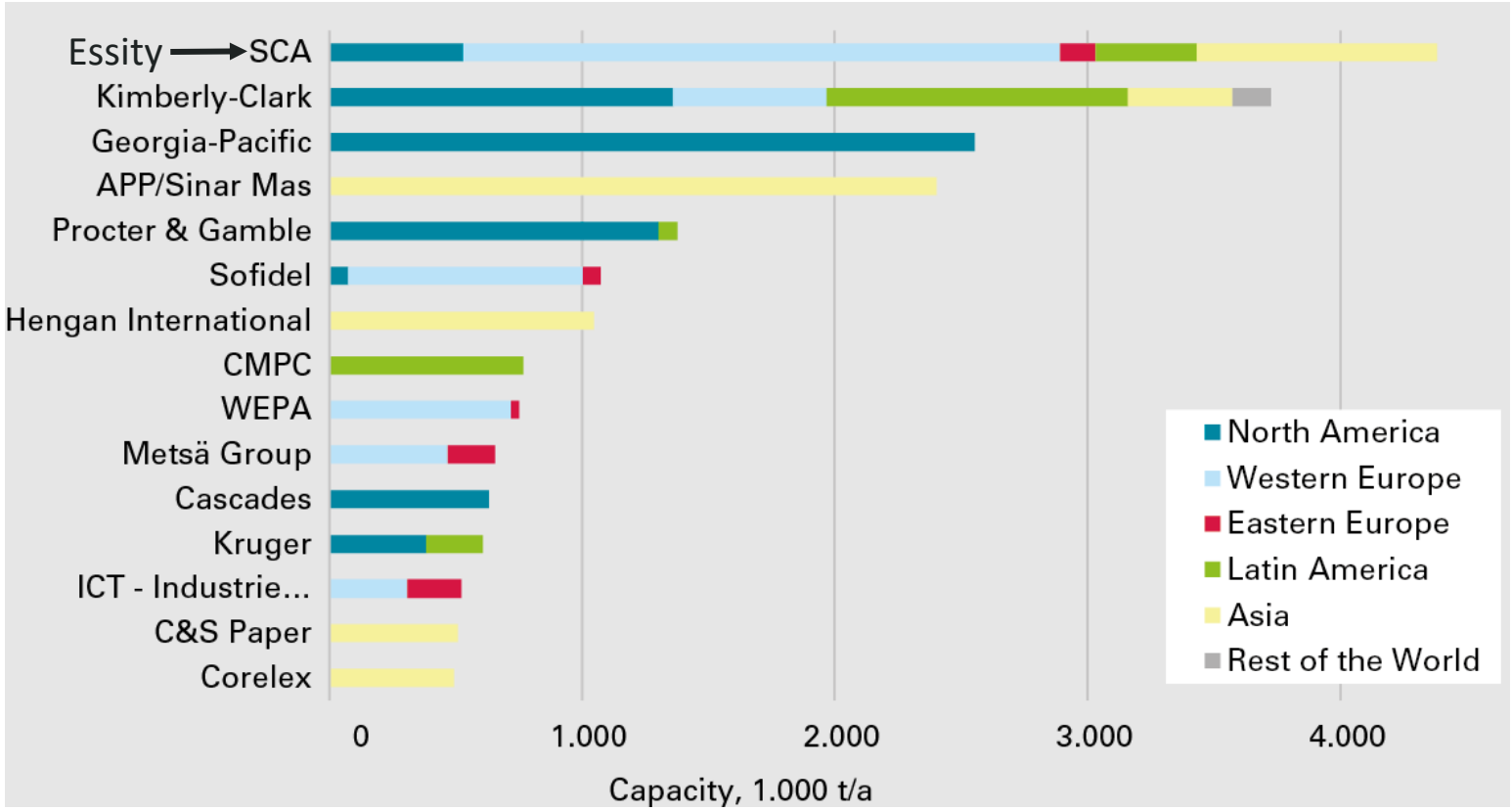


1. Based on committed projects only.

GLOBALLY, THE INDUSTRY IS HIGHLY CONCENTRATED, BUT FEW TISSUE GIANTS ARE GENUINELY GLOBAL COMPANIES

- In terms of production capacity, the top global tissue company is Essity (split from SCA), with approximately 4.5MT annual capacity in 2015, followed by Kimberly-Clark with approximately 3.8MT. These are the only two companies with a significant footprint in more than two regions, although both have around 60% of their capacities in Western Europe and North America.
- Generally, tissue giants are highly regionalized: Kimberly-Clark, Georgia-Pacific, Procter & Gamble, Cascades and Kruger are primarily focused on North America; Essity, Sofidel, Weba, Metsä and ICT have largely a European focus; CMPC is a top-10 company strictly focused on Latin America.
- The regional focus is particularly visible for Asian companies.

Leading global tissue companies by production capacity (2015 data)

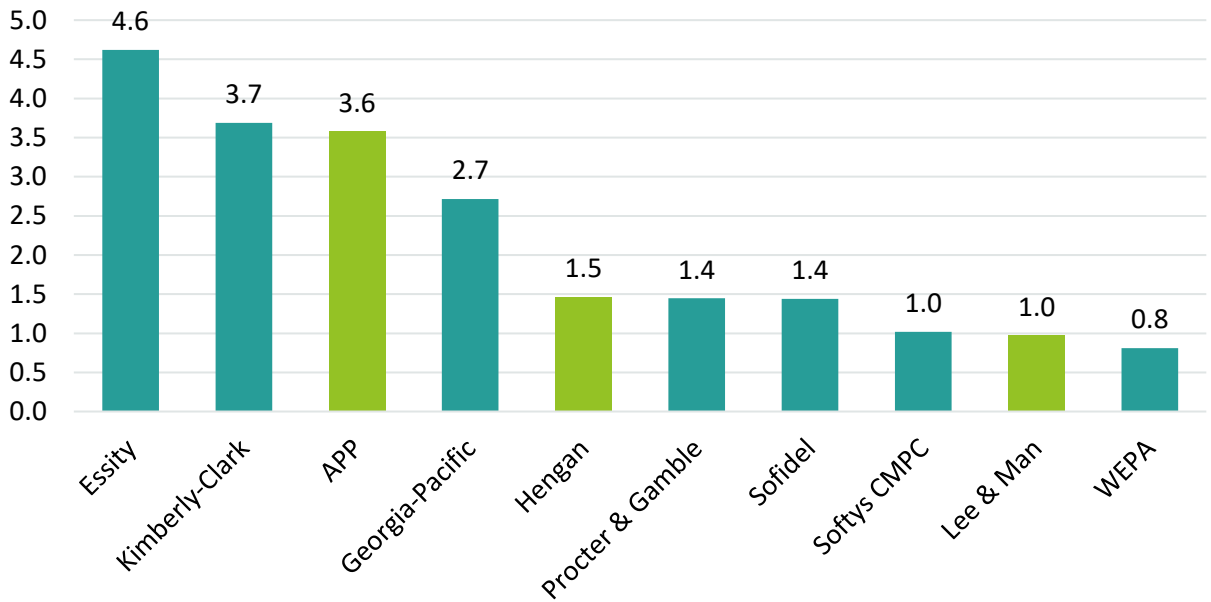


Source: Paper Industry World 2016.
Note: 2017 SCA splits in two separate listed companies, the forest products company SCA and the hygiene and health company Essity

ASIAN COMPANIES ARE RAPIDLY CATCHING UP TO THE LARGEST PLAYERS IN EUROPE AND NORTH AMERICA

- Since 2015, the Indonesian company Asia Pulp & Paper (APP) has caught up to Kimberly-Clark in terms of production capacity, clearly surpassing other large players in Europe and Asia.
- The Chinese Hengan (specializing in diapers and napkins) has surpassed Procter & Gamble and Sofidel.
- Another Chinese company, Lee & Man, has entered the top 10 global tissue manufacturers in terms of production capacity.

Production capacity of largest tissue companies worldwide, end of 2020 (million tons/year)



Source: European Tissue Symposium, WTBM RISI.

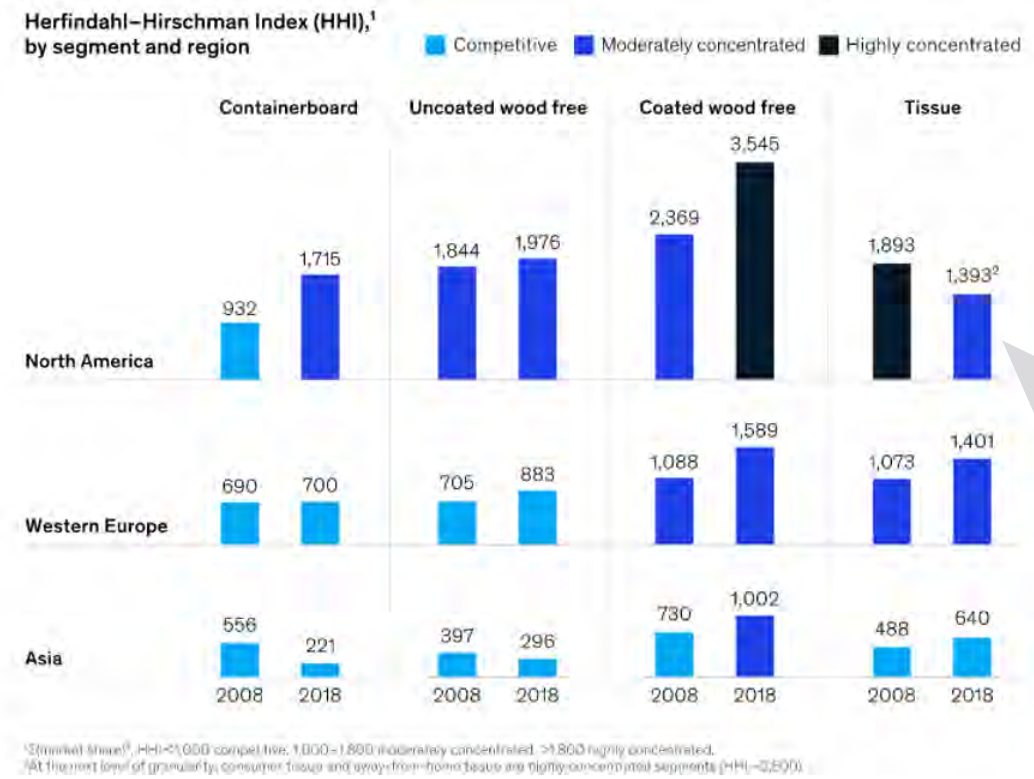
THE TISSUE INDUSTRY IS MORE CONCENTRATED THAN OTHER GROWING SEGMENTS LIKE PACKAGING.

- As with other parts of the paper industry, the tissue industry is structurally geared toward consolidation due to its capital intensiveness. Its geographical spread has historically been an obstacle to business concentration, but the rise of modern retail in recent decades functions as a major catalyst for consolidation.
- The tissue industry is relatively concentrated, both in Europe and the US. There is no substantial difference between the two regions in this regard, as opposed to packaging, where the Europe has a much more fragmented market landscape than the US.
- A 2019 analysis by McKinsey indicates that the European tissue industry is significantly more concentrated than the continent's packaging industry, with significant consolidation occurring since 2008.
- Corresponding to its still immature status, the Asian tissue is still relatively fragmented.

Market concentration by region

The HHI is a standard measure of market concentration based on market share. The higher the market share for a lower number of companies, the higher the index.

A higher index means a larger portion of the market is controlled by fewer companies. Conversely, a smaller index means the market is more dispersed, with fewer dominant players.



[1] Market share[1], HHI<1,000 competitive, 1,000–1,800 moderately concentrated, >1,800 highly concentrated.
[2] At the next level of granularity, consumer tissue and away-from-home tissue are highly concentrated segments (HHI~2,500).

Source: Risi, McKinsey & Company 2019

McKinsey notes that in the US both the "away from home" and "at home" segments are in fact highly concentrated, with an index above 2500.

The relatively low concentration of the overall tissue industry in the US (and its decline since 2008) is thus somewhat misleading.

GLOBAL INDUSTRY CONTEXT AND STRUCTURAL FEATURES: SUMMARY

Tissue production comprises around 10% of the global production of paper products. The industry's growth has been slow and constant, in contrast to packaging (fast and explosive growth) and graphic paper (rapid and constant decline).

Virgin pulp has consolidated its place as the main raw material for tissue. The tissue industry has a relatively low degree of integration and tends to be spatially dispersed, which explains why despite its size it is the largest consumer of market pulp.

The growth of tissue demand is driven by population growth and improved standards of living. North America, Western Europe and Japan are mature, saturated markets, while emerging Asian economies, and especially China, are the main growth markets.

Given the costly nature of overseas trade for most tissue products, markets are at best regionalized. Foreign trade is also typically regionalized, but Asia (China, Indonesia) has become an important net exporter, while the US is by far the largest net importer globally.

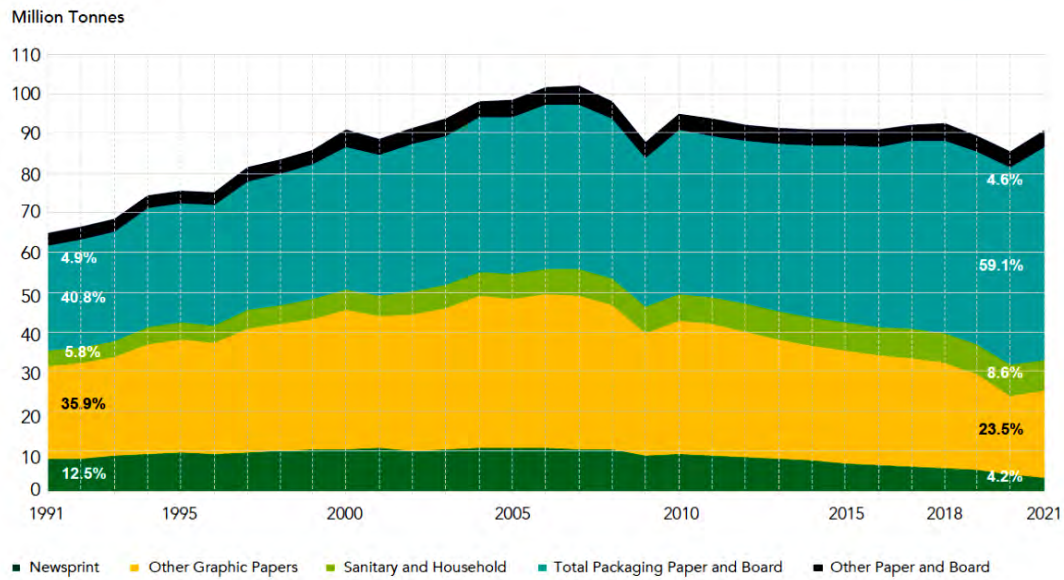
Companies generally have a national or regional geographical scope, with only two aiming for true global presence – Essity (Sweden) and Kimberly-Clark (US). In North America and Western Europe, the tissue industry is highly concentrated, with a handful of large companies dominating the market. The Asian industry is still fragmented, but rising Indonesian and Chinese giants have already outsized many of the largest companies in the West.

#1.2 TISSUE IN EUROPE

HISTORICALLY, THE EUROPEAN TISSUE MARKET AND INDUSTRY HAVE BROADLY MIRRORED GLOBAL DEVELOPMENTS

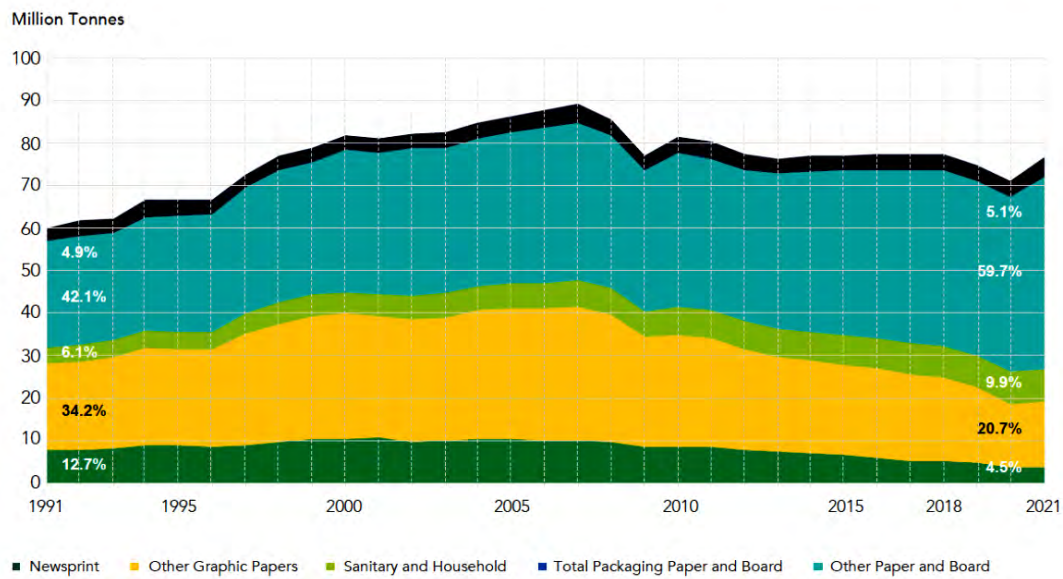
- In 2021, European tissue production comprised approximately 8.6% of total paper and board production and 9.9% of consumption.
- The share of tissue in the paper and board market has grown slowly but steadily, from 5.8% (production) and 6.1% (consumption) three decades ago.
- While growth is slower than with packaging, the tissue market is remarkable due to its constant growth, based on secular improvements in standard of living, and less on rapid qualitative transformations in consumer behavior (as is the case with packaging and e-commerce).

Paper and Board Production by Grade

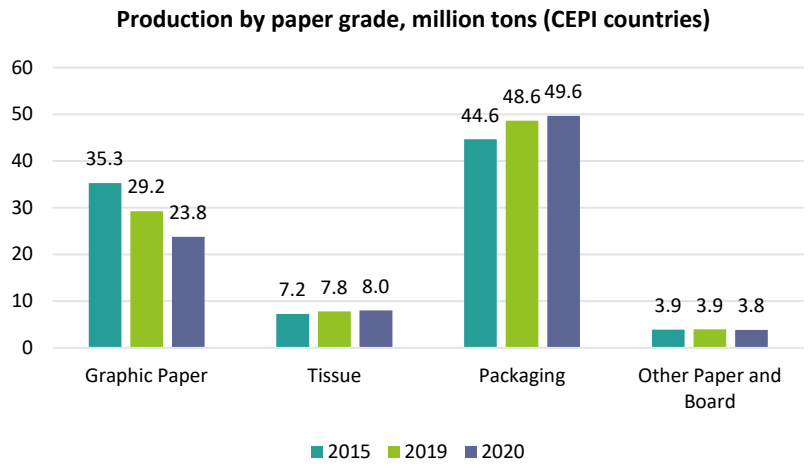


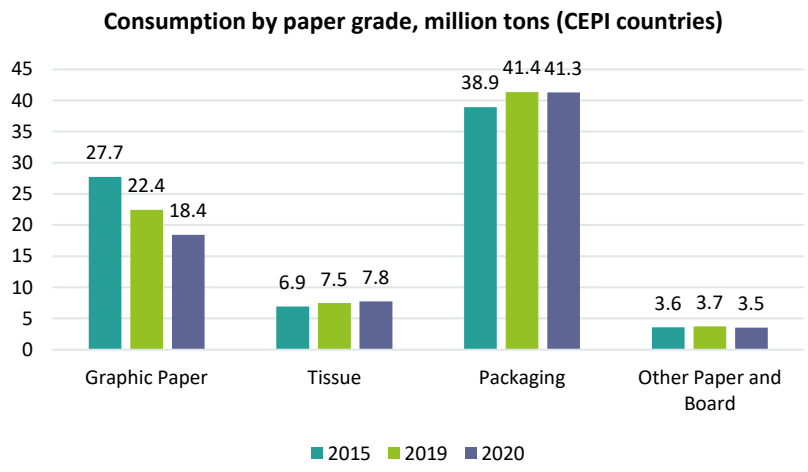
Source: CEPI

Paper and Board Consumption by Grade



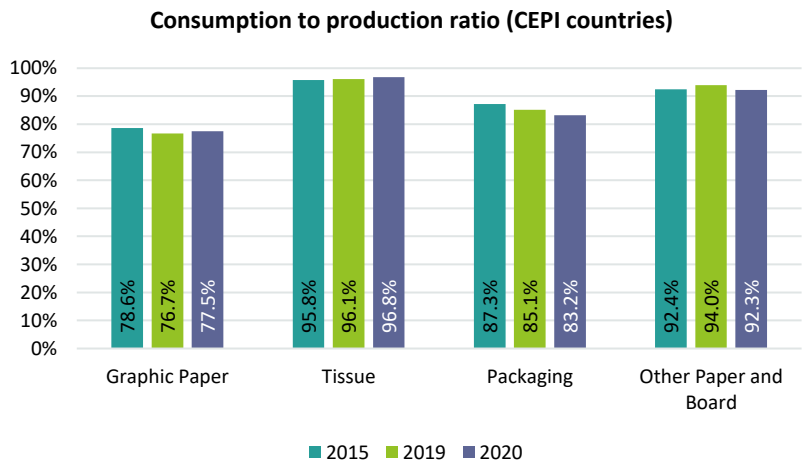
IN RECENT YEARS, THE EUROPEAN TISSUE MARKET HAS SEEN VERY STRONG GROWTH, COMPARABLE TO PACKAGING





Source: CEPI

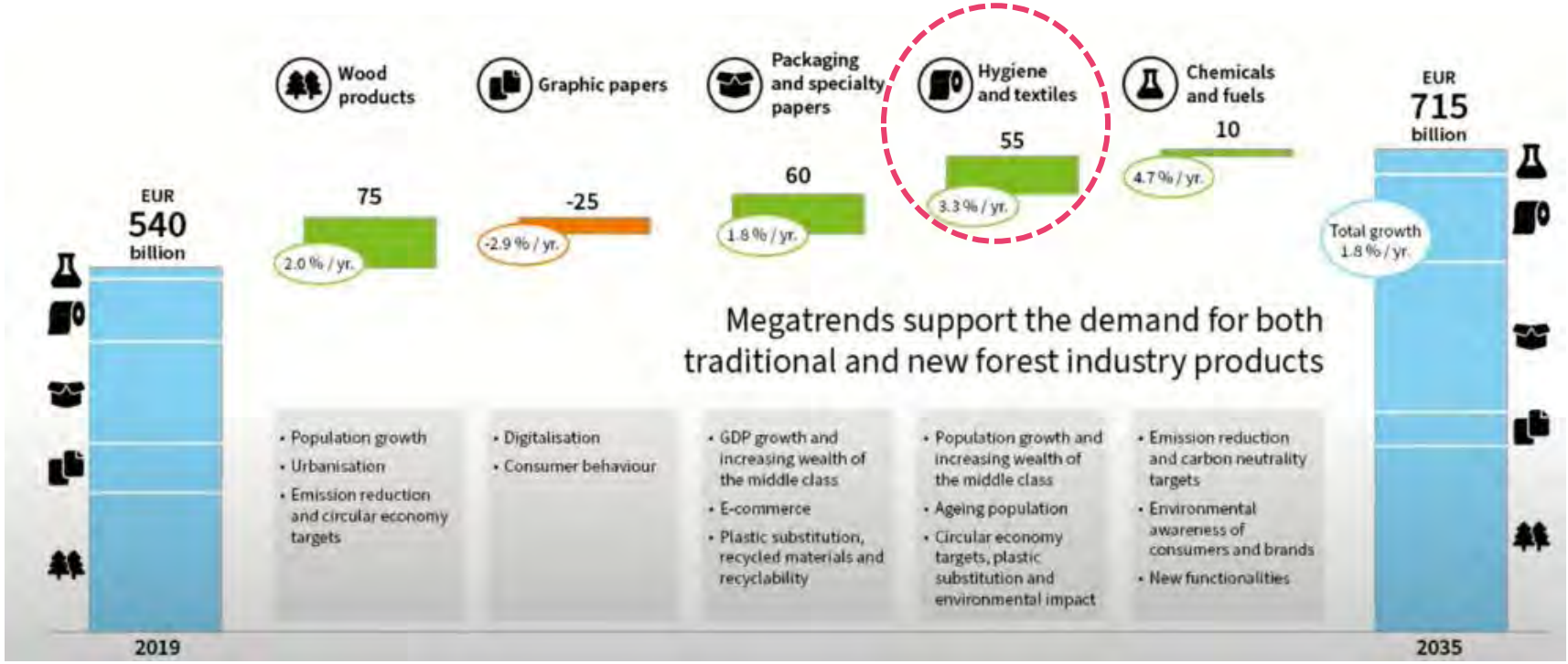
- European tissue production grew by 7.6% between 2015 and 2019 (from 7.2 to 7.8 MT), slightly below the growth of packaging (8.9%). Tissue consumption grew by 7.9% over the same period (from 6.9 to 7.5MT), compared to 6.2% for packaging.
- In 2020, tissue production volume was at 25% of graphic paper volumes, compared to 20% in 2015. Tissue consumption in 2020 was at 42% of the consumption of graphic paper, compared to 25% in 2015.
- One peculiarity of the European tissue market is that the consumption to production ratio is relatively high (96.8% in 2020, up from 95.8% in 2015). In principle, this could indicate that the European tissue industry is more oriented toward the domestic market (and over time tends to be increasingly so), as opposed to the graphic paper industry, where the consumption to production ratio is much lower.



CURRENT FORECASTS SHOW CONTINUED GROWTH FOR THE EUROPEAN TISSUE MARKET, ON AVERAGE FASTER THAN PACKAGING

- The European forest products industry is forecasted to grow at an average of 1.8% per year between 2020 and 2035 — since this is cumulative, the total growth for the period would be of 32% (€715bn in 2035 vs. €540bn in 2019).
- Tissue is forecasted to register the fastest average growth, of 3.3% per year or €55bn in total.
- The forecasted faster growth of tissue over packaging in the long-term is explained by the growth fundamentals of tissue demand: slow but constant increase alongside improvements in the standard of living.

Outlook for the European market, 2019-2035

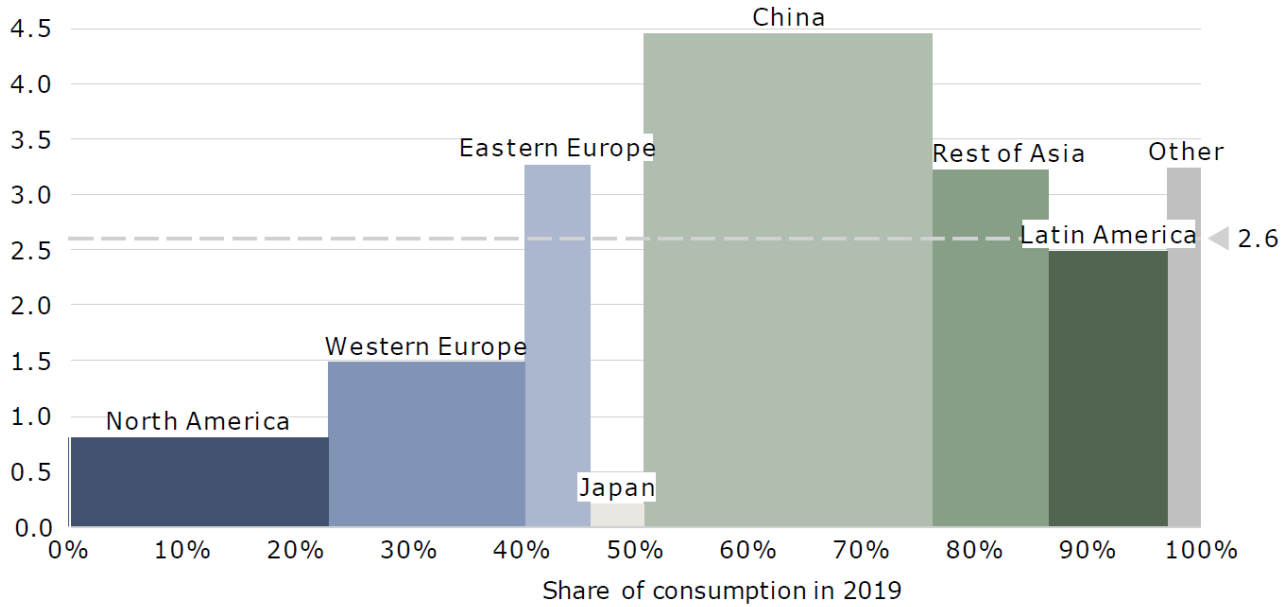


Source: CEPI / Finnish Forest Industries (September 2021)

GROWTH IN EUROPE TO BE CONCENTRATED IN THE EASTERN COUNTRIES, BUT WESTERN EUROPE TO MAINTAIN SOLID GROWTH RATES

- Western European countries are relatively saturated tissue markets, with limited growth prospects. A recent forecast by AFRY Consulting puts the growth of the Western European tissue market at 1.5% per year on average until 2035 — still considerably above the North American market.
- Continued convergence of incomes and living standards between Eastern and Western Europe is expected to boost the Eastern European tissue market to growth rates similar to Asia.

Global long-term tissue demand outlook, 2019-2035 (% per year on average)



Source: AFRY (August 2021)
Note that figures on the previous page are from a different source, which explains the different estimates for growth of the European market over the same period.

EVEN IF WESTERN EUROPE TYPICALLY CONSUMES FAR HIGHER QUANTITIES OF TISSUE IN COMPARISON TO THE EAST, THE PICTURE IS NOT ENTIRELY STRAIGHTFORWARD

- While Germany, Italy, the UK, France and Spain might be the largest tissue markets in Europe, in terms of consumption per capita the highest amounts are registered in Northern countries (Sweden, Finland). According to the Food and Agriculture Organization of the United Nations (FAO), Slovenia and Slovakia also have very high consumptions of tissue per capita, similar to Northern European countries and far above Western Europe.
- Large countries like Poland and Romania still have relatively low consumption per capita and are seen as the markets with the highest potential for future growth.
- In terms of foreign trade, the picture is very mixed: Germany is a net importer of tissue, while Italy is an important exporter; Portugal and Bulgaria have low consumption per capita and they export a considerable part of what they produce; Greece has low consumption and it import most of what they consume.

Production and consumption of tissue products in EU countries, 2019

	production ('000 tons)	consumption ('000 tons)	consumption per capita (kg)	production / consumption
DE	1499	1566	16	95.7%
IT	1570	1310	14	119.8%
UK	762	1068	16	71.3%
FR	817	824	12	99.2%
ES	677	648	16	104.5%
PL	565	616	8	91.7%
SE	356	272	25	130.9%
EL	70	174	6	40.2%
FI	200	171	32	117.0%
AT	140	152	14	92.1%
SK	130	134	25	97.0%
NL	94	127	7	74.0%
PT	143	103	9	138.8%
RO	106	102	3	103.9%
SI	62	66	32	93.9%
HU	24	55	10	43.6%
CZ	8	34	4	23.5%
BE	N/A	29	11	N/A
HR	N/A	28	1	N/A
BG	27	20	3	135.0%
IE	N/A	13	7	N/A

Source: FAO Forest Products Statistics 2021
Note: FAO data is not entirely consistent with foreign trade data.

THE TISSUE SECTOR IN EUROPE REMAINS A VERY SMALL MANUFACTURING SECTOR…

- Share of turnover (sales) of the tissue industry in total manufacturing varies from 0.2% in Austria, Romania or Croatia to 1.1% in Greece.
- Share of value added in total manufacturing varies according to the turnover share, but differences are relevant: in countries where the share of value added is lower than the share of turnover (Italy, France or Romania), the tissue industry is on average less productive than overall manufacturing; conversely, in countries like Hungary, Sweden or Germany, the tissue industry brings a higher share of value added relative to the sales it makes, which means it is more productive than overall manufacturing.
- In terms of employment, the share in total manufacturing ranged before COVID-19 from 0.2% in Romania or France to 0.8% in Greece. A similar observation as the above applies: a lower value added share in comparison to employment share means the tissue industry has a lower productivity than the manufacturing average (Slovenia, Romania, Croatia, Belgium) and the other way around. In most countries, the tissue industry has higher labour productivity than the manufacturing average (with the biggest gaps in Poland and Sweden).

Share of tissue industry in total manufacturing, 2019 (%)

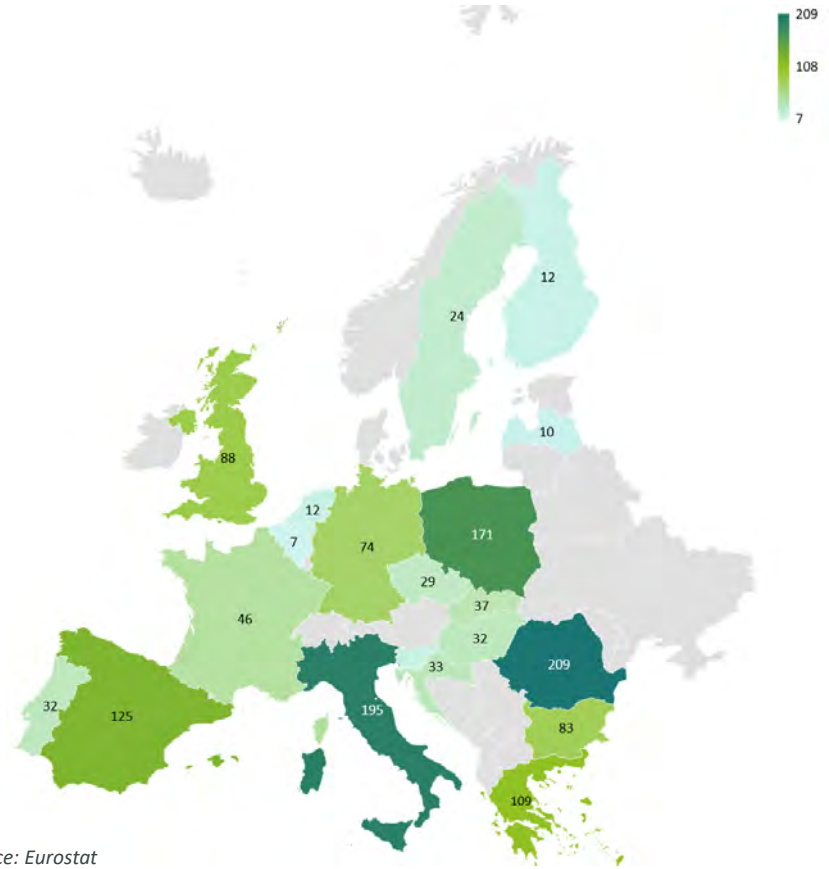
	turnover	value added	employment*
PL	0.6	0.6	0.3
BG	0.5	0.5	0.4
FI	0.3	0.5	0.3
CZ	0.3	0.3	0.2
ES	0.4	0.4	0.3
AT	0.2	0.2	0.2
HU	0.3	0.5	0.3
SI	0.5	0.4	0.5
IT	0.5	0.4	0.3
FR	0.4	0.3	0.2
SK	0.4	0.5	0.3
DE	0.4	0.5	0.3
SE	0.6	0.8	0.6
PT	0.3	0.2	0.2
RO	0.2	0.1	0.2
HR	0.2	0.1	0.2
EL	1.1	1	0.8
BE	0.6	0.2	0.4
UK**	0.6	0.4	N/A

Source: Eurostat
*Employment data is for 2018.
**UK data is for 2018

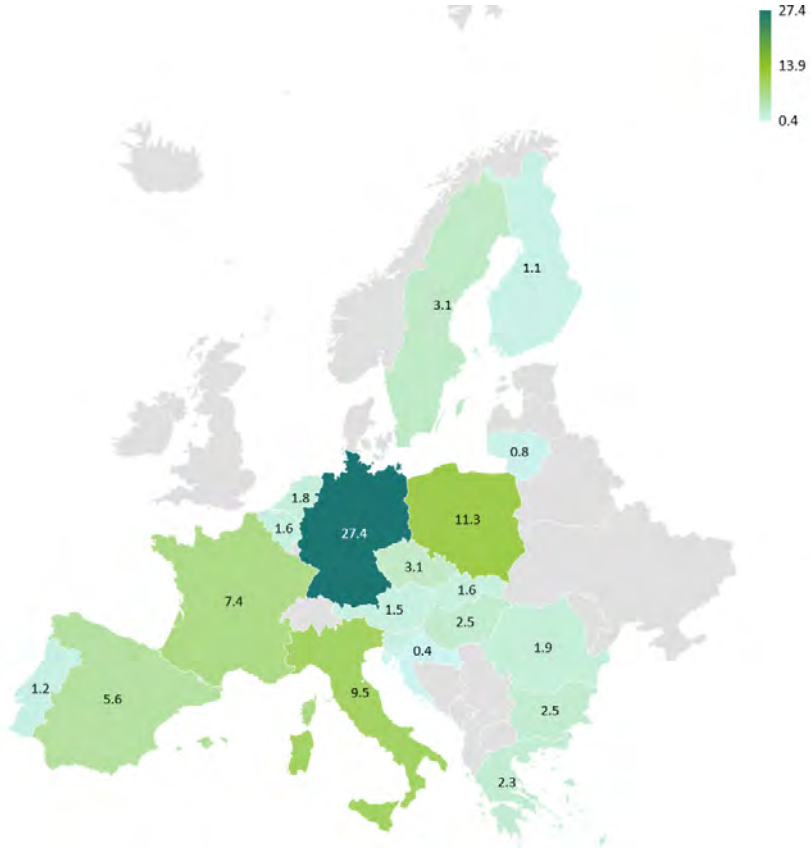
THE INDUSTRY IS RELATIVELY FRAGMENTED IN THE EAST, BUT ALSO IN THE SOUTH OF EUROPE

- Eastern European industry has a large number of enterprises with a relatively small number of employees: Romania is the most extreme case, with 209 enterprises and less than 2 thousand employees.
- In Western Europe, Germany has a huge presence, with a highly concentrated industry compared to other countries: 74 enterprises with over 27 thousand employees. The best contrasting case is Poland, the second largest country in terms of employment, which has 60% fewer employees than Germany, but 2.3 times more enterprises active in the sector.
- Somewhat surprisingly given the mature state of the market and the industry's level of development, in Italy there are almost two hundred enterprises in the tissue industry for under ten thousand employees. A similar level of fragmentation can be found in Spain.

Number of tissue enterprises in the EU, 2019



Number of tissue employees in the EU, 2019 (thousands)



Source: Eurostat
Note: No. of enterprises for UK from 2018

THE GROWTH OF THE GERMAN TISSUE INDUSTRY ECLIPSES ALL OTHER COUNTRIES. THOUGH POLAND HAS RECENTLY EMERGED AS A RUNNER-UP, THE TYPICAL EAST-WEST DIVIDE IS NOT APPARENT WHEN IT COMES TO EMPLOYMENT GROWTH

- Employment in the German tissue industry grew by almost 50% between 2010 and 2019, with some signs of slowdown during the second half of the decade. In 2019, Germany accounted for 30.7% of total EU employment in the tissue industry, compared to 26.6% in 2010. The strong growth of the German industry has meant that the share of the total European tissue industry has declined in almost all other countries.
- The tissue industry in Eastern Europe has registered accelerated growth only in the second half of the previous decade, with Poland becoming the second largest country, surpassing Italy.
- Employment in Italy has had a similar trajectory to that of Germany (growth throughout the decade with slowdown after 2016), but Italy has lost significant ground to both Poland and Germany.

Employment developments in the EU tissue industry

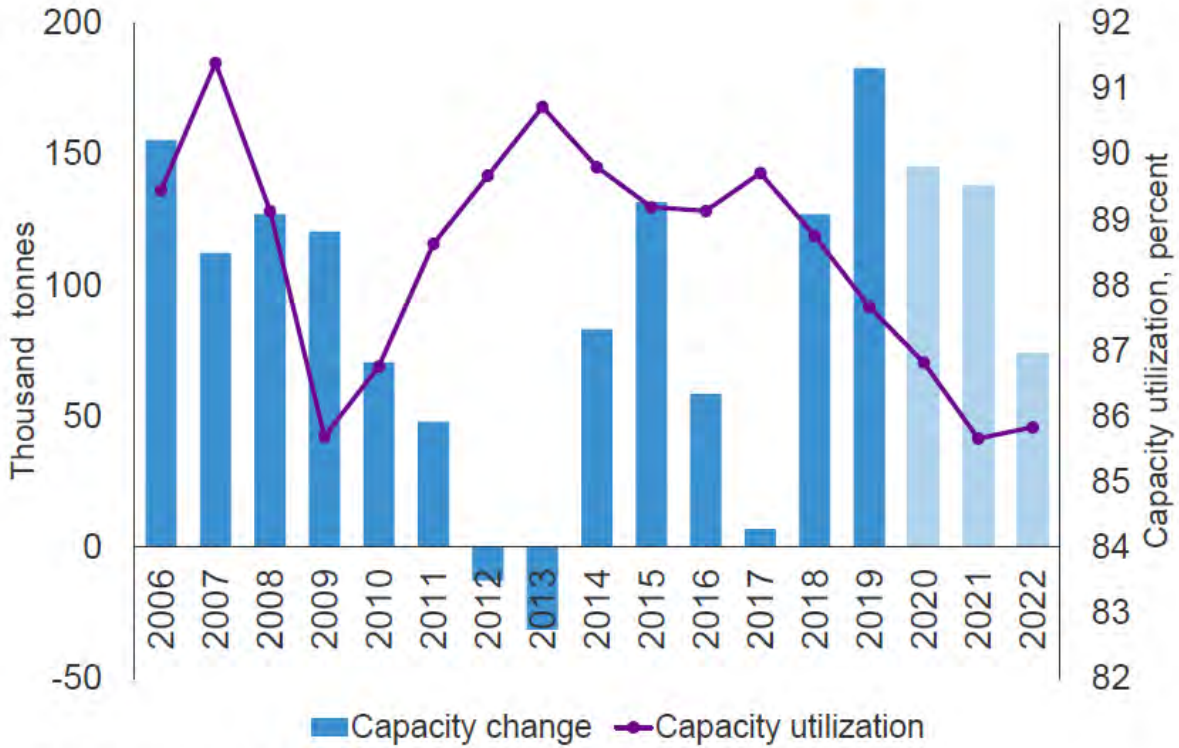
	number of employees			% change		% of total	
	2010	2016	2019	2016 vs. 2010	2019 vs. 2016	2010	2019
DE	18814	23959	27403	27.3%	14.4%	26.6%	30.7%
PL	8581	8200	11285	-4.4%	37.6%	12.1%	10.5%
IT	8224	8945	9515	8.8%	6.4%	11.6%	11.5%
FR	7676	7232	7377	-5.8%	2.0%	10.8%	9.3%
ES	5848	4783	5550	-18.2%	16.0%	8.3%	6.1%
SE	3225	3054	3130	-5.3%	2.5%	4.6%	3.9%
CZ		2297	3096		34.8%		2.9%
HU	1862	2187	2507	17.5%	14.6%	2.6%	2.8%
BG	1591	2001	2468	25.8%	23.3%	2.2%	2.6%
EL	1935	2089	2299	8.0%	10.1%	2.7%	2.7%
RO	2420	1981	1913	-18.1%	-3.4%	3.4%	2.5%
NL	2057	1857	1782	-9.7%	-4.0%	2.9%	2.4%
SK	1554	1561	1635	0.5%	4.7%	2.2%	2.0%
BE	1458	1708	1614	17.1%	-5.5%	2.1%	2.2%
AT	1275	1427	1467	11.9%	2.8%	1.8%	1.8%
PT	1207	1075	1178	-10.9%	9.6%	1.7%	1.4%
SI	861	1183	1159	37.4%	-2.0%	1.2%	1.5%
FI	1118	1073	1055	-4.0%	-1.7%	1.6%	1.4%
LT	493	733	831	48.7%	13.4%	0.7%	0.9%
HR	169	406	405	140.2%	-0.2%	0.2%	0.5%
CY	321	248	252	-22.7%	1.6%	0.5%	0.3%
LV	92	73	75	-20.7%	2.7%	0.1%	0.1%

Source: Eurostat

INVESTMENT DYNAMICS IN WESTERN EUROPE ARE TYPICAL OF MATURE MARKETS

- Similar to North America, investments in tissue manufacturing capacities in Western Europe are highly cyclical. With historically slow growth rates of demand, companies aim primarily at replacing or upgrading existing capacities. Capacity utilization broadly mirrors the economic cycle, with declines in recessions particularly apparent.

Capacity change in Western Europe, forecast 2020-2022



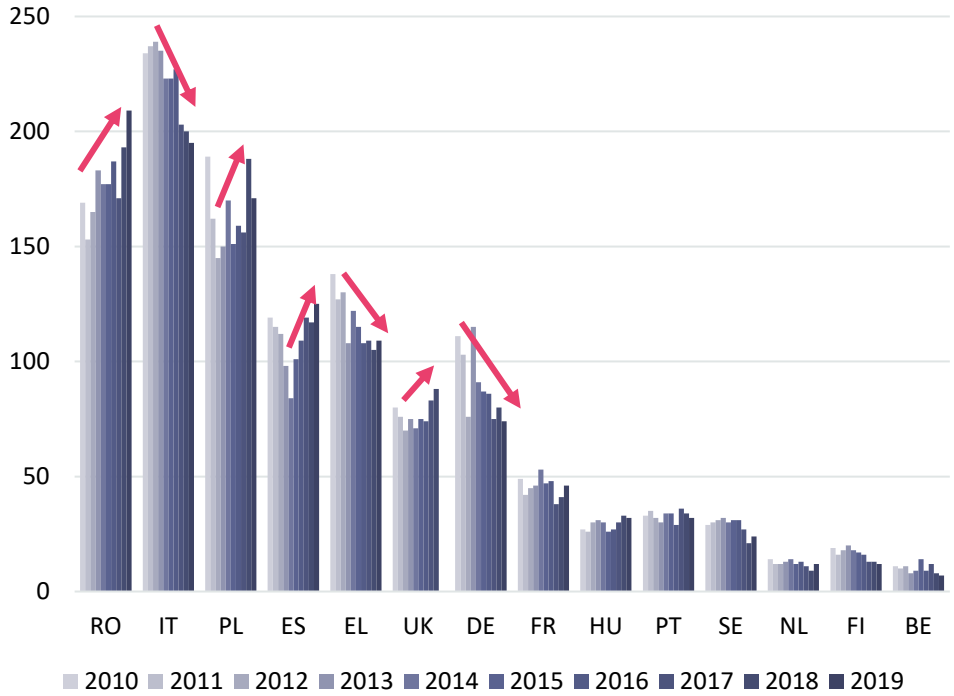
1. Based on committed projects only.

Source: Fastmarkets Global Tissue Outlook 2020

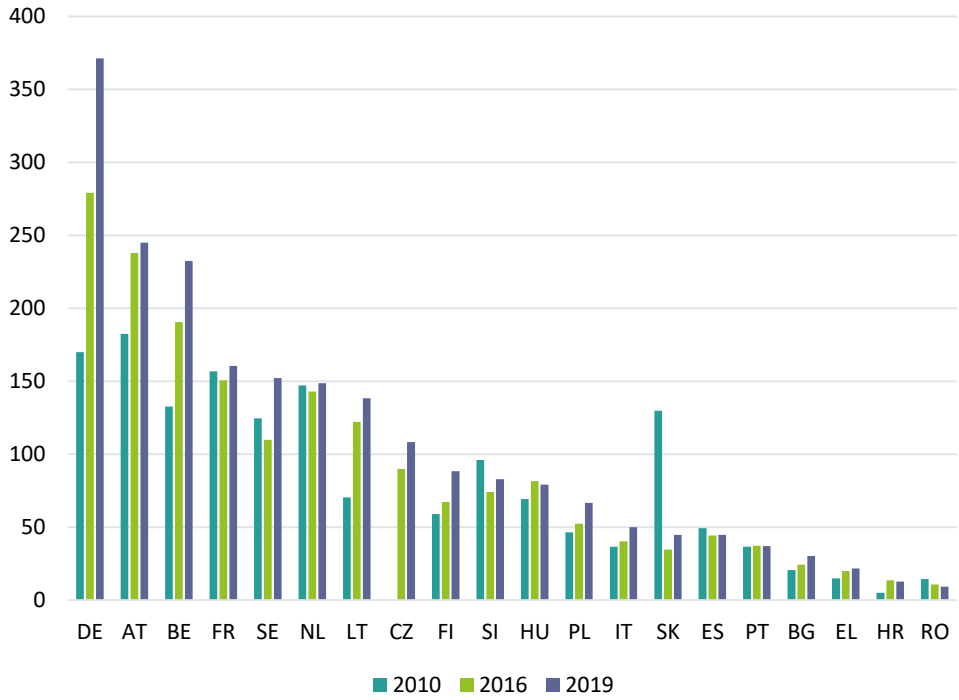
AS THE WESTERN EUROPEAN TISSUE INDUSTRY BECOMES INCREASINGLY CONSOLIDATED, EASTERN EUROPE IS LIKELY TO EMERGE AS A HIGHLY ATTRACTIVE PLAYING FIELD FOR TISSUE GIANTS

- The overall growth of the German tissue industry has been accompanied by visible consolidation, with significantly fewer companies active in 2019 vs. 2010. A similar tendency is visible in Italy, where the industry nonetheless remains very fragmented.
- Western European consolidation is visible in the growth of the average size of enterprises. Again, Germany is the most obvious and significant example. With few exceptions, there is no similar development apparent in Eastern Europe.
- The recipe for Western multinationals is therefore clear: Eastern Europe has the highest market growth potential, a relatively open competitive environment due to high fragmentation, with limited resistance expected from local companies that are relatively small and should not be able to mount too much resistance in a highly capital-intensive industry.

Number of tissue enterprises in EU countries, 2010-2019



Average enterprise size in the European tissue industry, 2010-2019 (employees / enterprise)



Source: Eurostat

TISSUE IN EUROPE: SUMMARY

- The tissue sector in Europe mirrors global trends: 9-10% of total paper and board production, with slow but constant growth over the past decade.

- The industry is forecasted to continue to experience relatively strong growth in the long-term, notably due to the improving living standards in Eastern Europe, where consumption is still relatively low.

- Germany is the leader in the European tissue sector in terms of production, consumption and employment. Over the past decade, the German tissue industry has grown much faster than the European industry overall.

- The industry remains highly fragmented in Southern and Eastern Europe, with strong prospects for industry consolidation through M&As. Eastern Europe is a particularly attractive expansion opportunity for Western multinationals, given the high growth perspectives of local markets and unusually high industrial fragmentation.

#1.3 MARKET SEGMENTS

TWO BROADLY DISTINCT MARKET SEGMENTS, WITH DIFFERENT PRODUCTS AND INTERNAL DYNAMICS

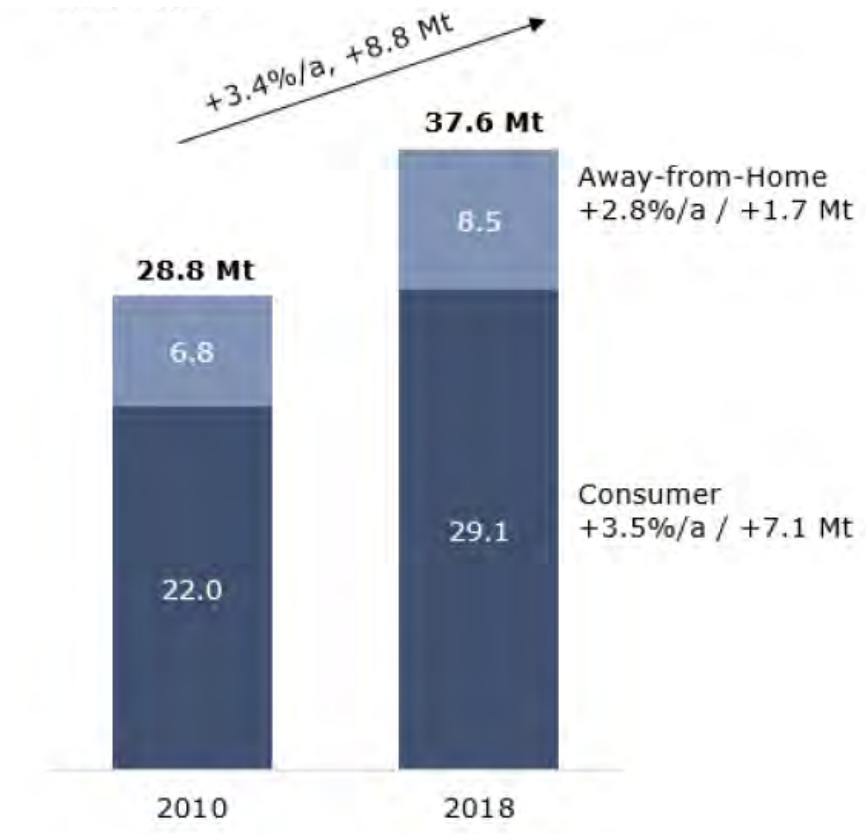
- **At-Home Tissue/ Consumer Tissue:** toilet paper, facial tissue, handkerchiefs, paper towels, wipes, sanitary items such as tampons and baby napkins sold in retail stores directly to consumers.

- **Away-from-Home Tissue:** toilet paper, hand towels, and any other tissue products used by public institutions and private businesses (hospitals, schools, restaurants, hotels, airlines).

- Globally, the tissue market has over the past decade been driven primarily by the growth of consumer tissue demand, whose share increased from 76.4% in 2010 to 77.4% in 2018.

- Developments in both markets is determined by improvements in living standards: tourism, eating out (Away-from-Home), growth of modern retail (Consumer).

Global tissue market development by segment (million tons)

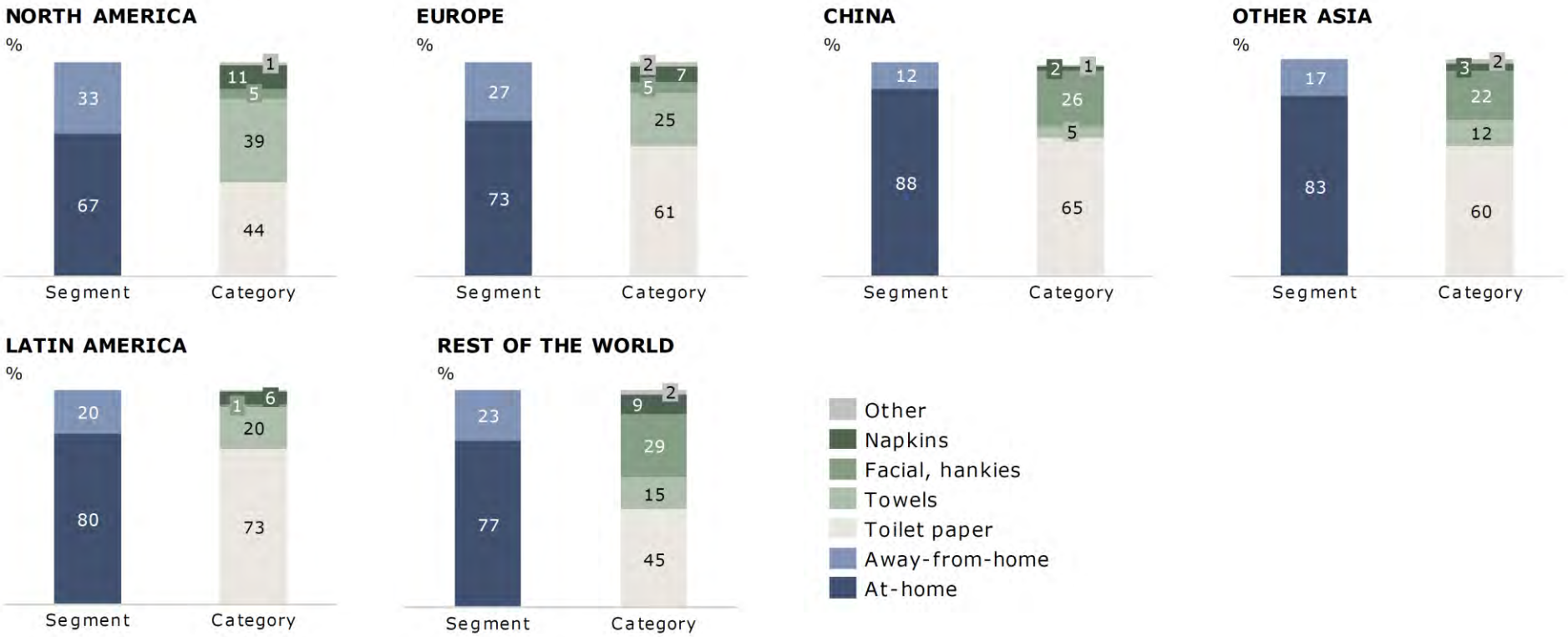


Source: AFRY

IN EUROPE, THE CONSUMER SEGMENT TAKES UP ALMOST THREE QUARTERS OF THE MARKET

- The structure of the tissue varies from region to region, depending on consumer habits and the industry's state of development.
- Before COVID-19, the consumer tissue segment took up 73% of the European tissue market, higher than in North America (67%), but considerably lower than in Asia (over 80%).
- Toilet paper is the most high-volume tissue product in all regions of the world. In 2019, it comprised 61% of European tissue production, followed by towels (25%), napkins (7%) and facial tissues and handkerchiefs (5%).

Global tissue market by segment and product type, 2019

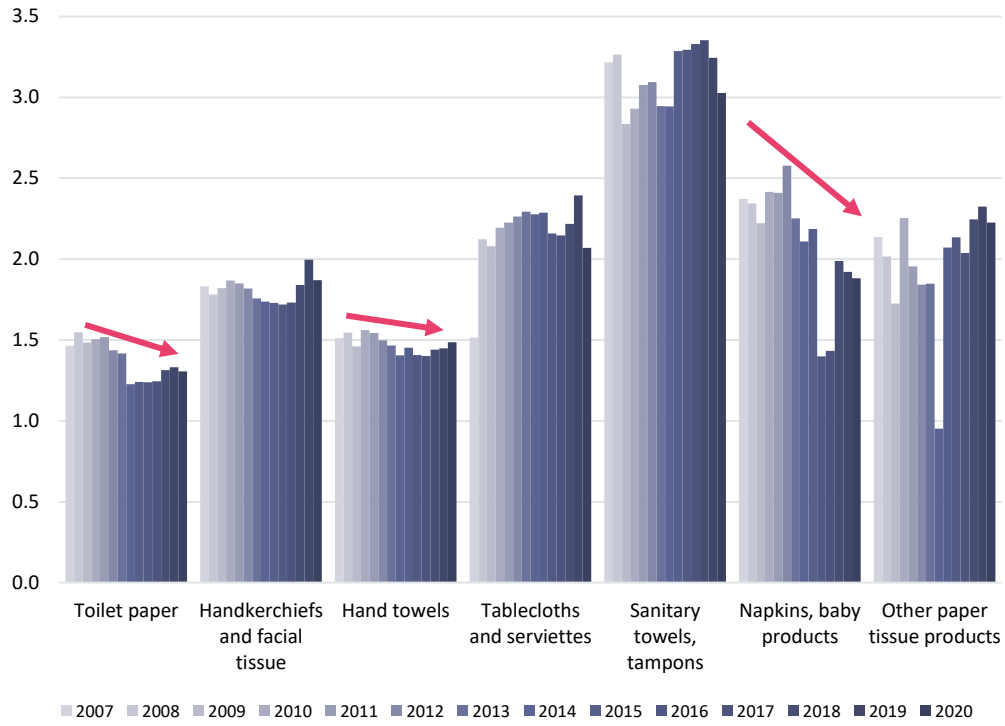


Source: Afry Management Consulting 2021

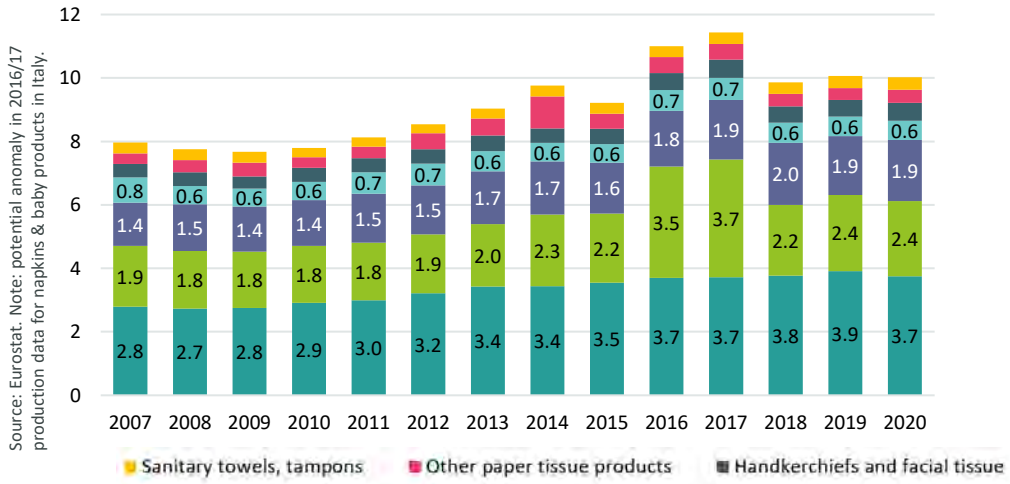
CONSTANT GROWTH OF VOLUMES FOR ALL MAJOR PRODUCTS. PRICE DEVELOPMENTS SUGGEST IMPACT OF CONSOLIDATION

- Historically, the EU tissue market has grown across all major product segments, with toilet paper and napkins & baby products remaining the largest segments in terms of both volume and value.
- Average prices have declined for many products during the past 15 years, especially for toilet paper, hand towels and napkins & baby products, which are also the highest volume segments.
- Price declines are likely explained by a combination of consolidation in industry (larger companies benefitting from economies of scale are able to outcompete smaller companies by cutting prices) and growth of modern retail (pressure on prices, growth of private label products).

Average price of tissue products by type, EU27 (in euro per kilogram)

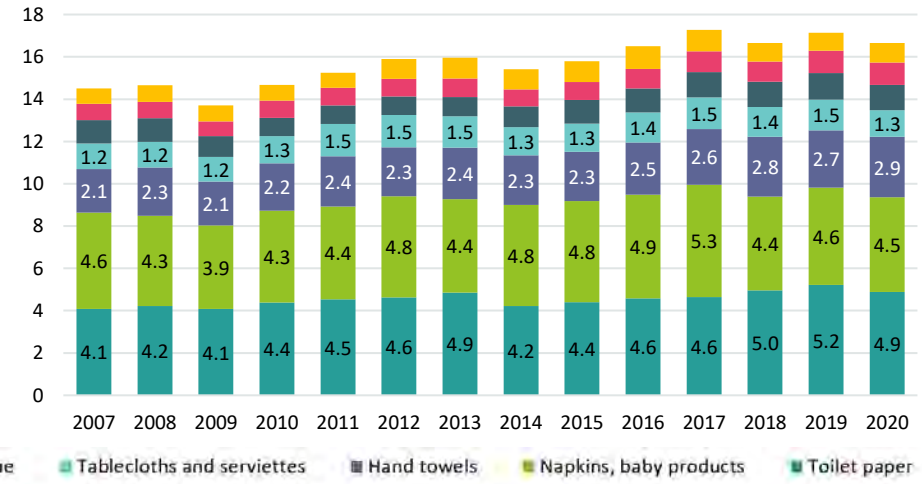


EU27 production volume (MT)

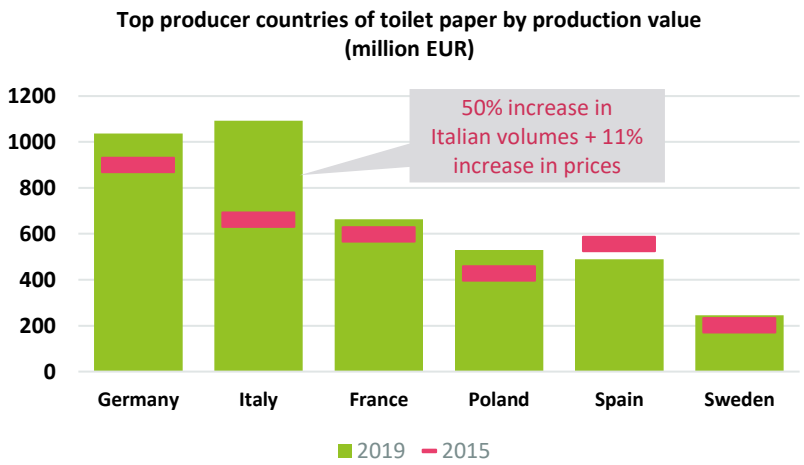


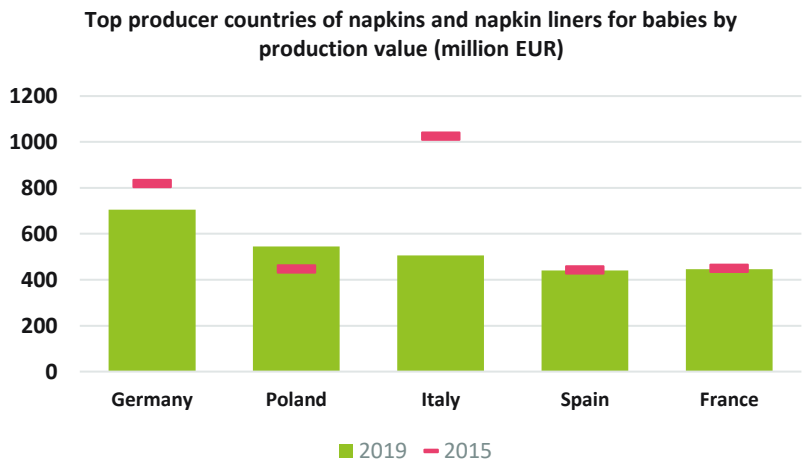
Source: Eurostat. Note: potential anomaly in 2016/17 production data for napkins & baby products in Italy.

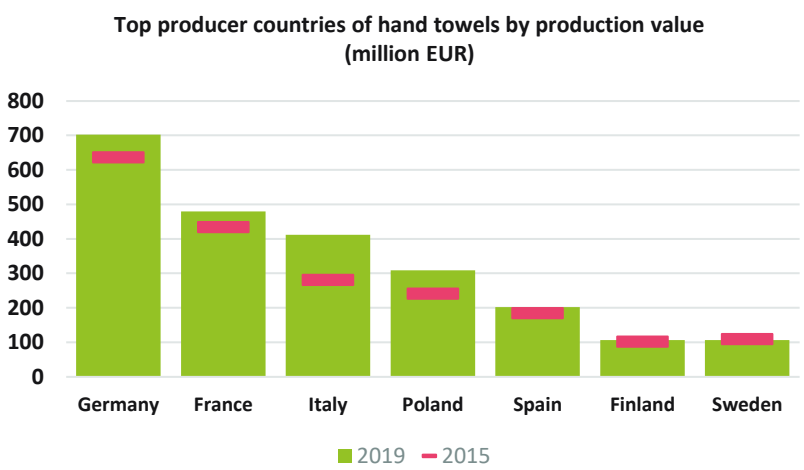
EU27 production value (bn EUR)

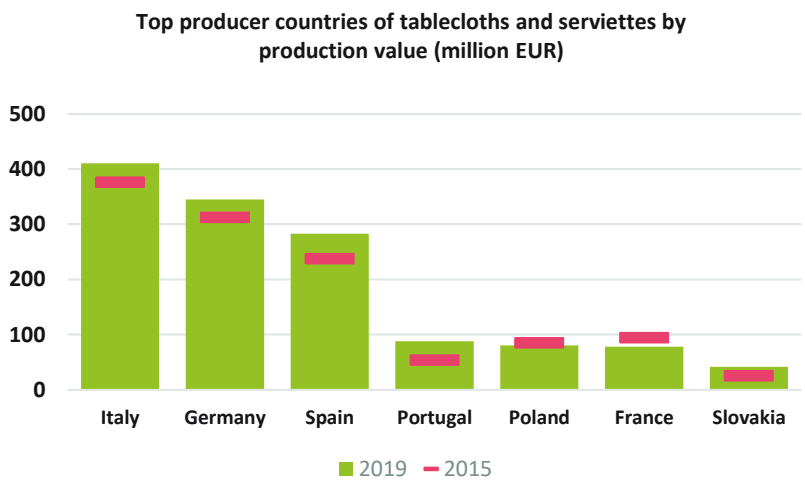


TOP TISSUE PRODUCTS AND TOP PRODUCER COUNTRIES IN THE EU BY PRODUCTION VALUE



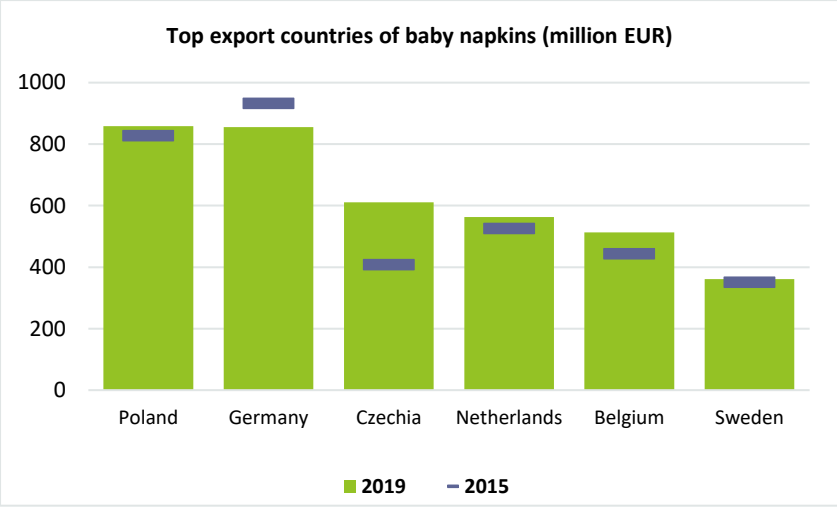


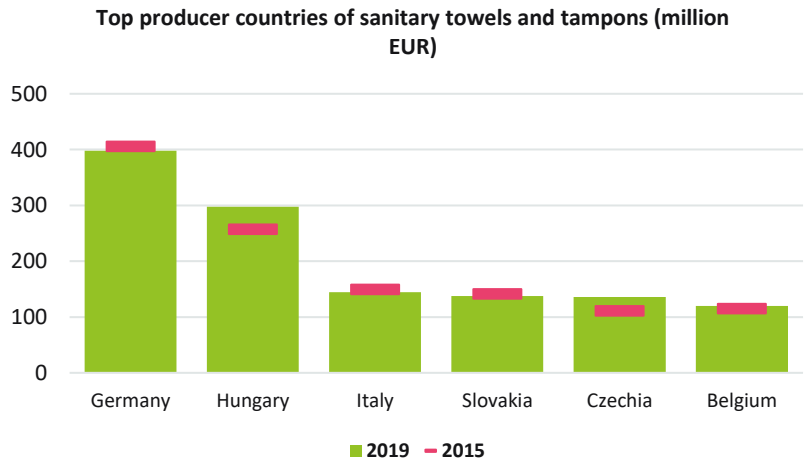


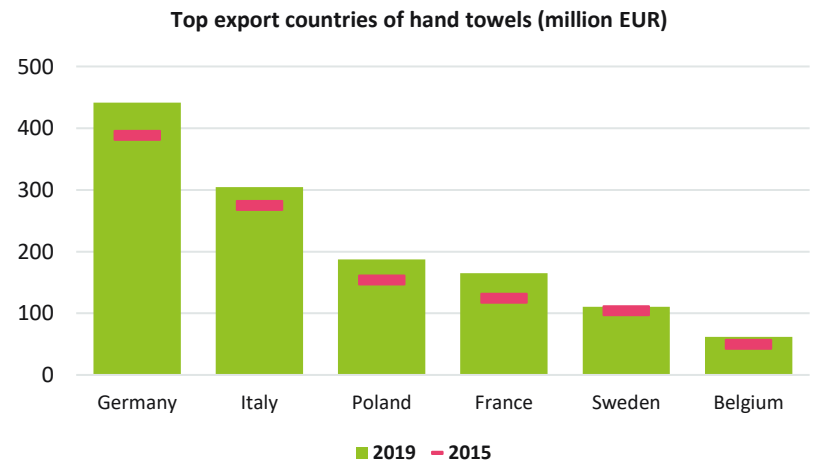


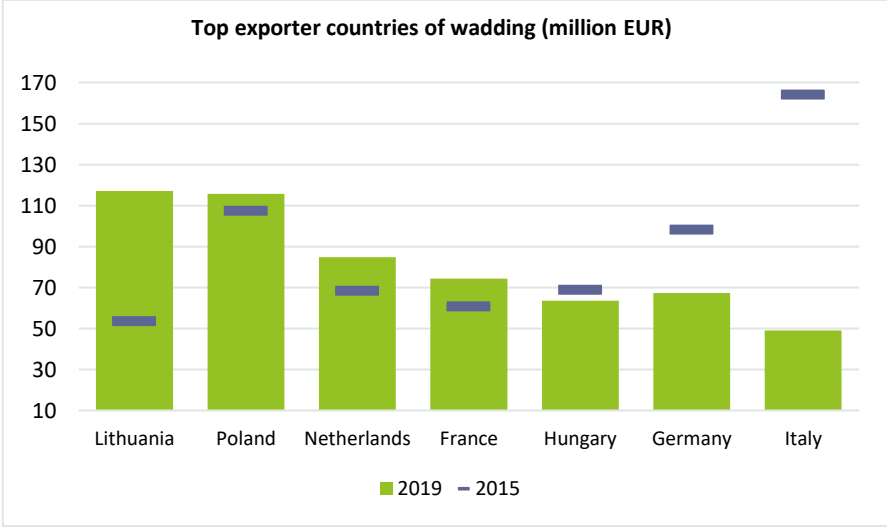
Source: Eurostat

TOP TISSUE PRODUCTS AND TOP PRODUCER COUNTRIES IN THE EU BY EXPORT VALUE







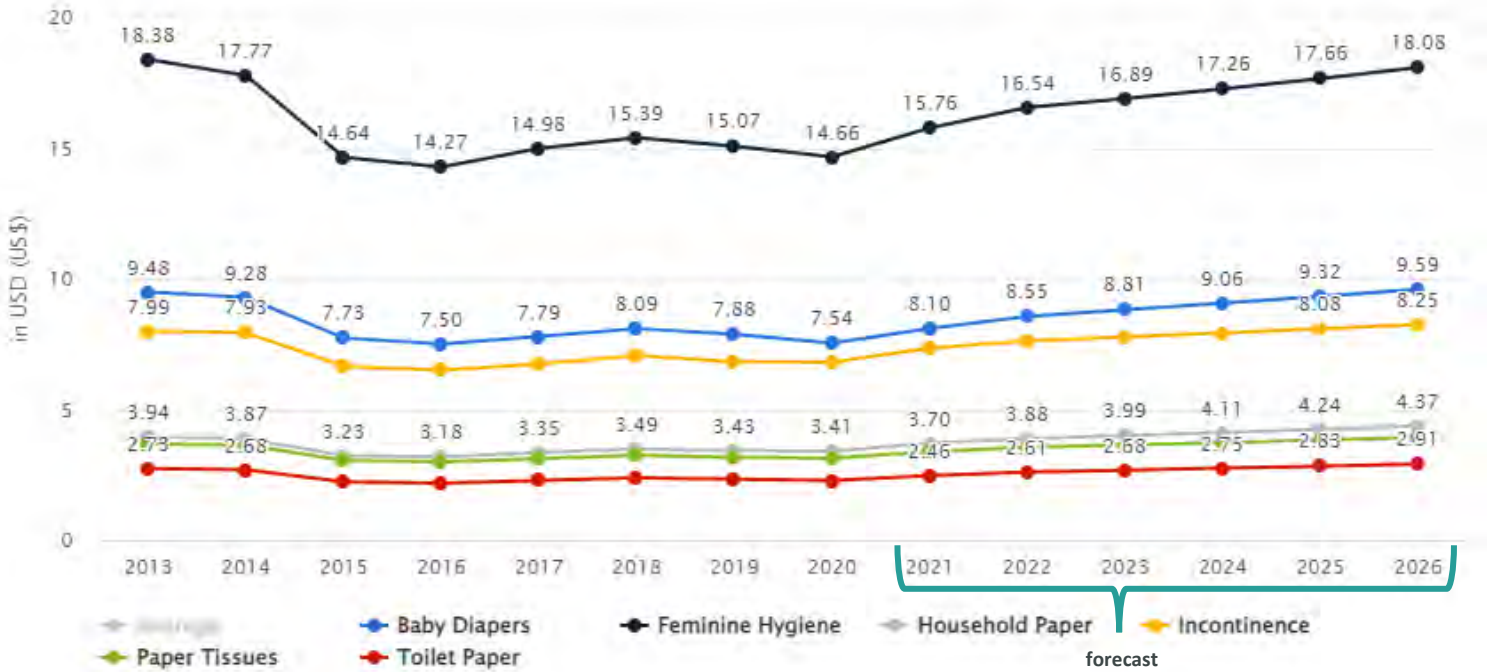


Source: Eurostat

PREMIUMIZATION IS BECOMING A FEATURE IN THE TISSUE INDUSTRY. THE CASE OF INCONTINENCE PRODUCTS

- With fertility rates dropping in mature markets, ageing populations around the globe are becoming major drivers of growth for tissue manufacturers of incontinence products.
- Smart digital solutions are driving product innovation in baby diapers and adult incontinence: wearable sensor technology 1) improves comfort and helps prevent skin issues for wearer 2) alerts the caretaker of incontinence needs 3) can be used separately as air quality and temperature monitor.
- The development of the premium product market offers several opportunities for tissue companies: 1) more rapid volume growth in an overall slow-growing market; 2) higher margins in a highly competitive market that typically pushes prices down; 3) potential opportunities to reduce costs by moving production to low-cost countries, since logistics costs are more easily passed on to the consumer for premium products.
- While premiumization is unlikely to become a strong trend for mass products like toilet paper or paper tissues, it is much easier for companies to push for premiumization for incontinence, baby diapers and feminine hygiene products.

Price per unit for tissue products in Europe (in USD)



Source: Statista, October 2021

MARKET SEGMENTS: SUMMARY

- The global market for tissue is driven by growth in the consumer tissue segment, which comprises over two thirds of the total market.

- In Europe, Germany and Italy dominate production of main tissue products by production value (toilet paper, napkins and napkin liners for babies, handtowels, and tablecloths and serviettes) but in terms of export value Poland, Hungary, and Czechia have become key producers.

- In Europe, prices have been declining for mass products like toilet paper, likely as a result of industry and retail consolidation.

- Premiumization strategies are being pursued in high value-added segments, but these typically require significant investments in R&D and innovation, which are likely to be possible only for larger companies.

#1.4 COMPETITIVE ENVIRONMENT

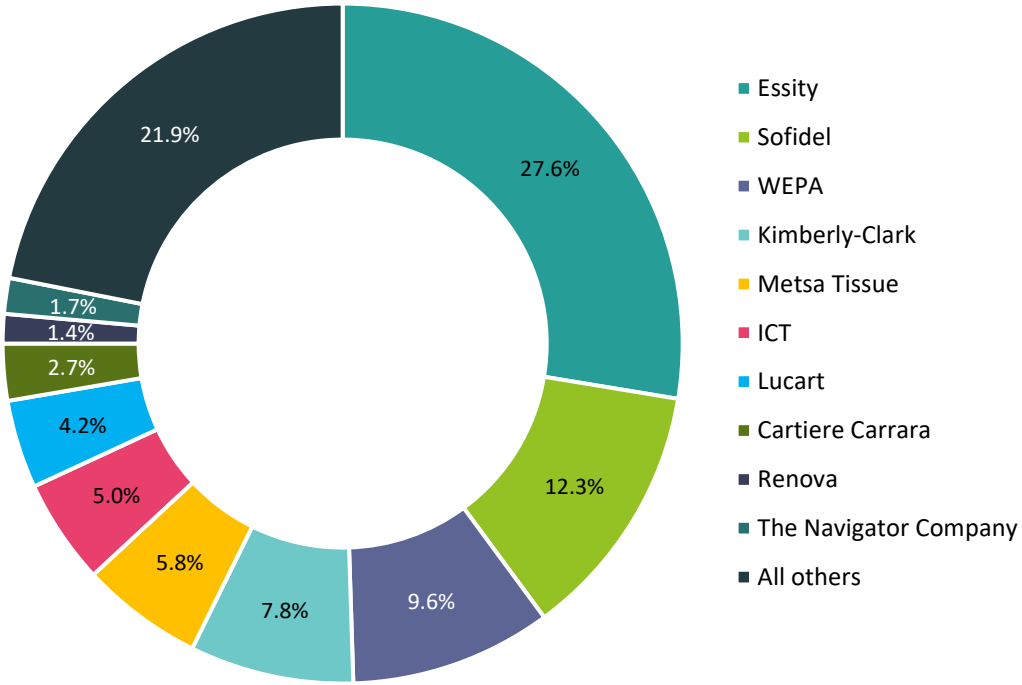
MAJOR HISTORICAL SHIFTS IN THE EUROPEAN TISSUE COMPETITIVE LANDSCAPE

- **1960s: US corporations enter European tissue markets**
  - In 1966, US tissue manufacturer **Scott Paper** expands from Italy to France.
  - In 1968 US tissue manufacturer **Kimberly-Clark** enters the French market though a joint venture with Papetaries Dablay SA, forming SOPALIN SA.
- **1980s-1990s: US corporations consolidate their position in the European tissue markets** (up to 60% market share)
  - 1986: **Scott Paper** achieves dominant position in Western Europe, with sales of $750 million.
  - 1987: **James River Corporation** forms a joint venture with French manufacturer Béghin-Say; in 1990, it establishes another European joint venture, Jamont, gaining a 15% European market share by 1996.
  - 1994: **Procter & Gamble** enters the European tissue market through its acquisition of VP-Schickedanz, a German manufacturer of paper based products.
  - 1995: **Kimberly-Clark** acquires **Scott Paper,** becoming the largest tissue supplier in the world and in Europe.
- **1990s – 2010s: The rise of the Swedish company SCA as a dominant player on the European and global tissue markets**
  - 1995: SCA acquires PWA, a German paper tissue, packaging and graphic paper company, becoming the largest European tissue manufacturer.
  - 2001-2015: global acquisitions of companies specialized in tissue and hygiene products
  - 2017: Essity is created as a spinoff of the hygiene business of SCA.

A LIMITED NUMBER OF LARGE COMPANIES CONTROLLING A LARGE PART OF THE EUROPEAN MARKET

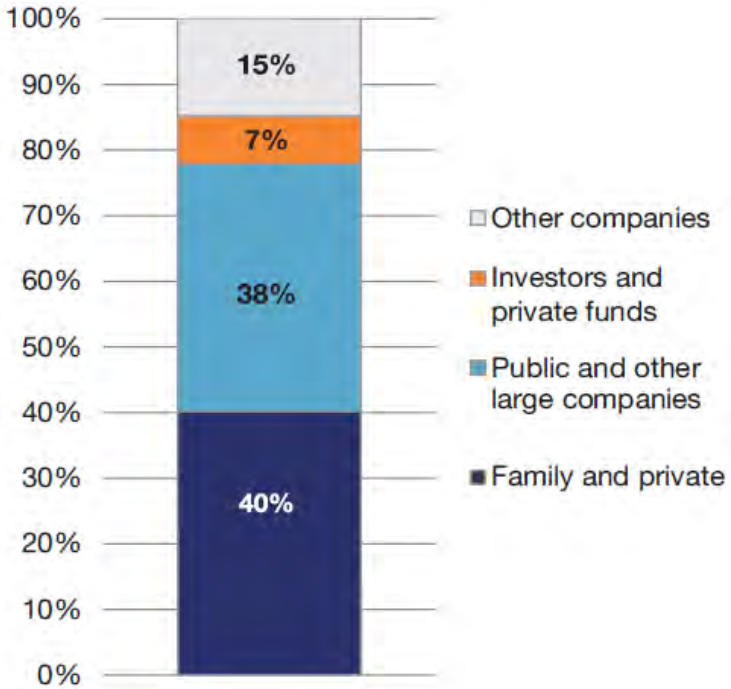
- With 27.6% of total industrial capacity, Essity is by far the largest player in the European tissue industry, followed by Sofidel (12.3%) and WEPA (9.6%). These three companies have 49,5% of the total manufacturing capacity – a huge contrast to the packaging sector, where the first 7 companies have a combined market share of just below 50% (in tissue, the first 7 companies have over 72% of total capacity).
- Specific to the tissue industry, a large number of companies are family and privately owned, which means they do not have to comply to the same business transparency rules as public companies. Contrary to packaging, family and private ownership is not specific to small and medium-sized companies: large players such as Sofidel or WEPA are privately owned and remain relatively opaque for external observers.

Capacity shares of Western European tissue manufacturers, end of 2019



Source: European Tissue Symposium, Risi Fastmarkets.
Note: Western Europe is understood in an enlarged sense, not as a distinction within the EU. The figures thus relate to the vast majority of the EU market.

Ownership type of top 100 tissue base paper producers in Europe

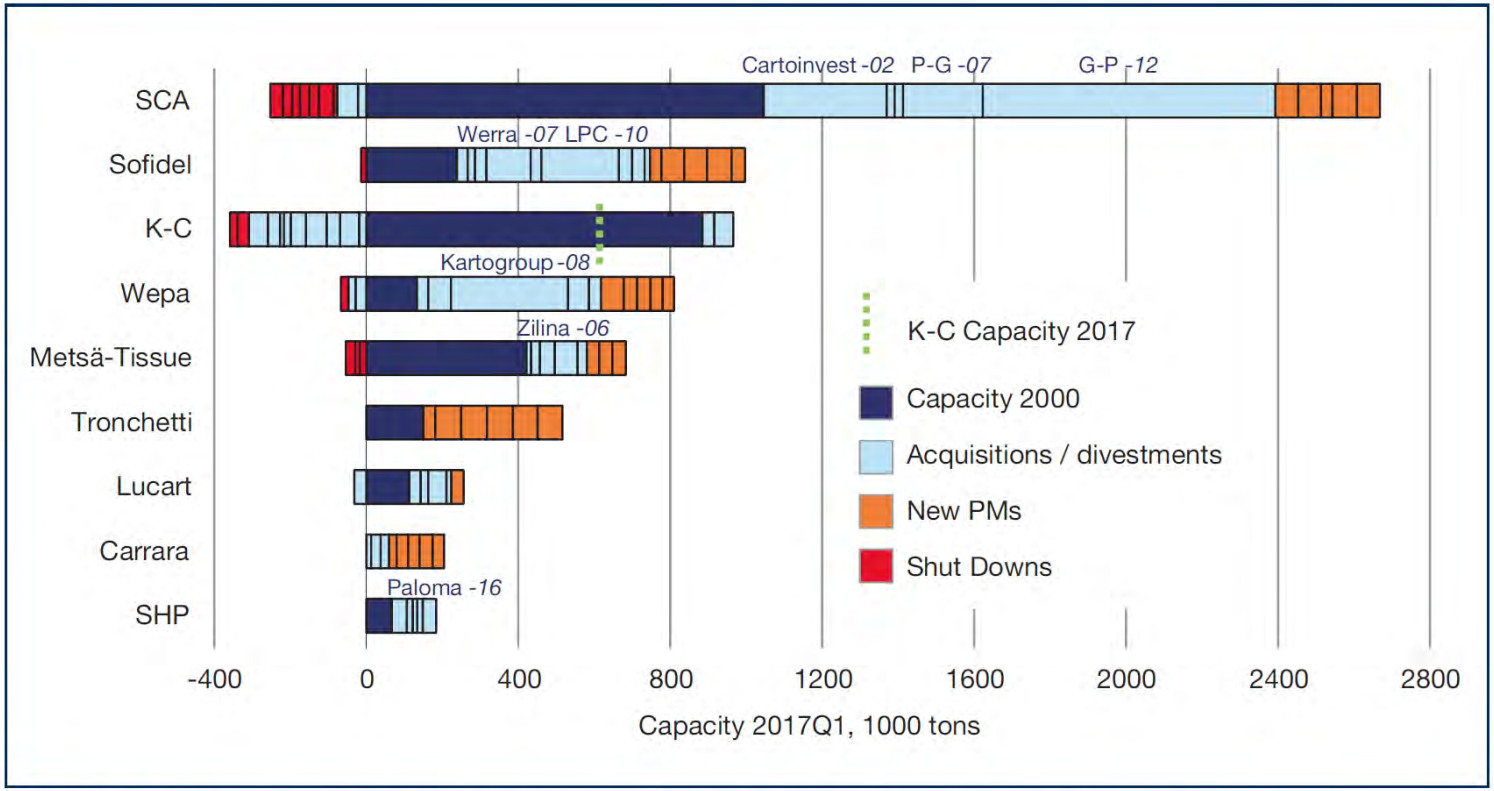


Source: Paper Age July/August 2017

HISTORICALLY, ACQUISITIONS HAVE BEEN THE PRIMARY GROWTH INSTRUMENT FOR MAJOR EUROPEAN PLAYERS

- Between 2000 and 2017, Essity doubled its capacity via acquisitions alone. Its investments in new plants have on the other hand been comparable to Sofidel or Wepa, which are much smaller.
- Growth strategies are heavily reliant on acquisitions also for Sofidel and Wepa.
- In terms of new capacities, Tronchetti was in fact the biggest investor.
- Kimberly-Clark, the only US player left on the European market, is the only major player that has reduced its total capacity in Europe, mostly via divestments.
- Typically, the reliance on acquisitions means that expansion into a new region happens first via M&A. The potential for growth in Eastern Europe and the region's highly fragmented industry make well-placed local enterprises ideal targets for acquisition by multinationals.

Capacity developments for major tissue players in Europe, 2000-2017



Source: Paper Age July/August 2017

HISTORICAL OVERVIEW OF MERGERS AND ACQUISITIONS IN THE EUROPEAN TISSUE INDUSTRY

Mergers and Acquisitions Tissue Companies in Europe					
COMPANY	**2000 capacity share**	**Notable developments**	**2005 capacity share**	**Notable developments**	**2019 capacity share**
SCA/Essity	30%	merger rejected by the EU Commission in 2001	19.4%		27.6%
Metsä Tissue			6.7%		5.8%
Kimberly-Clark	18%		11.9%		7.8%
Fort James	14%	acquired by Georgia Pacific in 2001			
Georgia Pacific			11.7%	acquired by SCA/Essity in 2012 and then sold to Sofidel in 2013	
CartoInvest	8%	acquired by SCA in 2002			
Sofidel	5%		5.7%	Sofidel acquires LPC Group in 2010	12.3%
P&G	5%		3.4%	acquired by SCA/Essity in 2007	
ICT	4%		2.9%		5%
Wepa	3%		3.2%		9.6%
Lucart	3%		2.1%		4.2%
Kartogroup	2%		4.4%	acquired by Wepa in 2009	
All others	8%		28.6%		25%+

Source: Mergers and Merger Remedies in the EU 2007, Risi 2018, EU Commission Merger Procedures , Paper Age Magazine, Company data

OVERVIEW OF NEW CAPACITY INVESTMENTS

- Between 2000-2015
  - SCA/Essity added 275kt in new capacities
  - Sofidel added 250kt in new capacities
  - WEPA added 190kt in new capacities
  - ICT added 350kt in new capacities
- New tissue production facilities are being added every year by big as well as smaller tissue suppliers.

New tissue production facilities in Europe 2016-2021

Company	Investment location	Start-up date	Capacity change tonnes/year
Aktul Kagit Uretim	Pamukova, Turkey	2016	60,000
Hayat Kimya	Turkey	2016	70,000
Ariete	Salreno, Italy	2017	29,000
Wepa	Piechowice, Poland	2017	35,000
Paper Prime	Vila Velha de Rodao, Portugal	2017	40,000
Renova	Torres Novas, Portugal	2017	30,000
Goma Camps	Spain	2018	35,000
Vajda Papir	Hungary	2018	n/a
Lucart	Porcari, Italy	2018	35,000
Sofidel	Ciechanov, Poland	2018	60,000
Velvet Care	Klucze, Poland	2018	60,000
The Navigator Company	Cacia, Portugal	2018	7,000
Goma-Camps	Ejea, Spain	2018	35,000
Filar	Poland	2019	28,000
Arkhbum Tissue	Kaluga, Russian Federation	2019	60,000
Hayat Kimya	Yelabuga, Russian Federation	2019	60,000
ICT	Burgo, Spain	2019	60,000
Essity	Manheim, Germany	2019	35,000
Paloma	Sladki, Slovenia	2020	65,000
Global Hygiene	Charavines, France	2020	n/a
Cartiera della Basilica	Botticino, Italy	2020	24,000
Confidential	Confidential	2021	70,000
Maxi	Katerini, Greece	2021	40,000
Cartiera Confalcone	Montoro Inferiore, Italy	2021	32,000
Wepa	Piechowice, Poland	2021	40,000
Wepa	Bridgend, UK	2021	65,000
MG TEC Industry	Romania	2021	30,000
Hayat Kimya	Kaluga, Russian Federation	2021	70,000
Hayat Kimya	Mersin, Turkey	2021	70,000
Essel Kagit	Osmaniye, Turkey	2021	90,000
Lila Kagit	Corlu, Turkey	2021	70,000
MG TEC Industry	Romania	2022	30,000
Europap Tezol	Mersin, Turkey	2022	40,000

Source: Tissue World Magazine

OVERVIEW OF PORTFOLIO AND SALES STRUCTURE OF MAJOR TISSUE COMPANIES IN EUROPE

Company name	Consumer Tissue products	Away from Home tissue products	Strategic features	Sales Consumer Tissue 2020 (bn €)	Sales Away from Home 2020 (bn €)	Sales structure	Revenues or sales by country and/or region (%)
ESSITY	toilet paper , household towels, handkerchiefs, facial tissues, napkins, baby napkins and napkin liners, feminine sanitary pads and tampons, incontinence pads	toilet paper, hand towels, napkins, facial tissues, professional cleaning wipes	Objective to grow private label, while branded remains the main focus.	4.8	2.4	Personal Care 38% Consumer Tissue 41% Professional Hygiene 21%	Europe 56% Asia 17% Latin America 13% North America 12% Other 2%
KIMBERLY-CLARK	toilet paper, kitchen towels, handkerchiefs, facial tissues, napkins, baby napkins and napkin liners, sanitary pads and tampons, incontinence pads	toilet paper, hand towels, napkins, facial tissues, kitchen rolls		5.8	2.6	Consumer Tissue 35% Baby & child care 34% Away from Home 16% All other 16%	North America 54% Outside N. America 46%
SOFIDEL	toilet paper, kitchen towels, handkerchiefs, facial tissues, napkins	toilet paper, hand towels, medical sheets, kitchen rolls		2.1		Parent Reels 6.6% Away-From-Home 11.7% Brands and B-Brands 31.5% Private Label 50.1%	USA 22.1%, UK 14.7%, IT 14%, DE 10.3%, FR 9.1%, PL 6%, ES 4.5%, BE 2.9%, IE 2.9%, RO 1.9%, Other Europe 11.6%
METSÄ TISSUE	toilet paper, kitchen towels, handkerchiefs, facial tissues, napkins	paper towels, hand towel rolls, facial tissues, professional cleaning wipes	Divestment from napkin production in Germany. Focus on the Away from Home sector: paper towel production for dispensers in public facilities.	1.1			
WEPA	toilet paper, kitchen towels, tissues, facial tissues , napkins	toilet paper, cleaning rolls paper towels, medical rolls, kitchen rolls, facial tissues	Private label specialist for consumer tissue. Emphasis on branded for the AfH segment.	1.3		80% Consumer Tissue 20% Away from Home	
ICT	toilet paper, kitchen towels, handkerchiefs, facial tissues, napkins			0.8			
LUCART	toilet paper, kitchen towels, handkerchiefs, facial tissues, napkins, kitchen towels	handtowels, toilet paper, wipers, multi-purpose cloths, kitchen towels, napkins, medical sheets, handkerchiefs and facial tissues	Emphasis on premium products in the Away from Home market segment.	0.5		Private label 48.7% Brands 51.3%	IT 51%, FR 13.6%, ES & PT 11.8%, Other EU 17.6% USA 1.1%, Other 4%

Source: Company data

PORTFOLIOS OF LARGEST TISSUE COMPANIES INCLUDE A WIDE RANGE OF NON-TISSUE SANITARY PRODUCTS

Company name	Non-tissue products Consumer retail	Non-tissue products Away from Home
ESSITY	incontinence washable underwear, skincare products, diapers, menstrual cups, intimate soaps compression stockings and garments, neoprene braces and supports, self-treatment bandages, dressings and strips, surgical protective masks	hand soap, hand lotion, hand sanitizers, surface cleansers surgical dressings, surgical masks, medical compresses, gauzes, and dressings, medical casting and splitting solutions, chronic wood treatment solutions
KIMBERLY CLARK	baby diapers, infant and child skincare products, intimate soaps, infant training pants, incontinence underwear	hand sanitisers, foam body cleansers and lotions, protective apparell and accesories, air fresheners
SOFIDEL		detergents, hand sanitizers, antimicrobial soaps, surface cleaner sprays
METSÄ TISSUE		liquid and foam soap, hand sanitisers
WEPA	hand sanitisers	liquid and foam soap
LUCART		foam soap

Source: Company data

ONLY THE LARGEST COMPANIES ARE ABLE TO HAVE A STRONG MULTINATIONAL PRESENCE IN EUROPE

- Essity is present in all major markets in Western Europe, with some presence in Eastern Europe (Polish plant is for non-tissue products).
- Kimberly-Clark is more interested in Eastern Europe, having operations in Poland and Czechia.
- Despite being much smaller, Sofidel has a similar geographical spread to Essity: focus on Western Europe, with a small presence in the larger Eastern European markets (Poland and Romania).
- Wepa is predominantly German-based and has been expanding to Poland.
- Except for Sofidel, Italian manufacturers typically have a very limited presence abroad.

Leading Tissue Manufacturers in Europe

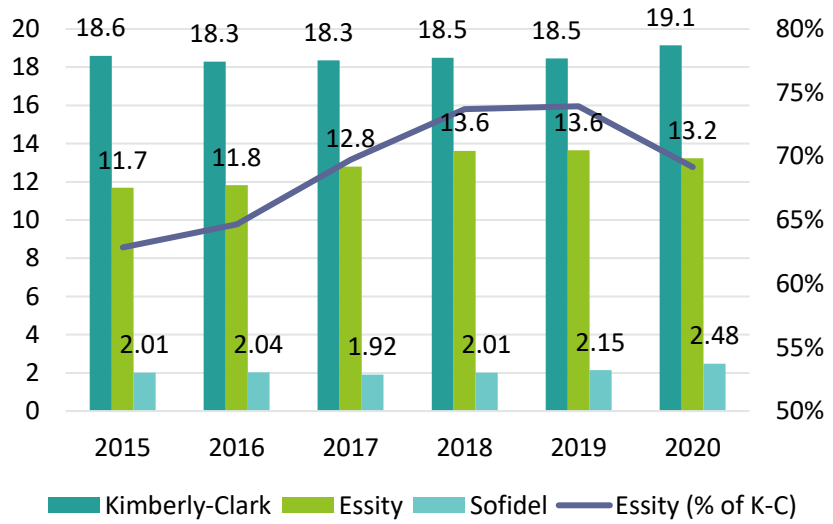
Company name	Production sites in the EU	Production sites in non-EU Europe	No. of employees in Europe, 2020
ESSITY (SE)	AT, BE, FI, FR, DE, IT, NL, ES, PL, SK, SE	RU, UK, TR	19327 **(41%)**
KIMBERLY-CLARK (US)	BE, CZ, FR, DE, IT, NL, PL, ES	RU, UK, TR	7738* **(19%)**
SOFIDEL (IT)	BE, FR, DE, EL, IT, HU, PL, RO, ES, SE	UK	5169 **(76%)**
METSÄ TISSUE (FI)	FI, DE, PL, SE, SK		2504 **(100%)**
WEPA (DE)	FR, DE, IT, NL, PL	UK	4000 **(100%)**
ICT (IT)	IT, FR, PL, ES		1689 **(100%)**
LUCART (IT)	FR, IT, ES	UK	1553 **(100%)**
CARTIERE CARRARA (IT)	IT		560 **(100%)**
INDUSTRIE CELTEX (IT)	IT, FR, DE, PL		194 **(100%)**
MP HYGIENE (FR)	FR		279 **(100%)**

Source: Company data
** No. of employees for Europe, Middle East, and Africa*

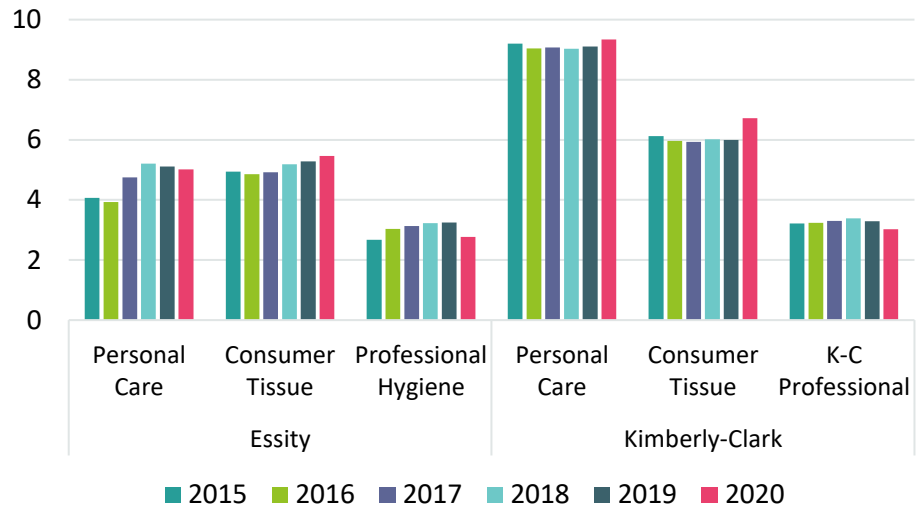
ESSITY AND KIMBERLY-CLARK ARE THE LARGEST TISSUE MANUFACTURERS BOTH IN EUROPE AND GLOBALLY

- Both Kimberly-Clark and Essity make over half of their sales in their home regions (54% North American sales for Kimberly-Clark in 2020, 51.2% for Essity in the EU and over 60% in Europe in an enlarged sense).
- Both companies are aiming for expansion in markets with high growth potential: for Essity, China is a primary target; Kimberly-Clark is aiming at most developing markets, including Eastern Europe.
- Before Covid, Essity was catching up to Kimberly-Clark in terms of sales, to a considerable extent due to an aggressive acquisition strategy. However, Kimberly-Clark's sales appear to have been significantly boosted by the pandemic, while part of Essity's recent growth was reversed.
- Structurally, the two companies are very similar and cover a wide range of tissue products. Their products are typically branded, which the companies support with generous advertising & marketing budgets. Both are strategically oriented toward the higher value-added parts of the tissue market: feminine hygiene, incontinence products and premium products in general.
- The above characteristics are reinforced by the size of the two companies. The only other European player seriously aiming at expansion outside Europe is Sofidel, who is much smaller and has much fewer resources to pursue a rapid growth strategy.

Kimberly-Clark, Essity and Sofidel global sales revenue (bn USD)



Kimberly-Clark and Essity global sales revenue by division (bn USD)

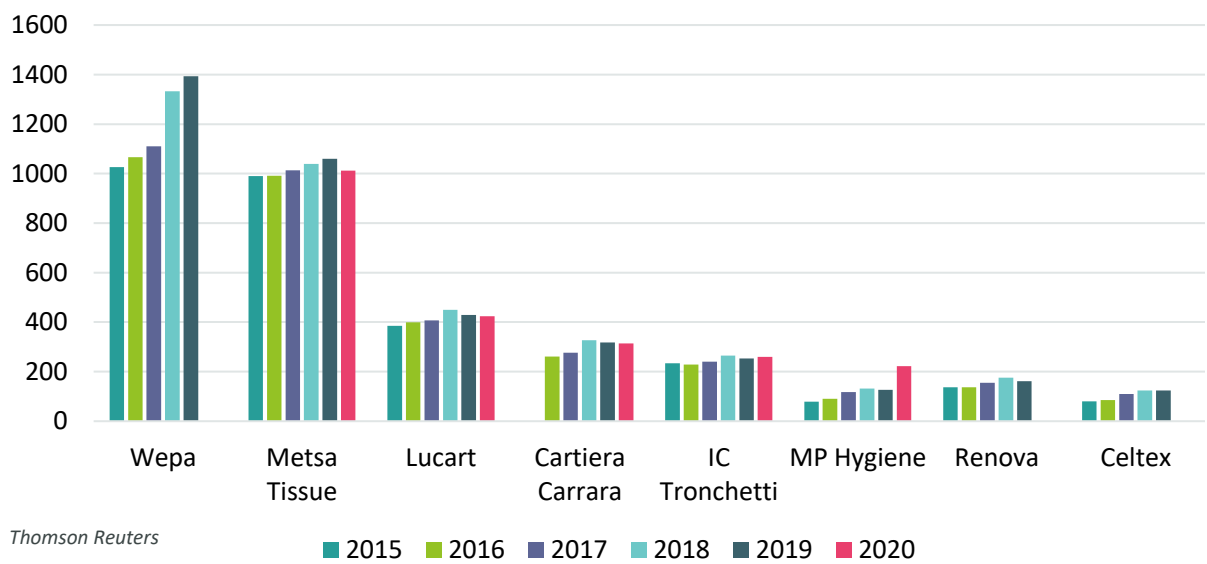


Source: Company data

OTHER TISSUE COMPANIES PRESENT IN EUROPE ARE TYPICALLY VERY SMALL BY COMPARISON, WITH LIMITED GEOGRAPHICAL SCOPE AND UNABLE TO EMPLOY AGGRESSIVE GROWTH STRATEGIES

- Outside of the top-3 (K-C, Essity, Sofidel), only two companies have passed the 1-billion-dollar annual sales threshold: Wepa and Metsa Tissue.
  - Wepa is a German manufacturer of primarily private label tissue products, whose growth has been fueled by a strong relationship with German retailers, especially discounters (Lidl, Aldi). Wepa has been expanding outside Germany (where it has a 20% market share), with Poland being a primary target.
  - Metsa Tissue is part of the integrated Metsa Group and is responsible for approximately 20% of the group's sales and typically below 15% of its operating result. Tissue is not seen as a major growth market for Metsa, who is rather focused on packaging.
- The next largest companies have sales well below Wepa or Metsa Tissue. Italian manufacturers Lucart and IC Tronchetti are experimenting with expansion outside Italy (typically in Western European countries, but Eastern Europe is also attractive), where they face considerable difficulties due to limited financial resources and the market dominance of larger competitors.
- While sales of branded products are much more difficult for small tissue companies, some companies are exploring new niches that allow for higher prices (Lucart, for example, is emphasizing the importance of raw material and packaging sustainability). Given the size difference (especially vs. Essity) and the slow growth of the market, these smaller companies are unlikely to catch up any time soon.

Sales developments for other European players (USD million)

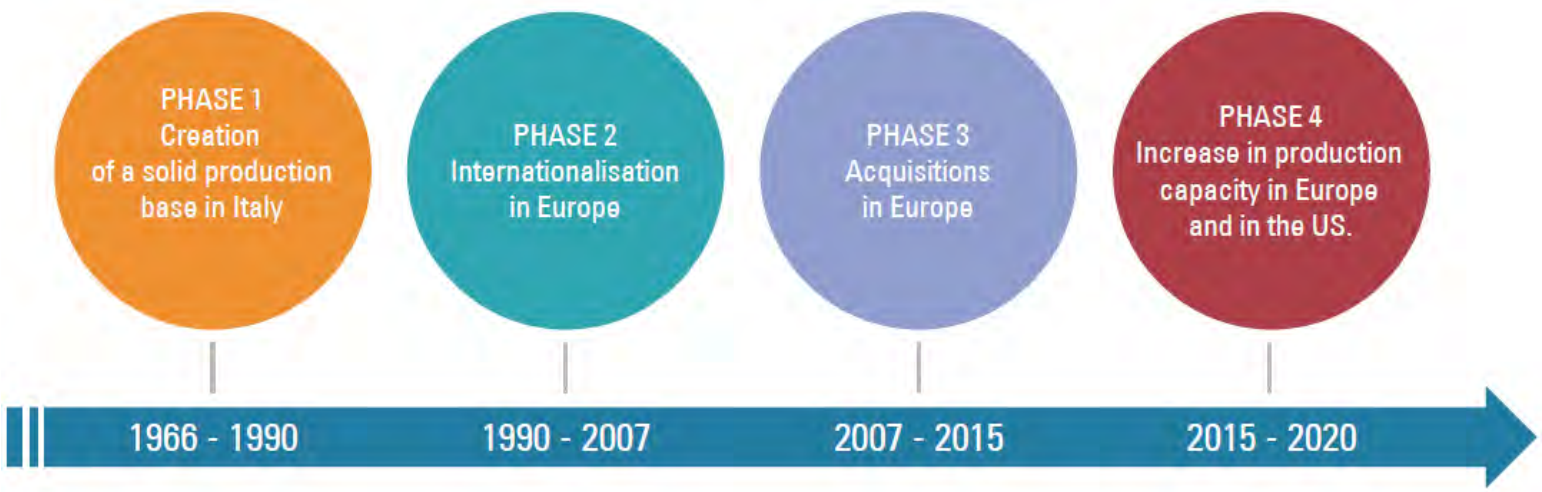


Source: Thomson Reuters

SOFIDEL: CATCHING UP TO THE GIANTS?

- With over USD 2 billion in annual sales and a presence outside Europe, Sofidel is somewhat of an outlier in the group of smaller European companies.
- Sofidel began its internationalization already in the 1990s, very early in comparison to other existing Italian companies.
  - A longer history of internationalization means that Sofidel now has an almost pan-European presence, with facilities in practically all of the largest markets in the EU, including large countries with high potential in Central and Eastern Europe (Poland, Romania).
  - It expanded to the US in the second half of the previous decade by acquiring existing production capacities.
- While Sofidel has increased its production capacity by almost 40% between 2015 and 2020 and is today among the top 10 global tissue manufacturers in terms of capacity, it is still dwarfed by Kimberly-Clark and Essity and, to a considerable extent, is faced with the same expansion challenges as other smaller European companies.

Sofidel's "four strategic phases"



Source: Sofidel

IN MATURE MARKETS LIKE EUROPE AND NORTH AMERICA, THE ADVANTAGE OF LARGE PLAYERS IS VISIBLE IN THEIR HIGHER PROFIT MARGINS

- EBITDA (earnings before interest, depreciation and amortization) margins as % of sales for the largest companies are typically above 10%, but large companies like Kimberly-Clark or Essity have higher margins than their smaller competitors in their home markets and appear to have fared better in recent years.
- The unusually high profitability of Hengan International highlights the strategic importance of China for the tissue industry — note that Hengan specializes primarily in sanitary napkins and diapers, which are higher value-added products that can be more easily exported than standard consumer tissue.

Data as of March 9th, 2021: Full Year 2020 reports not available for Kruger Products, P&G Hygiene, CMPC, Hengan International, data based on extrapolated H1-2020 results. 2020 reports not available for Sofidel, Orchids Paper.

Note: Results of Metsä Group, Cascades and CMPC highly influenced by segments other than tissue

© StepChange Consulting 2021

ESSITY DEEP DIVE: DOMINANCE ON THE EUROPEAN MARKET

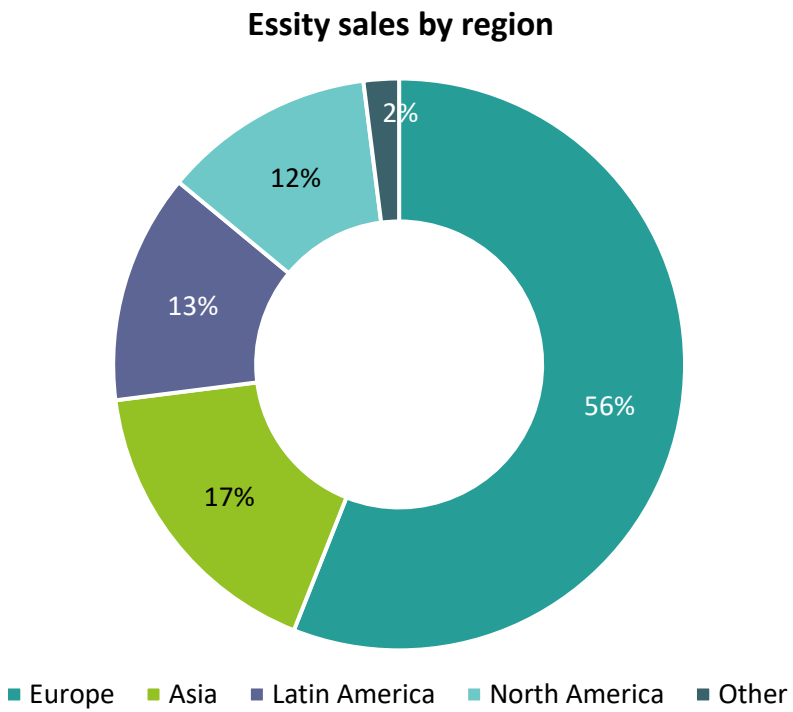
Essity's market positions

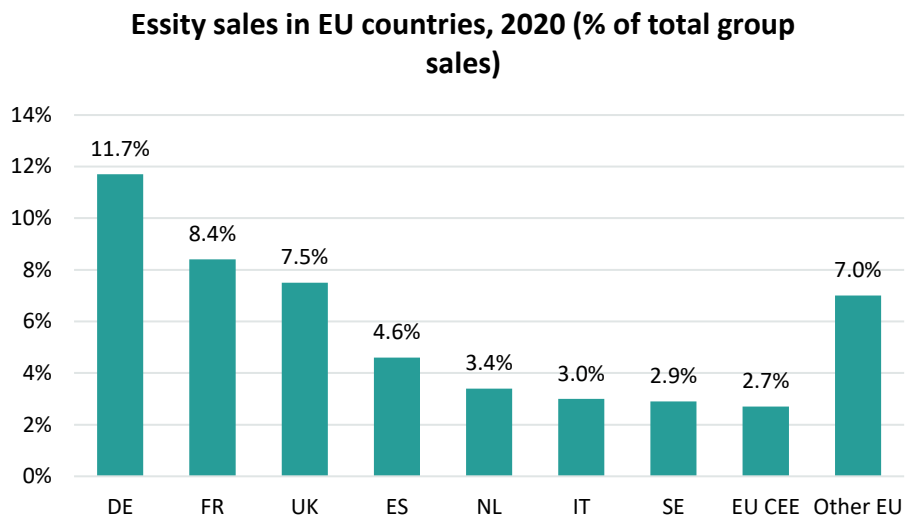
	Global	Europe	North America	Latin America	Asia
Incontinence Products	1	1	4	1	3
Professional Hygiene	1	1	2	4	3
Consumer Tissue	2	1	–	3	1
Medical Solutions	4	1	12	3	2
Baby Care	5	2	–	6	6
Feminine Care	5	3	–	1	10

Source: The information has been compiled by Essity for presentation purposes based on statistics taken from external market sources, including IRI, Fastmarkets RISI, Price Hanna Consultants, SmartTRAK and National Macro Economics.

Source: Essity

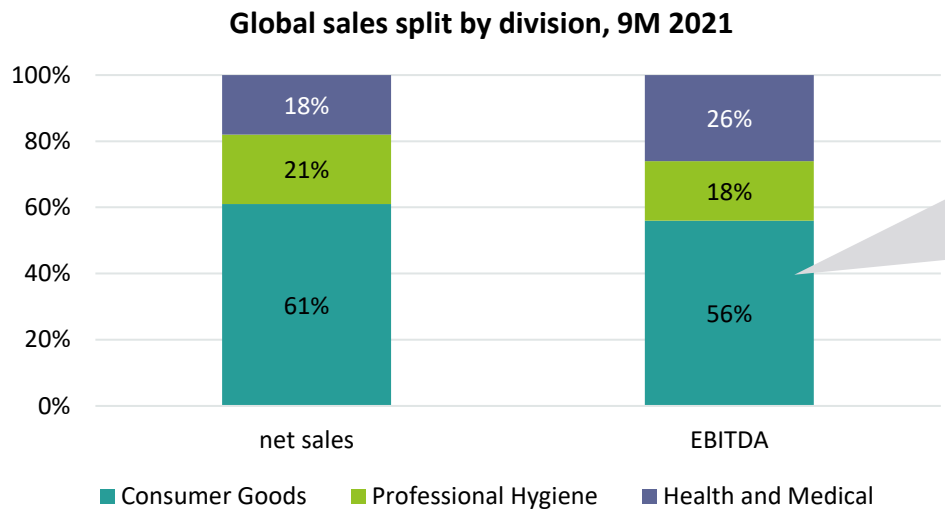
ESSITY DEEP DIVE: STRATEGIC FOCUS ON WESTERN EUROPE AND DEVELOPING MARKETS OUTSIDE EUROPE





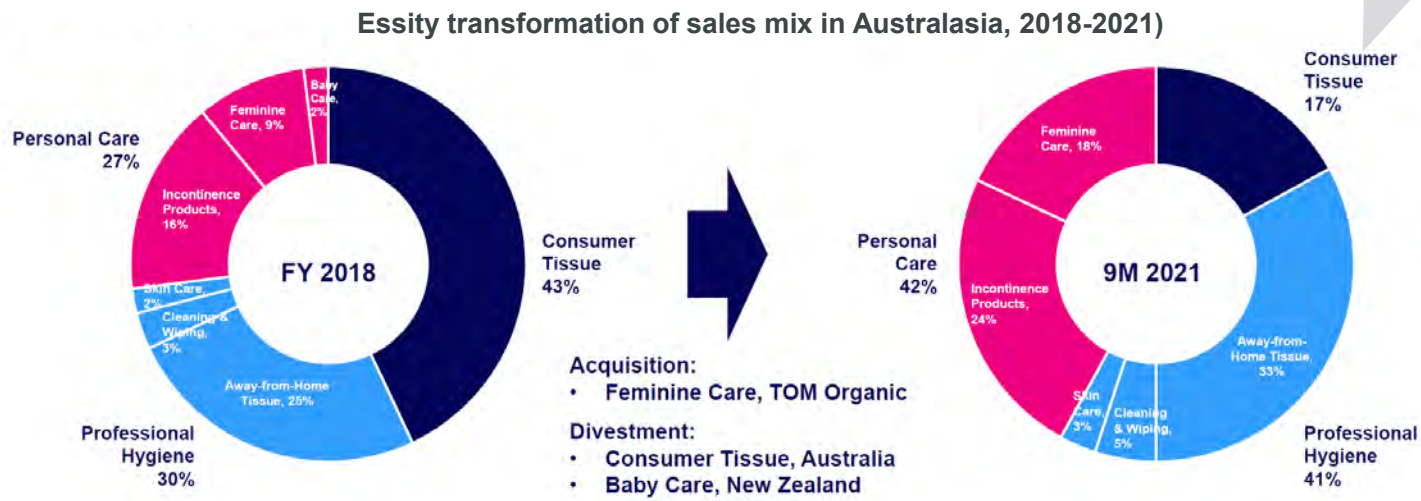
Source: Essity

ESSITY DEEP DIVE: STRATEGIC FOCUS ON MOST PROFITABLE SEGMENTS



Consumer segment less profitable (61% of sales, 56% of EBITDA) in comparison to professional hygiene or health & medical.

Major shift away from consumer tissue.



Source: Essity

FOR CONSUMER TISSUE, THE DISTINCTION BETWEEN BRANDED AND PRIVATE LABEL PRODUCTS IS INCREASINGLY CRUCIAL

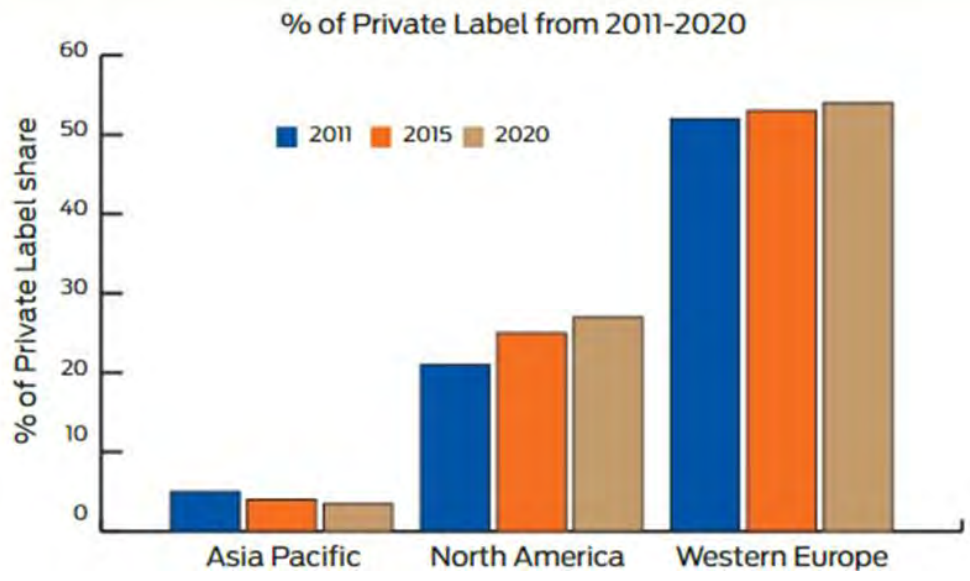
- One peculiarity of the European consumer tissue segment is the dominance of private label products. These are products sold under the brands of retailers.

- Historically, private label products have been pushed on the market by discounters (the German companies Lidl and Aldi are the best examples) and they are presented as offering the best value for money: significantly cheaper than branded products (15-20% cheaper on average), with minimal compromise in terms of quality.

- Discounters have been expanding across Europe and have been gaining significant market share at the cost of both traditional and full-price modern retail companies. The latter are reacting by replicating certain strategic elements from discounters, including the proliferation of private label products.

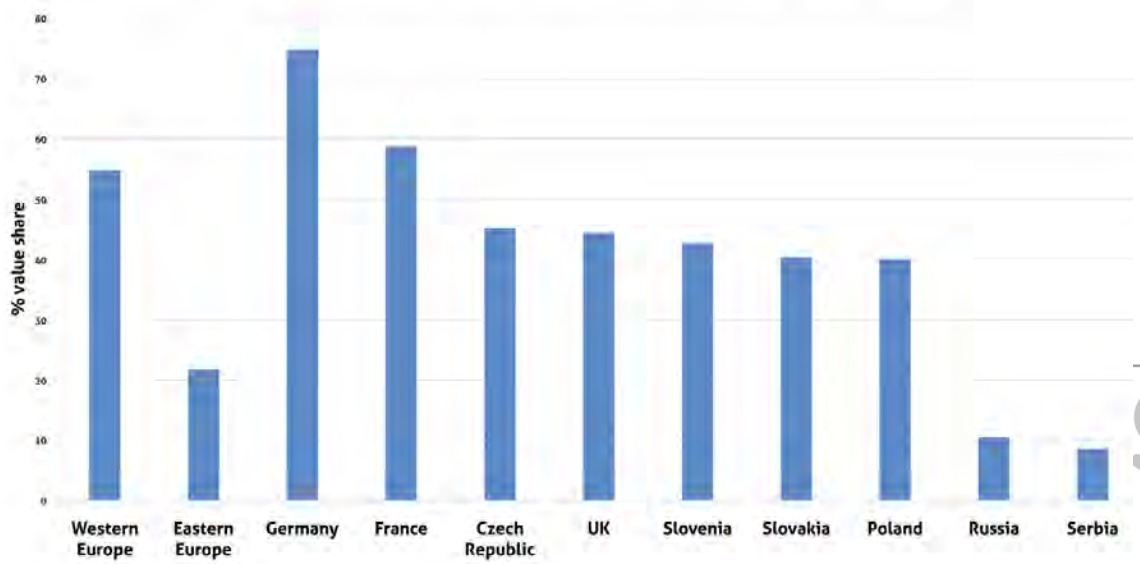
- For tissue manufacturers, these developments are highly important. Operating margins are typically higher for branded products than for private label products, so a portfolio relying on private label products comes with additional financial constraints. On the other hand, the cost of entry into the branded segment is high, as it takes time and considerable investment to build brands and gain consumers' loyalty.

- These characteristics can result in diverging company strategies. In North America, giants like Kimberly-Clark or Procter & Gamble have little to no interest in the private label market segment, preferring to focus on the more profitable branded products, which they leave to smaller companies like Cascades. Due to the very high market share of private label, this is not possible in Europe: at least 40% of Essity's consumer tissue in Europe is sold under private labels. For smaller companies, the private label shares are likely much higher. At the other extreme like private label specialists, like Wepa.



Source: Euromonitor International

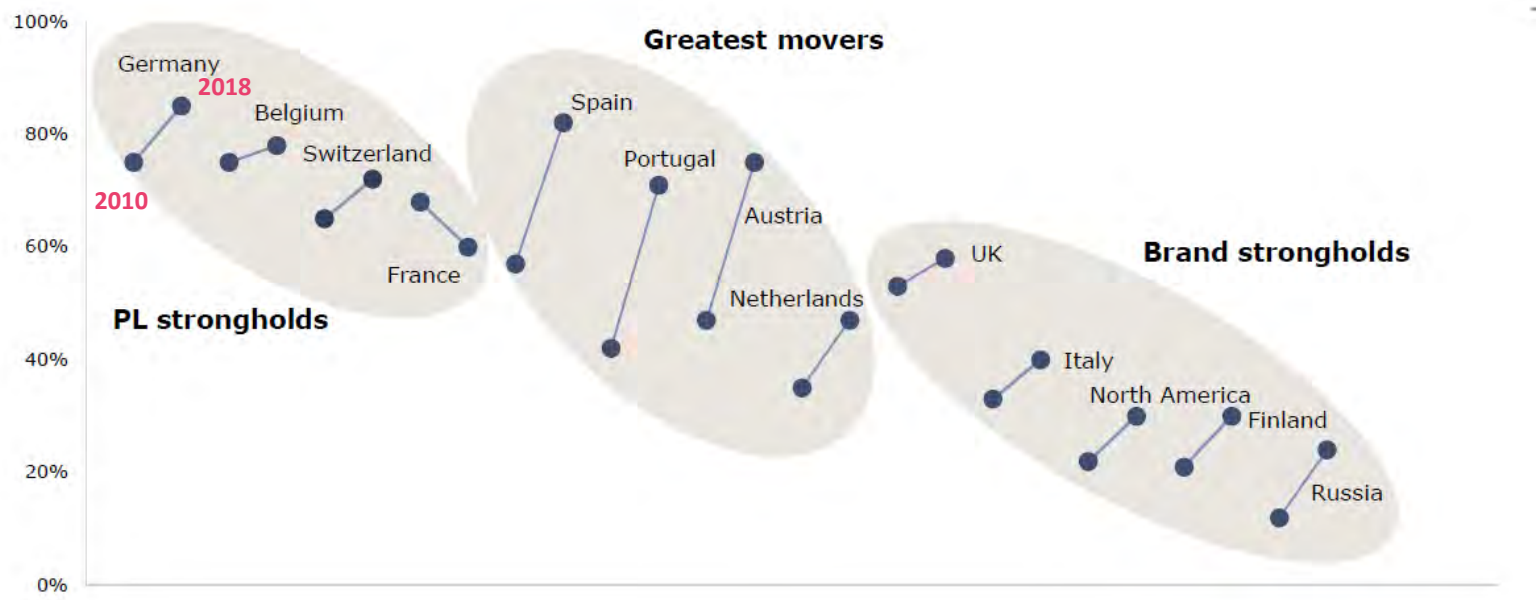
Private label retail tissue, select markets, % value share, 2019



PRIVATE LABEL TISSUE IS RISING AT AN ACCELERATED RATE ACROSS EUROPE, PUSHING COMPANIES TO REORIENT THEIR STRATEGIES

- During the past decade, the market share of private label tissue has grown in all major European markets, with the exception of France. While branded products still dominate in Italy, in Spain, Portugal and Austria the increase in the market share for private label has been spectacular.
- This trend is likely to continue, with a boost from COVID-19, which has made consumers more sensitive to price-versus-quality and has significantly facilitated brand switching.
- The rise of private label tissue on the European market has benefitted companies like Wepa, but it has also pushed Essity into making a strong commitment for growth in the private label segment.
- In 2021, Essity finalized the creation of a separate division in its Consumer Tissue business unit focused only on private label products. The objective is to increase the share of private label products in Essity's consumer tissue portfolio from 40% to 50%.
- Essity's move far more than just a simple portfolio readjustment, since the private label division will be entirely separate from the rest of Essity's European consumer tissue operations: the new division has seven plants (1 in Belgium, 2 in France, 1 in Germany and 3 in Italy), with a total of 1700-1900 employees. The reason for the separation is likely the different needs of private label operations, especially when it comes to cost management.

Private label volume share for consumer tissue, 2010 vs. 2018 (% of total)



Source: Euromonitor International, Tissue World Magazine

COMPETITIVE ENVIRONMENT: SUMMARY

Since the 1990s, US multinationals have withdrawn from the European market, which is today dominated by European-owned companies like Essity, Sofidel or Wepa. Kimberly-Clark remains the big US player still present on the European market, although with a relatively limited footprint.

The European tissue industry is highly concentrated, with the top 10 companies having almost 80% of total production capacity. With over a quarter of the total tissue production capacity, Essity dwarfs all its competitors in Europe.

Giants like Essity and Kimberly-Clark have several features that are unavailable to smaller companies: highly diverse portfolios, including powerful brands and high value-added non-tissue hygiene products; wide geographical reach (pan-European presence and global reach); higher profitability and financial capacity to employ aggressive M&A strategies.

With the exception of Sofidel, all other major tissue manufacturers have a strictly European (and typically Western European) focus.

The high market share and continued growth of private label products in the consumer retail segment generates distinctive pressures for companies. While smaller companies likely have to choose between private label specialization (Wepa) and premium branding (Lucart), larger ones (Essity) can deepen their presence in all segments of the consumer tissue market.

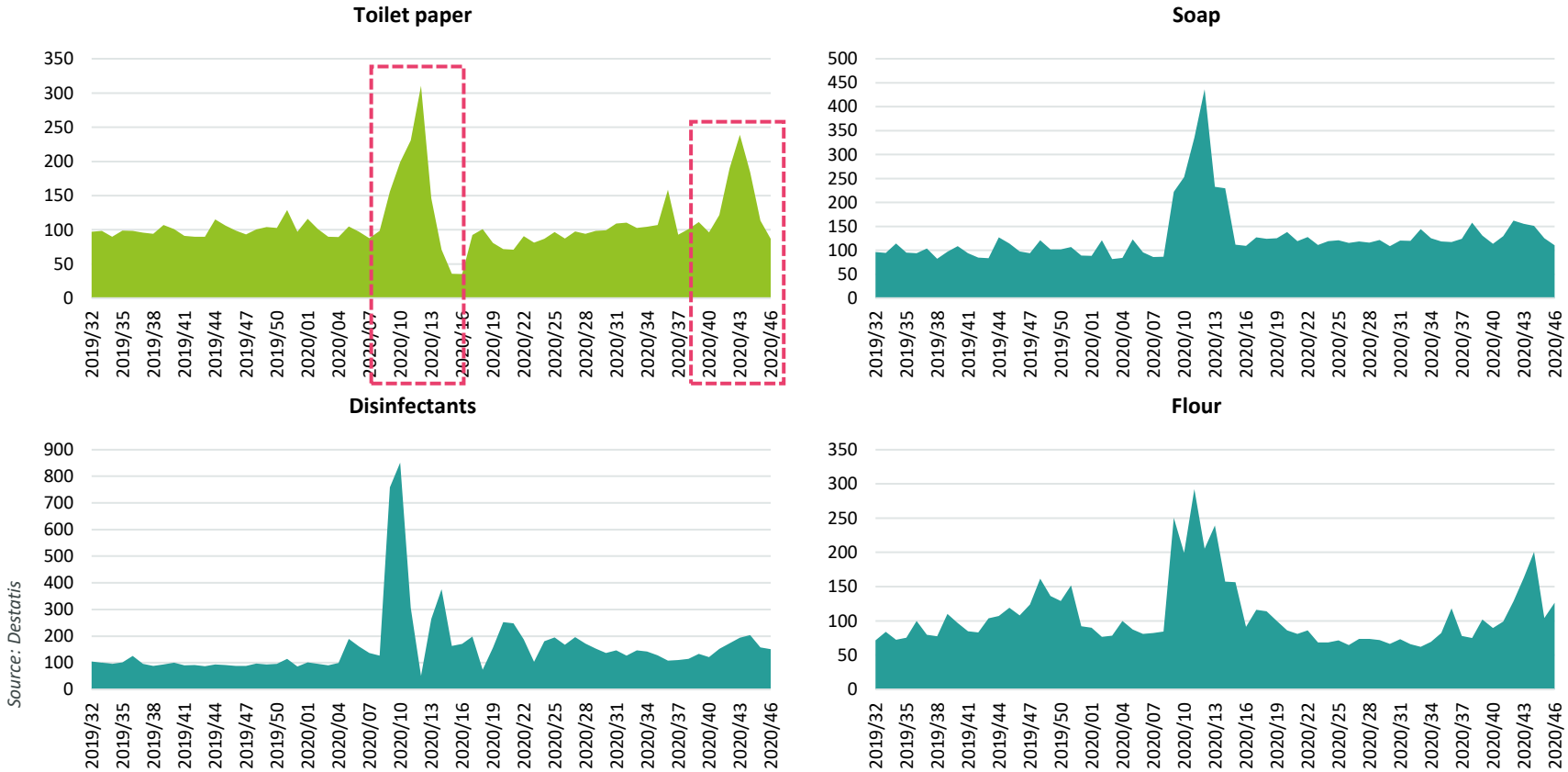
#2 ONGOING CHALLENGES & CURRENT TRENDS

#2.1 COVID-19 IMPACT

INITIAL SHORT-TERM UNPRECEDENTED SURGE IN SALES DUE TO PANIC-BUYING

- The initial spread of COVID-19 in Europe and the restrictions that accompanied it had an immediate and massive impact on the demand for essential products, including consumer tissue.
- In Germany, the largest tissue market in Europe, the sales peaked at three times the usual in the middle of March 2020 due to widespread panic-buying on the part of consumers. Similar developments occurred for soap and disinfectants, but also for products like flour or yeast.
- By mid-April, sales had plummeted to around a third of the normal, due to dissipation of initial consumer concerns. Consumers had stocked up on tissue products and over the next months bought much less than the usual.
- Though another spike in demand was apparent toward the end of the year, coinciding with another wave of the pandemic, it is clear that such episodes are entirely exceptional and do not have a discernible positive impact on the tissue industry.

Sales of select consumer goods in Germany, 2019 week 32 – 2020 week 46 (100 = 5th week of 2020)

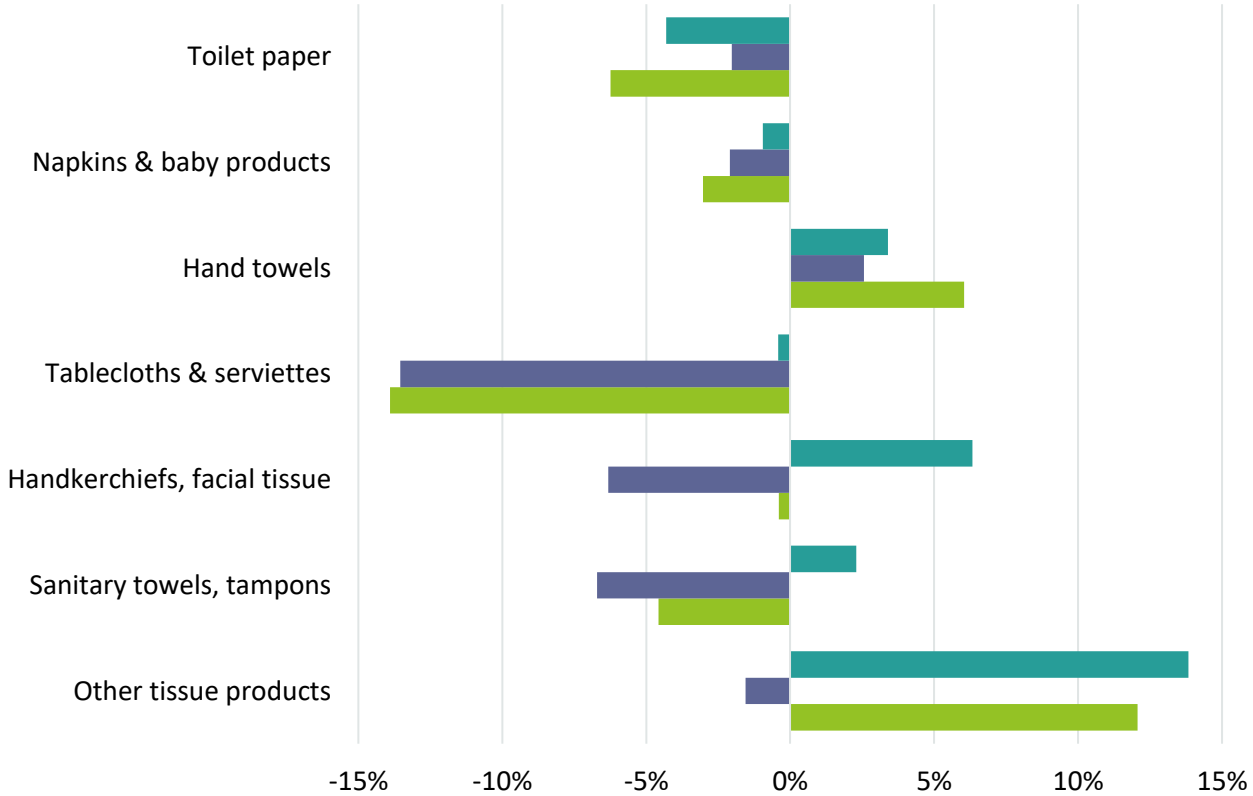


Source: Destatis

OVERALL, THE FIRST PANDEMIC YEAR HAD MIXED IMPLICATIONS FOR TISSUE

- Despite the spring surge in sales, for the whole year the production volume of toilet paper in the EU declined by 4.3% vs. 2019, the highest drop for any major category. Total production value declined even more (-6.2%), due to lower prices (-2%).
- Heightened concerns related to hygiene are visible in the higher volume for sanitary products, facial tissue and hand towels. Hand towels are the only major product category that saw an increase of price.
- The overall negative price dynamic is only indirectly tied to the pandemic. In contrast to 2021 developments, the costs of raw material and energy inputs declined and allowed manufacturers to lower prices without affecting profit margins.
- In specific cases, the pandemic did impact prices in a significant manner. This is the case with away-from-home products such as tablecloths & serviettes, whose prices plummeted. Such a significant decline of prices might have contributed to the surprisingly low impact of the pandemic on production volumes for these products.

Production volume, average price and total production value for tissue products, total EU27, 2020 vs. 2019



	Other tissue products	Sanitary towels, tampons	Handkerchiefs, facial tissue	Tablecloths & serviettes	Hand towels	Napkins & baby products	Toilet paper
volume	13.8%	2.3%	6.3%	-0.4%	3.4%	-0.9%	-4.3%
average price	-1.6%	-6.7%	-6.3%	-13.5%	2.6%	-2.1%	-2.0%
total value	12.1%	-4.6%	-0.4%	-13.9%	6.0%	-3.0%	-6.2%

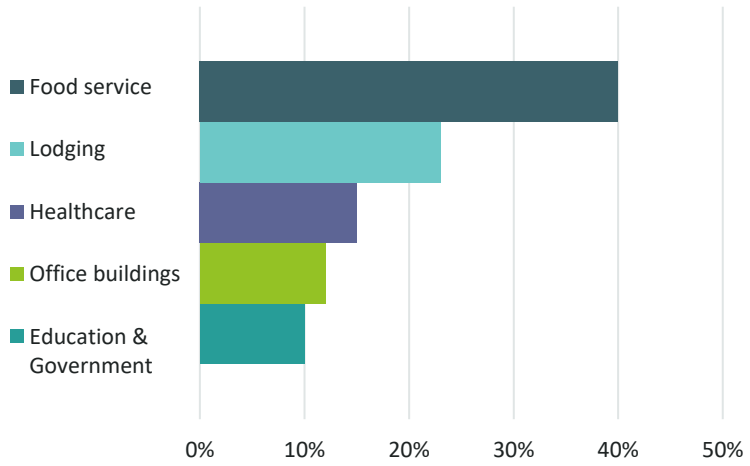
volume average price total value

Source: Eurostat.
Data is for paper products only. Articles of non-cellulose wadding are excluded.

THE AWAY-FROM-HOME MARKET WAS DIRECTLY IMPACTED BY THE RESTRICTIONS AND HAS REMAINED DEPRESSED

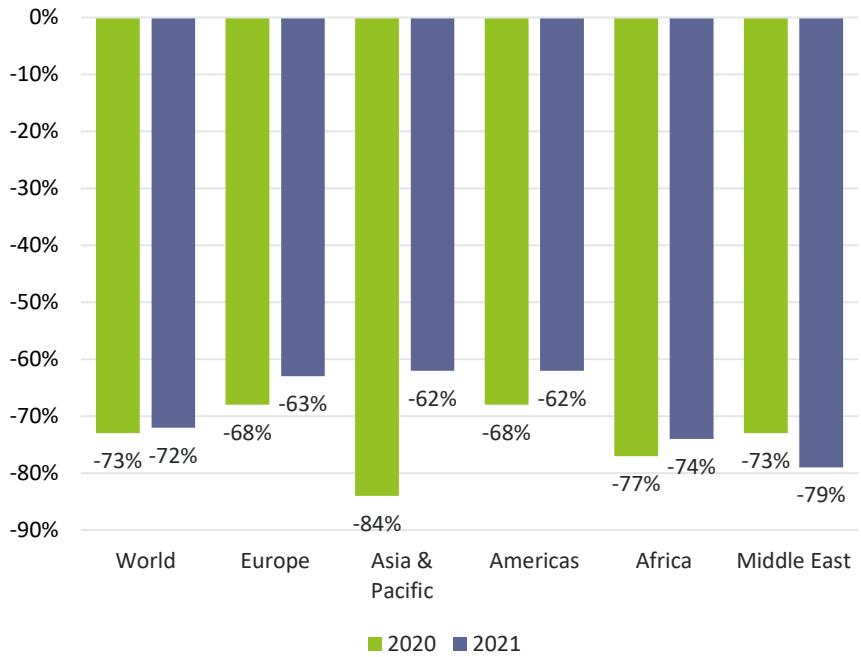
- The away-from-home tissue market was badly hit by the declining demand from food service and accommodation, but also by the shift to working from home and remote education.
- The decline is exemplified by the change in international tourist activity: -68% in 2020 vs. 2019. 2021 saw only a slight improvement.
- While the away-from-home market comprises less than 30% of the European tissue market, the impact of the pandemic on company finances and industrial operations can be significant. For example, companies running plants specializing in away-from-home products were forced to stop production for extended periods of time.

Pre-pandemic away-from-home tissue demand by end-use market



Source: Tissue World Magazine

International tourist arrivals (% change vs 2019)



Source: *World Tourism Organisation*

THE AWAY-FROM-HOME MARKET SHOULD FULLY RECOVER ONLY TOWARD THE MIDDLE OF THIS DECADE

- Some segments of the away-from-home market are expected to recover quicker than others. Foodservice, for example, should recover relatively quickly, while air travel would take a few years to reach pre-pandemic levels.
- Precise estimates are nonetheless difficult to formulate, given the high volatility of the pandemic situation. So far, this volatility has worked against the away-from-home end-use markets.

COVID-19 impact and post-Covid-19 recovery for away-from-home end-use markets (2020/21 assessment)

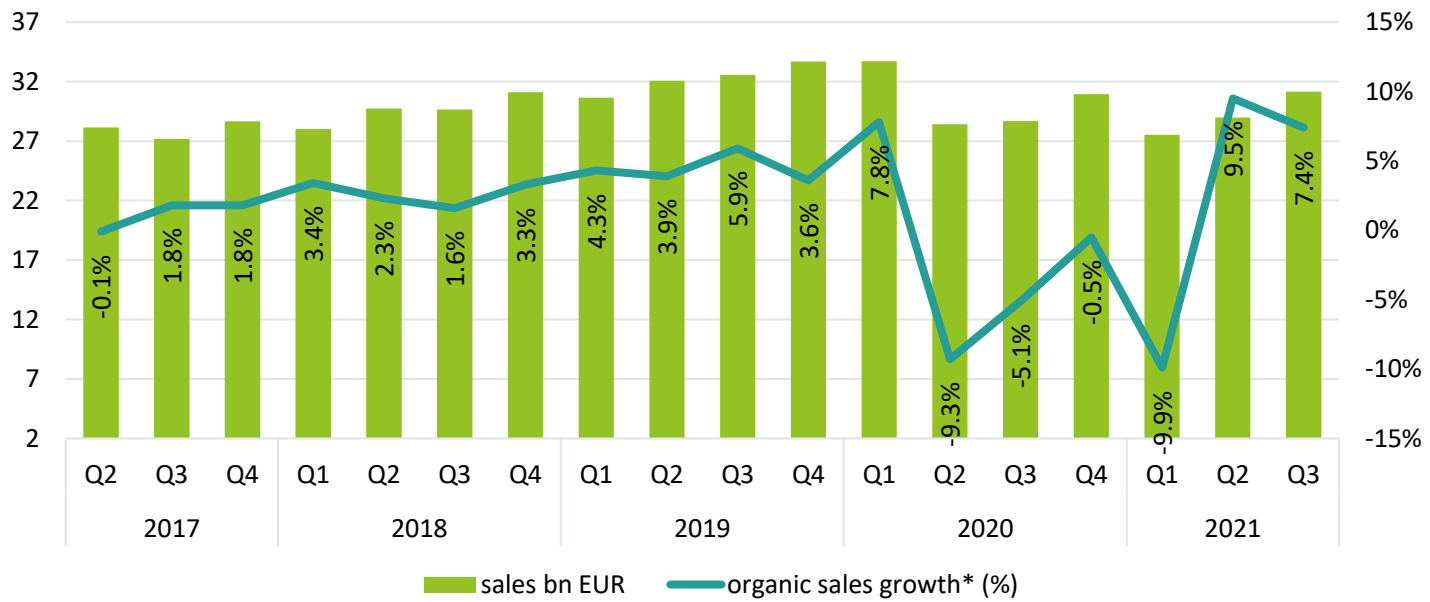
END-USE	COVID-19 IMPACT	RECOVERY	YEAR BACK TO PRE-COVID LEVEL
Airlines	● ● ● ○	→	2024
Cruises	● ● ● ●	↗	2022
Hotels	● ● ● ○	↗	2021
Healthcare	● ○ ○ ○	↗	2021
Food service	● ● ○ ○	↗	2021
Office buildings	● ● ● ○	↘	Part of the consumption to stay at At-Home market driven by remote working and hybrid education
Education	● ● ● ●	↘	

Source: Tissue World Magazine May-June 2021

COMPANY EXPOSURE TO DECLINING MARKET SEGMENTS VARIES DEPENDING ON PORTFOLIO AND SIZE

- Companies more exposed to the away-from-home market have obviously been more vulnerable to market volatility during the pandemic.
- Among major manufacturers present in Europe, no clear regularity can be observed. Lucart, Cartiere Carrara, IC Tronchetti or Metsa Tissue saw their sales decline by less than 5% in 2020, while Kimberly-Clark in fact had its best year in recent history (see pages 48-49 for details).
- Essity saw a 5.6% decline of its sales in 2020 vs 2019, a relatively more severe impact than other European tissue players. The impact was concentrated in its "Professional hygiene" division, which services the away-from-home market. Essity's highly diverse portfolio thus made it somewhat more vulnerable than smaller players. However, the company's size and its good financial situation mean that it can much more easily bear the costs of a temporary drop in the market.

Essity quarterly sales (billion Swedish krona*) and organic sales growth (%)**



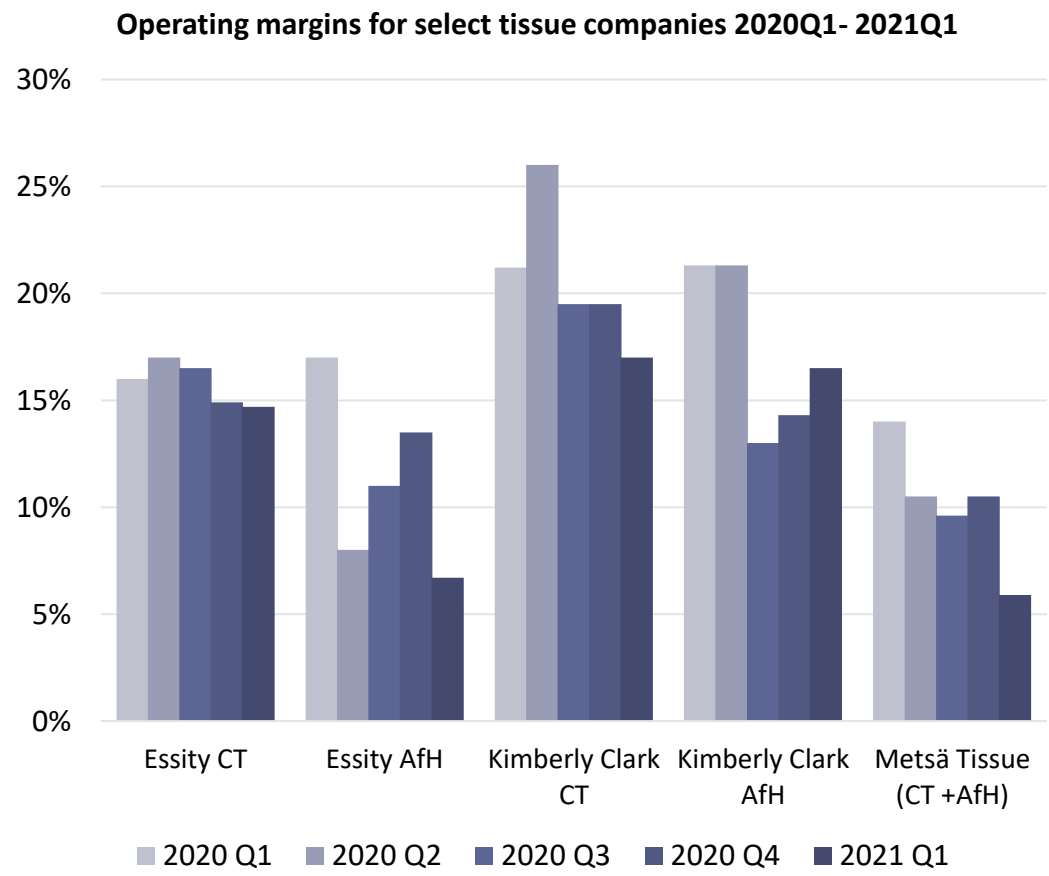
Source: Essity.

* Sales in USD (page 48) show a slightly different development, with a lower decline in 2020, due to the impact of exchange rate movements.

***Organic sales refer to sales without considering acquisitions and divestments.*

THE IMPACT OF THE PANDEMIC ON COMPANIES' AWAY-FROM-HOME BOTTOM LINE VARIES SIGNIFICANTLY AND HAS GOTTEN WORSE WITH TIME

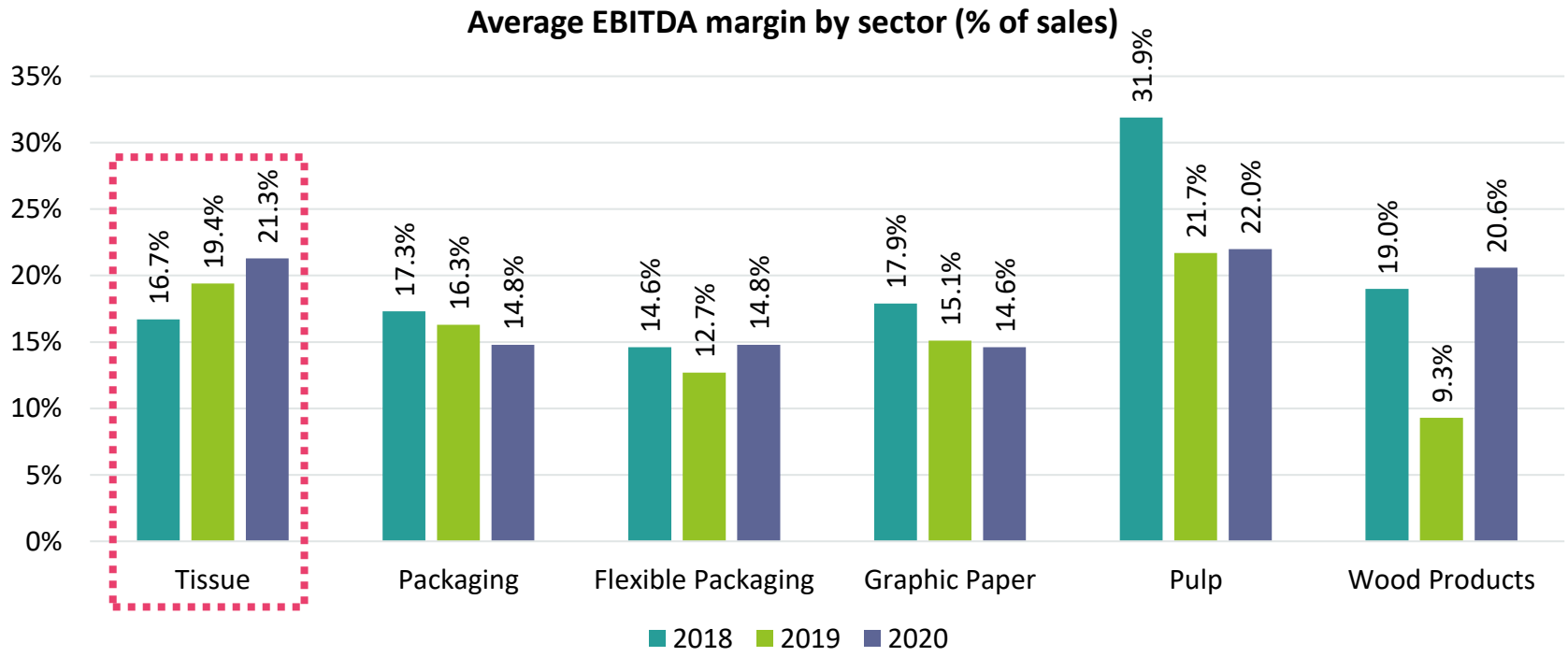
- For both Essity and Kimberly-Clark, the profitability of away-from-home operations dropped well below that of the consumer tissue segment in the first half of 2020, as restrictions affected sales volumes.
- Some signs of recovery of away-from-home profitability as restrictions were lifted, but the situation remained volatile due to repeated pandemic waves.
- Profitability declined after the peak of the first pandemic wave even for consumer tissue segments, as sales dropped below pre-pandemic levels even for consumer tissue.



Source: AFRY

OVERALL, THE TISSUE INDUSTRY CONTINUED TO IMPROVE ITS PROFITABILITY IN THE FIRST PANDEMIC YEAR

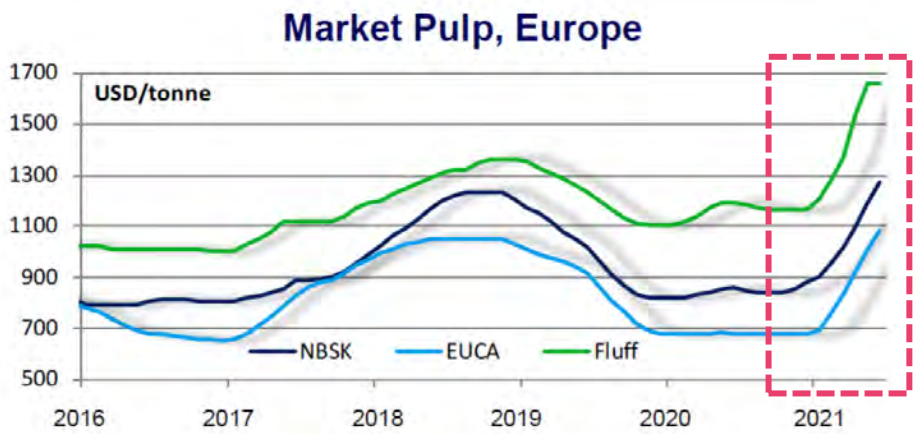
- Overall profitability of the tissue industry has increased to 21.3% (EBTIDA as % of sales) in 2020, a significant improvement over previous years.
- Before 2021, the situation in graphic paper and even in packaging was very different, with the tissue sector consolidating its position as one of the more profitable parts of the pulp and paper industry.
- The underlying causes were both structural (continued consolidation, restructuring, improvement of living standards) and conjunctural (decline of raw material costs, spike in demand in first half of 2020).

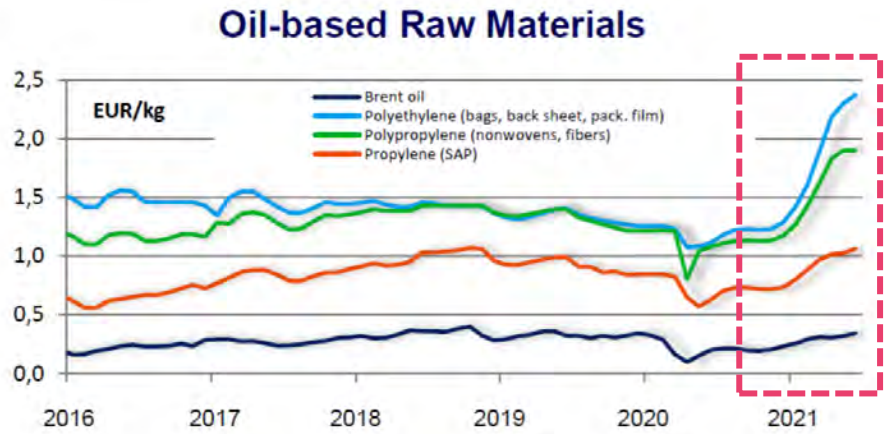


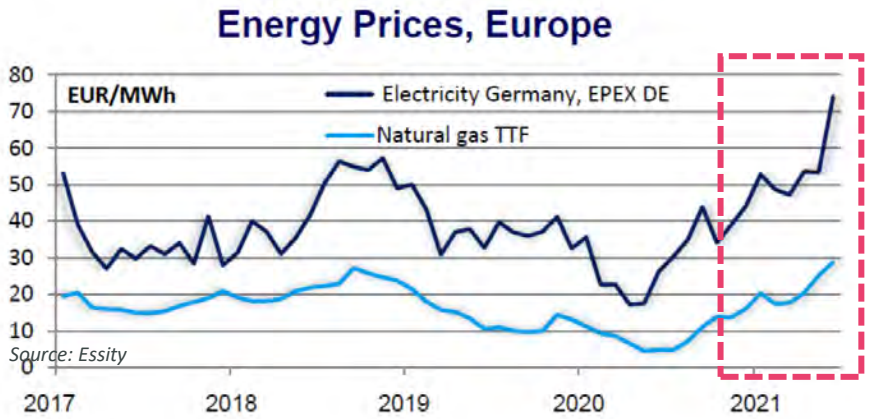
Source: Step Change Consulting. Assessment based on data from major publicly listed companies.

IN 2021, THE SITUATION BEGAN TO SHIFT RAPIDLY WITH THE RAPID INCREASE IN RAW MATERIAL AND ENERGY PRICES

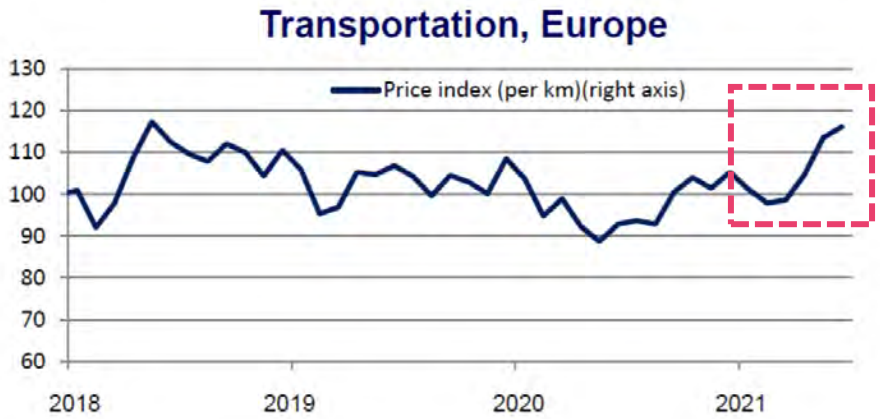
- The rapid increase in the prices of raw material and energy is due to a series of factors:
  - supply disruptions and production volatility as a result of COVID-19.
  - higher carbon emission prices in Europe and long-term impact of declining investments of fossil-fuels.
  - pulp prices sensitive to energy, but the global pulp market has its own dynamic fueling price increases: the continued growth of Chinese industry, China's ban on importing paper waste starting with 2021 and China's increased virgin pulp demand can shift global market dynamics.







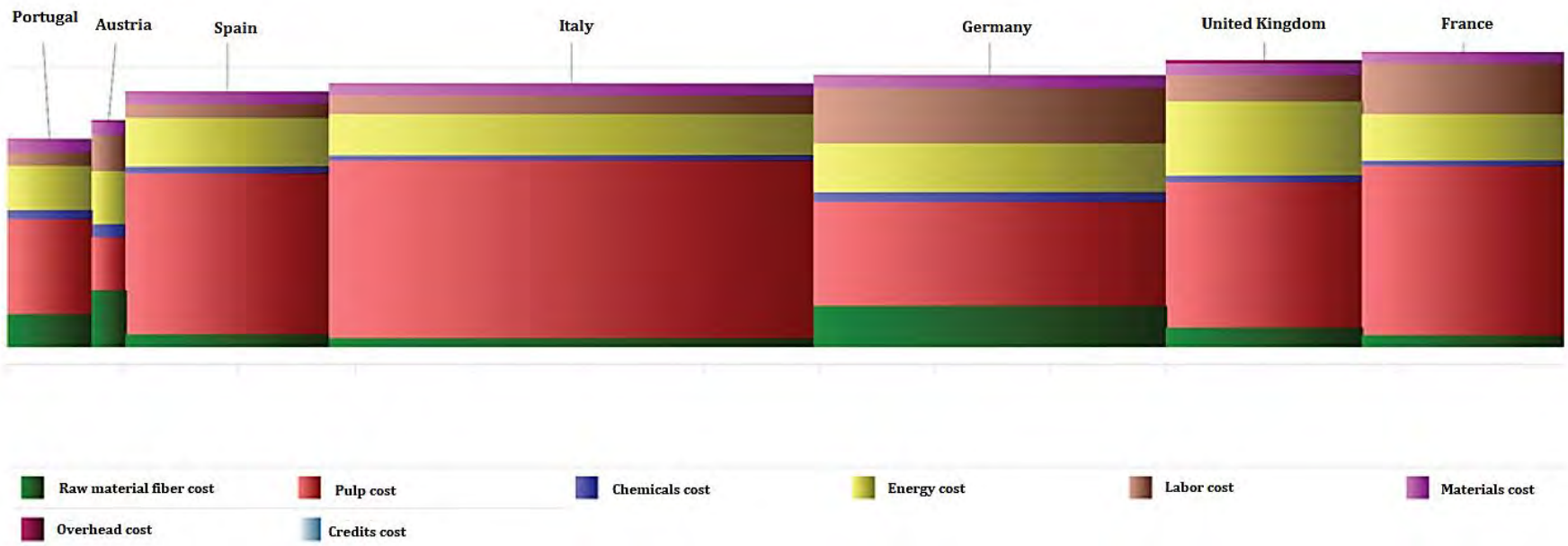
Source: Essity



THE TISSUE INDUSTRY IS MORE SENSITIVE TO INPUT PRICE VOLATILITY THAN OTHER PAPER PRODUCT MANUFACTURING SECTORS

- The weight of raw material (pulp and other fiber) in total production costs varies from around 50% in the Germany tissue industry to 75% in Italy). If we add energy and chemicals, the share of raw material in total cost is considerably higher.
- What is specifically problematic to the tissue industry (in comparison to other paper product industries) is the high share of pulp bought on the market. Such a situation puts additional pressure on total costs if pulp prices increase significantly.

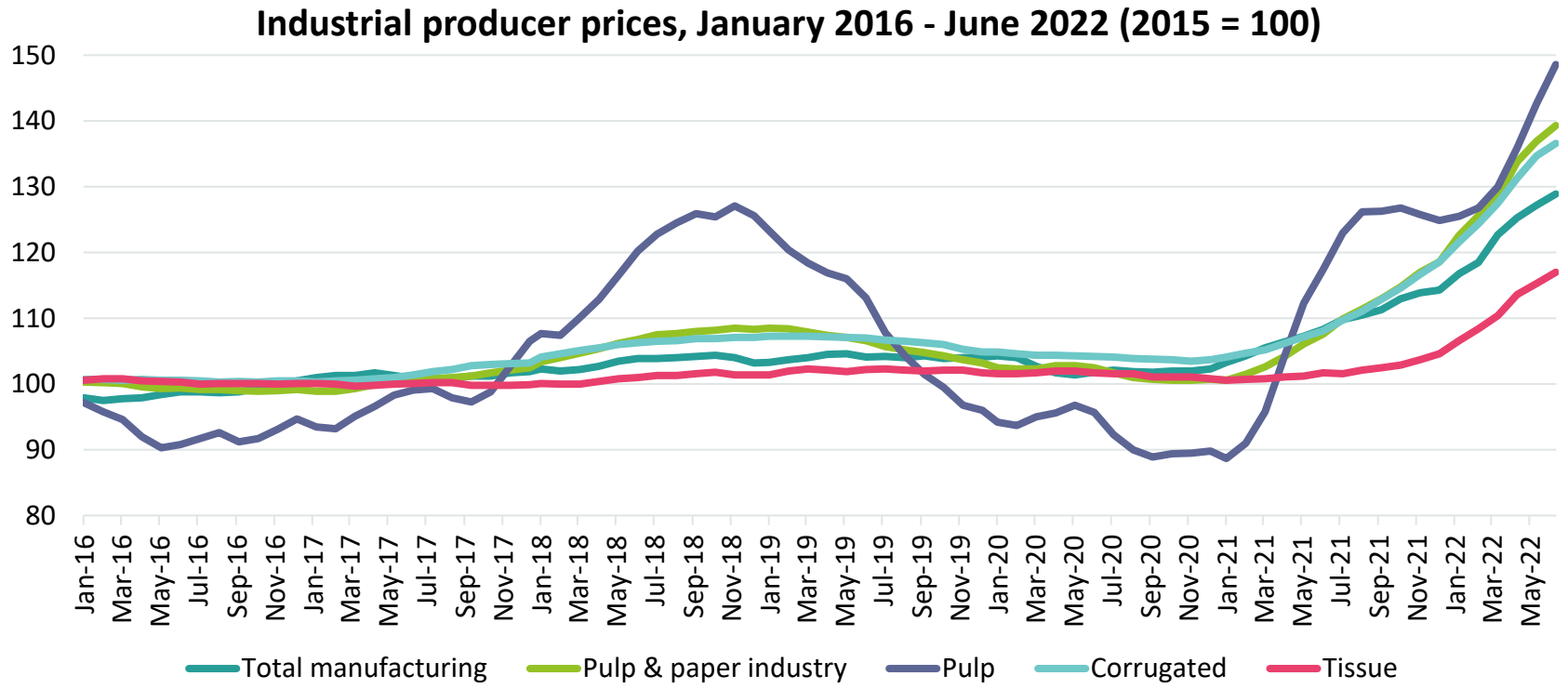
The tissue industry in Europe is highly sensitive to fluctuations of pulp and energy prices



Source: Fisher Solve Next 2020.
Note: Width of bars illustrates size of industry. Height of bars indicates production cost: highest cost country is France lowest-cost is Portugal.

THE INCREASE IN PRICES FOR RAW MATERIAL AND ENERGY ARE NOT EASILY PASSED ON TO CUSTOMERS…

- Producer prices for tissue registered a modest and delayed reaction to the 2018 spike in the price of pulp. By comparison, prices for corrugated packaging increased faster and much more significantly.
- Data covering the period up to June 2022 suggests that this might be structural problem for the tissue industry, with tissue prices once again increasing far less and considerably slower than the price of raw material and than packaging prices.
- For consumer tissue, potential delays in price changes could be explained by longer-term contracts signed with retailers, who in a highly competitive environment are in any case unlikely to be receptive to suppliers' demands for significant price increases. Difficulties in the away-from-home market create further limit tissue manufacturers' pricing power.



Source: Eurostat

…WHICH IS PECULIAR TO THE TISSUE INDUSTRY

- A comparison of Metsa's financial results for paper board and tissue exemplifies the peculiar difficulties the tissue industry is facing due to the combination of higher input costs and depressed demand.
- Metsa's tissue division registered a record operating result in the first quarter of 2020, when demand for tissue products soared. As demand declined after Q1 2020, the operating result returned to a level comparable to the better pre-pandemic quarters, but it declined rapidly in 2021 under the impact of increased input costs and lack of sales recovery.
- By comparison, the operating result of Metsa's packaging division has improved constantly, on the back of demand growth due primarily to e-commerce.

Metsa paper board sales and operating result, EUR million

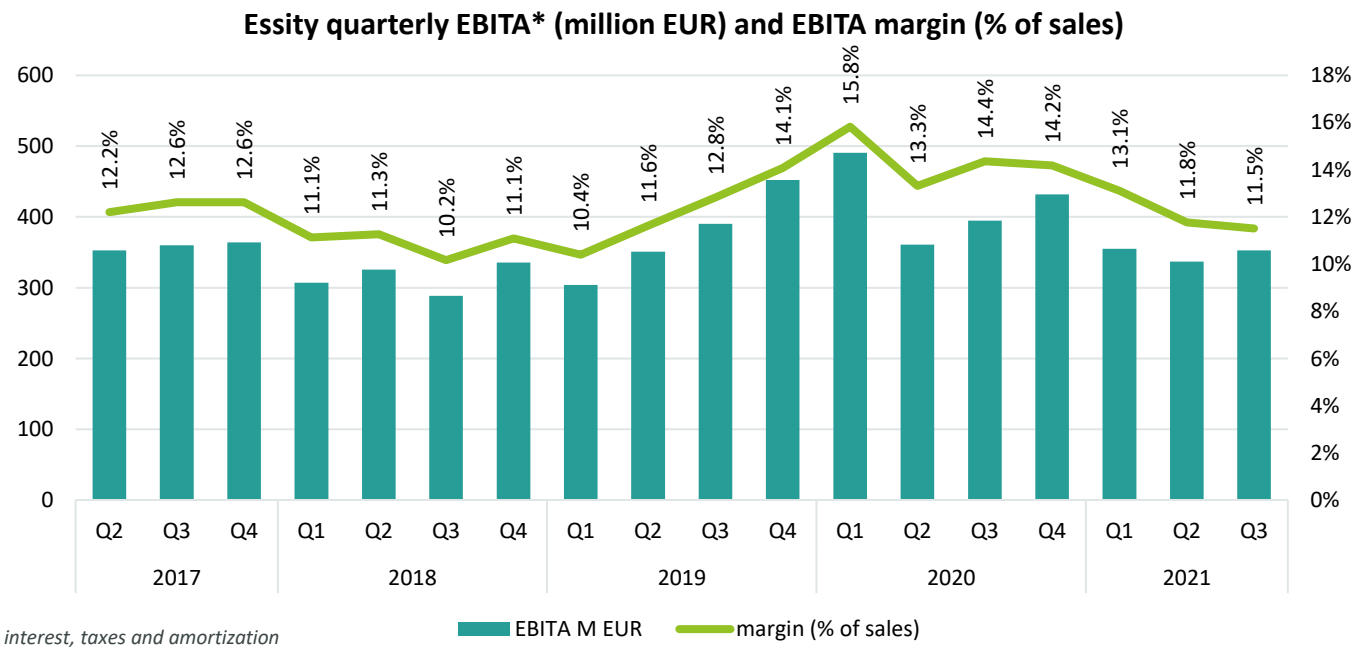
Metsa tissue sales and operating result, EUR million

WHILE COST VOLATILITY ARE AFFECTING ALL COMPANIES IN THE SECTOR, THE IMPLICATIONS ARE NOT THE SAME FOR ALL

- While Essity's profitability has been affected by the increase in input costs, its financial performance in the first three quarters of 2021 was comparable to the pre-pandemic period. In other words, the impact of input costs increases appears to have been limited, at least for the first 9 months of 2021.

- Larger companies are inherently better prepared to deal with surges in raw material and energy costs. Essity, for example, has a far better position in dealing with its suppliers than the other important European tissue manufacturers, who are at least ten times smaller. Furthermore, in the consumer tissue market, the high share of private label in mature consumer markets and the high degree of consolidation among retailers in Europe make it harder for small- and medium-sized tissue manufacturers to negotiate better prices with their customers. Big tissue companies also have a better financial situation and, if needed, can have easier access to financing.

- Input price shocks can offer an unexpected future advantage to large companies. Since smaller companies find it more difficult to address cost increases, they can be forced to reduce or restructure their activity, while also becoming more vulnerable to acquisition by larger competitors. Given the historical heavy reliance on mergers and acquisitions, it should come as no surprise if the current input price crisis serves as a catalyst for the further consolidation of the tissue industry.



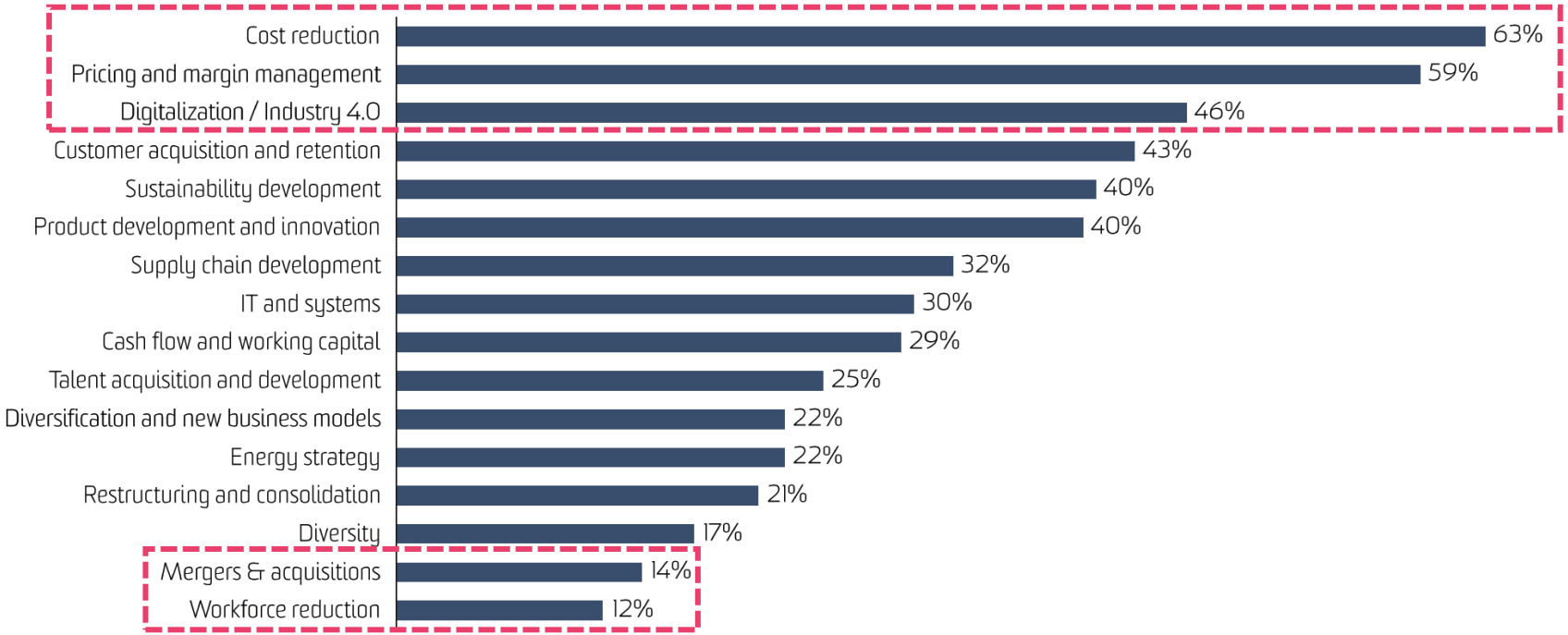
Source: Essity
**EBITA: earnings before interest, taxes and amortization*

COST AND PRICE MANAGEMENT ARE COMPANIES' TOP PRIORITIES

- A recent survey by StepChange covering the paper product industry indicates that cost reduction and pricing are the top priorities for most manufacturers. This has been reinforced by the impact of the pandemic on industrial operations and input cost developments.
- Digitalization is also among the major priorities for employers.
- A minority of companies are actively looking at mergers & acquisitions or workforce reduction.

StepChange 2021 survey covering the tissue, packaging and graphic paper industries

What are your company's current priorities?

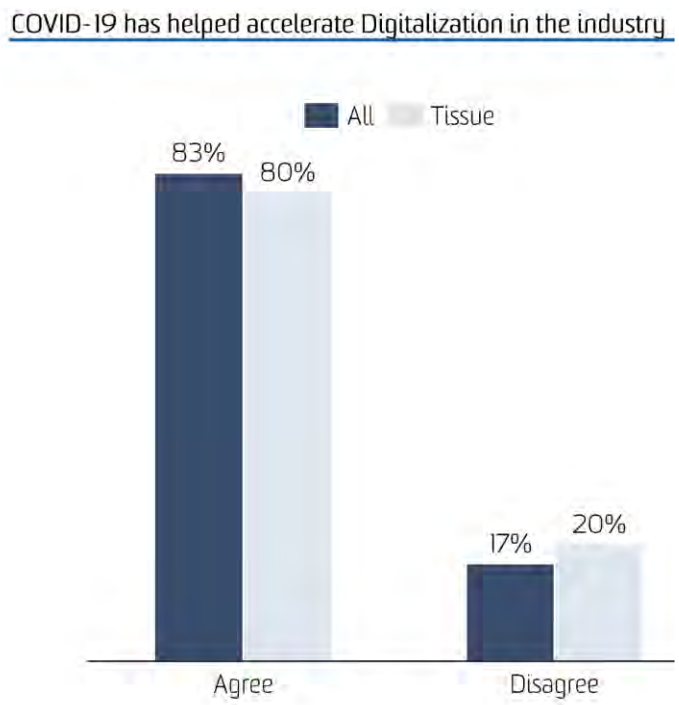


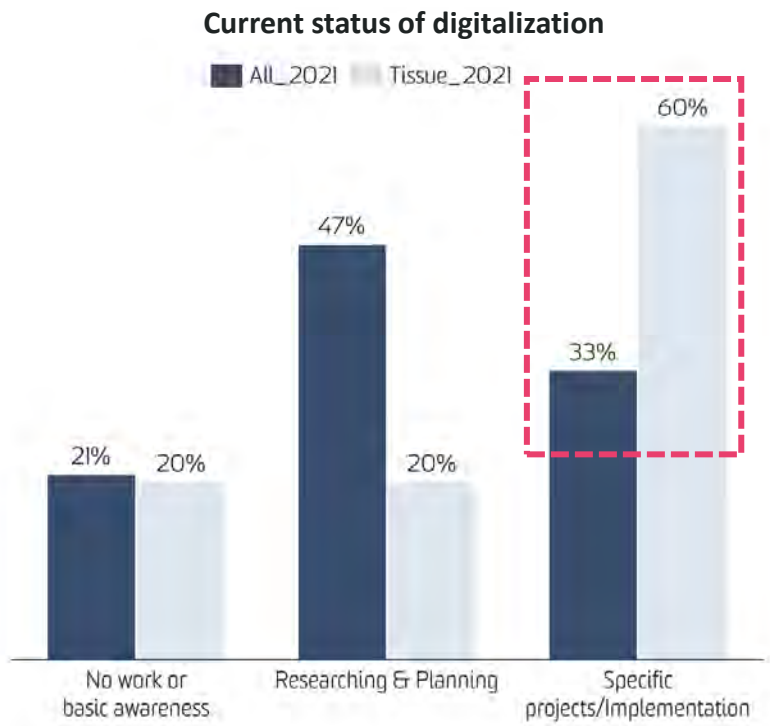
Source: StepChange Consulting. Data from Q2 2021.

COVID-19 HAS ACCELERATED DIGITALIZATION, WITH THE TISSUE INDUSTRY BEING MORE ADVANCED THAN OTHER PAPER PRODUCT INDUSTRIES

- 80% of tissue respondents to the StepChange survey agree that COVID-19 has accelerated digitalization plans in the industry.
- 60% of tissue respondents are already in the implementation stage of their digitalization plans, compared to 33% for the paper product sector overall. The majority of respondents from other paper product industries are still in the research and planning stages.

StepChange 2021 survey covering the tissue, packaging and graphic paper industries



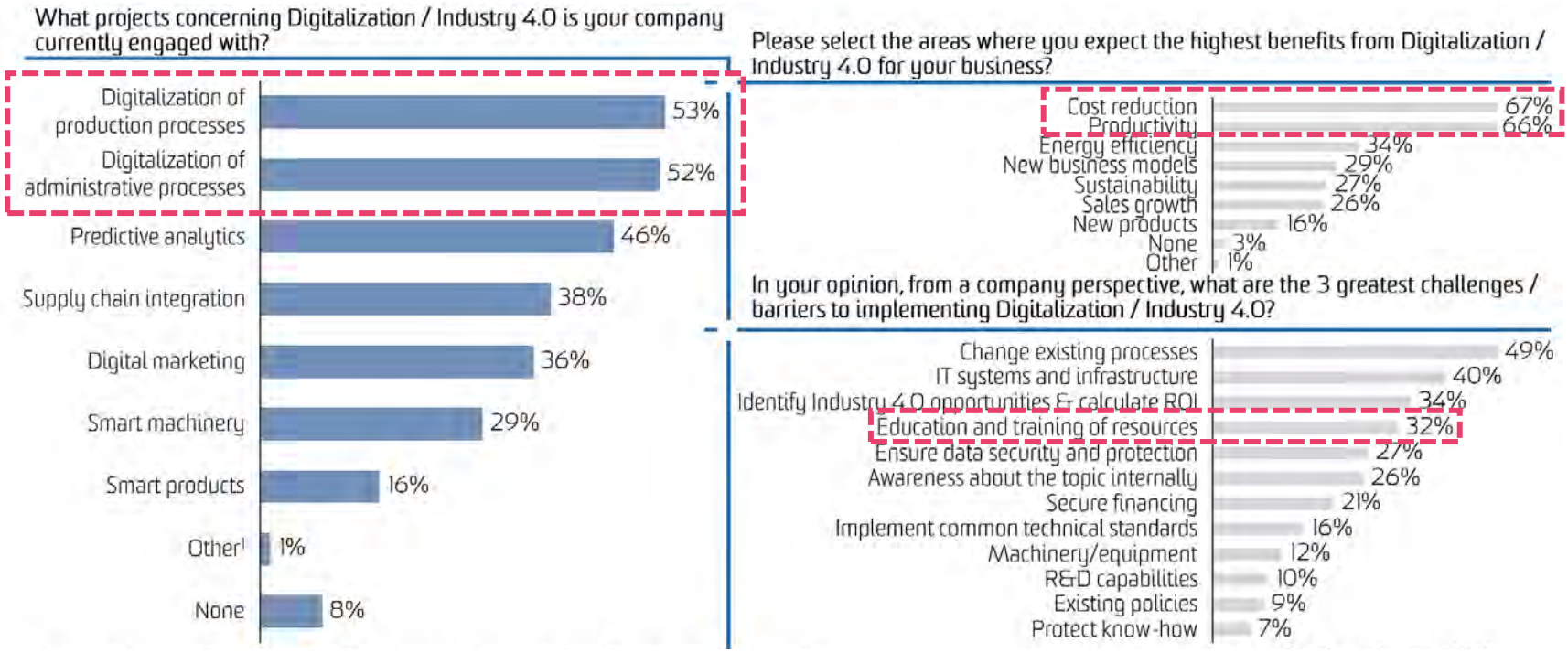


Source: StepChange Consulting. Data from Q2 2021.

DIGITALIZATION IS AIMED PRIMARILY AT REDUCING COSTS. AMONG EMPLOYERS, THERE SEEMS TO BE LIMITED INTEREST IN WORKFORCE SKILL DEVELOPMENT…

- Over half of the respondents to the StepChange survey indicated that ongoing projects target production and administrative processes, which are the primary targets for digitalization.
- Growing interest in digitalization is likely due to increased pressure to reduce cost. Two thirds of respondents to the StepChange survey indicated they expect digitalization to result in significant benefits for cost reduction and productivity. Only one third indicated that energy efficiency could also benefit from the increased use of digital technology.
- Only a third of respondents indicated that workforce skills are a significant challenge in the context of digitalization.

StepChange 2021 survey covering the tissue, packaging and graphic paper industries

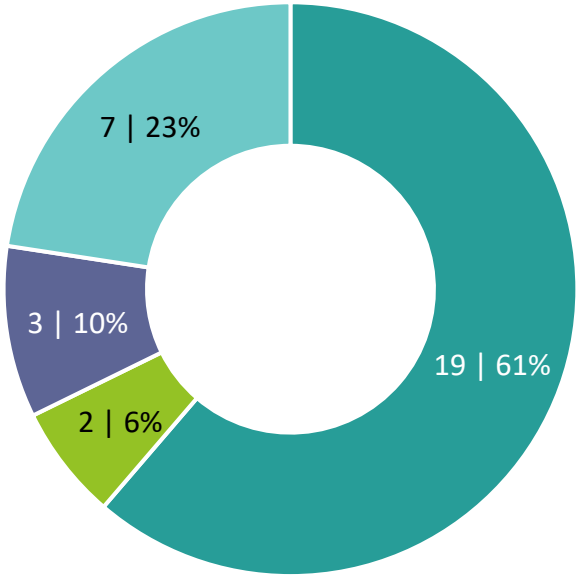


Source: StepChange Consulting
Data from Q2 2021, survey covering the tissue, packaging and graphic paper industries.

… ALTHOUGH TRADE UNIONS HIGHLIGHT THAT DIGITALIZATION IS ALREADY HAVING A SIGNIFICANT IMPACT ON WORK AND SKILL REQUIREMENTS

Results of 2021 Packaging & Tissue Survey

Perceived impact of digitalisation



Significant Minimal None NA

Skills demand

Increasing	Decreasing
highly skilled , experienced, adaptable personnel	lower skilled jobs
IT	printing (non-printing is in demand)
process technology	support workers
technicians	office workers
R&D	administrative and other workers
machine operators	warehouse, sales
graphic specialists	simple activities, sales
engineers	single skilled people
manual workers	assistants
technically trained (digitalization)	auxiliary workers
machine operators with maintenance skills	low-paid jobs
factory and office workers	manual labor
technicians, operators	

IN CONTRAST TO PACKAGING, THE ROLE OF E-COMMERCE FOR TISSUE IS LIMITED

- COVID-19 has accelerated pre-pandemic transformations in grocery retail, notably the development of e-commerce. In Europe, the most advanced country in this respect is the UK, with an e-commerce 11.2% market share in the grocery market, but France (8.3%), Sweden (6.6%) or the Netherlands (6.4%) are not that far behind and are catching up fast (doubling of online grocery sales in Sweden in 2020 vs. 2019, +41.9% in France, + 55.9% in the Netherlands).

- In the short- and medium-term, the relevance of these developments for the consumer tissue market is limited. Even though Essity reported a 14% share of e-commerce in total sales for the first 9 months of 2021 (up from 10% in 2019), low-priced and low-margin products like consumer tissue are difficult to sell online due to the still underperforming cost structure of grocery e-commerce and the pressure of retailers to keep prices as low as possible. More high-margin non-tissue products can absorb the additional costs more easily. In the absence of significant cost improvements for grocery e-commerce (and a major shift in consumer behavior), it is unlikely that e-commerce will take up a substantial share of the consumer tissue market any time soon.

- The most significant change in the consumer tissue market remains the continued advance of discounters and private label products, which has been catalyzed by COVID-19. For tissue manufactures, this involves not just a need to readjust portfolios, but also significant challenges for pricing power and cost management.

Developments in the food retail market in Europe (% 2020 vs. 2019; online market share as % 2020)

		Germany	United Kingdom	Netherlands	France	Spain	Italy	Portugal	Sweden	Czechia	Poland	Russia	Weighted average
food market - segment growth	foodservice	-28.5	-47.7	N/A/	-30.6	-42.7	-31.2	-36.2	-18.4	-27.1	-14.5	N/A	-34
	grocery retail	12.3	13.1	9.6	7.7	13.8	10	13.3	15.8	8.4	6.7	4.8	10.4
	modern retail	12.6	13.6	9.5	8.4	13.6	12.9	13.2	15.4	9.9	10.4	8.2	11.5
	other formats	11.2	10.3	10.4	1.4	14.3	0.6	14.1	20.4	4.2	0.4	-0.3	7.2
grocery retail revenue growth	total	12.6	13.6	9.5	8.4	13.6	12.9	13.4	15.4	10.1	10.5	8.3	11.6
	hypermarket	9.9	4.4	N/A	3.4	7.9	-2.7	N/A	7.6	8	-6.7	-5.6	3.3
	supermarket	16.7	9.6	7	9.8	13.6	12.2	11.1	12.3	7.8	16.5	-0.4	10.6
	discounter	8.9	12.2	6.5	7.5	12.9	19.5	16.1	16.3	13.3	13.6	14.4	11.9
	online	39.9	66.7	55.9	41.9	63.2	62.4	58.6	101.1	17.7	55.2	50.9	53.9
grocery retail price and volume growth	volume	6.6	10.2	4.5	7.9	11.3	6.6	12.1	14.1	4.4	2.6	4.2	7.5
	basket size	5.5	26.4	8.4	13.1	14.4	11.7	12.6	12.7	9.9	18.9	8.5	16.3
	frequency	1	-12.8	-3.6	-4.6	-2.7	-4.6	-0.4	1.2	-5	-13.7	-4	-4.8
	price	2.6	1	2.1	2.1	2.6	1.6	2.1	2.3	4.7	5.1	3.5	2.4
online channel market share		2.5	11.2	6.4	8.3	2.6	3.1	3.5	6.6	3.8	1.6	3.6	5.3
private label share	2020	32.4	49.6	42.6	35.2	25.7	28	37.5	23.3	24.2	19.3	5.1	24.4
	vs. 2019	-0.6	-0.6	-0.5	0.5	0.3	1.1	1.5	1.4	1.7	0.9	0.7	0.2

Source: McKinsey, Disruption & uncertainty: the state of grocery retail in Europe 2021

COVID-19 IMPACT: SUMMARY

Overall, COVID-19 has had an ambivalent impact on the tissue industry: a short-term combination of surging consumer demand and cost decrease was followed by weak recovery and rapid increases of main input costs.

Away-from-Home market collapsed due to restrictions. The market is expected to recover only in the medium-term.

Initial surge in demand for consumer tissue proved temporary and insufficient to compensate for AfH decline beyond the immediate short-term.

Price surges for pulp and energy have a strong negative impact operating margins of tissue companies

- According to interview data, tissue prices might require a 20%-30% increase in 2022 to compensate for price surges in pulp.
- Historically, tissue prices have been far less responsive to the increase in the cost of raw material than packaging prices.

The pandemic has accelerated companies' digitalization plans. Cost reduction and productivity increases are the main objectives, with limited interest in workforce re/upskilling.

E-commerce tissue sales have grown during the pandemic, but offline retail will remain the main distribution channel for consumer tissue products.

#2.2 SUSTAINABILITY

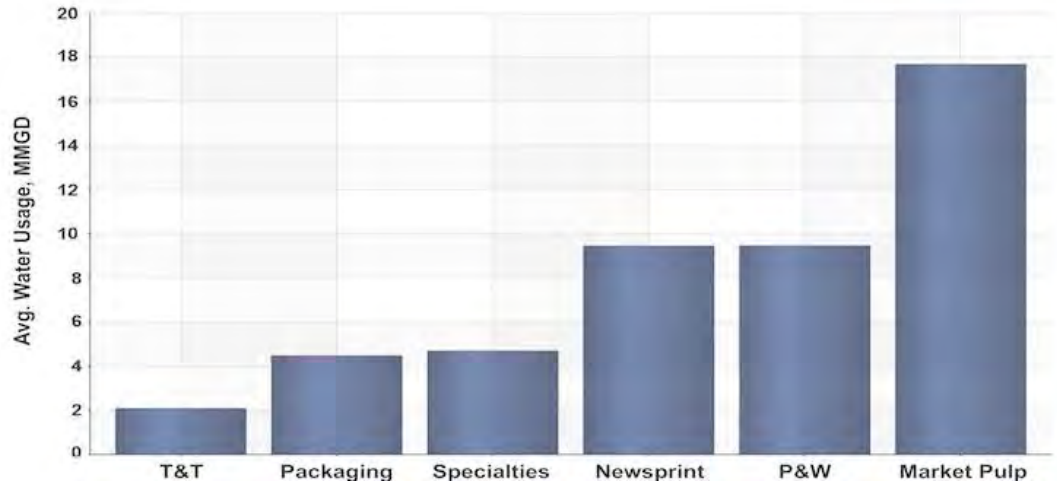
EU REGULATIONS REINFORCE SUSTAINABILITY IMPERATIVES

- European Green Deal policies with impact on the paper and board industry: the Circular economy action plan, Sustainable products initiative, the New Forest Strategy, the Biodiversity Strategy.
- European Green Deal objectives with impact for the paper and board industry:
  - 55% reduction of greenhouse gas net emissions by 2030 (vs. 1990 emission levels)
  - zero greenhouse gas net emissions by 2050
  - increased energy efficiency and renewable sources for energy
  - decarbonisation of the gas sector
  - 85% recycling rate for paper and board packaging by 2030
  - 55% recycling rate for plastic packaging
  - end-of-waste status for paper-based products
- 2050 forest industry targets vis-à-vis the European Green Deal:
  - decarbonisation: increasing the use of green chemicals and composites, increasing the use of renewable energy and improved energy efficiency
  - 70% recycling rate for the whole industry
  - 30% increase in the share of responsibly sourced raw material

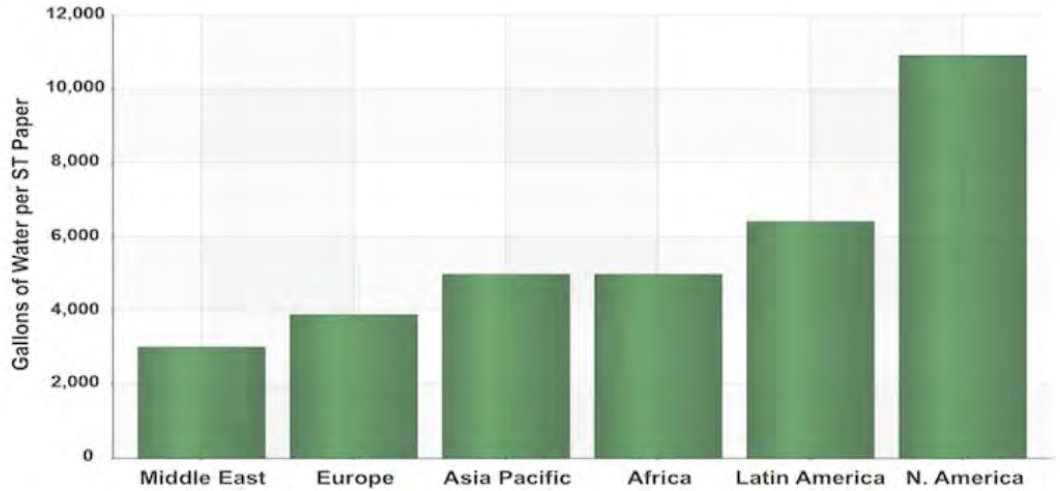
TISSUE USES THE LEAST WATER IN THE PAPER & PULP INDUSTRY…

- The direct consumption of water for the tissue industry is far lower than for all other paper products, including packaging.
- However, the tissue industry uses primarily market pulp as raw material, the production of which requires large quantities of water. If we include both direct and indirect water usage, the consumption of water for tissue production is much higher.
- European tissue mills are comparatively efficient when it comes to water consumption, especially in comparison to North American ones. This is not necessarily due to newer machinery used in Europe vs. the US, but rather to a long-standing interest in reducing water consumption in production.

Global water usage by product grade 2017 (million gallons per day)



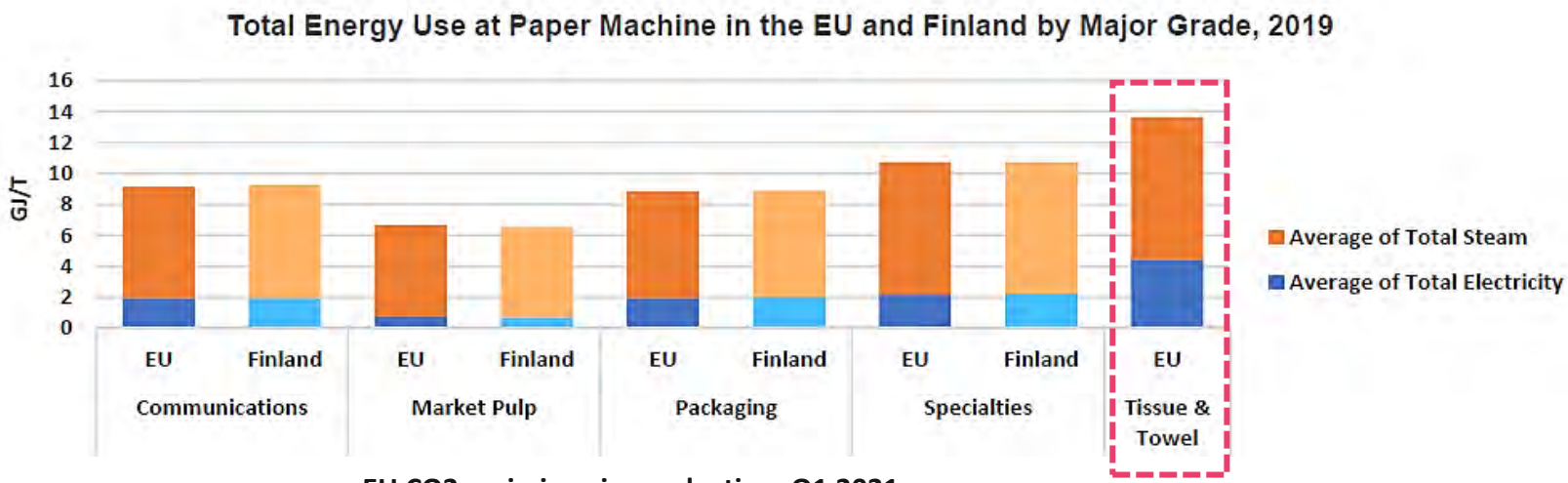
Water usage in tissue mills by region 2017 (gallons of water / short ton of paper)

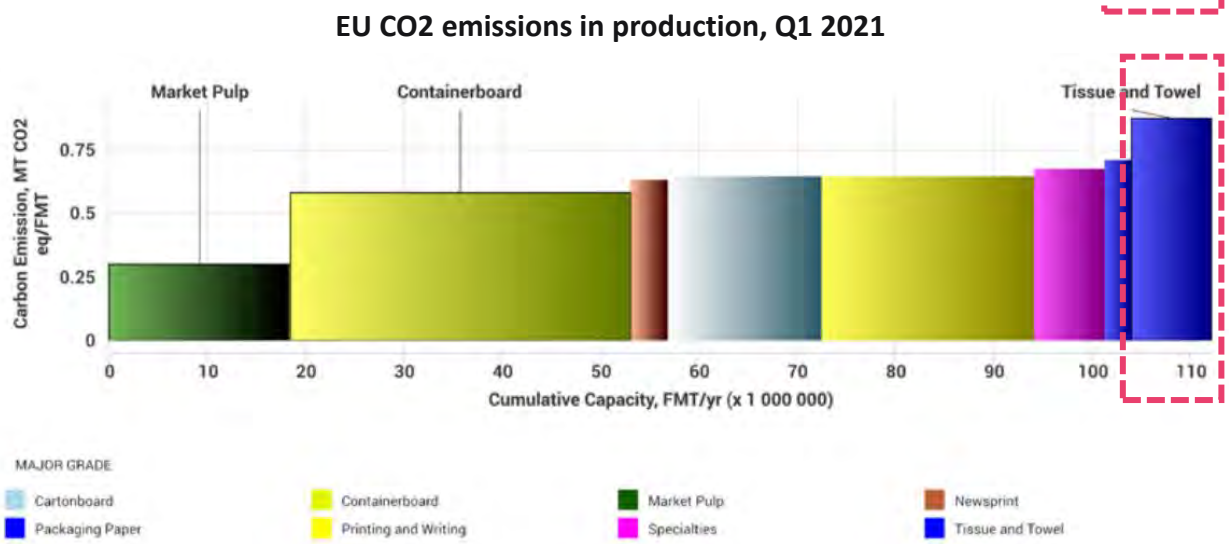


Source: Fisher International
T&T = "tissue and towel"

...BUT THE EMISSIONS CHALLENGE IS MORE DIFFICULT FOR TISSUE THAN FOR OTHER PAPER PRODUCT INDUSTRIES

- On average, tissue production uses considerably more electricity and more steam (heat) than all other sectors of the pulp and paper industry. While this renders tissue manufacturers more vulnerable to spikes in energy prices, it also means that the sustainability challenge of reducing emissions is more difficult than it is for packaging or graphic paper.

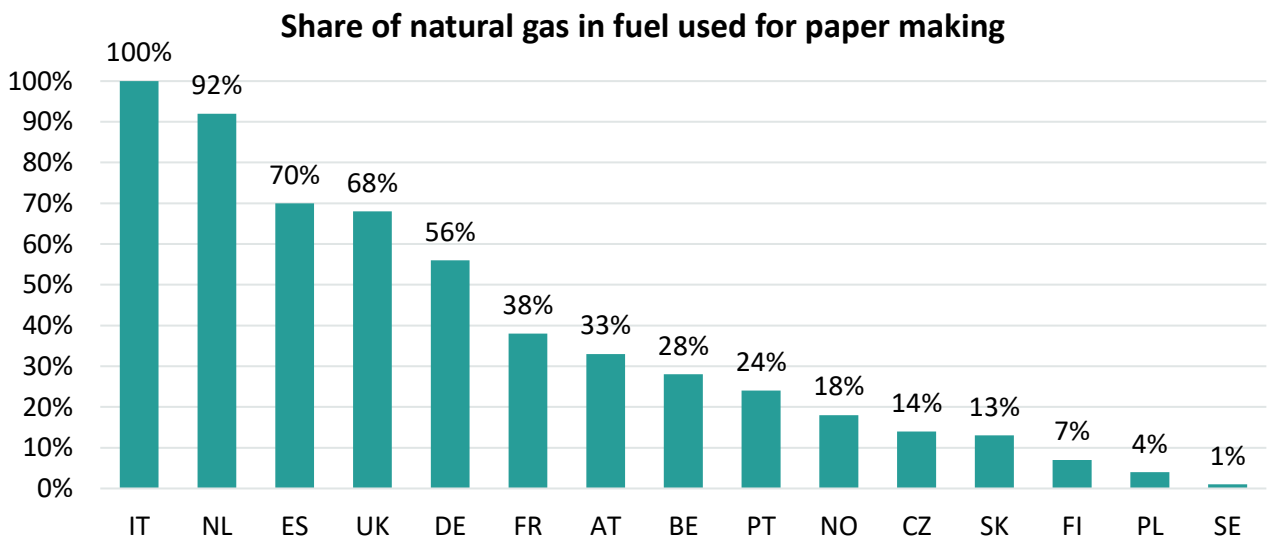




Source: Fisher International

DIFFICULTIES IN REDUCING EMISSIONS VARY FROM COUNTRY TO COUNTRY

- Tissue manufacturers rely on different mix of energy sources depending on their location and national energy mixes.
- National industries that are highly dependent on fossil fuels will find it more difficult to reduce emissions. In countries like Italy, which concentrates a considerable part of the European tissue industry, the challenge is huge, since the entire manufacturing sector has historically developed with natural gas as the primary (oftentimes the only) energy source.
- In such a context, replacing natural gas with renewables is far from simple. Local investment in renewable sources of energy cannot fully replace fossil fuels, since the amount and constancy of energy required in production cannot typically be supplied by small scale renewable infrastructures.

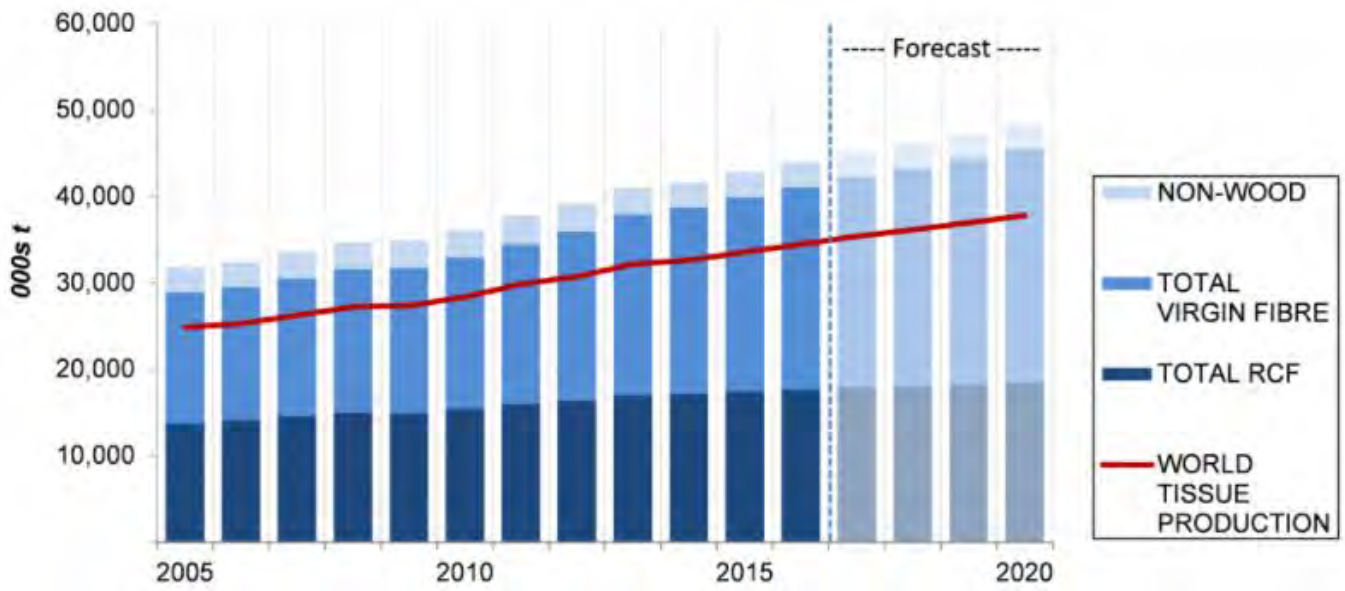


Source: Assocarta 2021

THE TISSUE INDUSTRY IS A LAGGARD WHEN IT COMES TO THE USE OF RECYCLED RAW MATERIAL

- Globally, the growth of the global tissue industry during the past two decades has been based primarily on the use of virgin pulp, with the share of recycled fiber in tissue manufacturing declining constantly.
- There are obstacles to increasing the content of recycled fiber in tissue production on both the supply and the demand side:
  - On the supply side, the tissue industry typically uses high-quality recycled fiber from graphic paper. The constant decline of graphic paper use over the years has created supply difficulties.
  - On the demand side, the tissue industry has constantly expanded the range and quality of products — an important tendency has been the promotion of ever softer and whiter products). Consumer preferences cultivated by the industry over time are now difficult to change.

Fiber sources for the global tissue industry



Source: Tissue Story, Hawkins Wright Research

THE EUROPEAN TISSUE HAS BEEN RAPIDLY MOVING AWAY FROM RECYCLED RAW MATERIAL

- In 2020, the recycled paper utilization rate (the rate of recycled paper use to total production) in the tissue industry was of just 33.8%, compared to 75.1% for packaging and paper board and 56.3% for the paper industry overall.
- The use of recycled paper saw a very steep decline vs. 2010, when the recycled paper utilization rate for the tissue industry was just above 50%. In 2020, the tissue industry used 5.7% of the total recycled paper used in the European paper industry, down from 6.9% in 2010.
- Though the use of recycled paper in graphic paper production also decreased, the decline is much smaller (from 28.9% to 27.6% utilization rate) and happened in a context of strong decrease of total production volumes (from 44.1MT in 2010 to 23.8MT in 2020) that disproportionately affected segments that were primarily using recycled paper, such as newsprint. For the tissue industry the situation is very different, as it has grown constantly across its entire product range.

Use of recycled paper in the European paper product industry, 2020 vs. 2010

	total production (MT)		total use of paper for recycling (MT)		recycled paper by sector (% of total recycled paper used)		utilization rate (% recycled of total production)	
	2010	2020	2010	2020	2010	2020	2010	2020
tissue	6.7	8	3.4	2.7	6.9%	5.7%	50.2%	33.8%
graphic paper	44.1	23.8	12.7	6.6	26%	13.7%	28.9%	27.6%
packaging and paper board	41.5	49.6	31.2	37.3	63.8%	77.7%	75.3%	75.1%
other	4.3	3.8	1.6	1.4	3.4%	3%	38.7%	37.3%
TOTAL	96.5	85.2	49	48	100%	100%	50.7%	56.3%

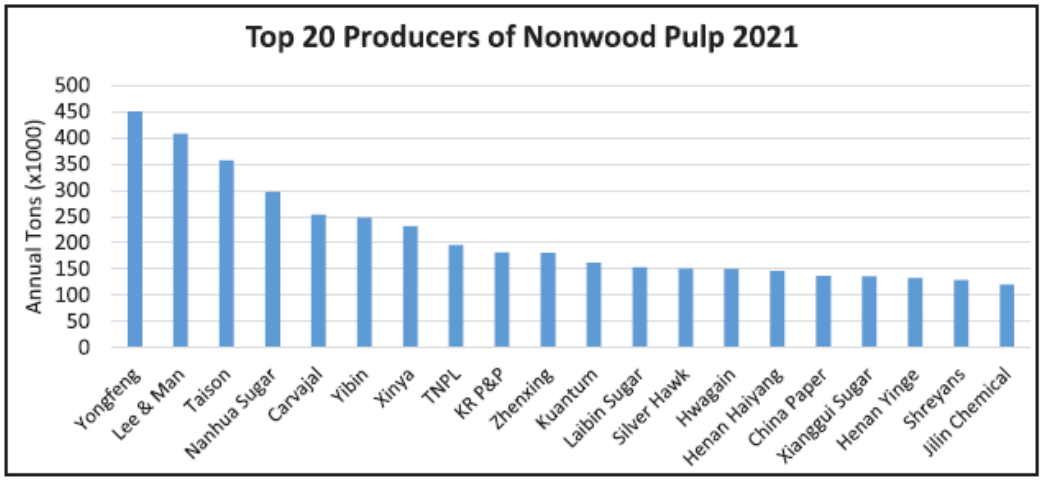
Source: CEPI

SUSTAINABILITY IMPERATIVES HAVE RENEWED INTEREST IN NON-WOOD FIBERS FOR TISSUE PRODUCTION

- Alternative non-wood fibers currently used in tissue production include bamboo, bagasse, hemp, wheat straw, flax, and reed.
- Historically, production of non-wood pulp has been concentrated in Asia, but recently there has been renewed interest in investing in non-wood pulp production capacities across the globe.
- Large manufacturers have dedicated R&D projects to test the potential of additional alternative fibers like coca, coffee, hazelnuts as well as nanofibers from modified algae to produce tissue and hygiene products.
- In 2015, Kimberly-Clark launched tissue products for the away-from-home market segment that incorporate up to 20% bamboo and wheat straw fiber. In 2021, the company launched toilet paper made 100% from bamboo for the Australian market.
- There are currently several toilet paper start-ups that use bamboo as their main raw material.

Non-wood pulp production capacity

Region	2015 non-wood capacity ('000 tons)	2020 non-wood capacity ('000 tons)	growth 2020 vs. 2015	announced non-wood capacity 2020-2025 ('000 tons	growth 2020-2025
GLOBAL	8156	7760	-4.9%	3345	43.1%
Asia-Pacific	7009	6716	-4.2%	2960	44.1%
Europe, the Middle East and Africa	568	547	-3.8%	35	6.4%
North America	9	44	398.9%	350	788.3%
Latin America	570	452	-20.6%	-	-



Source: Fisher International (2021)

ESSITY INVESTS IN STRAW AS AN ALTERNATIVE FIBER IN EUROPE

- In 2019, Essity announced a ≈€40M investment to produce toilet paper from wheat straw pulp at its plant in Mannheim (Germany), which has become the first European tissue production facility to produce toilet paper from alternative fiber at an industrial scale. Production started in in 2021.

- Initial production capacity is of 35k tons/year, using 70k tons of straw. The total capacity of the Mannheim plant is 283k tons/year, the largest Essity plant in Europe.

- Wheat straw is considered an abundant and cheap agricultural waste. The company claims tissue production out of wheat straw will bring a significant reduction in the usage of water, energy and chemicals and that pulping by-products can be used as substitutes for chemicals used in tissue manufacturing.

- In December 2021, Essity secured a €300M loan agreement with the European Investment Bank for investments related to sustainability.

- Essity's size allows it to pursue such large-scale investments and financing schemes. Given their considerably smaller size, other European manufacturers might find it much more difficult to do the same.

Essity straw pulp factory in Mannheim

Source: Essity

OVERVIEW OF SUSTAINABILITY GOALS AND ACTIONS OF MAJOR TISSUE COMPANIES IN EUROPE

Company	Objectives	Investments in energy efficiency and CO2 reduction	Product sustainability & diversification
ESSITY	Emissions reduction: by 35% (Scope 1 and Scope 2) and by 18% (Scope 3) by 2030. Packaging: 100% recyclability of packaging and 25% recycled plastic in packaging by 2025.	Green hydrogen replacing natural gas at the largest production site in Mainz-Kostheim, Germany. Installation of geothermal steam drying process at the production facility in Kawerau, New Zealand.	Launch of wheat straw as alternative fibre to be used on an industrial scale in the production of toilet paper in Europe. Launch of washable absorbent underwear. Launch of incontinence products with reusable digital sensor. Launch of baby diapers in packaging that uses 50% renewable material. Launch of toilet paper, handkerchiefs and facial tissues free from allergens, dyes and added fragrances.
KIMBERLY-CLARK	Emissions' reduction: by 50% (Scope 1 and Scope 2) and by 20% (Scope 3) by 2030. Natural forest fibres reduction: by 50% until 2025 through increased use of recycled fibres, sustainable alternative non-wood fibres, and FSC certified virgin wood fibres. Water footprint reduction: by 50% in water-stressed areas. Packaging: 50% reduction of plastics footprint by 2030.	Agreement for the construction of a wind farm to turn all electrical power consumption in the UK mills renewable.	Launch of handkerchiefs with decongestant natural extracts of eucalyptus and mint. Launch of toilet paper made of 100% FSC-certified bamboo.
SOFIDEL	Emissions' reduction: by 40% (Scope 1, Scope 2 and Scope 3 related to supplier's pulp operations) and 24% per metric ton of paper by 2030. Packaging: 50% reduction of conventional plastics by 2030.	Renewable bio-syngas generation plant at the Kisa site in Sweden. Wind farm green electricity produced in Sicily to be used in tissue production facility.	Lauch of professional use hand sanitisers to complement hygiene needs in the Away for Home market segment. Launch of products with antibacterial active ingredients: "door-opener" paper towel and facial tissues treated with UV light. Launch of toilet paper and kitchen towel with kraft paper packaging.
METSA TISSUE	Emissions' reduction: Fossil free mills by 2030. Energy usage: 25% energy efficiency improvement by 2030. Reduction of process water reduction used by m3/tonne : 25% by 2030.	Upcoming biopower plant at the Katrinefors mill in Sweden which will secure 90% of the town's annual district heating needs and reduces oil usage at the Metsä Tissue Katrinefors mill by as much as 90%. Upcoming biopower plant at Kemi pulp mill in Finland (2023). 15,000 people employable in the construction phase; 250 new jobs at the Kemi pulp mill after construction is completed; 1,500 new jobs across the direct value chain in Finland upon completion of project)	Launches of home towel household sheets.
WEPA	Plans to increase the share of recycled and innovative alternative fibers up to 60% of the fiber mix by 2030.	Construction of a high-efficiency combined heat, power and cooling plant in connection with a district heating and cooling network to supply users outside the perimeter of the paper mill in Cassino, Italy. Solar energy upgrade at the Salanetti plant in Italy.	Launch of hand sanitisers to complement hygiene needs in the Consumer Tissue market segment.
IC TRONCHETTI		Upcoming 50-acre state of the art integrated tissue plant in Deeside, Wales, UK.	
Lucart	Packaging: 100% reusable, compostable and/or recyclable by 2030.	Installation of high-efficiency cogeneration plant at the production facility in Porcari, Italy. Two dry section rebuilds at the tissue mill in Diecimo, Italy.	Launch of tissue products made by recycled cellulose fibers found in beverage cartons. Internal recycling of plastic packaging.

SUSTAINABILITY: SUMMARY

Within the paper products industry, the tissue sector faces a particularly difficult sustainability challenge due to the relatively high consumption of energy and, consequently, relatively poor emissions performance.

While leading European tissue manufacturers are considering using renewable energy sources such as green hydrogen, advanced biofuels, solar and wind energy, the energy transition is complicated by the high degree of geographical dispersal of the industry and the high dependence on fossil fuels in core countries such as Italy.

In terms of raw material, over time the industry has moved away from the use of recycled paper due to both supply- and demand-side constraints.

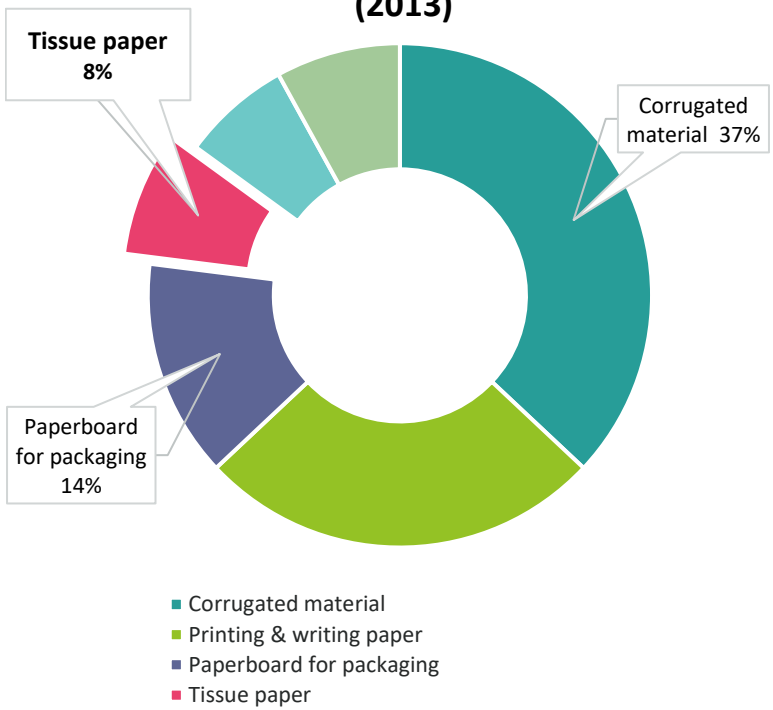
Companies are exploring the potential of alternative non-wood fibers for tissue production, but the industrialization of these solutions is costly and is currently available primarily to large companies. More generally, the investment efforts tied to sustainability could further widen the gap between large and small companies.

#3 GLOBAL UPDATE ON THE TISSUE SECTOR

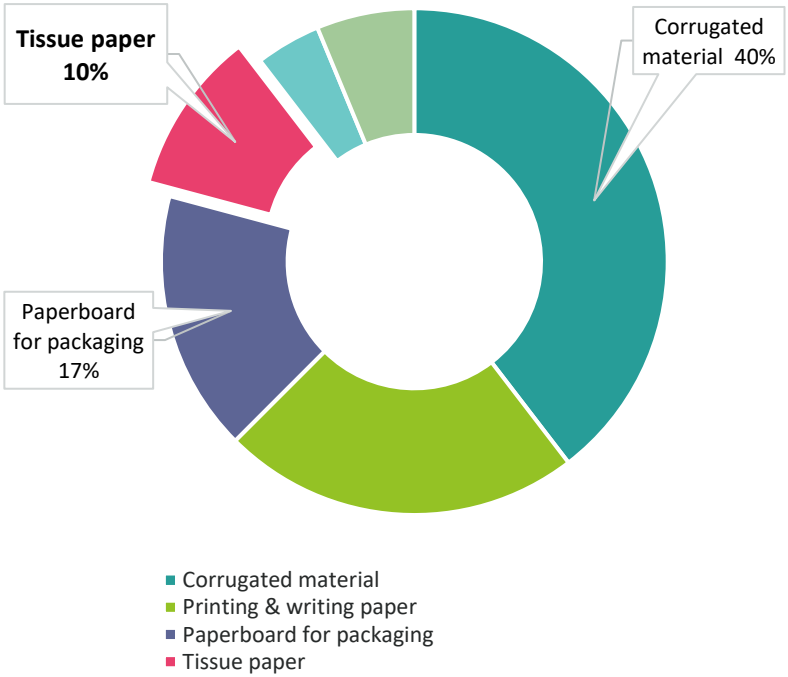
A RELATIVELY SMALL, BUT GROWING PART OF THE GLOBAL PAPER INDUSTRY

- In 2019, tissue accounted for **10% of the global paper production**, compared to 57% for packaging (40% corrugated + 17% other) and 26% for graphic paper (22% printing & writing paper + 4% newsprint).
- Global production volumes for tissue paper have registered **slow but stable growth (8% in 2013)**, in contrast to explosive growth for packaging (51% in 2013: 37% corrugated + 14% other) and significant decline for graphic paper (33% in 2013: 26% printing & writing paper + 7% newsprint).

Global paper production by grade (2013)



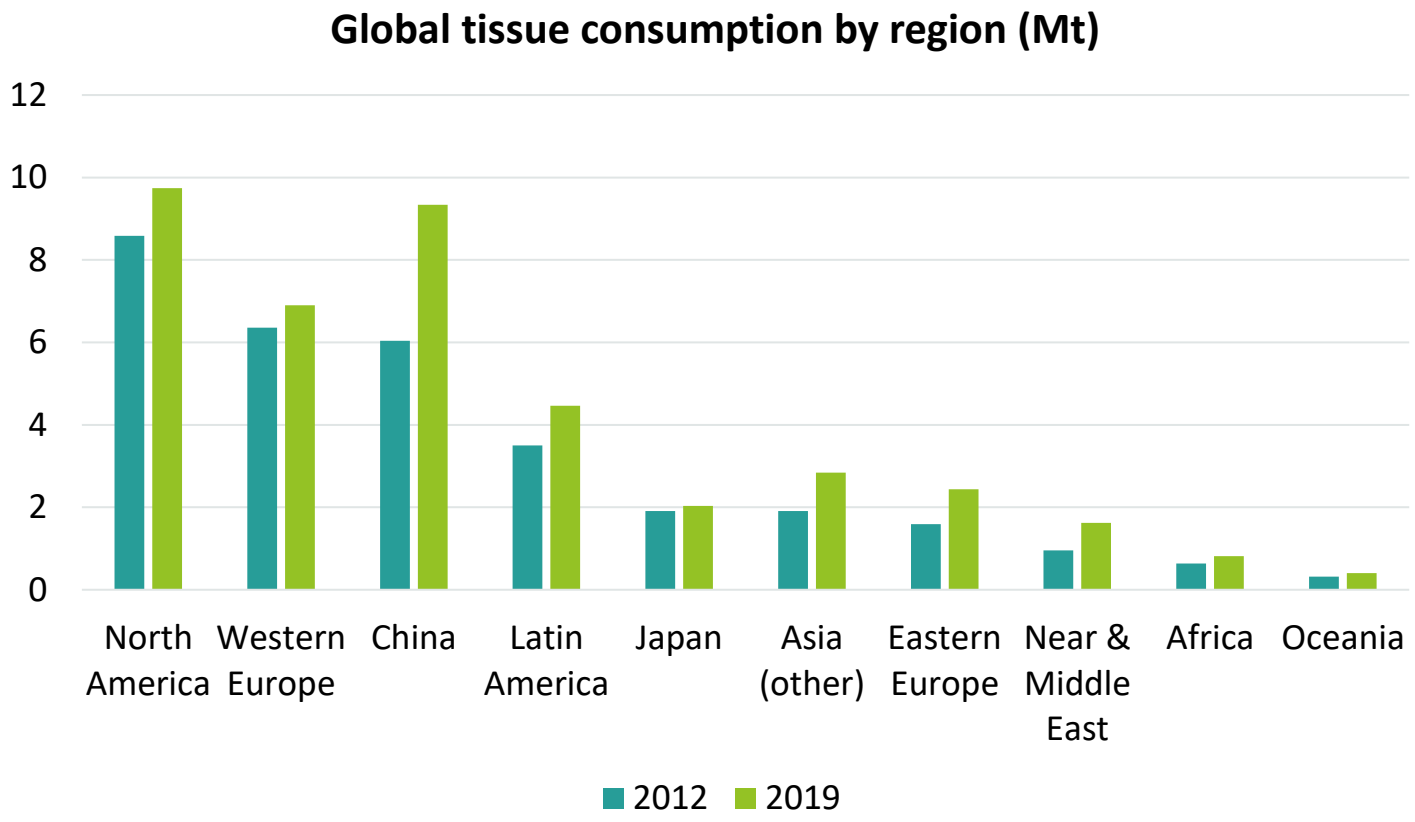
Global paper production by grade (2019)



Source: Swedish Forest Industries Association (2013), FAOSTAT (2019)

OVER THE PAST DECADE, CHINA WAS THE MOST DYNAMIC MARKET

- In 2019, the Chinese tissue market comprised almost one fourth of the global market, compared to less than one fifth in 2012. The rapid rise of the Chinese market has eclipsed a slowly growing Western European market and is bound to surpass the North American market in the foreseeable future.
- Markets in other Asian countries, Eastern Europe and Latin America are also growing, but they are dwarfed by mature markets in North America and Europe

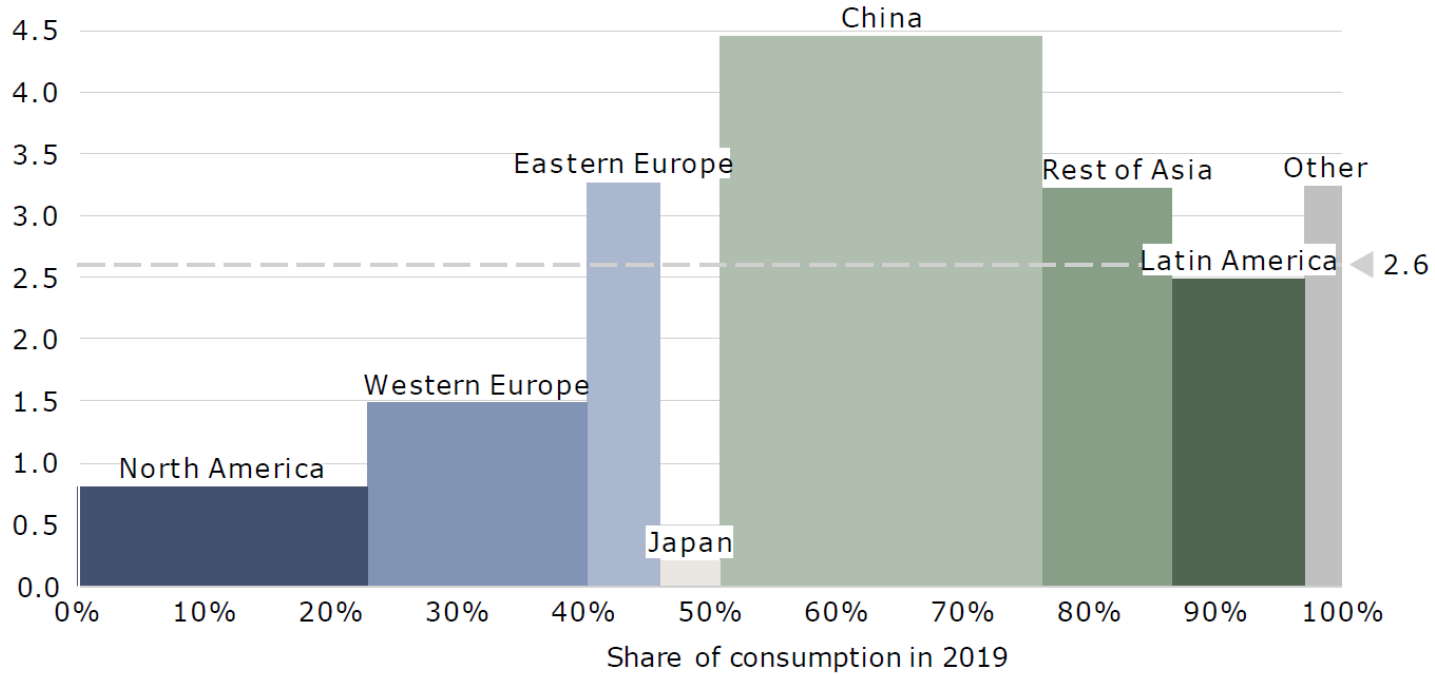


Source: Fastmarkets RISI

THE CHINESE MARKET IS EXPECTED TO CONTINUE TO GROW AT A MUCH FASTER PACE THAN ALL OTHER REGIONS

- North America and Western Europe to continue seeing limited growth.
- Significant growth expected in all other regions. China is exceptional given its already high share of global demand.

Global long-term tissue demand outlook, 2019-2035 (% per year on average)

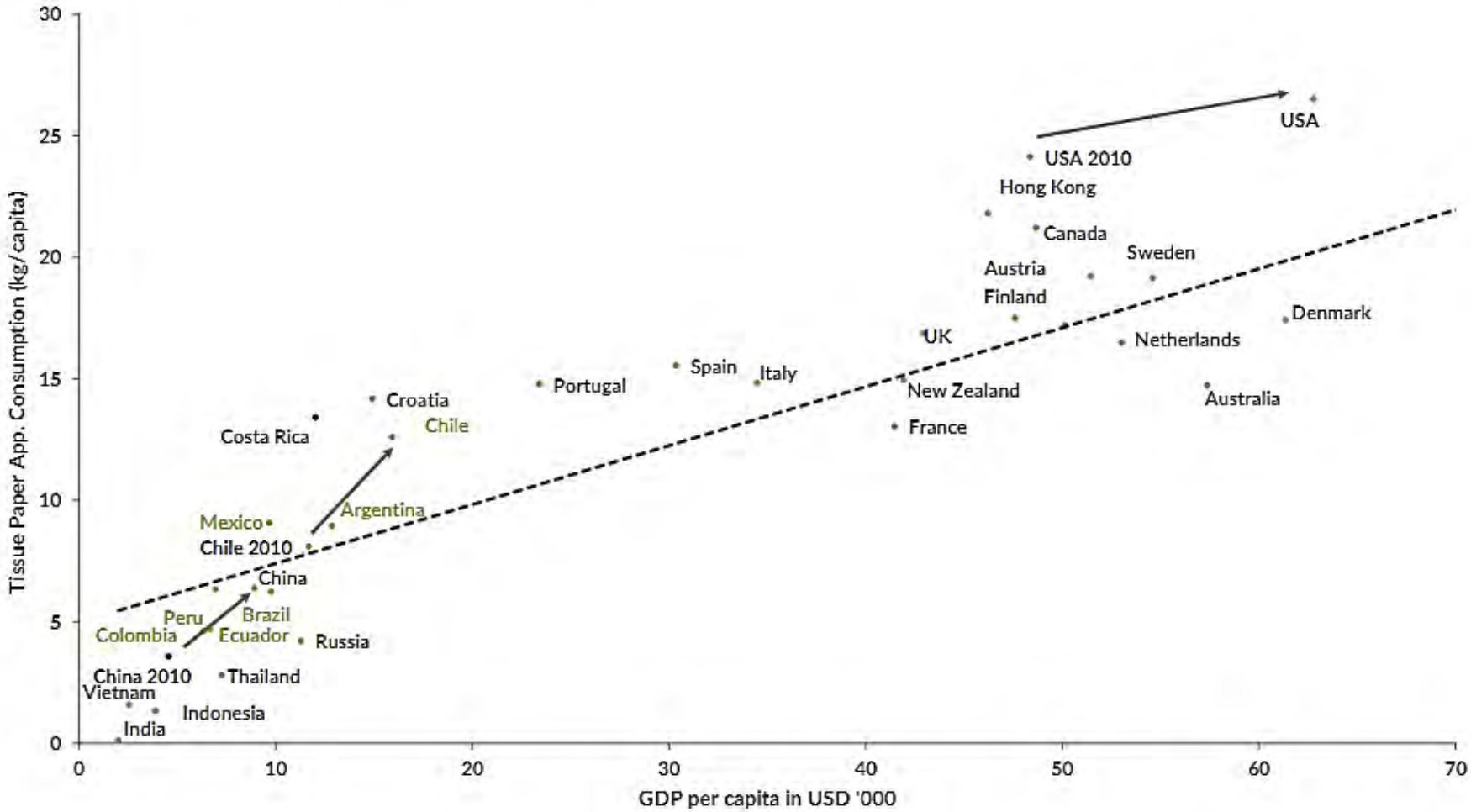


Source: AFRY (August 2021)

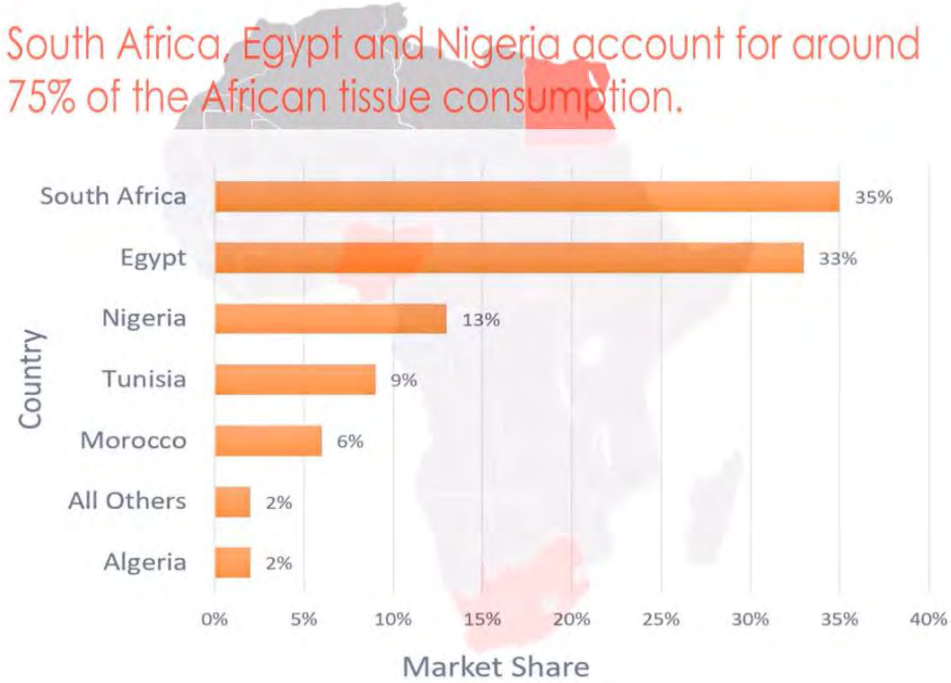
ASYMMETRIES IN CONSUMPTION DUE TO STILL MASSIVE DIFFERENCES IN LIVING STANDARDS

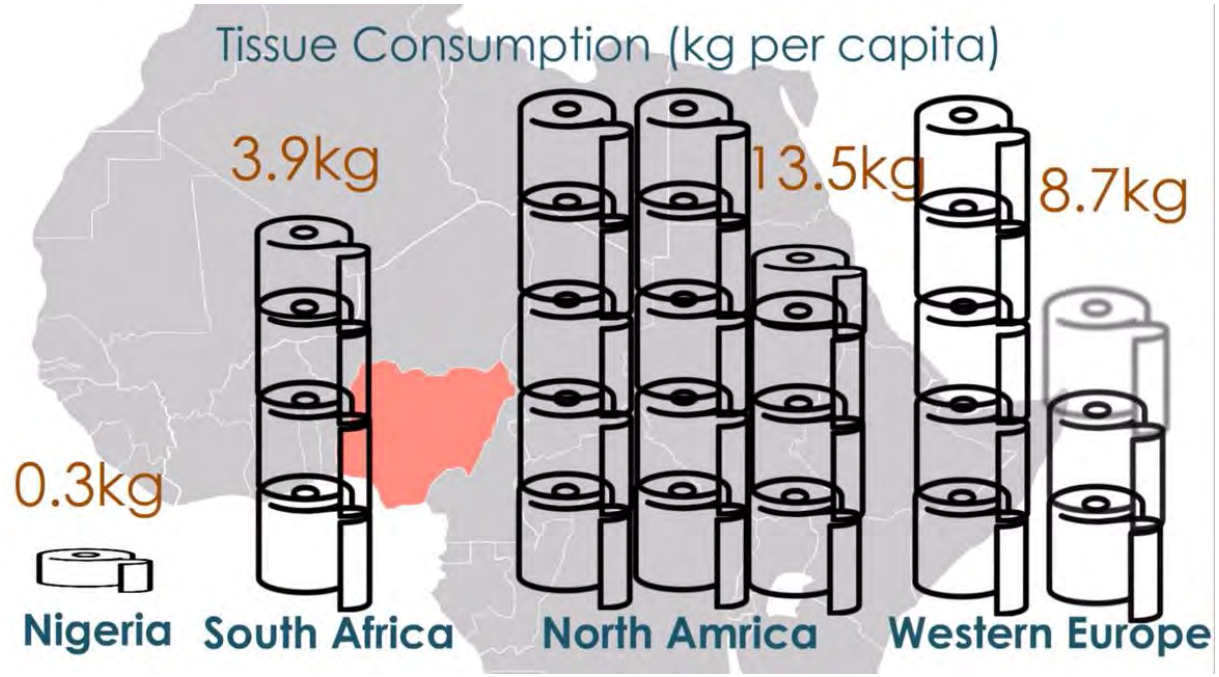
Tissue Paper Demand Dynamics

Per capita annual consumption of tissue paper (in kilograms)
(Countries where CMPC has operations are marked in **green**)



AFRICA HAS HUGE GROWTH POTENTIAL, BUT ONLY THEORETICALLY

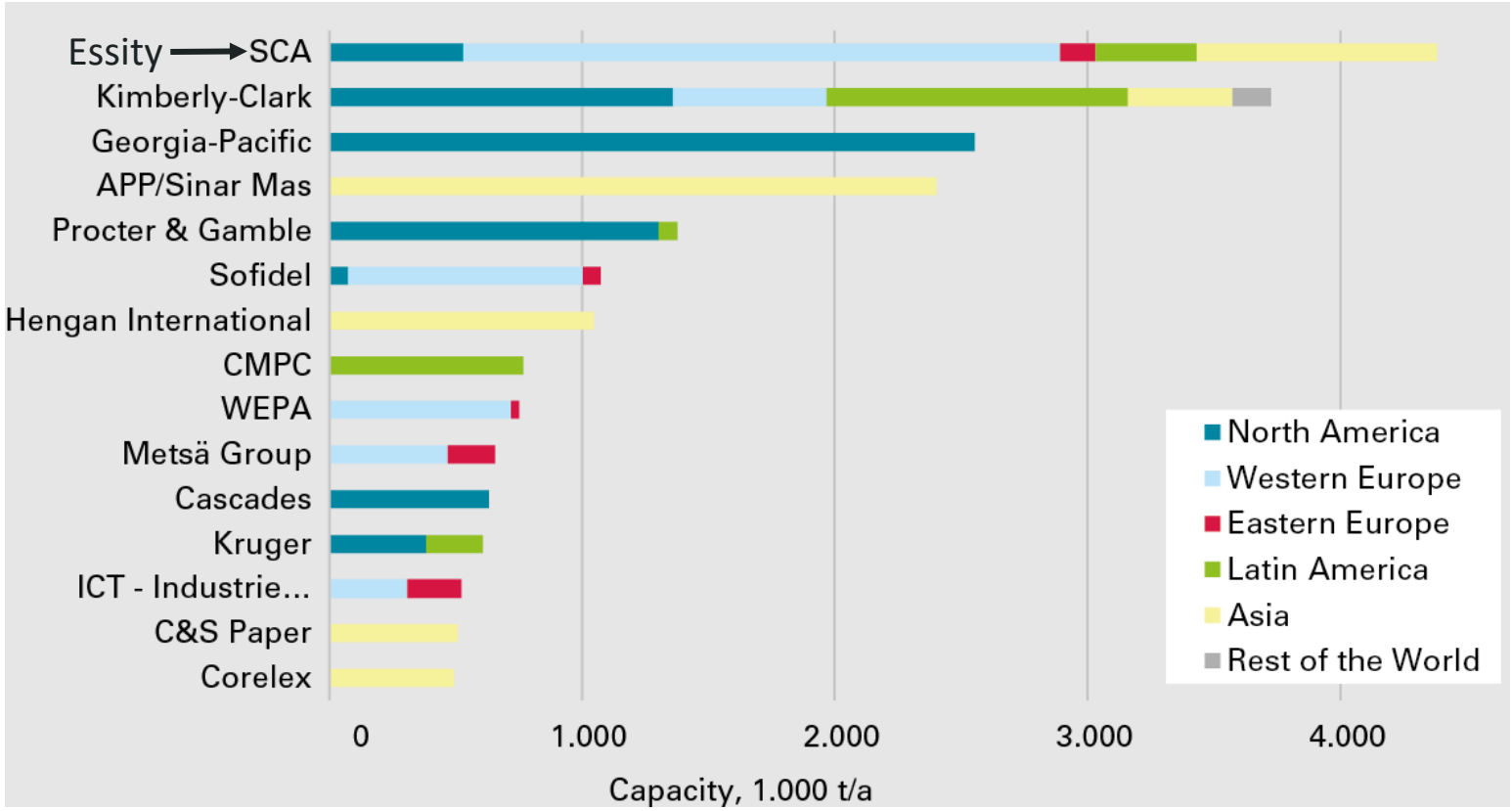




GLOBALLY, THE INDUSTRY IS HIGHLY CONCENTRATED, BUT FEW TISSUE GIANTS ARE GENUINELY GLOBAL COMPANIES

- In terms of production capacity, the top global tissue company is Essity (split from SCA), with approximately 4.5MT annual capacity in 2015, followed by Kimberly-Clark with approximately 3.8MT. These are the only two companies with a significant footprint in more than two regions, although both have around 60% of their capacities in Western Europe and North America.
- Generally, tissue giants are highly regionalized: Kimberly-Clark, Georgia-Pacific, Procter & Gamble, Cascades and Kruger are primarily focused on North America; Essity, Sofidel, Weba, Metsä and ICT have largely a European focus; CMPC is a top-10 company strictly focused on Latin America.
- The regional focus is particularly visible for Asian companies.

Leading global tissue companies by production capacity (2015 data)

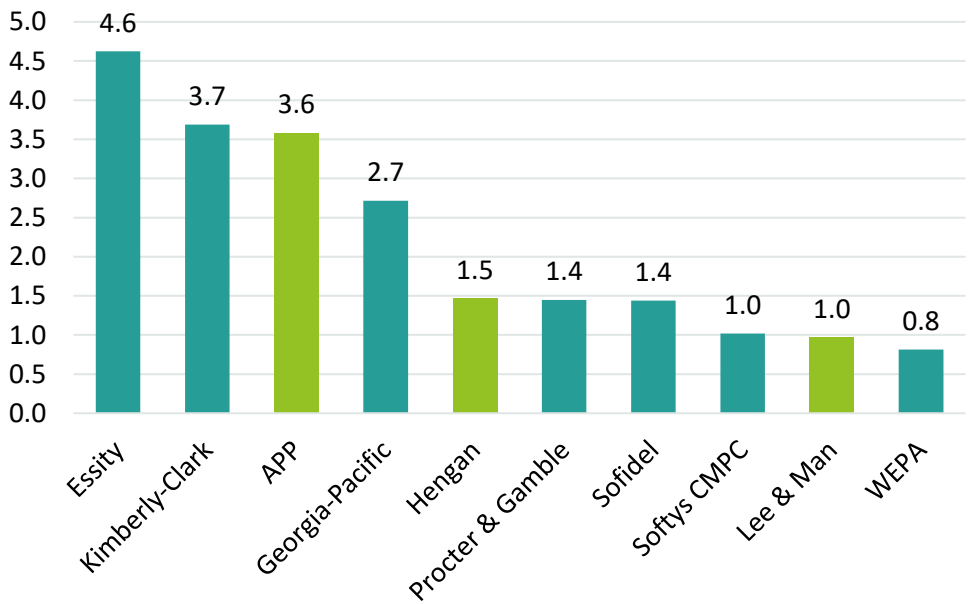


Source: Paper Industry World 2016.
Note: 2017 SCA splits in two separate listed companies, the forest products company SCA and the hygiene and health company Essity

ASIAN COMPANIES ARE RAPIDLY CATCHING UP TO THE LARGEST PLAYERS IN EUROPE AND NORTH AMERICA

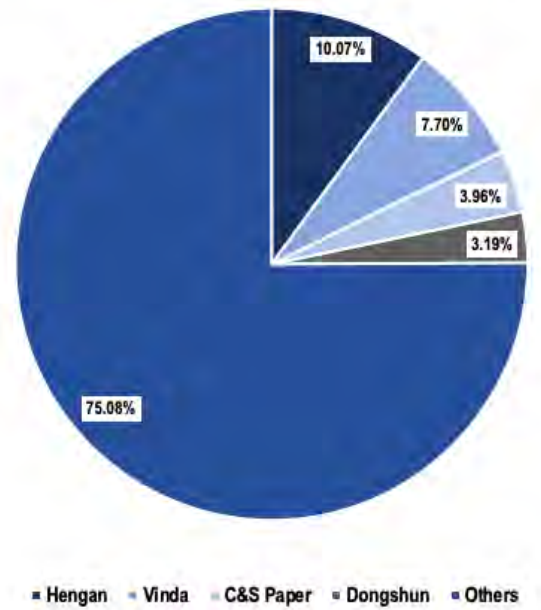
- Since 2015, the Indonesian company Asia Pulp & Paper (APP) has caught up to Kimberly-Clark in terms of production capacity, clearly surpassing other large players in Europe and Asia.
- The Chinese Hengan has surpassed Procter & Gamble and Sofidel. Hengan has a firm grip over the huge Chinese toilet paper market.
- Another Chinese company, Lee & Man, has entered the top 10 global tissue manufacturers in terms of production capacity.

Production capacity of largest tissue companies worldwide, end of 2020 (million tons/year)



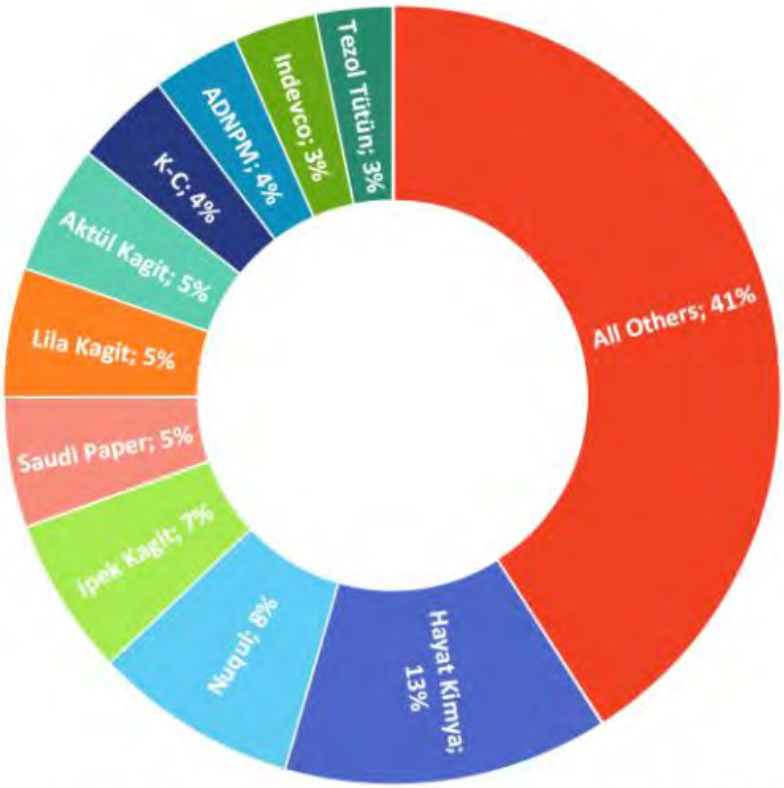
Source: European Tissue Symposium, WTBM RISI.

Market Share of Key Players in China's Toilet Paper Market (2018)



daxueconsulting

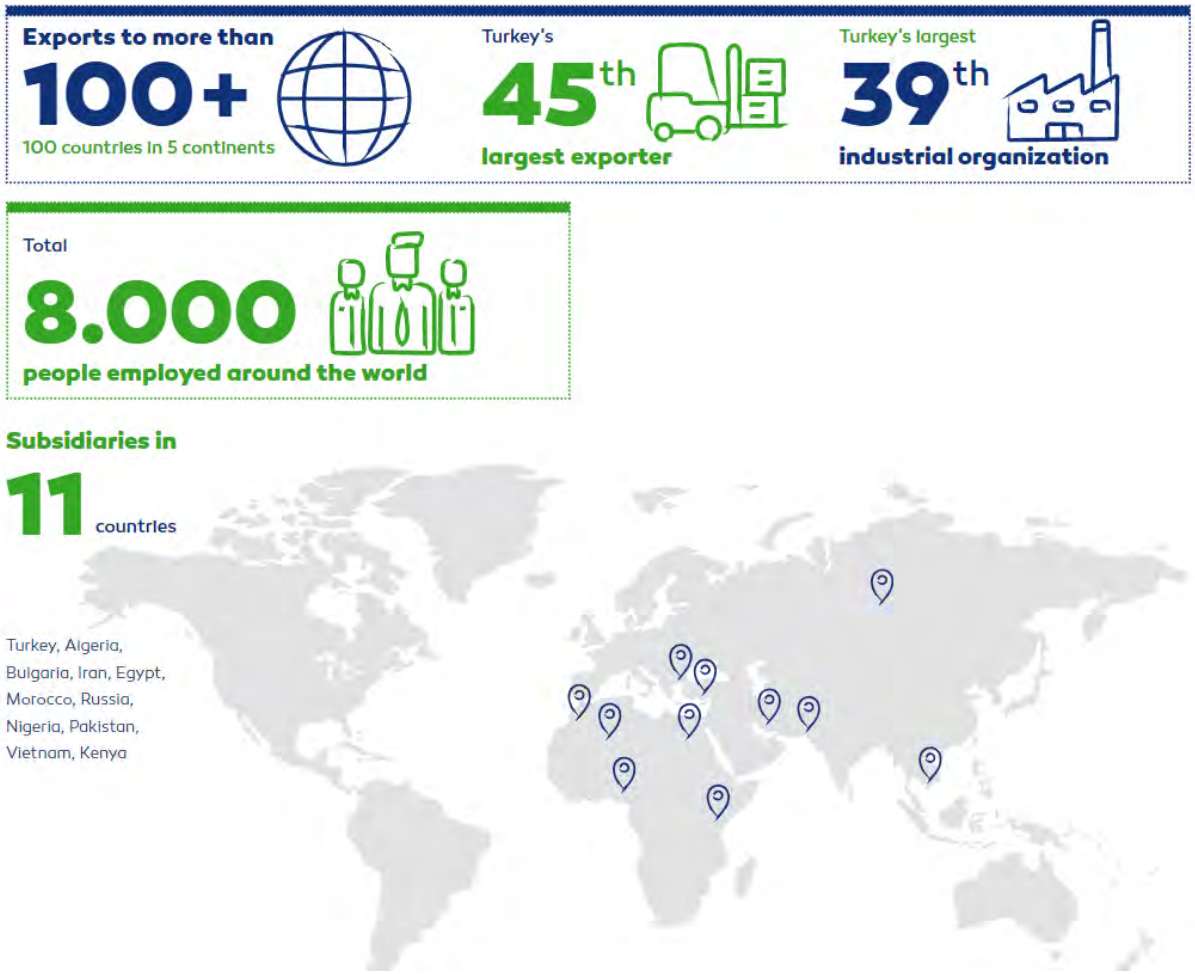
THE MIDDLE EAST AND AFRICA ARE STILL RELATIVELY UNTOUCHED BY GLOBAL GIANTS…



Capacity shares of the main suppliers in the MENA region (December 2017)

...ALLOWING SOME ROOM FOR MANEUVER FOR REGIONAL PLAYERS

- Hayat is a Turkish tissue specialist with a strong presence in the Middle East and Africa.

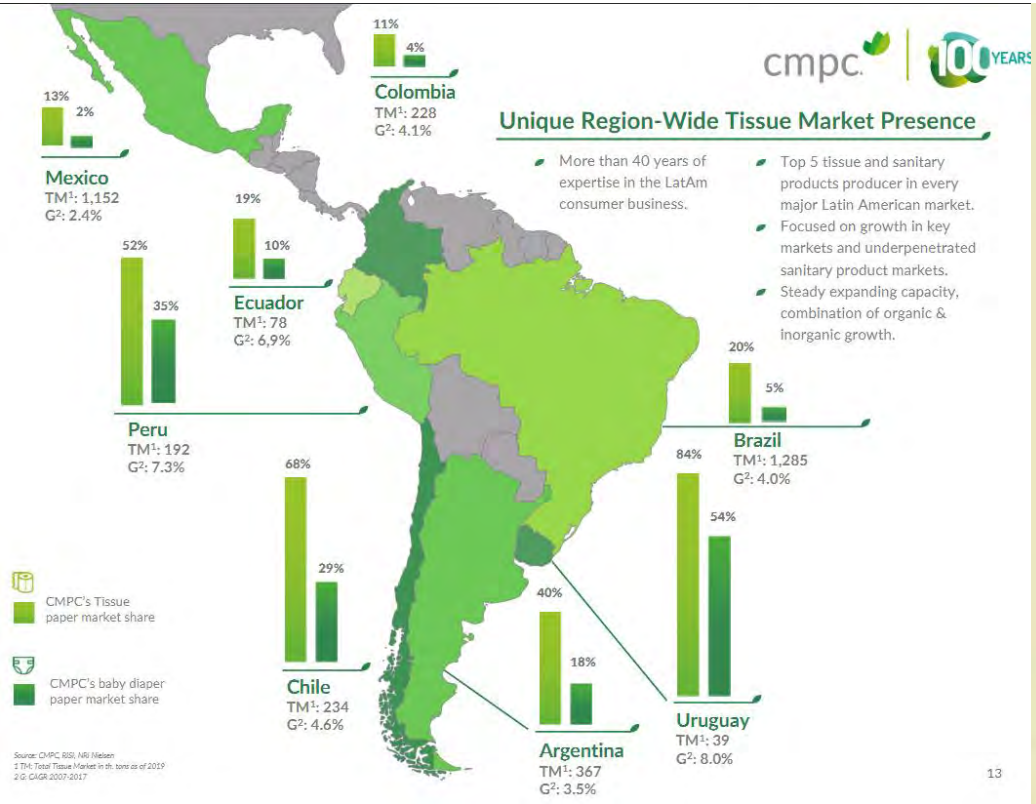


CMPC IS THE MAJOR REGIONAL PLAYER IN LATIN AMERICA

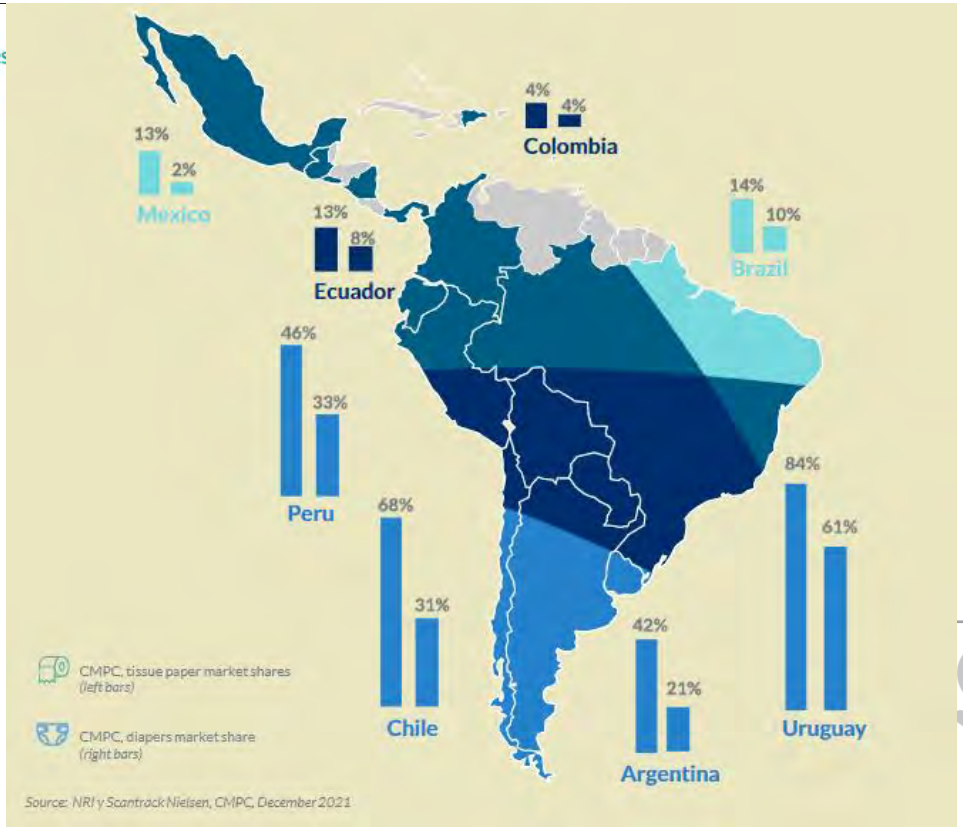
- CMPC is a Chilean paper and pulp company with significant weight on the Latin American tissue market through its Softys arm.
- In recent years, CMPC has consolidated its position in Chile, Argentina and Uruguay, while losing some market share in Brazil, Colombia, Ecuador and Peru.

CMPC position on the Latin American tissue market

2017



2021



CMPC HAS APPROXIMATELY 20 THOUSAND EMPLOYEES AND A UNIONIZATION RATE OF OVER 50%

STAFFING

NUMBER OF COLLABORATORS

		2018	2019	2020
Country	Argentina	1,498	1,526	1,659
	Brazil	2,391	2,387	3,445
	Chile	9,352	9,634	9,729
	Colombia	448	518	543
	Ecuador	250	262	229
	Mexico	1,556	1,738	2,125
	Peru	1,388	1,435	1,554
	Uruguay	364	345	340
	United States	n/a	14	17
	Total	**17,247**	**17,859**	**19,641**
Business	CMPC Celulosa	5,019	5,070	5,105
	CMPC Biopackaging	3,417	3,387	3,653
	Softys	8,402	8,960	10,470
	Corporate offices	409	442	413
	Total	**17,247**	**17,859**	**19,641**
Position	Executives	1,001	1,088	1,310
	Professionals and technicians	5,933	5,517	5,715
	Operators	10,313	11,254	12,616
	Total	**17,247**	**17,859**	**19,641**
Gender	Women	2,473	2,740	3,304
	Men	14,774	15,119	16,337
	Total	**17,247**	**17,859**	**19,641**
Age range	Under 30 years old	3,935	3,922	3,867
	Between 30 and 60 years old	12,784	13,176	15,020
	Over 60 years old	528	761	754
	Total	**17,247**	**17,859**	**19,641**
Employment contract	Indefinite	NI	16,458	18,205
	Part-time	NI	1,401	1,436
	Total	**17,247**	**17,859**	**19,641**
Working hours	Indefinite	NI	17,850	19,595
	Part-time	NI	9	46
	Total	**17,247**	**17,859**	**19,641**

High union fragmentation in Chile

LABOR RELATIONS

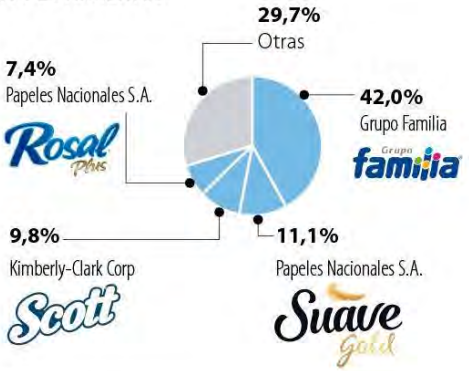
(102-41, 407-1)

		2018	2019	2020
No. of unionized workers		10,206	10,887	11,448
Percentage of unionized workers		58.0%	60.4%	58.29%
No. of employees covered by unions		12,004	11,436	12,753
Percentage of total employees covered by collective bargaining		66.0%	63.4%	64.80%
Number of unions		53	55	58
No. of unions by country	Argentina	3	4	3
	Brazil	6	5	7
	Chile	39	38	39
	Colombia	1	1	1
	Ecuador	0	0	0
	Mexico	2	3	4
	Peru	3	3	3
	Uruguay	1	1	1
	United States	n/a	0	0
	Total	**53**	**55**	**58**

IN 2020, ESSITY COMPLETELY TOOK OVER GRUPO FAMILIA, COLOMBIA'S LARGEST TISSUE COMPANY

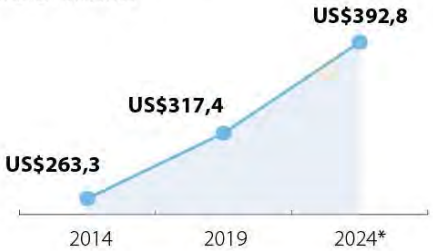
MERCADO DE PAPELES SUAVES EN COLOMBIA

PAPEL HIGIÉNICO



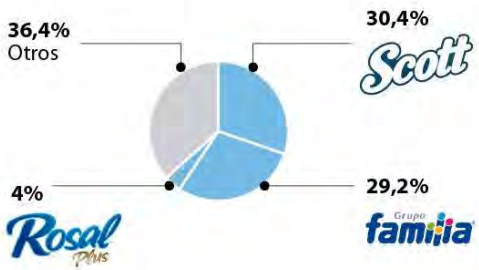
TAMAÑO DEL MERCADO

Cifras en millones



*Proyecciones de Euromonitor

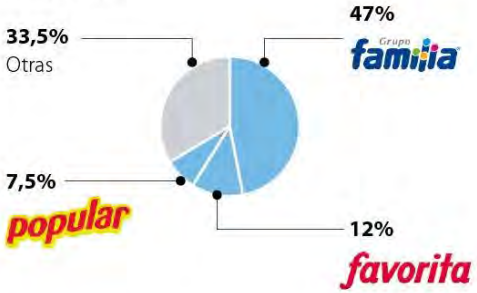
TOALLAS DE PAPEL



Tamaño del mercado

Cifras en millones

SERVILLETAS

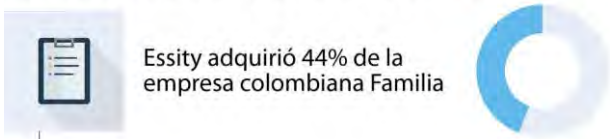


Tamaño del mercado

Cifras en millones

Fuente: Euromonitor Gráfico: LR-GR

MULTINACIONAL SUECA ESSITY COMPRA MÁS ACCIONES DE PRODUCTOS FAMILIA



Essity adquirió 44% de la empresa colombiana Familia

- Es accionista desde 1985 y actualmente es dueña de 50% de la empresa
- La propiedad de Essity en Familia será de al menos 94%
- El precio de compra valora la empresa en **US$1.540 millones**

- En 2020 Familia presentó ingresos por más de **$2,8 billones**
- Incremento de 5,3% en sus ventas versus 2019

¿DÓNDE ESTÁN UBICADAS LAS PLANTAS DE PRODUCCIÓN DE FAMILIA?

Fuente: Essity, Productos Familia S.A. / Gráfico: LR-AL

THE GRUPO FAMILIA ACQUISITION TARGETS A STRONGER PRESENCE FOR ESSITY THROUGHOUT THE REGION

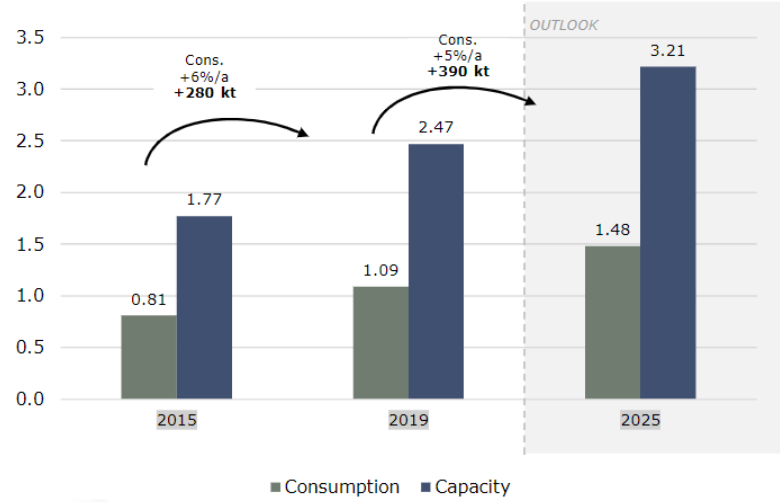
- Colombia is also a strategic location for Kimberly-Clark, where it employs approximately 1300 people. In late 2021, KC announced investments of USD 30M in its three plants in Colombia. This comes on top of the USD 80M announced at the beginning of the year.

- While the investments announced recently explicitly target capacity growth to supply the domestic market, Colombia serves as an export base for Kimberly-Clark across the region.

Geographical footprint of Grupo Familia

DESPITE A GROWING MARKET, SOUTHEAST ASIA IS EXPECTED TO CONSOLIDATE ITS POSITION AS A TISSUE EXPORT BASE

MARKET OUTLOOK: SOUTHEAST ASIA*
1000 tonnes

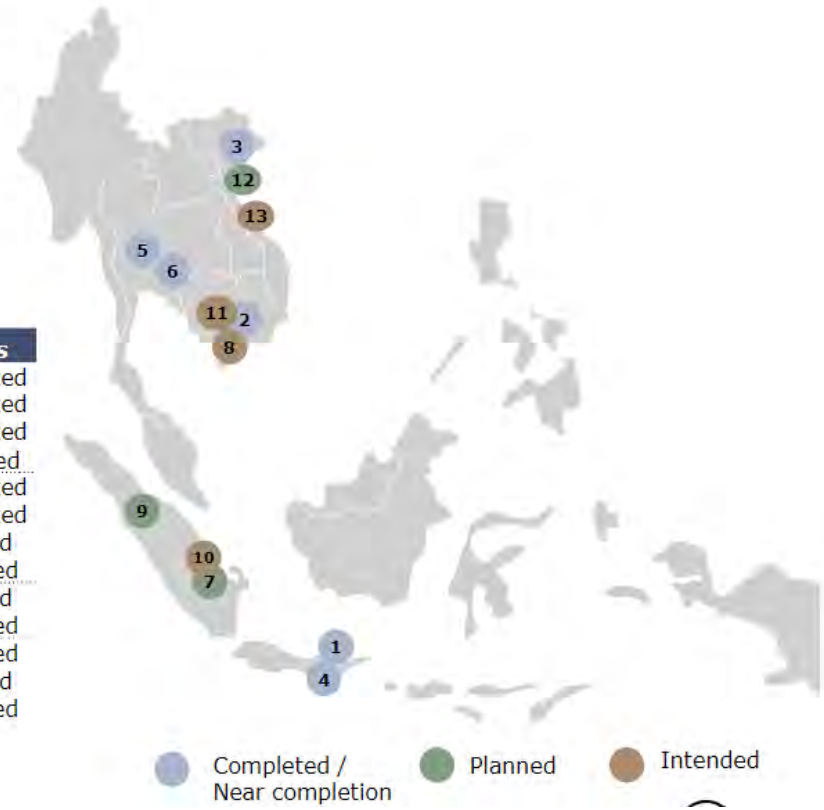


- As demand continues healthy, the investments are expected to continue as planned, despite the regional over-capacity
- Investment activity continues strongly driven by APP's massive expansion plans in OKI and Perawang mill
- An increased interest in Vietnam due to promising demand outlook is visible
- Indonesia capacity footprint will be increasingly export driven

MAJOR TISSUE PM PROJECTS SEA

#	Year	Country	Firm	Location	kt	Status
1	2020	Indonesia	PT Suparma	Surabaya	54	Completed
2	2020	Vietnam	Xuan Mai	Ho Chi Minh	20	Completed
3	2020	Vietnam	Xuong Giang Paper	Bac Giang	20	Completed
4	2020	Indonesia	PT Sun Paper	Sukoanyar	36	Comleted
5	2021	Thailand	C.A.S.	Singburi	30	Completed
6	2021	Thailand	Berli Jucker Cellox	Bang Chalong	28	Completed
7	2021	Indonesia	PT OKI	Palembang	168	Planned
8	2021	Vietnam	Saigon Paper	My Xuan	25	Intended
9	2022	Indonesia	PT Pindo	Perawang	370	Planned
10	2022	Indonesia	PT OKI	Palembang	84	Intended
11	2023	Vietnam	Cheng Loong	Binh Duong	50	Intended
12	2023	Vietnam	Phong Paper	Hai Phong	20	Planned
13	2023	Vietnam	Lee & Man	Han Tinh	1000	Intended

Decided: On-going implementation or key equipment order announced
Planned: A plan with sufficient details of investment project publicly available
Intended: A plan published without sufficient details



SOFTEX ACQUISITION BY KIMBERLY-CLARK MOTIVATED BY GROWTH OPPORTUNITIES

- Combination of improving living standards and relatively high birth rate means high potential for diaper market.

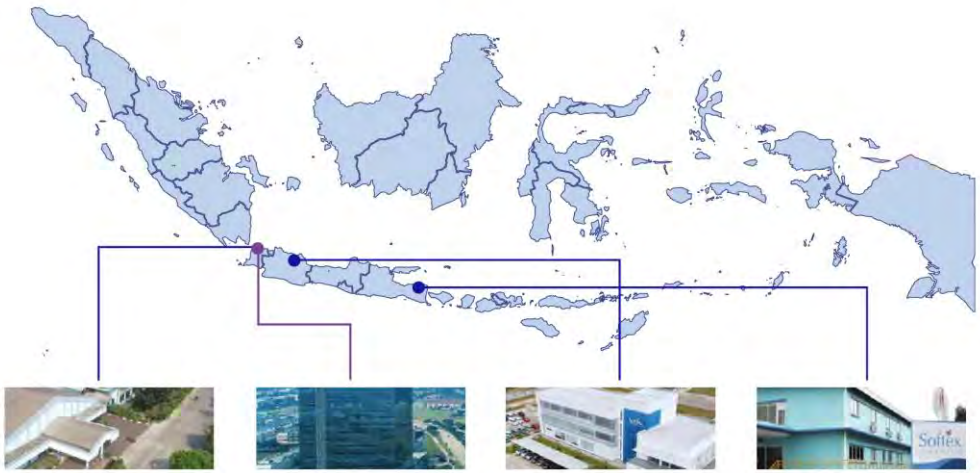
3,323 Employees (total)[1]
798 Female employees
2,525 Male employees

3 Manufacturing Mills

5.1 billion units Annual Manufacturing Output

5.79 Trillion Rupiahs Net Sales

Location of Operations[2]



Tangerang Mill, Banten
Established in 1981
7.6 ha site area/3.5 ha factory area
178 Permanent Employees
4 Contract Employees

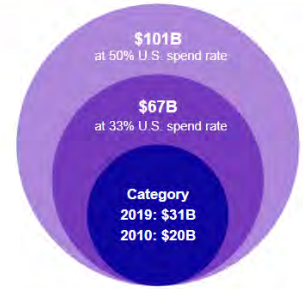
Head Office, Tangerang - Banten
500 Permanent Employees
17 Contract Employees

Karawang Mill, West Java
Established in 2019
12.2 ha site area/7.4 ha factory area
871 Permanent Employees
1,043 Contract Employees

Siodarjo Mill, East Java
Established in 2012
2.9 ha site area/1.8 ha factory area
467 Permanent Employees
243 Contract Employees

The Diaper Opportunity in D&E Markets

Today in D&E:
- >90% of global births
- $31B category
- ~15% of U.S. spend/baby



Growth drivers
- Rising GDP per capita
- Increasing frequency of usage
- Investing in brands, products, capabilities, geographies

Kimberly-Clark

Births and current category size per Euromonitor; category size includes diapers and pants

Adult Care and Feminine Care in D&E Markets

- Driving category development
- Leveraging well-known brands
- Launching steady stream of innovations
- Deploying strong marketing campaigns

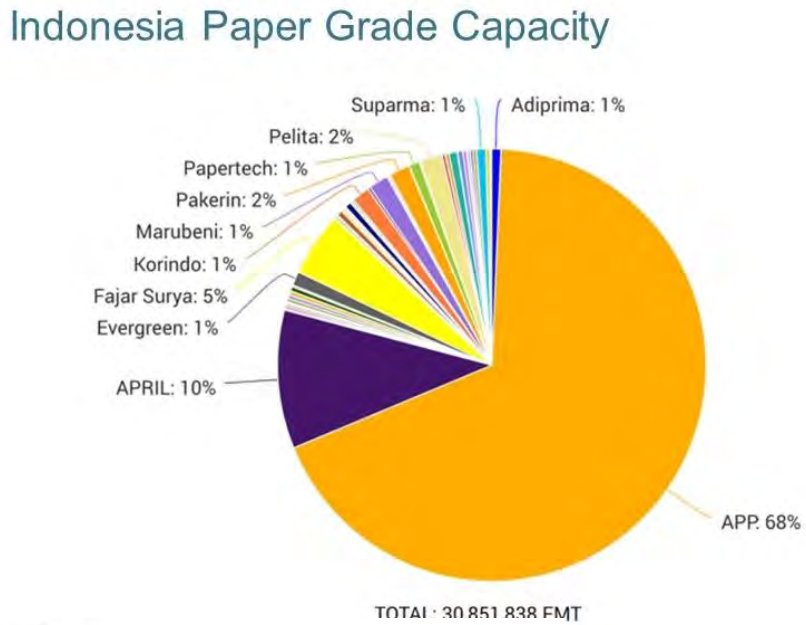
Softex Indonesia Acquisition

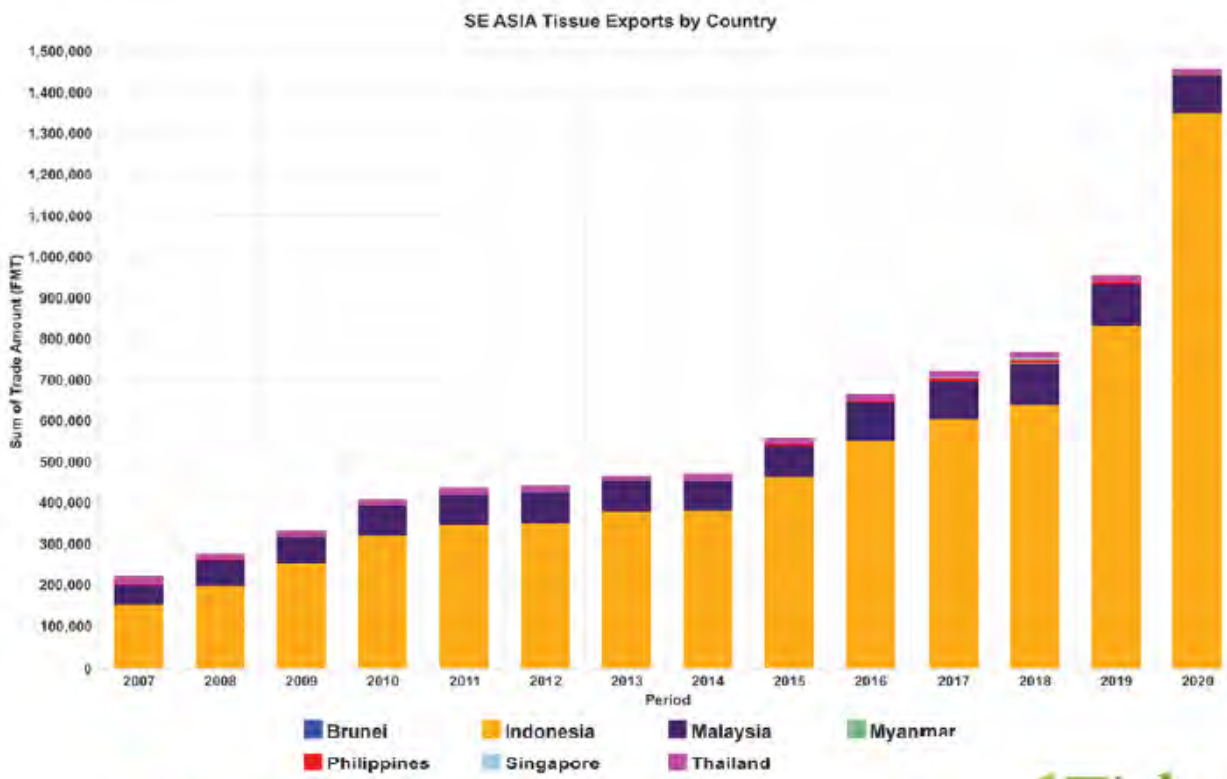
- Acquisition closed October 1, 2020
- Compelling strategic fit, significantly expands presence in important, high growth market
- Annual sales of more than $400 million – primarily diapers
- Double-digit historical growth rate
- Strong market positions
- Improves our underlying growth prospects

Kimberly-Clark

THE INDONESIAN ASIA PULP & PAPER (APP) IS EXPANDING AGGRESSIVELY

- APP clearly dominates the Indonesian and, more generally, the Southeast Asian tissue market.
- APP is aggressively expanding in China via new investments.
- Through Paper Excellence, a Canadian-based company it controls, APP has been expanding to North America, Latin America and Europe.

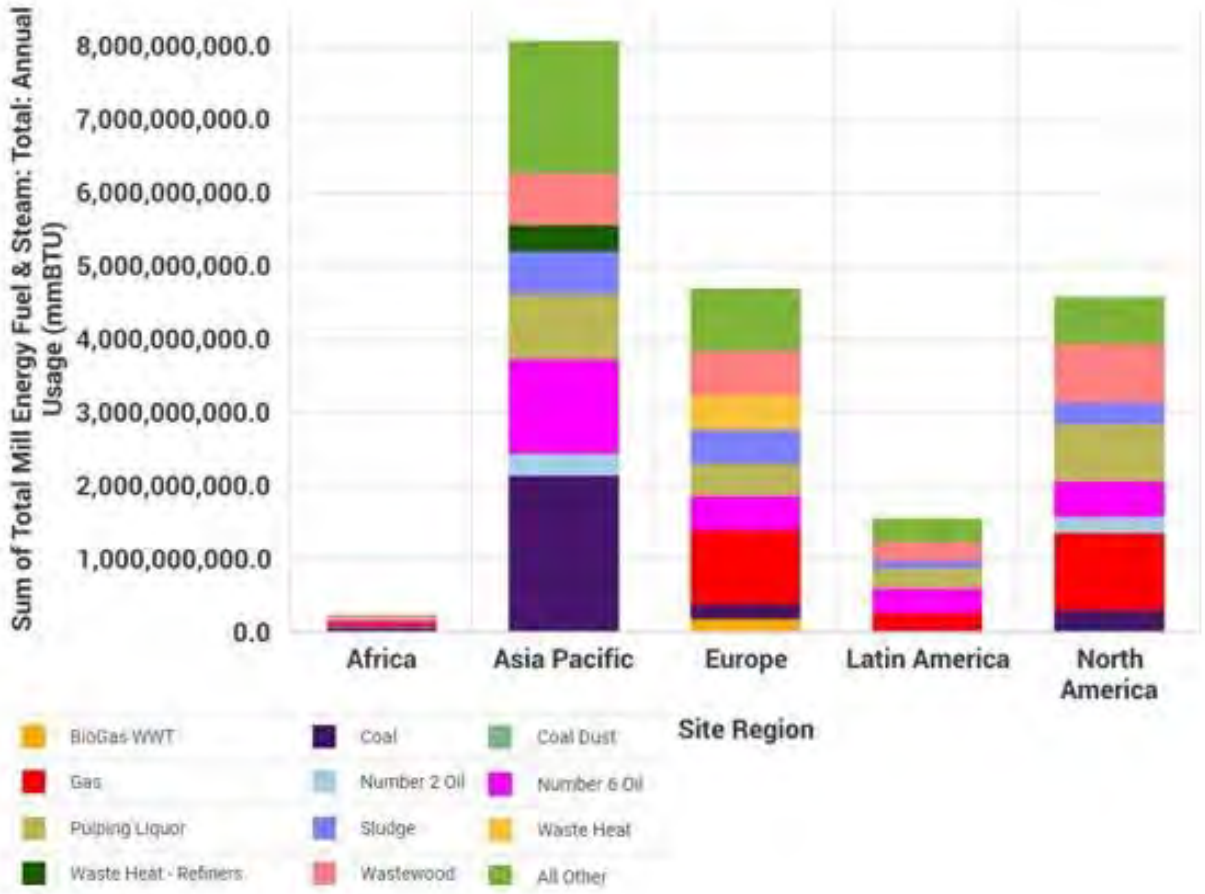




SOARING ENERGY PRICES ARE A HUGE CHALLENGE…

…NOTABLY FOR THE TISSUE INDUSTRY, WHICH USUALLY BUYS PULP ON THE MARKET AND CONSUMES MORE ENERGY IN PRODUCTION THAN OTHER PARTS OF THE PAPER INDUSTRY

Annual paper & pulp usage of fuels



Source: FisherSolve Next

TISSUE COMPANIES ANNOUNCE PRICE INCREASES, BUT NOT WITHOUT RISKS

- Major companies have announced price increases to deal with soaring input costs.
- There are limits to this without impacting consumer demand.
- In mature markets like Europe, tissue prices have historically reacted slowly to sudden cost increases.
- Such a situation is inherently favorable to large players. A cost crisis could lead to further industry consolidation.

Essity announces price increases on all its products

Toilet paper will become more expensive after high costs hit company profits

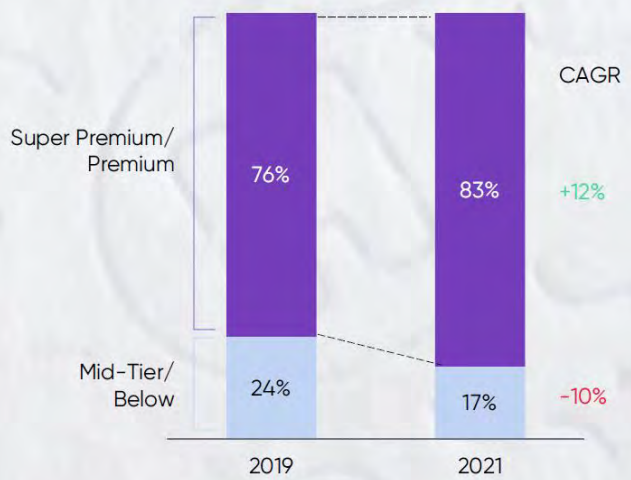
Tissue Online Latin America - January 28, 2022 1 minute read

BUSINESS STRATEGIES COULD BE HURT EVEN WITHOUT QUANTITATIVE DROP IN DEMAND

- Until now, companies focusing on branded products benefited from increased premiumization.
- A period of high inflation would harm consumer confidence and potentially harm premiumization.

Premiumization Driving Current and Projected Growth

Diaper Tier Mix Top Markets[1]



Diaper Category $ / Baby[2]

	2019	2021	Forecast 2022
China	$148	$201	$235 ↑
Russia	$188	$207	$220 ↑
Australia	$356	$398	$409 ↑
Canada	$363	$386	$400 ↑
U.S.	$390	$425	$447 ↑
South Korea	$473	$513	$525 ↑

LONGER-TERM SUPPLY SHORTAGES THIS TIME AROUND?

Toilet paper shortages could be the next side effect of the energy crisis

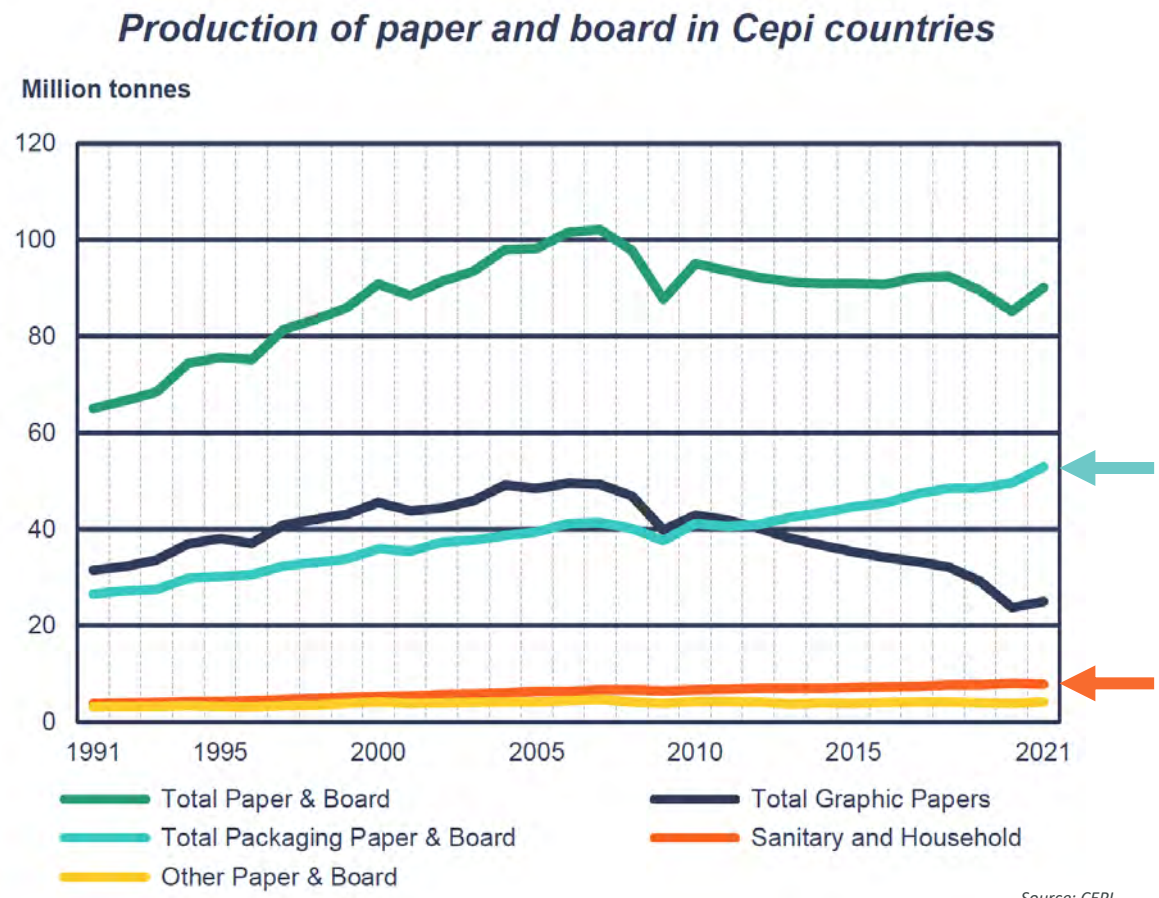
Empty shelves which previously held toilet paper are pictured at a supermarket in Cleckheaton, West Yorkshire during the COVID-19 pandemic. - Copyright OLI SCARFF / AFP

III. SOCIAL DEVELOPMENTS IN THE PACKAGING AND TISSUE SECTORS (PHASE 2)

#1 REVIEW AND UPDATE ON PHASE 1

2021 FIGURES CONFIRM SUSTAINED GROWTH FOR BOTH INDUSTRIES, BUT DIFFERENT DYNAMICS

- Packaging: continued rapid growth driven by structural shifts in demand (e.g., rise of e-commerce).
- Tissue: constant slow growth driven by secular improvements in living standards.

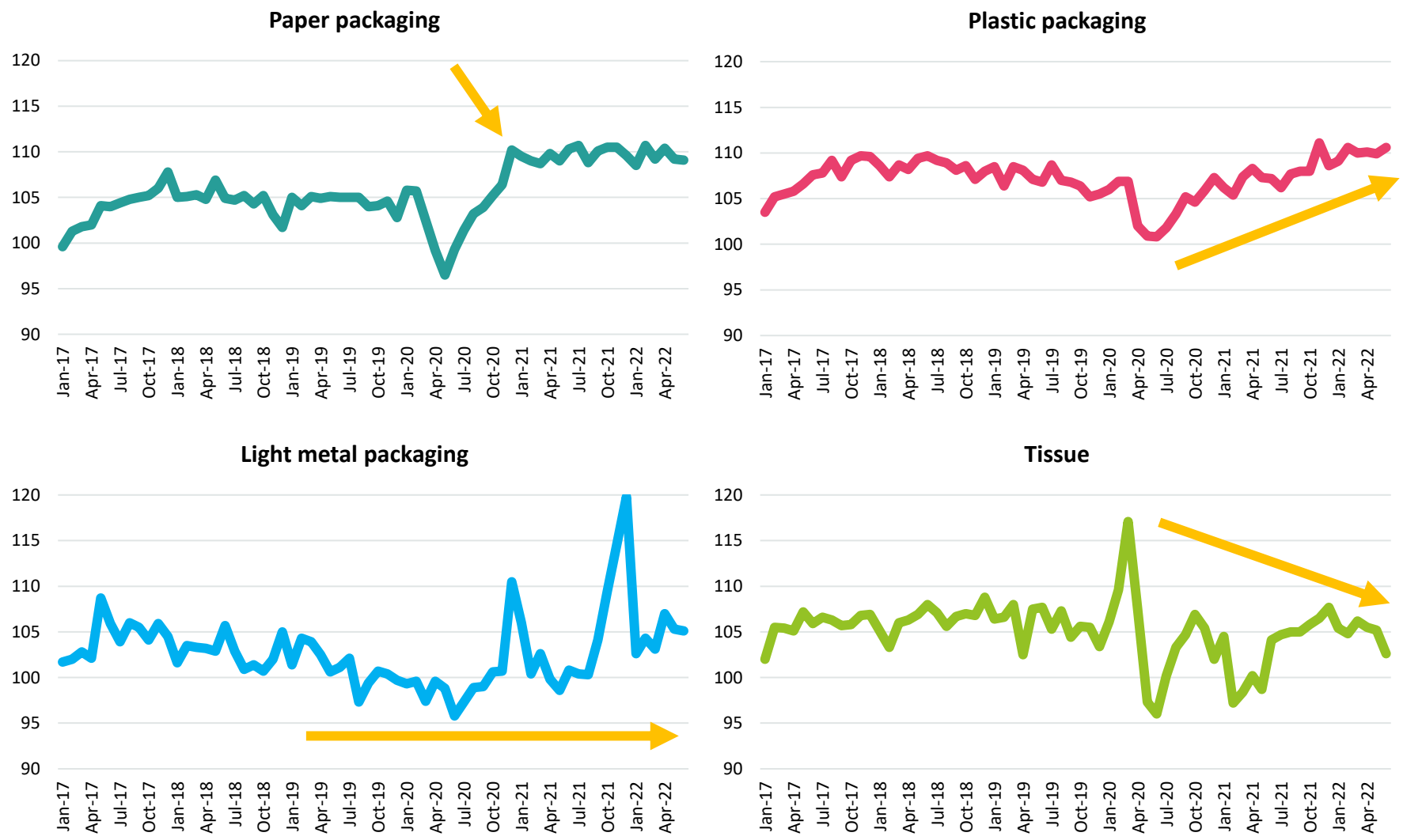


Source: CEPI

Source: CEPI

IMPACT OF COVID-19 ON DEMAND AND PRODUCTION

EU27 production volume indexes, January 2017 – June 2022 (100 = 2015)

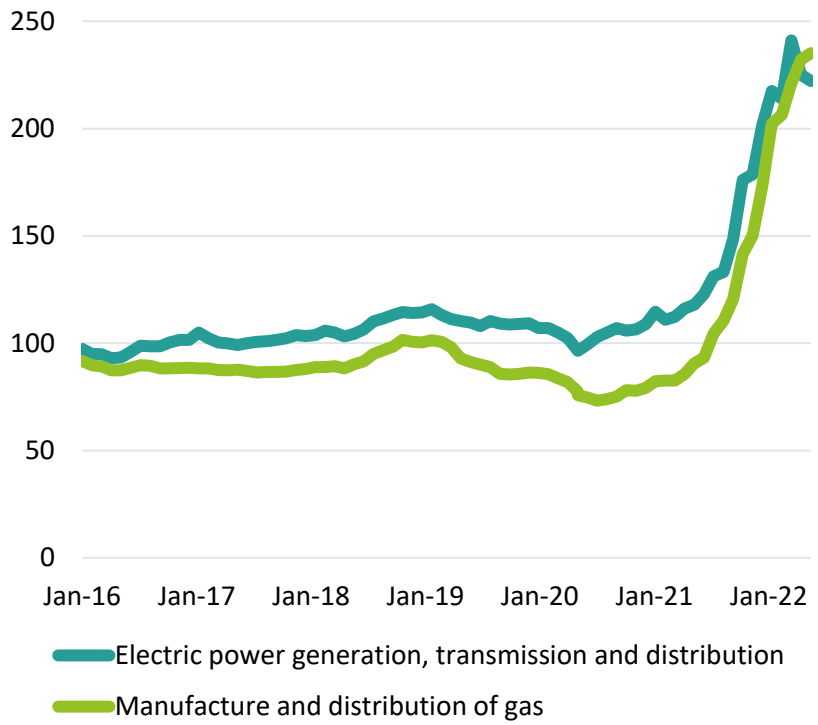


Source: Eurostat

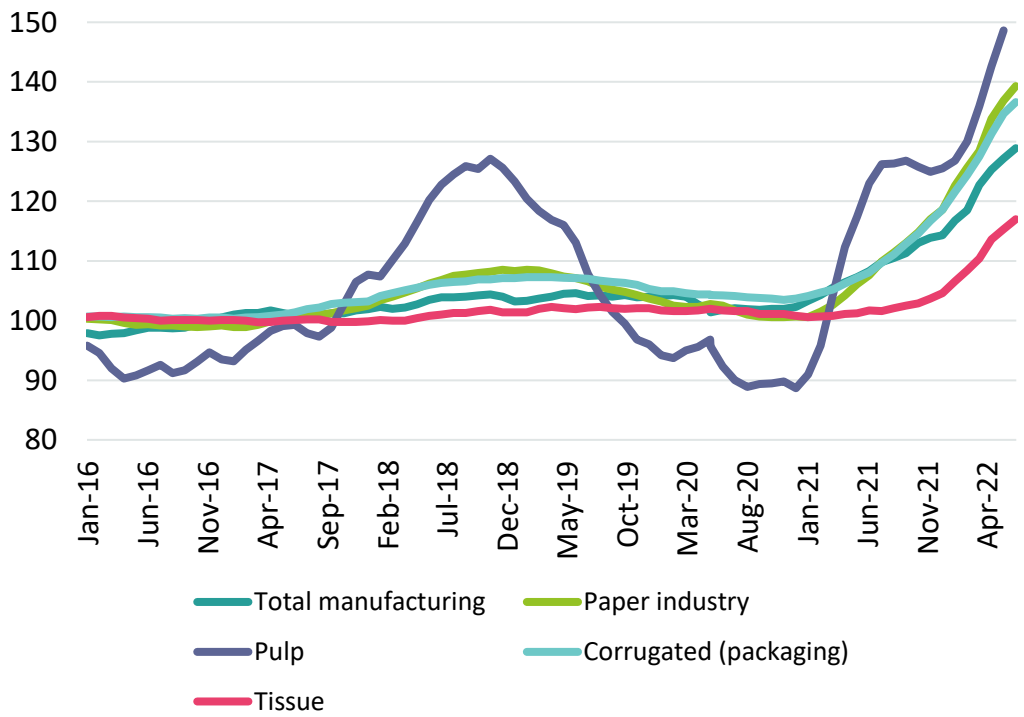
AN ONGOING CRISIS OF ENERGY PRICES…

- Both industries are energy intensive and are particularly sensitive to fluctuations in energy prices, either directly or indirectly (via pulp prices, especially for tissue).
- Capacity to pass cost increase to customers differs: easier for packaging than for tissue.

Energy producer prices in the EU27, January 2016 - June 2022 (2015 = 100)



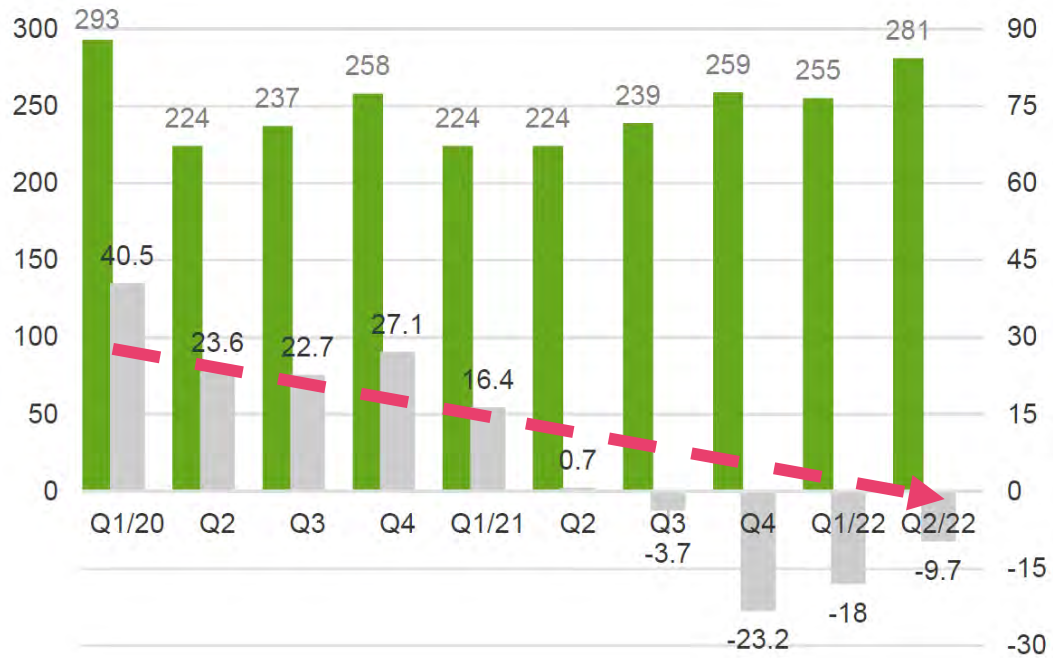
Industrial producer prices, January 2016 - June 2022 (2015 = 100)



...LEADING TO DIVERGING TRAJECTORIES

Metsa paper board sales and operating result, EUR million

Metsa tissue sales and operating result, EUR million

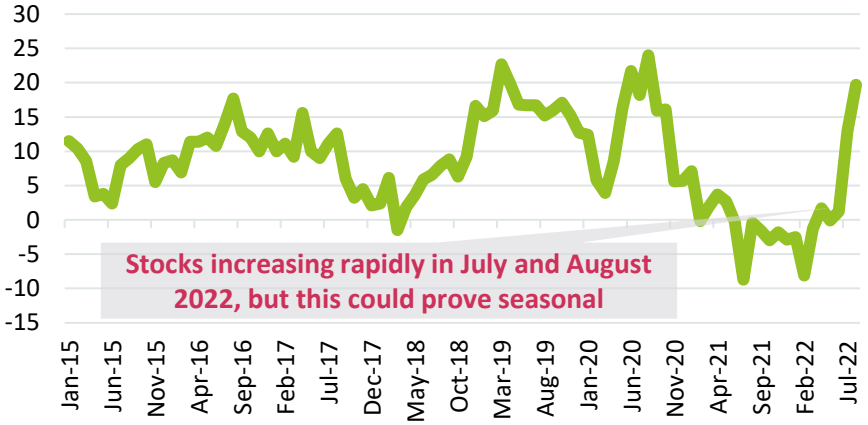


SIGNS OF SLOWDOWN MOUNTING IN THE SECOND QUARTER OF 2022

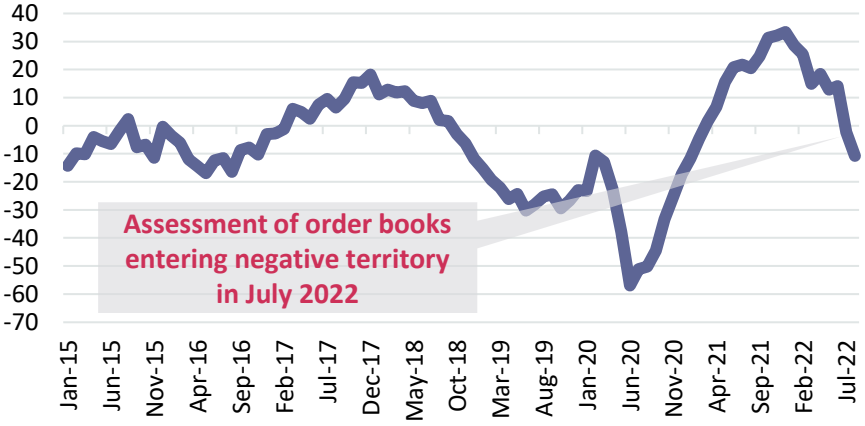
European Commission survey among employers in the paper and paper products industry (balance of positive and negative responses)

Selling price expectations for the months ahead

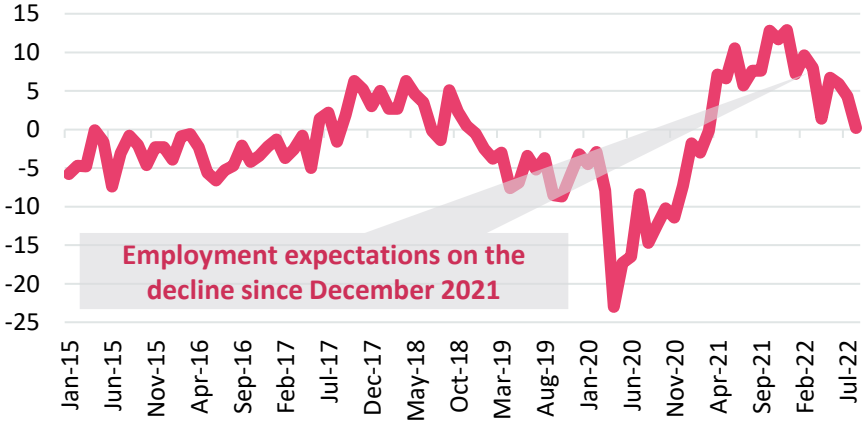
Assessment of stocks of finished products



Assessment of order-book levels



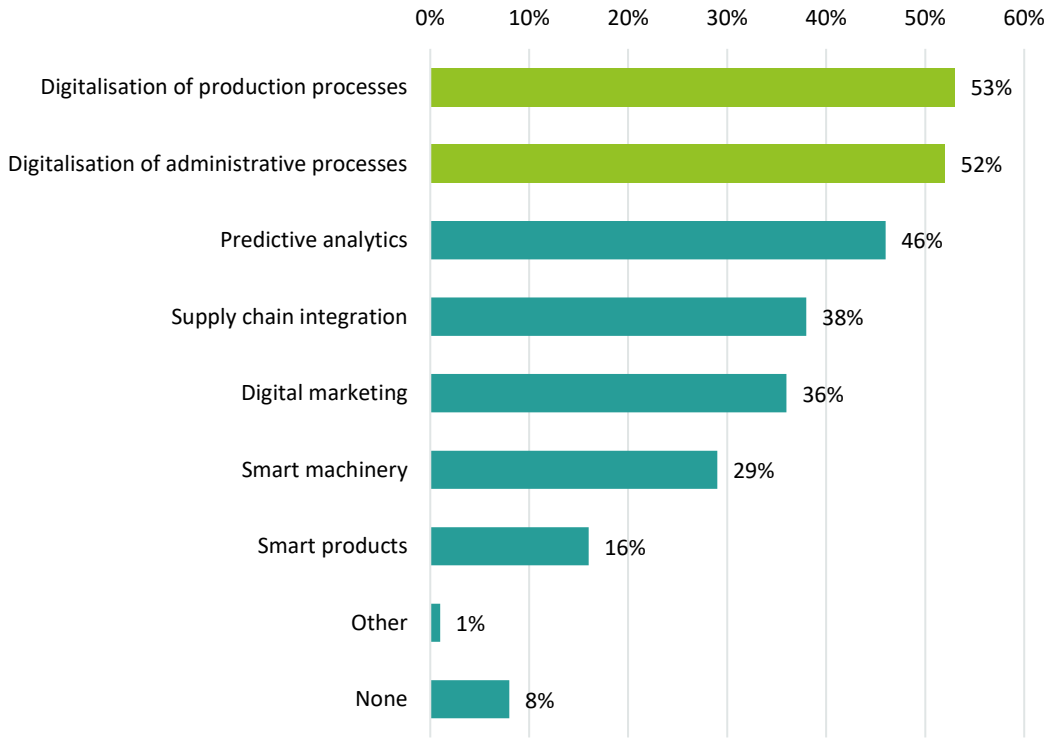
Employment expectations for the months ahead



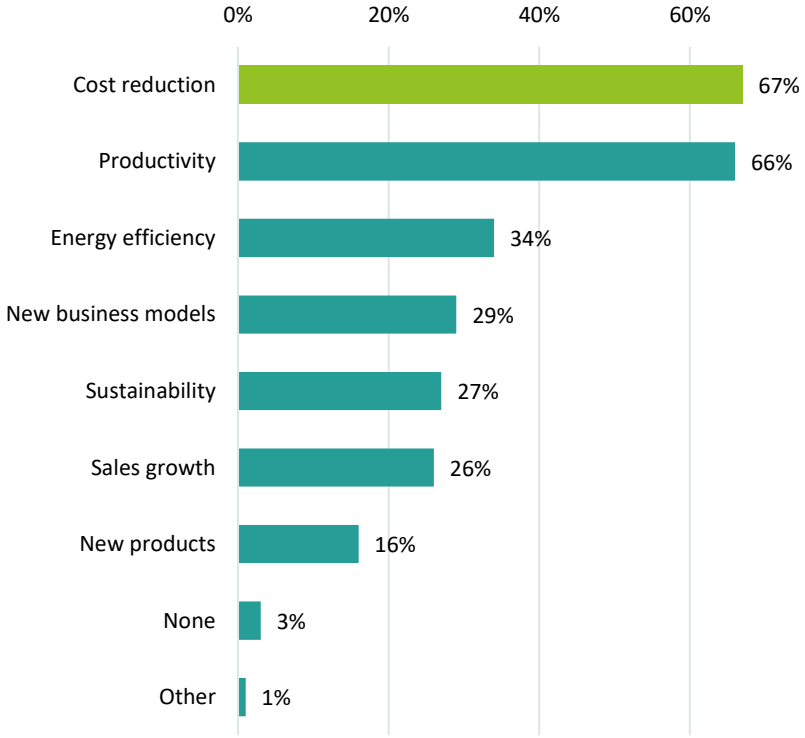
DIGITALIZATION IS AIMED PRIMARILY AT REDUCING COSTS, WITH LIMITED INTEREST IN WORKFORCE SKILL DEVELOPMENT

StepChange 2021 survey covering the tissue, packaging and graphic paper industries

What projects concerning Digitalisation / Industry 4.0 are companies currently engaged with?

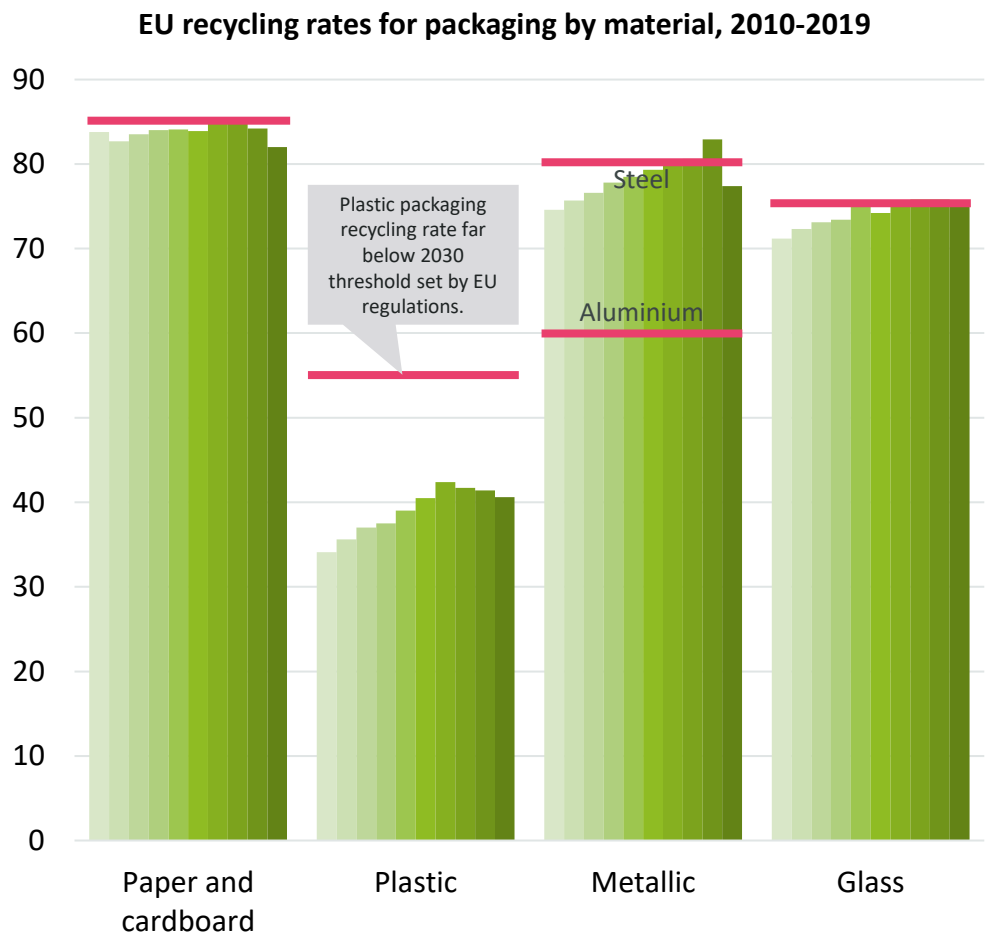


Areas where employers expect the highest benefits from digitalization



Source: StepChange Consulting
Data from Q2 2021, survey covering the tissue, packaging and graphic paper industries.

SUSTAINABILITY IS EXPECTED TO BE A MAJOR DRIVER OF INDUSTRY CHANGE FOR YEARS TO COME

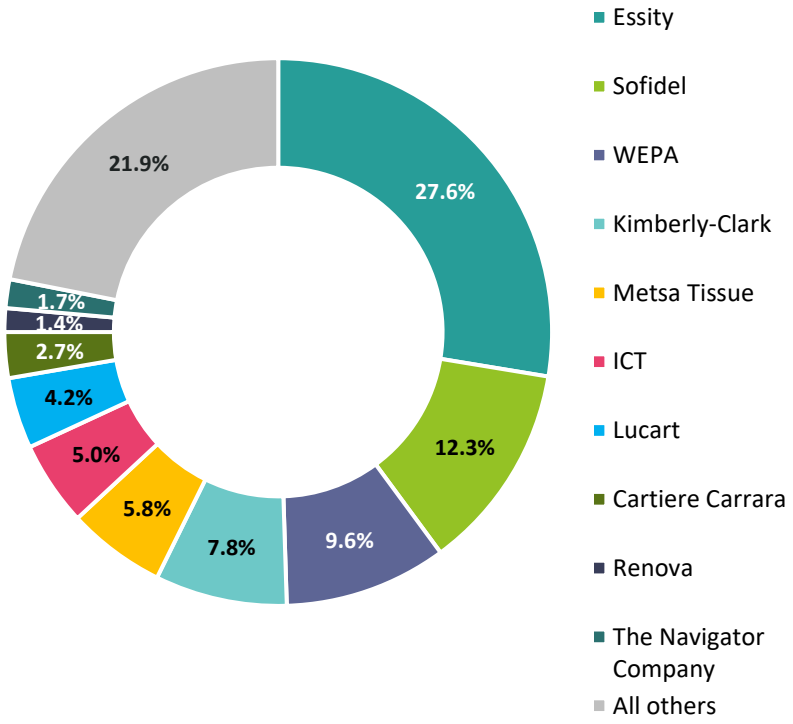


- Upcoming revised EU Packaging and Packaging Waste Directive (expected July 2022).
- Packaging: less plastic, more paper?
- Tissue: back to recycled raw material?
- Green electricity?
- Emissions reduction?
- Water consumption?
- New technologies & new skills?

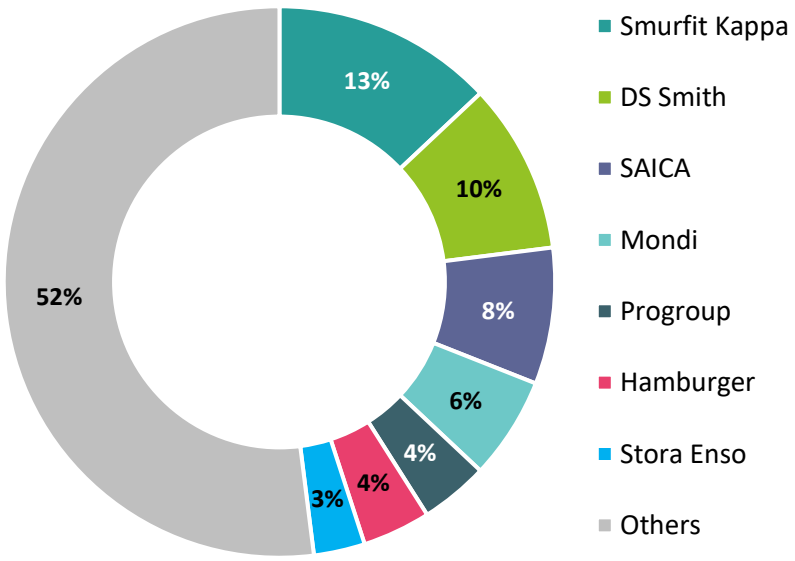
MERGERS AND ACQUISITIONS ARE PRIMARY GROWTH DRIVERS FOR COMPANIES IN BOTH INDUSTRIES

- Packaging: relatively fragmented industry in Europe (vs. the US). Plenty of room for large-scale deals and continued consolidation.
- Tissue: European market dominated by a handful of companies, with limited (but existing) room for maneuver for others.

Capacity shares of Western European tissue manufacturers, end of 2019



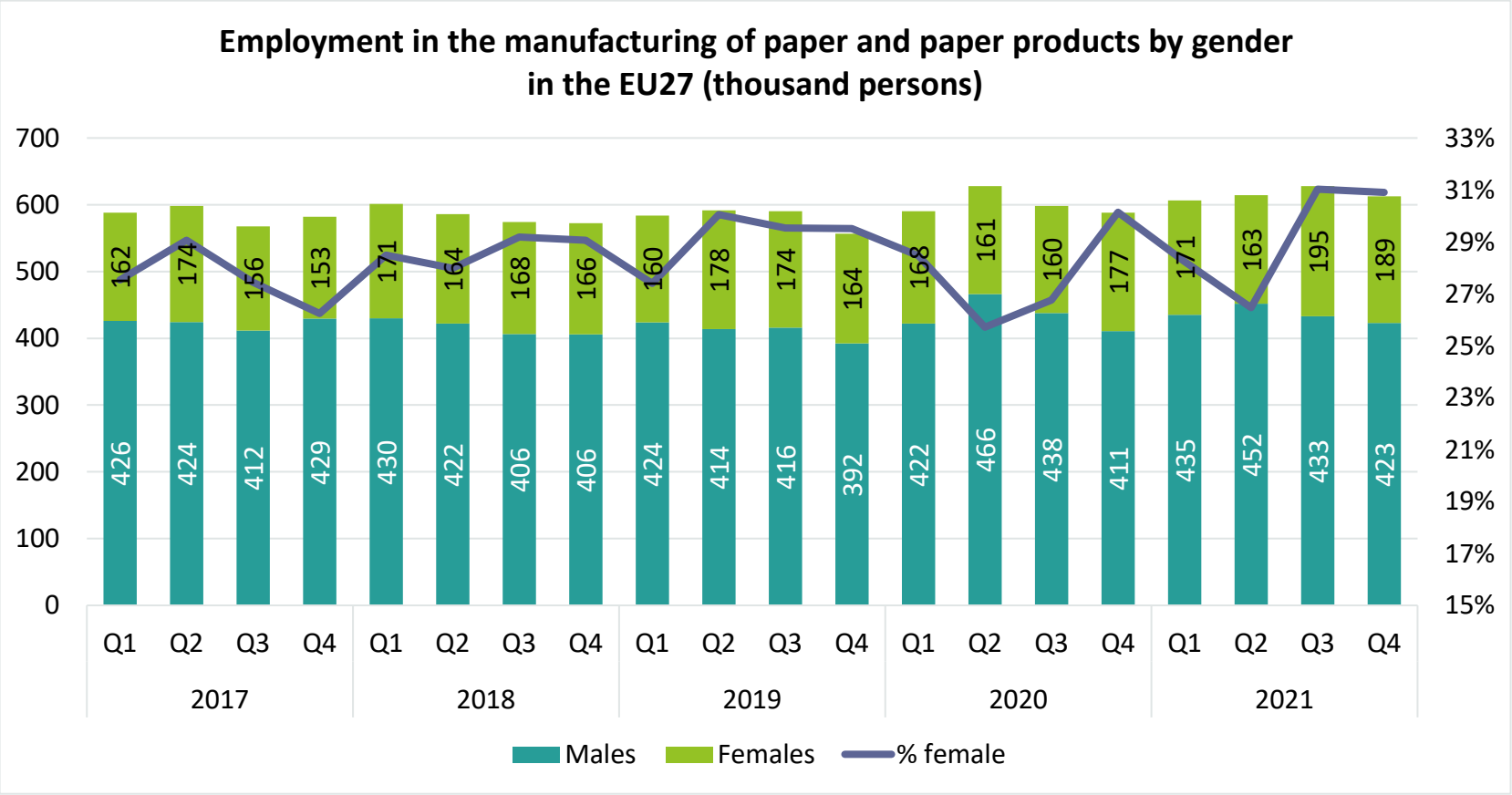
EU cardboard market shares, 2021



#2 EMPLOYMENT OVERVIEW

OVER 600 THOUSAND WORKERS

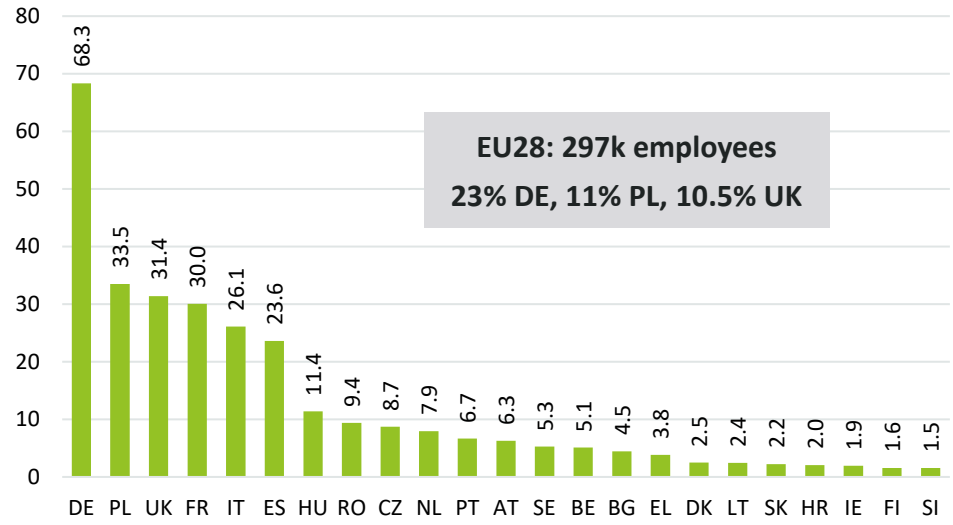
- Over 600 thousand employees in the paper and paper products industry in the EU27 in 2021. Though detailed data is not available, growth is most likely primarily driven by packaging.
- Women make up approximately 31% of the workforce, a historical peak reached in the third quarter of 2021.



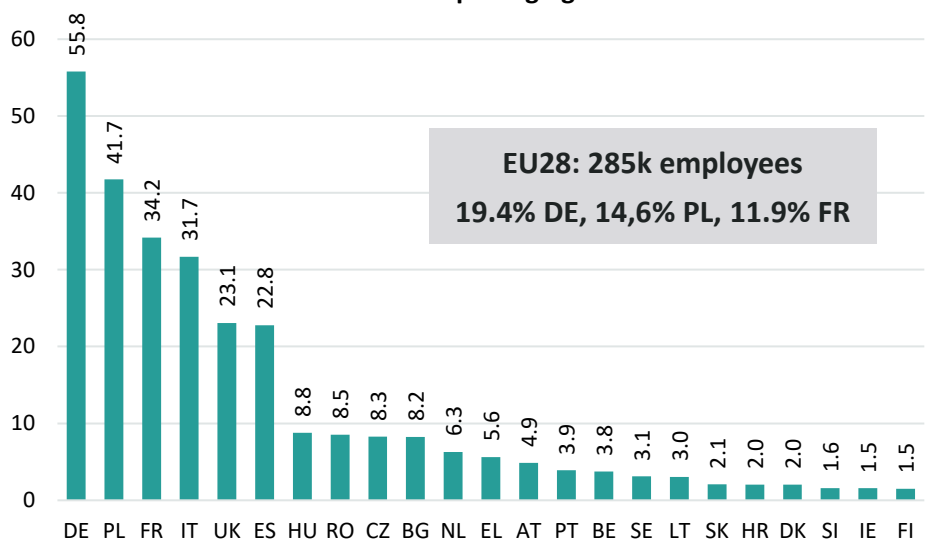
GEOGRAPHICAL DISTRIBUTION OF EMPLOYMENT IN EUROPE

Employment in 2019 in thousands of persons (UK data for 2018)

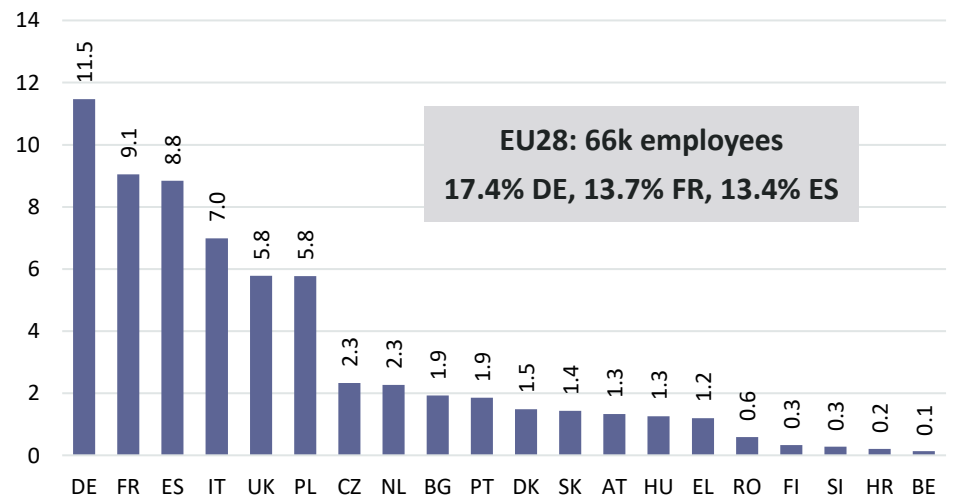
Corrugated packaging



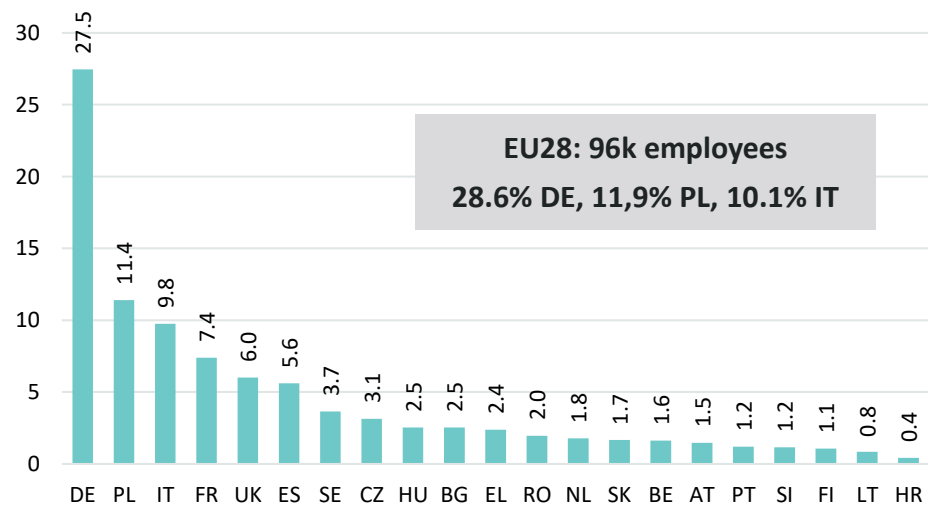
Plastic packaging



Light metal packaging

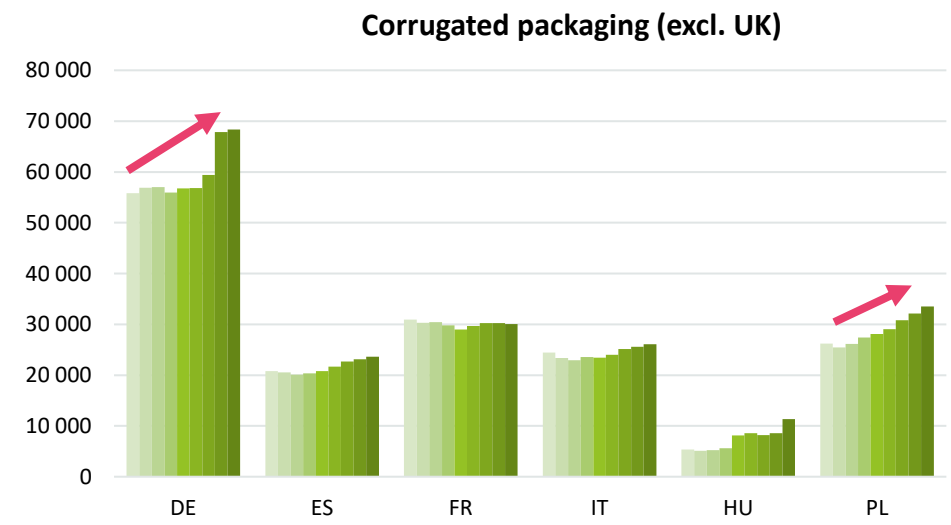


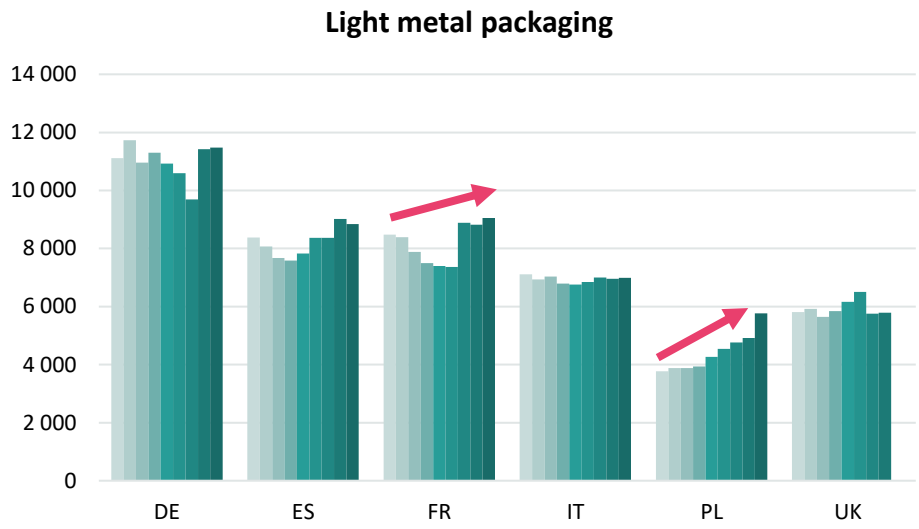
Tissue

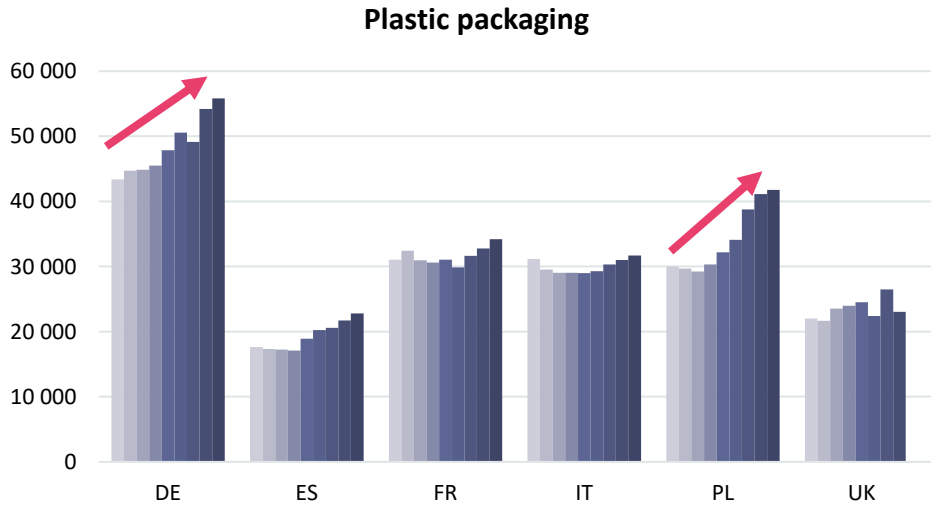


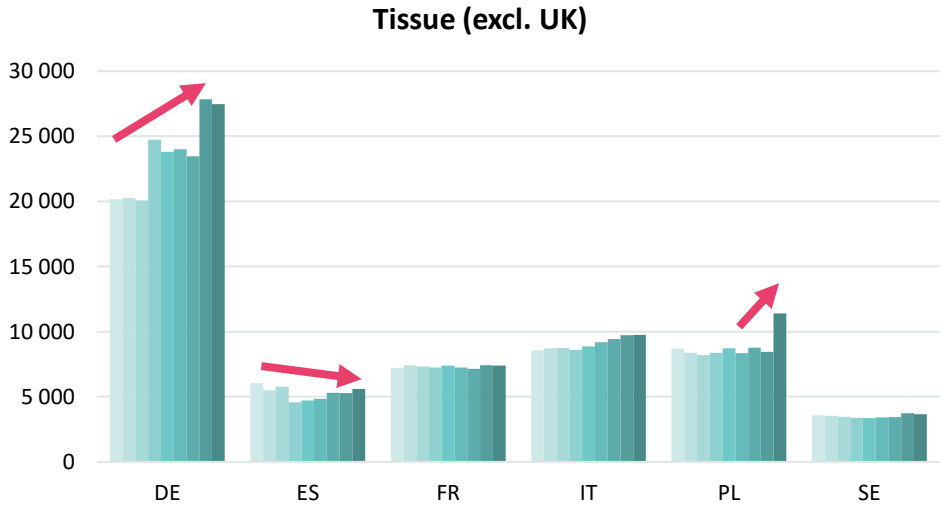
EMPLOYMENT DEVELOPMENTS

Employment developments in top 6 countries for each industry, 2011-2019









GEOGRAPHIC DIFFERENCES IN WAGES & SOCIAL CONTRIBUTIONS ARE NOT WITHOUT IMPORTANCE

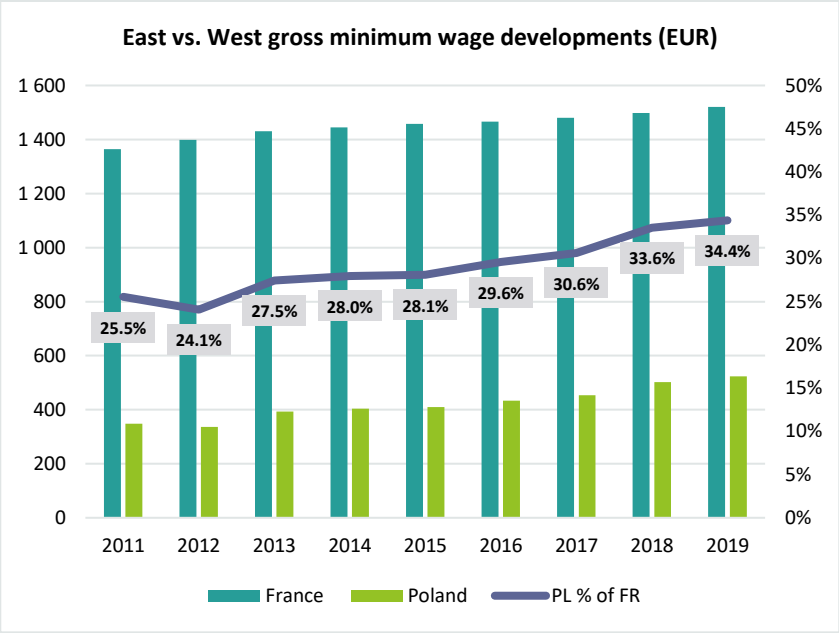
- Both packaging and tissue production capacities are ideally located close to end markets, which is why there is no clear shift from West to East.
- However, some countries in Eastern Europe (especially Poland) have seen significant growth of production and employment during the past years. While Eastern European markets have considerable growth potential, the main reasons behind this growth are comparatively low overall wages (including employers' social contributions) and proximity to developed markets in Western Europe.
- In corrugated packaging, the average wages (incl. employers' social contributions) in the EU27 in 2019 was of 3.3 thousand euro per person per month; in tissue, it was 4.2 thousand euro.
- Poland has 70-75% lower wages (incl. employers' social contributions) than Germany.
- The average wages (incl. employers' social contributions) in corrugated packaging in Hungary are more than four times lower than in France.

Average wages + employers' social contributions, 2019 (k EUR / month)

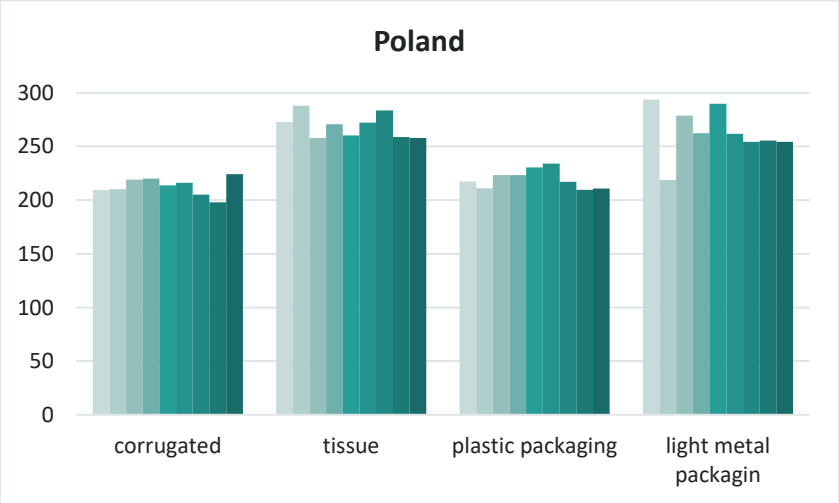
	corrugated	tissue	plastic packaging	light metal packaging
EU27	3.3	4.2	3.1	3.8
DK	5.7		5.3	5.9
AT	5.4	5.4	5.2	5.5
NL	5.0			
SE	4.9	7.2	4.6	
BE	4.5	5.9	5.2	4.1
FR	4.4	5.3	4.6	4.8
DE	4.3	5.9	4.0	4.9
FI	4.1	5.8	4.0	4.3
IE	4.0		3.8	
IT	3.8	4.5	3.8	4.1
ES	3.2	3.9	3.2	3.5
SI	2.3	1.9	2.3	
EL	2.0	2.2	2.1	3.1
CY	2.0	1.5	1.8	
PT	1.7	1.9	1.8	1.9
CZ	1.7	2.0	1.7	2.0
SK	1.5	1.8	1.6	2.0
LT	1.4	1.8	1.5	
LV	1.4		1.4	
PL	1.3	1.5	1.3	2.0
HR	1.2	1.1	1.1	1.2
HU	1.0	2.0	1.4	1.6
RO	1.0	0.7	0.9	
BG	0.7	0.7	0.7	0.8
UK			2.9	4.0

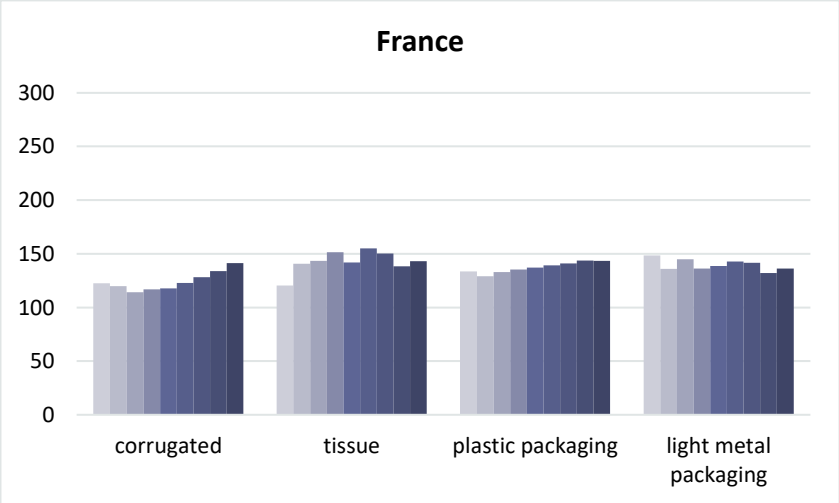
IN THE EAST, LABOUR PRODUCTIVITY HAS KEPT PACE WITH WAGES. IN THE WEST, WAGES HAVE TENDED TO LAG BEHIND PRODUCTIVITY

- The ratio of productivity to wages (incl. employers' social contributions) offers an idea as to how advantageous it is to produce something in one location versus another.
- In tissue, for example, the ratio was of over 200% in Poland and of just under 150% in France in 2019. This means that for every euro spent on labour in Poland in the tissue industry, the average value added produced was 2 euro, while for every euro spent on labour in France the average productivity was of 1.5 euro.
- It is notable that wage-adjusted productivity in Poland remained relatively stable despite considerable increases in wages during the past decade.
- In countries such as France, wage-adjusted productivity increased visibly throughout the 2010s (except for light metal packaging).



Wage-adjusted labour productivity, 2011-2019 (EUR of value added / EUR of labour cost, in %)

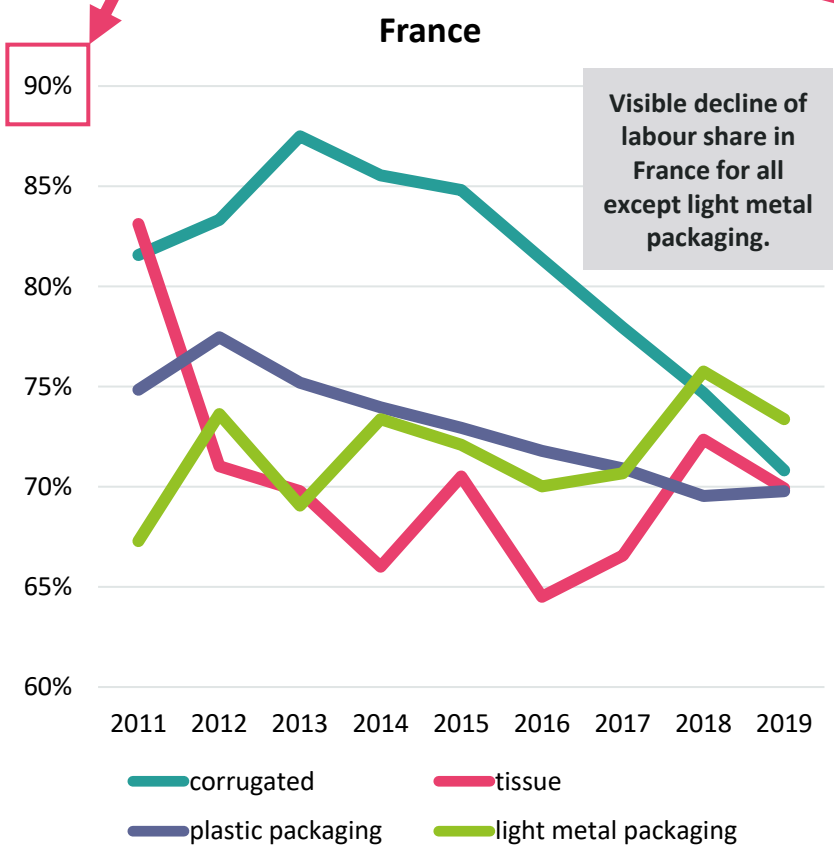




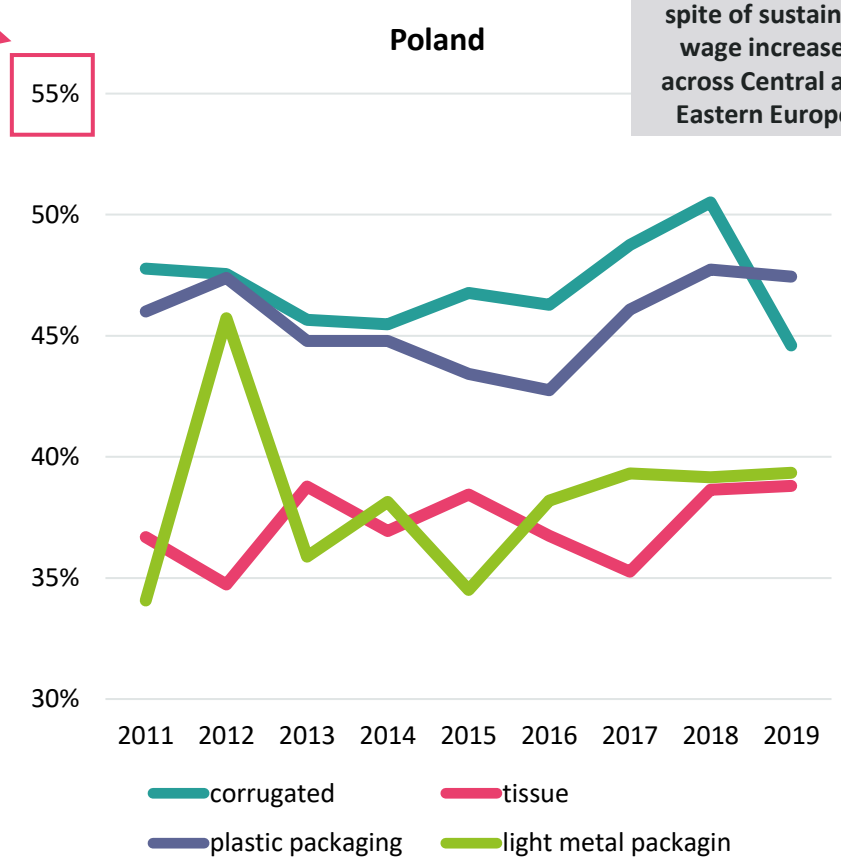
THESE TENDENCIES ARE REFLECTED IN THE DISTRIBUTION OF VALUE-ADDED

Much lower share for labour in Poland vs. France

Labour share of value-added, 2011-2019



Visible decline of labour share in France for all except light metal packaging.



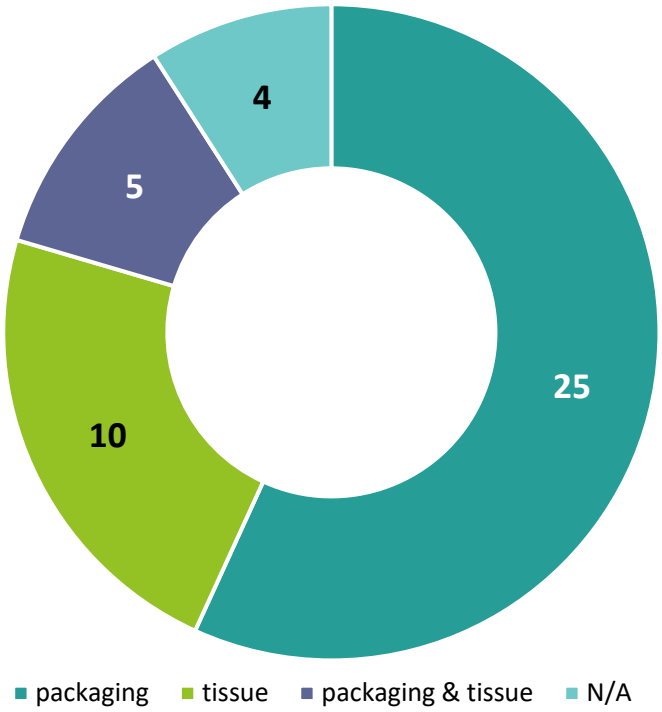
Stability of labour share in Poland in spite of sustained wage increases across Central and Eastern Europe.

#3 SURVEY ANALYSIS

OVERVIEW OF SURVEY RESPONDENTS

COMPANIES COVERED
A&R Packaging
Amcor Flexibles
Bakrotisak
DS Smith
Essity
IC Tronchetti
International Paper
M. J. Weig
Metsa
Pyroll Pakkaukset
SAICA
Sappi
Smurfit Kappa
Sofidel
WEPA
Westrock

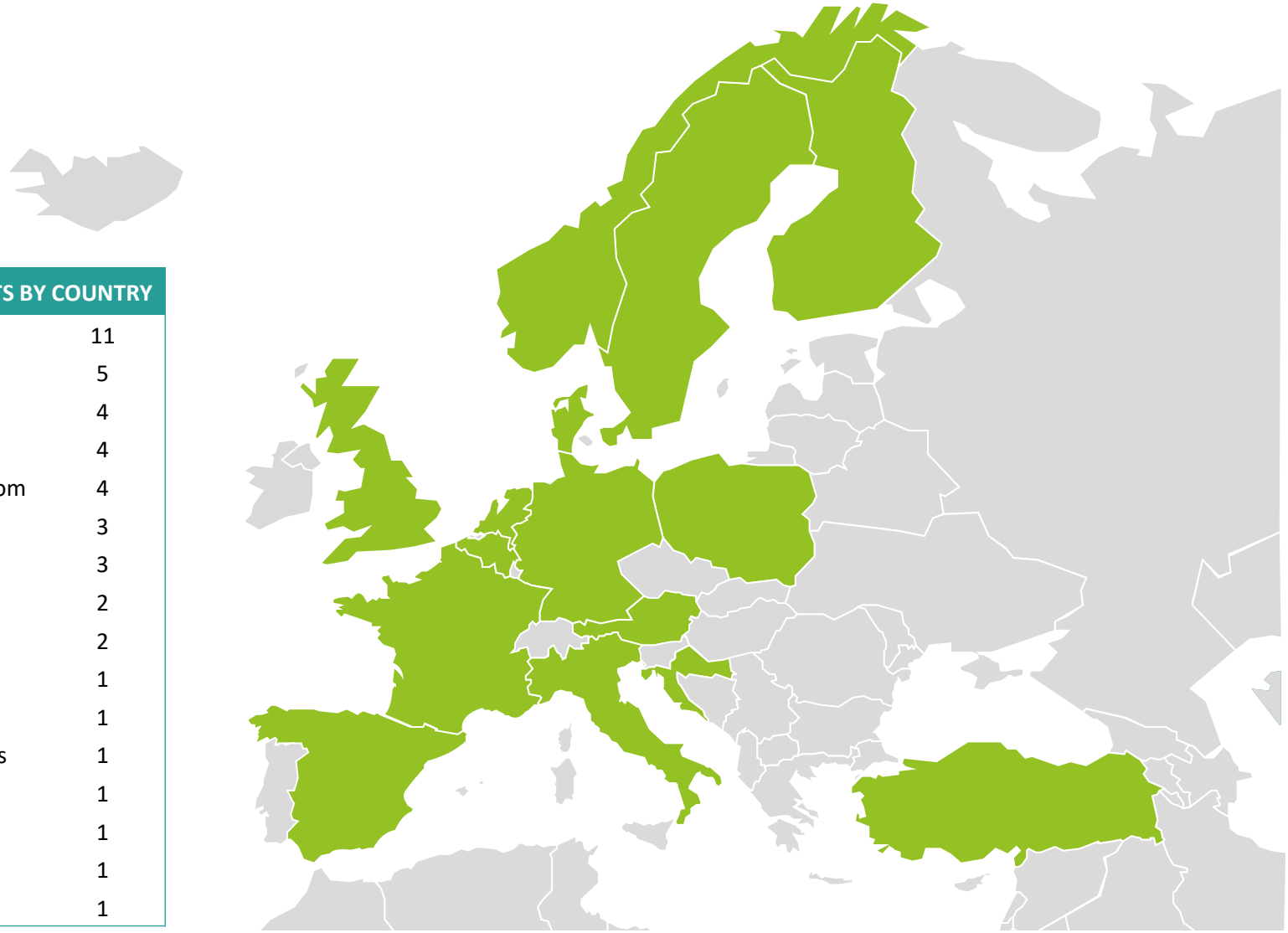
45 valid responses in total (by companies' primary activity)



Respondents are…

- blue-collar and white-collar shop stewards
- works councils' members and chairpersons
- full-time union officials at sectoral and national levels
- EWC members and chairpersons
- trade union experts

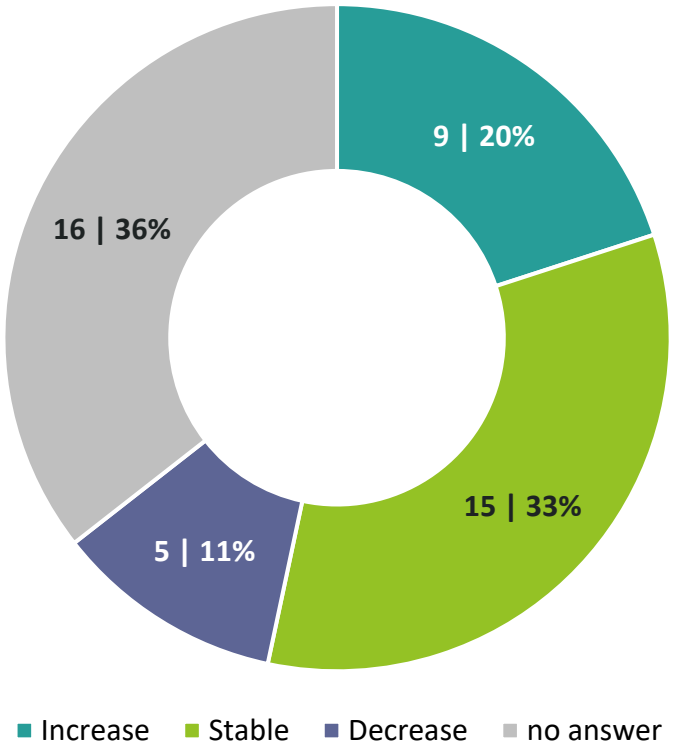
GEOGRAPHICAL SCOPE OF THE SURVEY



RESPONDENTS BY COUNTRY	
Spain	11
Germany	5
Croatia	4
Sweden	4
United Kingdom	4
Belgium	3
France	3
Austria	2
Denmark	2
Finland	1
Italy	1
Netherlands	1
Norway	1
Poland	1
Palestine	1
Turkey	1

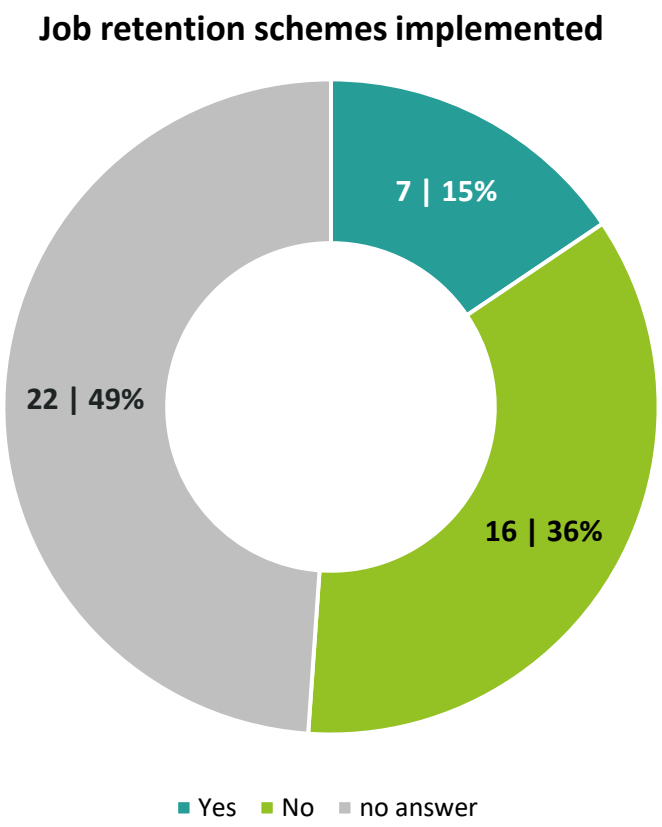
FEW CASES IN WHICH EMPLOYMENT HAS DECREASED. ACTIVITY GROWTH BENEFITS EMPLOYMENT, NOTABLY IN PACKAGING

Employment trends



- **Reasons for increase:**
  - Additional demand (several companies & countries)
  - Acquisitions (Westrock, UK; Smurfit Kappa, NL)
  - Growth of e-commerce (DS Smith, ES)
  - New production capacities (DS Smith, ES)
  - New machinery (DS Smith, BE)
- **Reasons for decrease:**
  - Site closures, strategic reorientation (International Paper, FR)
  - Digitalisation and cost savings (Sappi, AT)
  - Demographic change and recruitment difficulties (Essity, DE; A&R Packaging, HR)
  - Redundancies, machines taken offline (Essity, UK)
  - COVID impact (Sappi, AT)

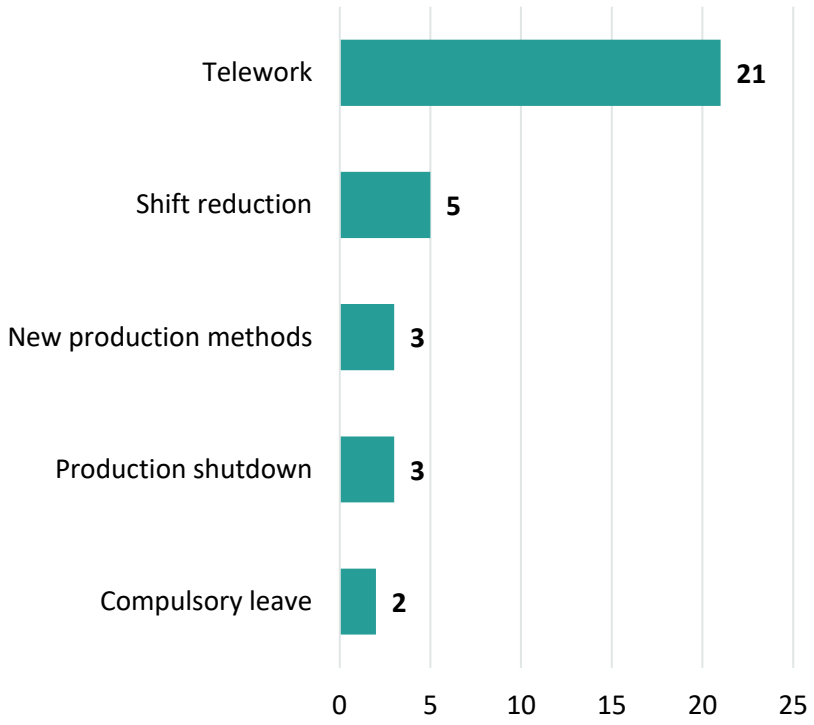
JOB RETENTION SCHEMES WERE IMPLEMENTED IN A MINORITY OF COMPANIES



- DS Smith: 1500 workers affected across Europe, out of which 250 in Spain.
- International Paper (ES): reduced working time (time not worked counted as vacation)
- Essity (DE): Reduced working time. Remaining time used for training, vacation, kept as time credit
- WEPA (DE): Kurzarbeit
- COVID-19 job retention scheme in the UK.
- Consultation with TU/WC happened in most cases.
- Pyroll Pakkaukset, FI: Employee representation was involved in agreeing on rescheduling working hours in the departments.
- International Paper, FR: Success in maintaining 90% of gross salaries and coverage for childcare costs during lockdowns.

TELEWORK, REORGANIZATION OF WORKING TIME AND THE INTRODUCTION OF NEW TECHNOLOGIES WERE CATALYZED BY COVID-19. SOME CHANGES WILL PERSIST OVER THE LONGER TERM.

Which of the following measures have been implemented in the company due to Covid crisis?

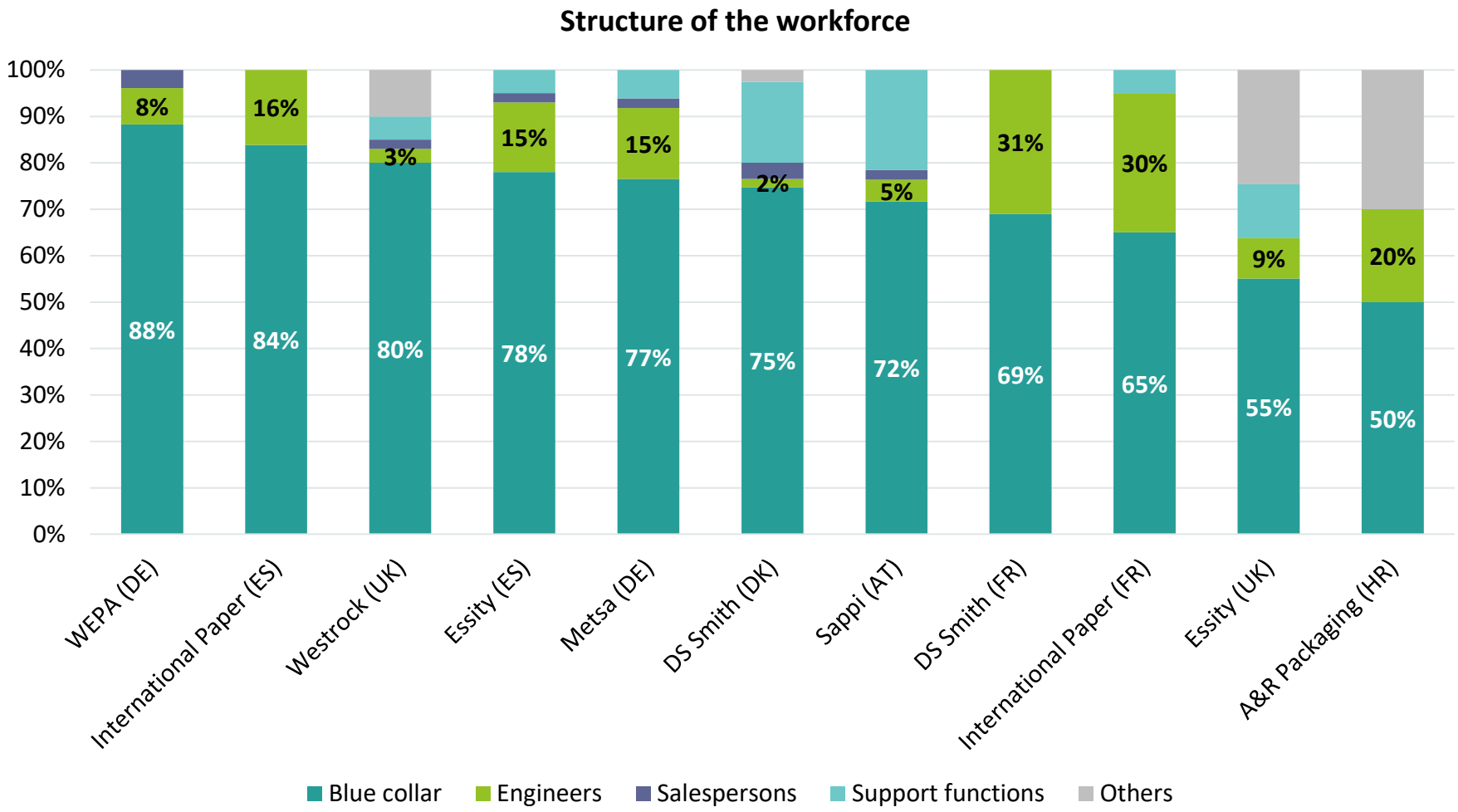


- Longer-term changes expected due to COVID-19:
  - Acceleration of automation/digitalization
  - Telework becomes permanent
  - Introduction of more flexible scheduling
  - Structural increase of demand and new investments
  - Workforce reduction
  - Increased volatility of activity

BOTH INDUSTRIES CONTINUE TO RESTRUCTURE. COMPANIES SEEM TO TARGET ADMINISTRATIVE FUNCTIONS, FOR WHICH OUTSOURCING IS A SOLUTION

- Examples of restructuring/reorganization:
  - **International Paper, FR**: Sylvamo spinoff (printing paper), new investments in FR, IT, ES
  - **International Paper, ES**: consolidation of operations, including finances and sales, outsourcing of transportation
  - **DS Smith, DK**: No restructuring, but weak labour market competitiveness of the company means workers constantly leave
  - **DS Smith, FR**: outsourcing of IT functions to India and Poland and of supplier accounting to Portugal
  - **DS Smith, ES**: optimisation of non-production functions
  - **Sappi, AT:** reduction in central staff numbers
  - **Essity, UK:** capacity reductions

SHARE OF BLUE-COLLAR WORKERS RANGES FROM 50% TO 88%. ENGINEERS' SHARE RANGES FROM 2% TO 31%...



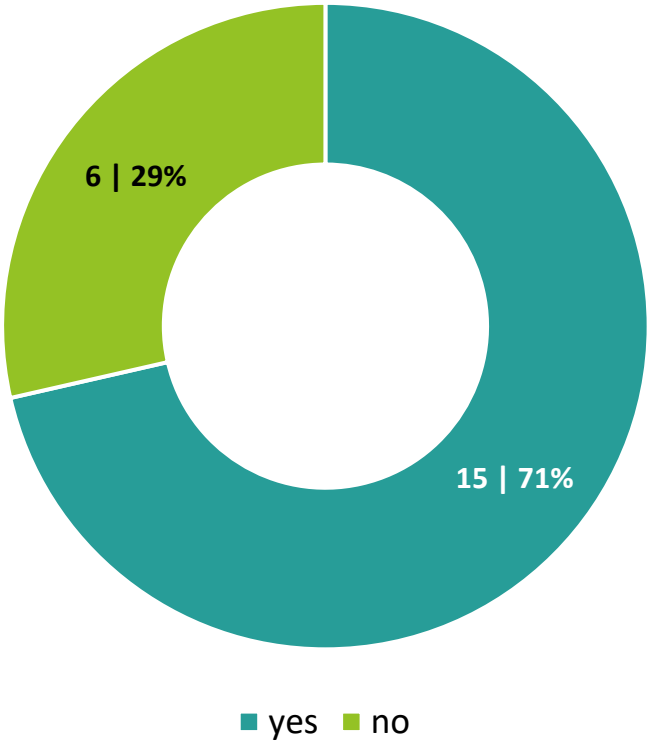
…BUT DIGITALIZATION MIGHT HAVE A DISPROPORTIONATELY NEGATIVE IMPACT ON BLUE-COLLAR JOBS

- Growing demand for highly qualified employees with digital skills, experience and adaptability.
- Decline of demand for lower and single-skilled jobs.
- Growing demand for engineers and digitally trained operators.
- Decline of demand for manual labour and support and administrative employees.

SKILLS DEMAND	
Increasing	**Decreasing**
highly skilled , experienced, adaptable personnel	lower skilled jobs
IT	printing
process technology	support workers
technicians	office workers
R&D	administrative and other workers
machine operators	warehouse, sales
graphic specialists	simple activities, sales
engineers	single skilled people
manual workers	assistants
technically trained (digitalization)	auxiliary workers
machine operators with maintenance skills	low-paid jobs
factory and office workers	manual labor

DIGITALIZATION IS BECOMING A STAPLE FEATURE OF BLUE- AND WHITE-COLLAR WORK

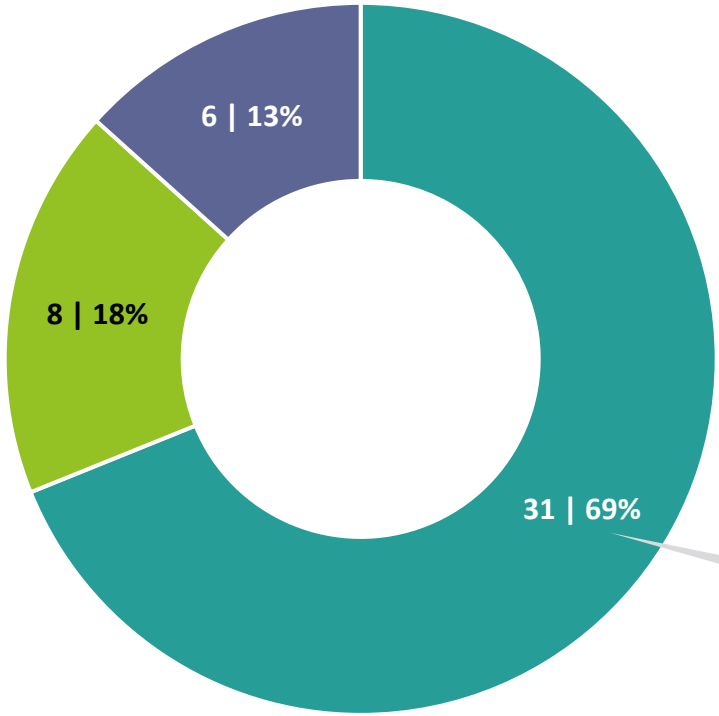
Impact of digitalization on job content (only valid answers shown)



- Digitalisation of documentation and reporting. “Paperless offices”.
- Moderate employment loss. More significant concerns for the future.
- Using digital means at work has become part of everyday life. Computer work is required even for blue-collar workers.
- Increased requirement of IT skills across the workforce.
- Digitalisation of machinery.
- Increased responsibility and workloads.
- Increased work intensity.
- Worker subordination to software.

OVERVIEW OF INFORMATION & CONSULTATION

Were the rights to information and consultation respected, both at European and national level?



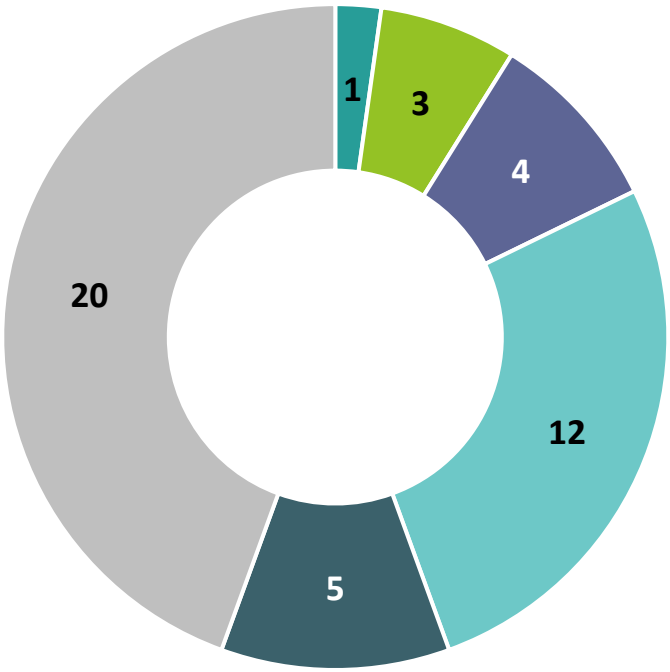
no answer · Local /national & European · Only local / national

- **Smurfit Kappa**: major acquisition in Italy (august 2021) triggered both union and EWC consultation.
- **Essity (UK):** Regional and national officers along with local reps were involved in consultation process on redundancies and tissue machine closures
- **Essity (ES):** Weekly information on the evolution of covid and measures taken.
- **Bakrotisak (HR):** no EWC.
- **DS Smith**: consultation varies from country to country; only select committee consulted at the EWC level.

High share of nonresponses indicates potential dysfunctionalities with I&C

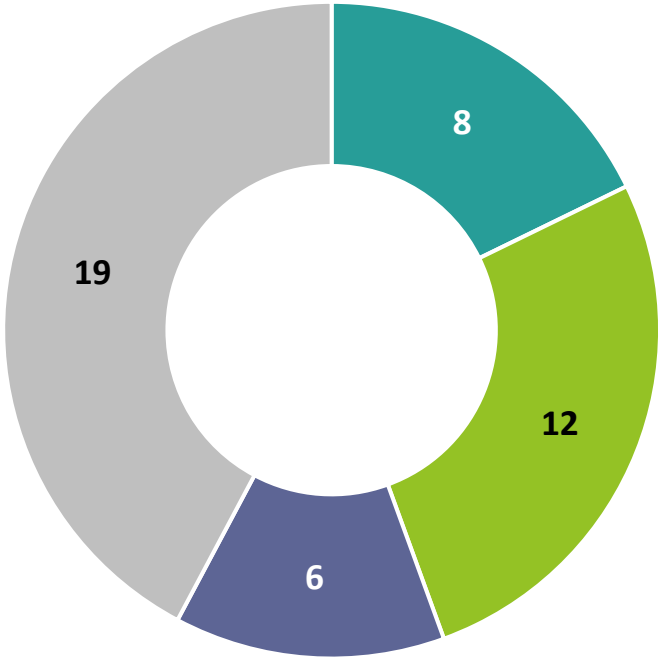
STARK DIFFERENCES IN AWARENESS OF SUSTAINABILITY CHALLENGES AND IMPLICATION IN SOCIAL DIALOGUE ON THE TOPIC

On a scale of 1 to 5, where 1 is no idea and 5 is solid knowledge, how aware are you of the impact of these policies on your company's business



High share of nonresponses indicates potential lack of awareness

Are issues related to the environmental impact and sustainability of the business addressed with workers' representatives in the Information and Consultation bodies



#4 CASE STUDIES ON COLLECTIVE BARGAINING AND INFORMATION & CONSULTATION

112-DAY STRIKE AT UPM IN FINLAND

- **Context**:
  - **October 2020**: Finnish Forest Industries Federation (employers' association) announces it will no longer participate in national-level sectoral collective bargaining, which was in place in Finland since the 1940s. Subsequent negotiations would take place at the company level. Employers claimed sectoral agreements were "too rigid"; unions feared employers would push for a competitive reduction of labour standards instead of investing in means to increase productivity.
  - **September 2021**: agreements at Stora Enso; **November/December 2021**: agreements at Metsa.

- **Developments at UPM leading up to the strike**:
  - **February 2021**: UPM announces they will no longer negotiated collective agreements for white-collar workers.
  - **Spring 2021**: UPM pushes for agreements at the level of business units, not for the whole company. The company intended to increase flexibility in working organization while also obtaining some wage concessions.
  - At UPM Communication Paper, the employer demanded an additional ≈100 hours of work per year, without additional pay.
  - **December 2021**: agreements at UPM Plywood and Timber. Strike announced at other UPM business units (Pulp, Communication Paper, Specialty Papers, Raflatac, Biofuels) starting in January.

- **The strike**:
  - **1 January:** strike begins as announced by Paper Workers' Union (Paperiliitto) and the Finnish Electrical Workers' Union. Periodical evaluations by the union and decisions to prolong the strike.
  - **Very high degree of participation**: ≈2000 strike participants. The company's offer of individual bonuses for workers not participating in the strike (€30/day) had no effect.
  - **Financial support** from other Finnish unions. €2.2M support from the Industrial Union.
  - Court decision that some workers in key positions (e.g., ensuring energy supply for local housing) could not stop work.
  - Company actions widely perceived in Finland as being "ideologically" driven, with little economic rationality.
  - **23 April**: strike ends with agreements at all business units. Exact conditions are confidential.

- **Implications:**
  - **Financial:** initially estimated at €200-300M. UPM Q1 results mention an impact of €180-220M vs €277 reported operating profit (EBIT).
  - **Operational**: 2/3 of UPM pulp capacities and 1/3 of graphic paper capacities down; similarly severe impact for labels and biofuels.
  - **Market**: the strike severely affected supply in Europe. UPM customers were forced to reduce activity and sometimes even shut down production entirely. Larger customers managed to find alternative supply. The strike is expected to have longer-term negative effects for UPM's image and position on the European market.

ONGOING TURBULENCE AT DS SMITH IN FRANCE

- 14 June 2021: national strike at 80% of sites of DS Smith France, with a participation rate of 85-90%
  - Strikers demanded improvement of highly dysfunctional social dialogue, the awarding of the "Macron bonus" (€1000 tax-free), changes to seniority system and to the profit sharing scheme.
  - Success was immediate.
- DS Smith employees in France are confronted with:
  - Arbitrary increases in work intensity
  - Discrimination based on gender, race, religious affiliation.
- The company relies heavily on agency workers (*intérimaires*): up to 25% of the workforce at certain sites.
- There is also a high rate of turnover and problems related to health and safety.
- The company pushes for labour flexibility to deal with fluctuations in demand. Temporary agency workers were used as a buffer during the peak of COVID-19 demand boost as well as during periodic increases of activity.
- Social dialogue at the national level does not function properly. French management typically defers responsibility to the corporate level.
- Effectiveness of European social dialogue is of limited relevance for the real problems of DS Smith employees in France. No real engagement on the side of management. Commitments at the European level do not have concrete effects for workers.

CURRENT MARKET BENEFITS UNIONS: SAICA IN THE UK

- Saica has permanently retreated from the traditional national-level sectoral collective bargaining, in which it previously took part alongside DS Smith and Smurfit Kappa.
  - Unions threatened to strike in response to weak common wage offer from the three employers.
  - Smurfit Kappa made a unilateral offer to unions with commitment to return to sectoral-level bargaining in the next year.
  - Saica decision resulted from these developments.
- Company-level bargaining has some advantages:
  - Economic and financial information shared with unions is more pertinent, since competition clauses do not apply at the company level.
  - Unions can play employers against each other, knowing that companies cannot afford to lose production volumes.
  - This, however, depends on peculiar circumstances: a highly competitive environment in which employers are dependent on highly demanding customers.
- Strike action in Scotland, where Saica closed two plants and opened a new "super site" to serve the growing demand for corrugated packaging.
  - The company intended to transfer workers from the two old plants to the new one while demanding significant changes to terms and conditions — increase in weekly working hours from 37 to 40, more flexible schedule, new shift schedule to allow continuous production without requiring overtime.
- Generally, UK representatives had to defend their position in EWCs following Brexit.
- Significant new investments in both corrugated packaging (Smurfit Kappa) and tissue (IC Tronchetti) capacities in Wales

CONSOLIDATION OF THE WESTROCK EWC

- Since 2017, the situation at Westrock has been as follows:
  - One EWC covering former sites of Multi Packaging Solutions (acquired by Westrock in 2017).
  - One EWC covering former sites of MeadWestvaco (merged with RockTenn in 2015 to form Westrock).
  - A number of plants not covered by any of the two EWCs.
- Efforts began in 2019 to create a single EWC to cover all the Westrock sites in Europe, dissolving the two existing EWCs and including sites that are currently not covered.
  - 11 countries to be represented in the new EWC.
- SNB elected and began work on a new agreement, with the MPS one as a starting point.
- COVID-19 and the impossibility of organizing physical meetings slowed the process down. At present (May 2022), it is expected that a new agreement will be in place in the following months.
- Strengths of the new draft agreement:
  - An adaptation clause that protects the EWC: in case of acquisitions or sale, the agreement takes precedence over any other.
  - The EWC would function primarily as a trade union body at the European level: the agreement stipulates that national trade unions designate EWC representatives.

ADAPTATION OF EWCS TO INDUSTRY CHALLENGES: ANTALIS & VPK

- **Antalis EWC:**
  - Agreement (dating from 2013) was adapted in 2021 to keep UK reps after Brexit and update the functioning of the EWC according to the new company structure.
  - Antalis was acquired by Kokusai Pulp and Paper in 2019. Previously, the EWC covered both Antalis and the paper manufacturer Arjowiggins, both owned by Sequana Capital, which went bankrupt in 2019. The new agreement is dedicated to Antalis.
  - Considerable organizational efforts were made to improve the functioning and cohesiveness of the EWC:
    - Training for members from sites without trade unions proved successful in finding a common starting position supporting the interest of employees;
    - Language barriers were overcome by integrating the use of automatic translation tools, which allowed for regular interactions between EWC members outside statutory meetings. EWC members exchange information once or twice per month, with visibly positive results for the functioning of the EWC and for the position of employee representatives in relation to the management.
    - Return to physical meetings was pursued as a priority, since online meetings during the pandemic threatened to weaken the EWC.

- **VPK EWC**:
  - Agreement reached in early 2010s covering Belgium and France, but EWC never functioned.
  - The company's expansion to other countries (Spain, Poland, the Nordics), notably via acquisitions, sparked renewed interest in having a functioning EWC.
  - Ongoing negotiations with agreement expected by the end of this year.

SUMMARY

Both sectors dealing with a series of challenges: energy price crisis, sustainability, digitalization, continued consolidation.

- Different market trends (continued high demand for packaging, uncertainty for tissue) may lead to divergent outcomes.

Approximately 750 thousand people work in the packaging and tissue industries at the level of the EU27.

- Employment is concentrated in the largest markets, and it has grown significantly over the past decade.
- Though still relatively limited, some shift of production capacities to Eastern Europe is visible, counting on the still much lower labour costs in the region.

Survey results indicate digitalization is having a significant impact on job content, working conditions and skill requirements, but these challenges are not easily addressed in a context of demographic change and difficulties in attracting skilled workers.

- Survey also points toward potential dysfunctionalities of information and consultation and lack of awareness of structural challenges.

The social dialogue landscape is dynamic and asymmetric:

- Industrial action at UPM in Finland, DS Smith in France, Saica in the UK primarily in response to employers' disregard for collective bargaining and attempts to weaken labour standards.
- Transformations of EWCs at Westrock, Antalis and VPK, responding to shifting company structures resulting from mergers and acquisitions. COVID-19 and Brexit were key in provoking reconsiderations of EWC agreements.

syndex
KNOWLEDGE FOR ACTION
IRELAND
UNITED KINGDOM
BELGIUM
wmp consult
GERMANY
POLAND
FRANCE
ROMANIA
SPAIN