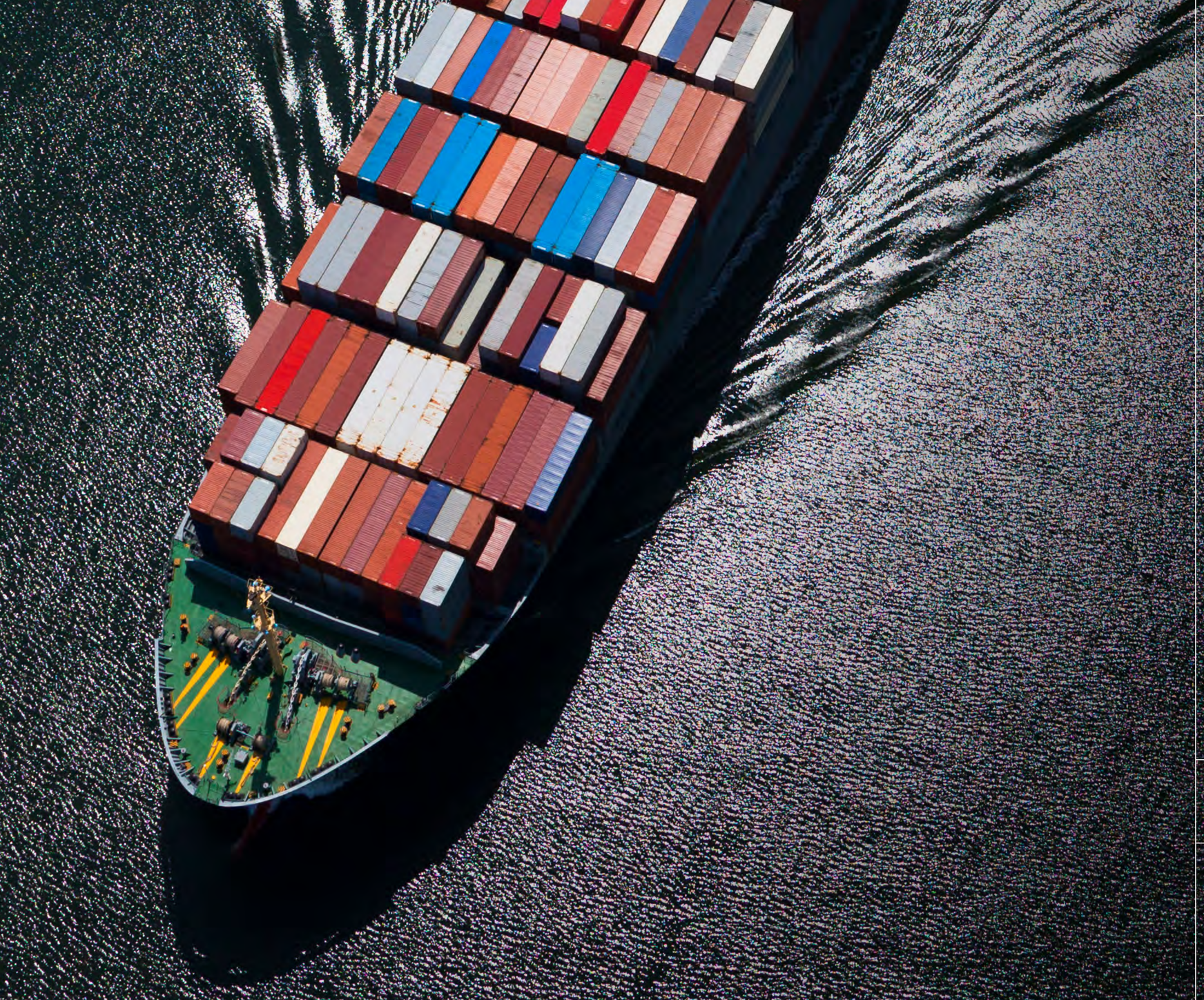


Industry Report

Fulfilling Packaging's Potential

A Holistic Approach to Supply Chain Optimisation

DS Smith

CONTENTS

PHOTO: HANNES EGLER, UNSPLASH, COVER PHOTO: DAN_PRAT, ISTOCK

Welcome

Pressure on supply chains affects all businesses, but innovative packaging can help streamline these processes

We are dependent on fragile global supply chains. Covid-19 and the war in Ukraine have forced businesses to rethink operations. As a result, supply chains are not as resilient, cost-effective or risk-free as they could be.

Disruptions and an increasingly competitive business environment collide to create complications. Businesses must reposition logistics, procurement, sustainability, labour, packaging and more for success.

To understand how businesses manage this complexity, and the role packaging plays in their strategies, we surveyed **300 executives** with responsibility for supply chains, procurement, packaging, commodities or sustainability. All respondents work at manufacturing companies across four key sectors: automotive, electronics, chemicals and pharmaceuticals.

The results are striking.

Almost seven in ten **(69%)** would spend more on packaging to save overall supply chain costs. However, while businesses face supply chain complexity on many fronts, they do not prioritise packaging as a solution,

300

executives with responsibility for supply chains surveyed from these key sectors:


AUTOMOTIVE


ELECTRONICS


CHEMICALS


PHARMACEUTICALS

and respondents often have their hands tied when procuring packaging that could simplify some of that complexity.

Respondents are attracted to innovation in packaging. More than half have adopted smart packaging, designed to track and trace an item's location, or condition. Just under **50%** will optimise their packaging for efficiency and sustainability in the near future.

Packaging also helps companies meet their sustainability goals, particularly by enabling the circular economy, but

"Only a quarter of respondents rank packaging among their top three areas of focus"

they need advice on how to achieve this.

But the survey reveals a shortfall in strategic thinking on packaging. Only a quarter of respondents rank packaging among their top three areas of focus. And the focus is cost-oriented, with more than two-thirds directed to buy packaging at minimum possible price.

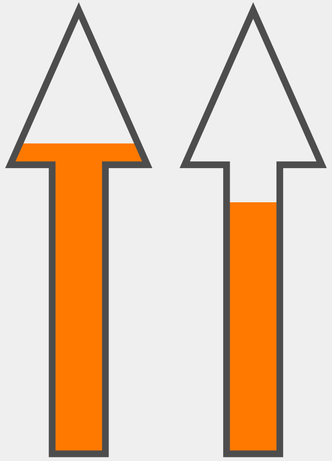
This limits longer-term investment in packaging that drives efficiencies, flattens the supply chain and reduces complexity. Respondents recognise the benefits of innovative packaging solutions in reducing cost, managing risk and boosting sustainability. But they need help tying these benefits to strategic objectives, circular economy initiatives, customer satisfaction or activities to increase overall efficiency.

This report explores these findings in detail and gives insights on how supply chain stakeholders can use packaging to reduce complexity, create competitive advantage and achieve sustainability goals.

Key Findings

Innovative packaging solutions can cut costs and boost sustainability but businesses need to take account of the full supply chain. We asked 300 supply chain managers for their perspectives on reducing complexity in their logistics:

1 Supply chain leaders understand the potential of packaging:



69% would increase packaging spend to reduce supply chain costs

56% have adopted smart packaging to track and monitor goods

2 They see the benefits of innovative packaging for efficiency, risk and spend:

75% ensuring environmental/ hazardous compliance

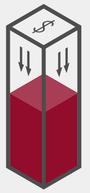
68% maintaining the quality of goods

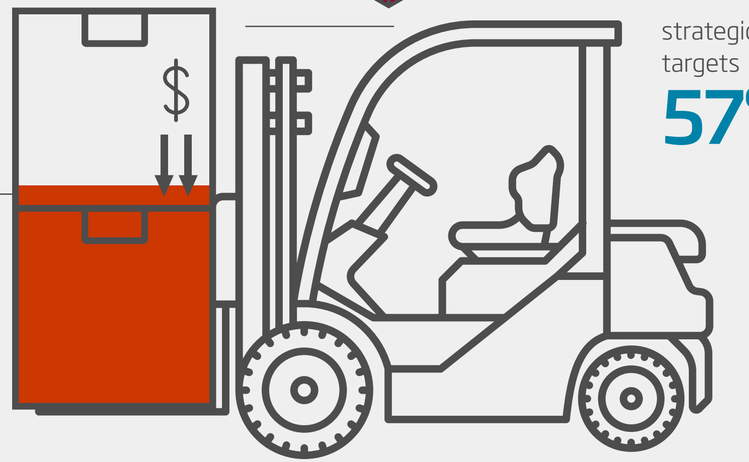
56% lowering logistics costs

3 But businesses are constrained by a narrow focus on cost:

68% prioritise cost reduction in isolation

68% must buy packaging at minimum cost





4 They struggle to tie packaging investments to:

increased customer satisfaction **63%**

strategic targets **57%**

5 And they need help realising the circular economy:

87% are fully committed to circular economy principles

69% want help understanding packaging's role

61% want to encourage suppliers/ customers to be sustainable

Chapter — 1

Complexities in the Supply Chain

PHOTO: CALIN STAN, ADOBE STOCK

Manufacturers acknowledge the potential of packaging to address growing complexity in their supply chains but many are not thinking strategically

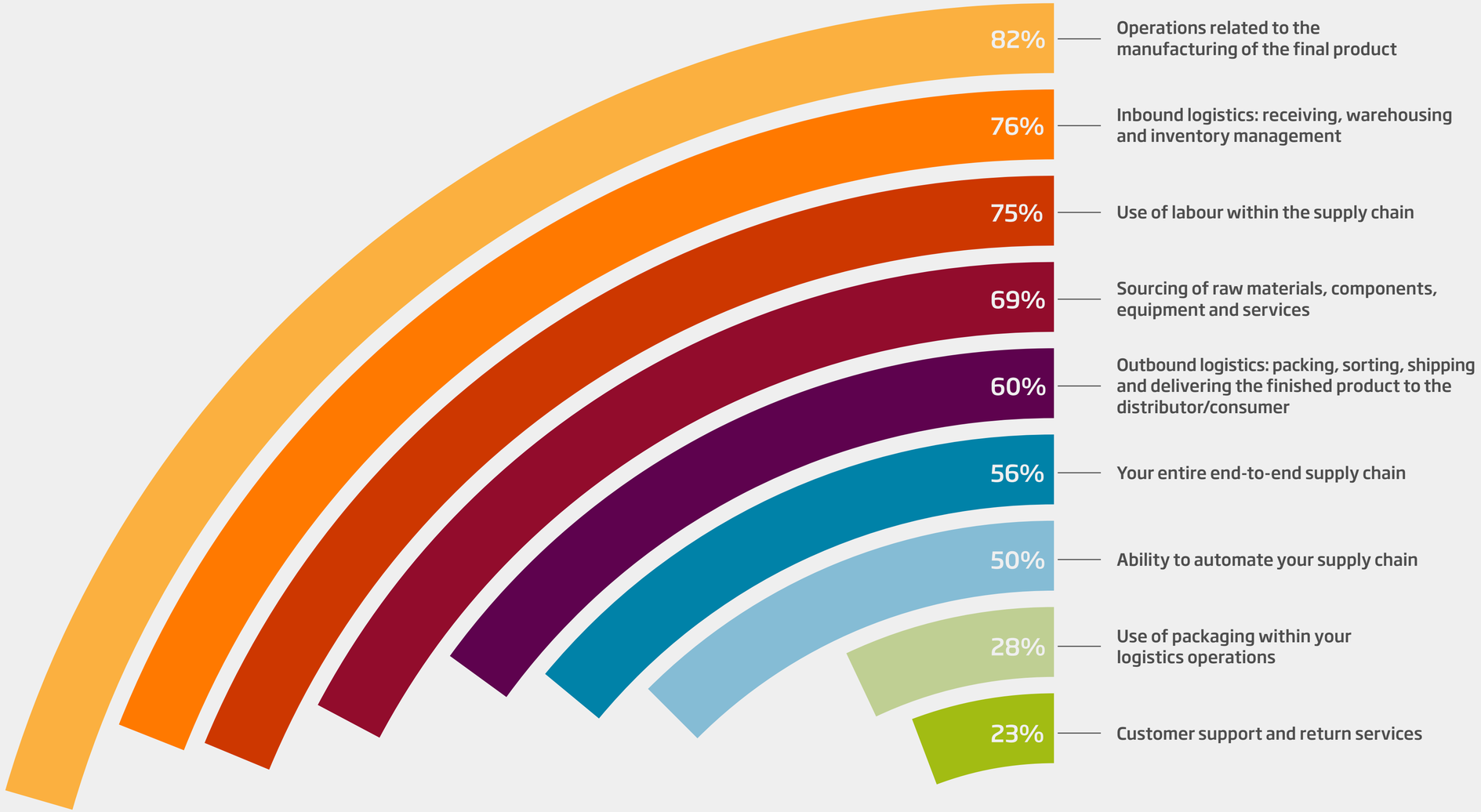
We can understand the challenges that supply chain managers face by identifying their main concerns.

Four areas dominate supply chain complexity according to respondents **(see Figure 1)**: product manufacturing operations **(82%)**; inbound logistics **(76%)**; labour and workforce in the supply chain **(75%)**; and sourcing raw materials, components, equipment, and services **(69%)**.

FIGURE 1

MANUFACTURING OPERATIONS, IN-BOUND LOGISTICS AND LABOUR ARE THE CHIEF CAUSES OF SUPPLY CHAIN COMPLEXITY

Q: Please rate the level of complexity you encounter in these areas of your supply chain (% answering 'somewhat' or 'extremely' complex).



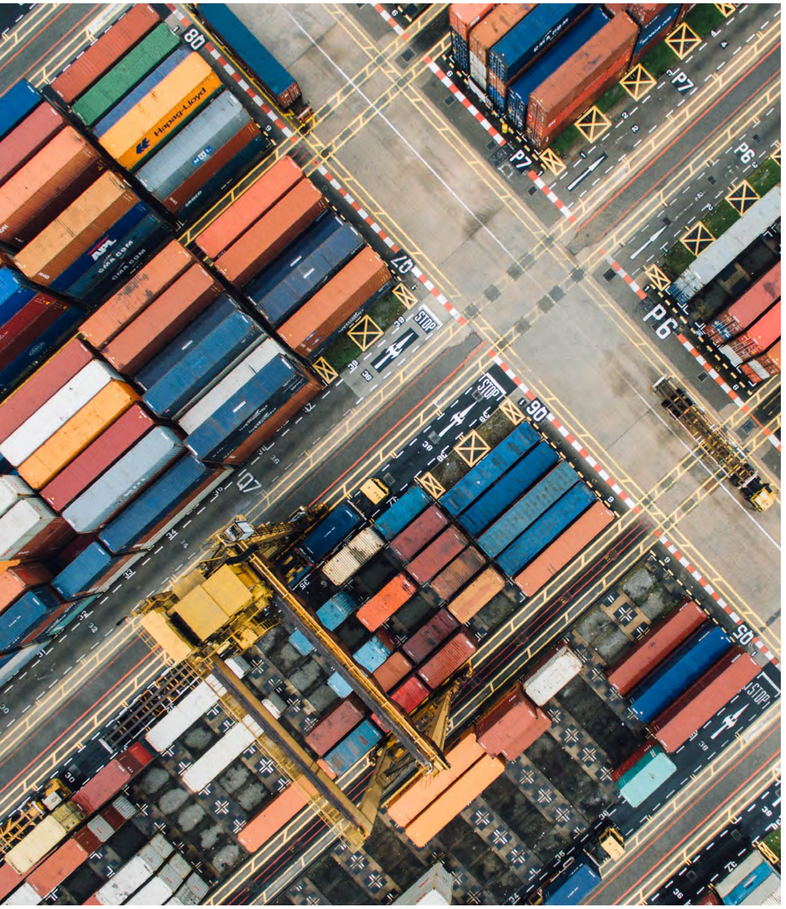
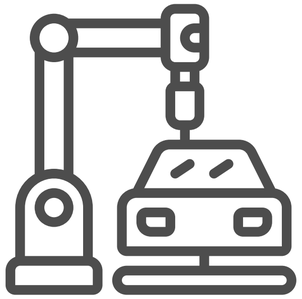


PHOTO: CHUTTERSNAP, UNSPLASH

The leading sources of complexity vary between industries: auto manufacturers, for example, see the most complexity in product manufacturing **(89%)** and inbound logistics **(81%)**, while chemical manufacturers have issues with manufacturing operations **(80%)** and inbound logistics **(77%)**.

Much of the complexity associated with sourcing, manufacturing and inbound logistics comes from the need to centralise manufacturing. Supply chain stakeholders must buy from multiple suppliers, move across complex transportation networks and receive materials for further processing.

As we'll see, these complexities create issues throughout the supply chain by increasing costs and producing waste and inefficiencies, exacerbating risks and limiting progress towards sustainability goals.



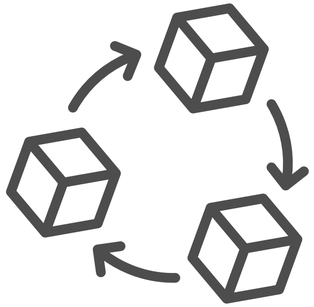
89%

of auto manufacturers see the most complexity in product manufacturing

Packaging Innovation

Packaging, by contrast, is not seen as a major source of complexity, with only **28%** of respondents describing it as 'somewhat' or 'extremely' complex.

Indeed, it is an area that most respondents feel they have under control: **63%** say they understand the full impact of packaging solutions and can measure the results across their supply chain **(See Figure 2)**. This is most apparent among respondents in the electronics industry **(67%)**, and least among those from the chemicals sector **(57%)**.



28%

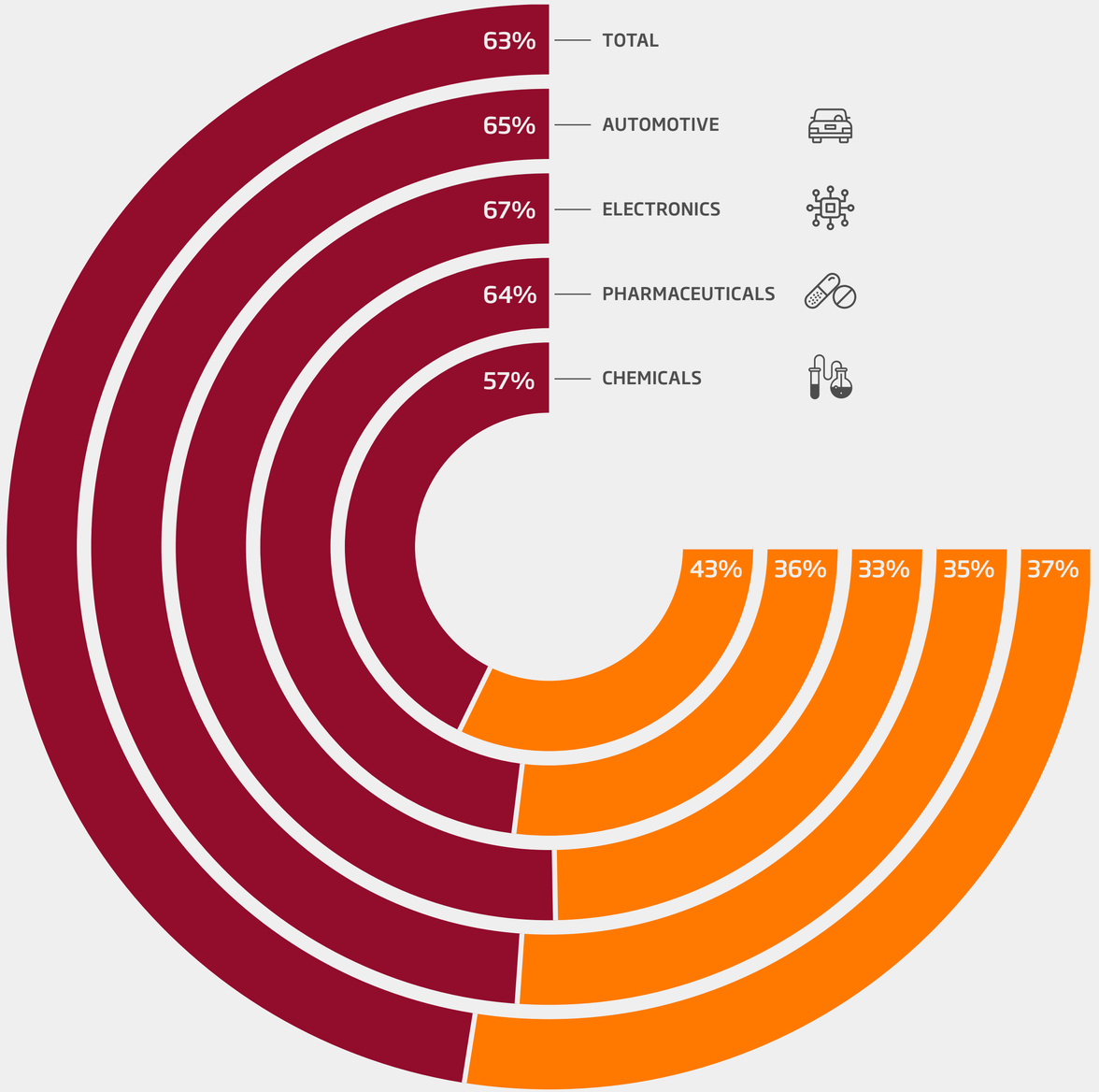
don't see packaging as a major source of complexity within the supply chain

PHOTO: JOZEF POLC. ALAMY STOCK PHOTO

FIGURE 2

MOST MANUFACTURERS SAY THEY UNDERSTAND AND CAN MEASURE THE BENEFITS OF PACKAGING SOLUTIONS

Q: Which of the following statements best matches your current situation?



We understand the full impact of packaging solutions and can measure the results across our supply chain

We partially understand the impact of packaging solutions but cannot prove the benefits it can bring to supply chains

PHOTO: ALVAREZ, ISTOCK

As we'll see later, however, this confidence reflects a short-sighted view of packaging's potential benefits, as many respondents struggle to measure its contribution to strategic targets across the entire end-to-end supply chain.

Packaging innovation is a focus for many, the survey reveals. More than half of respondents **(56%)** have already adopted connected or smart packaging that allows them to track and monitor products, with **25%** more planning to do so this year.

56%

have already adopted connected or smart packaging

This will help them address inbound logistics, which is one of the main sources of complexity. Together with outbound logistics, it's behind some of the most expensive costs associated with product manufacturing. For businesses that source or send materials between multiple countries, international transport costs quickly add up.

Smart packaging can help contain these costs. Geolocation allows for better tracking and planning of goods in transit,

47%

plan to optimise their packaging for efficiency, waste reduction and sustainability within the next year

while environmental monitoring can ensure product quality, reducing waste.

Looking ahead, respondents plan to invest in packaging to boost the efficiency – and sustainability – of their supply chains this year.

Only **24%** say they have already optimised their packaging for logistics efficiencies, waste reduction and sustainability. Pharmaceuticals companies are the most advanced adopters **(32%)**, even though they report the highest percentage of empty space in freight containers.

Automotive is trailing behind in this area **(19%)**.

But nearly half **(47%)** plan to optimise their packaging for efficiency, waste reduction and sustainability within the next year – more than any other supply chain strategy in consideration **(see Figure 3)**.

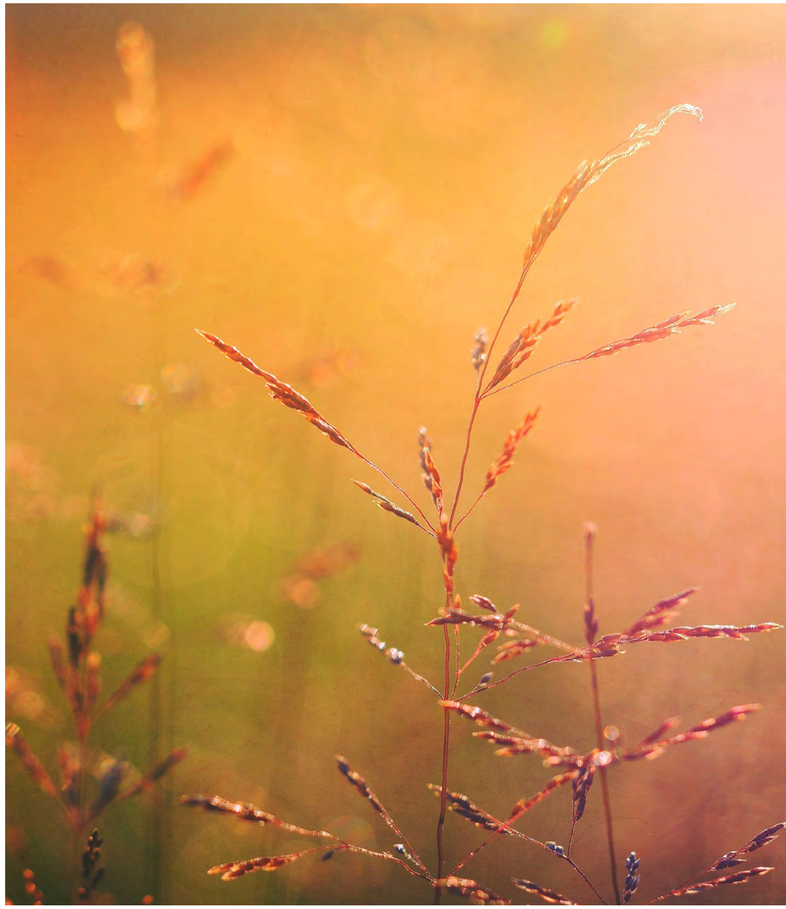
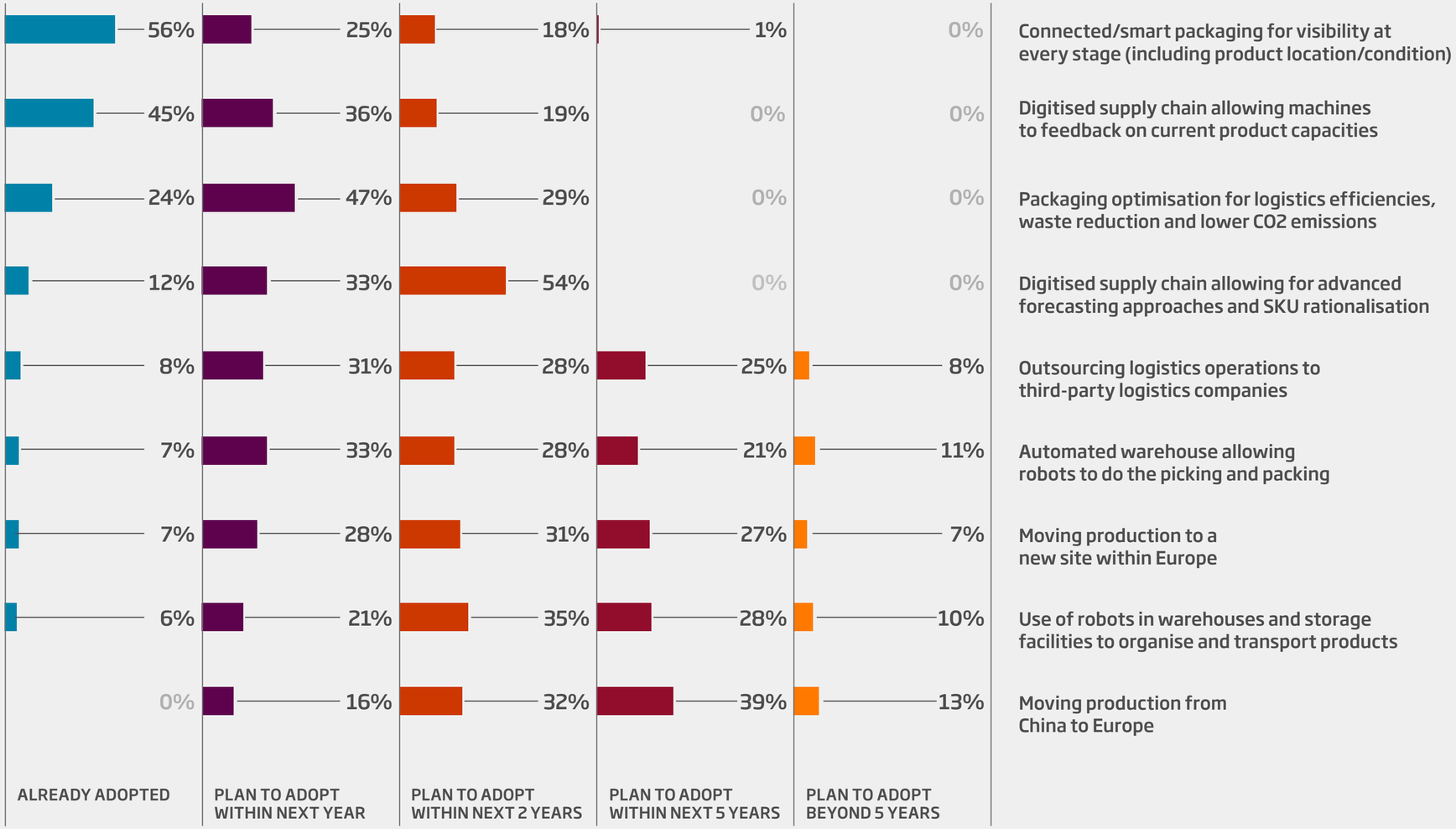


PHOTO: AARON BURDEN, UNSPLASH

FIGURE 3

PACKAGING IS THE FOCUS OF CONSIDERABLE INNOVATION

Q: Which of the following initiatives have you adopted, or do you plan to adopt in the next 1, 2 or 5 years, to address the complexity in your supply chain? (% of respondents)



Return On Packaging

Manufacturers see packaging as an important factor to solve supply chain complexity, and are adopting new and innovative solutions as a result.

They understand the equation of packaging investment: **69%** of survey respondents would be willing to increase their packaging spend for a **5%** to **15%** reduction in overall supply chain costs. Of those, three quarters would be prepared to increase their packaging investments by **5%** to **10%** for such a return.

Such savings are certainly achievable: a recent pilot project with a manufacturer will deliver savings of **$2 million** a year based on an upfront packaging investment of just **$100,000**. The return on investment case alone is compelling.

Small improvements to packaging dimensions, shape and material can multiply over thousands of items, significantly increasing the number and volume of products in a truck or shipping container. This drives savings, directly through reducing ocean and road transport costs, and indirectly by minimising administration, labour and handling requirements.

A recent pilot project with a manufacturer will deliver savings of

$2 million

a year based on an upfront packaging investment of just

$100,000

FIGURE 4

MOST MANUFACTURERS WOULD INCREASE PACKAGING SPEND TO CUT SUPPLY CHAIN COSTS BY 5% TO 15%

Q: Would you be willing to increase your packaging spend if you could lower your supply chain costs by 5-15%? If yes, by how much would you increase spend? (% of 'yes' answers)

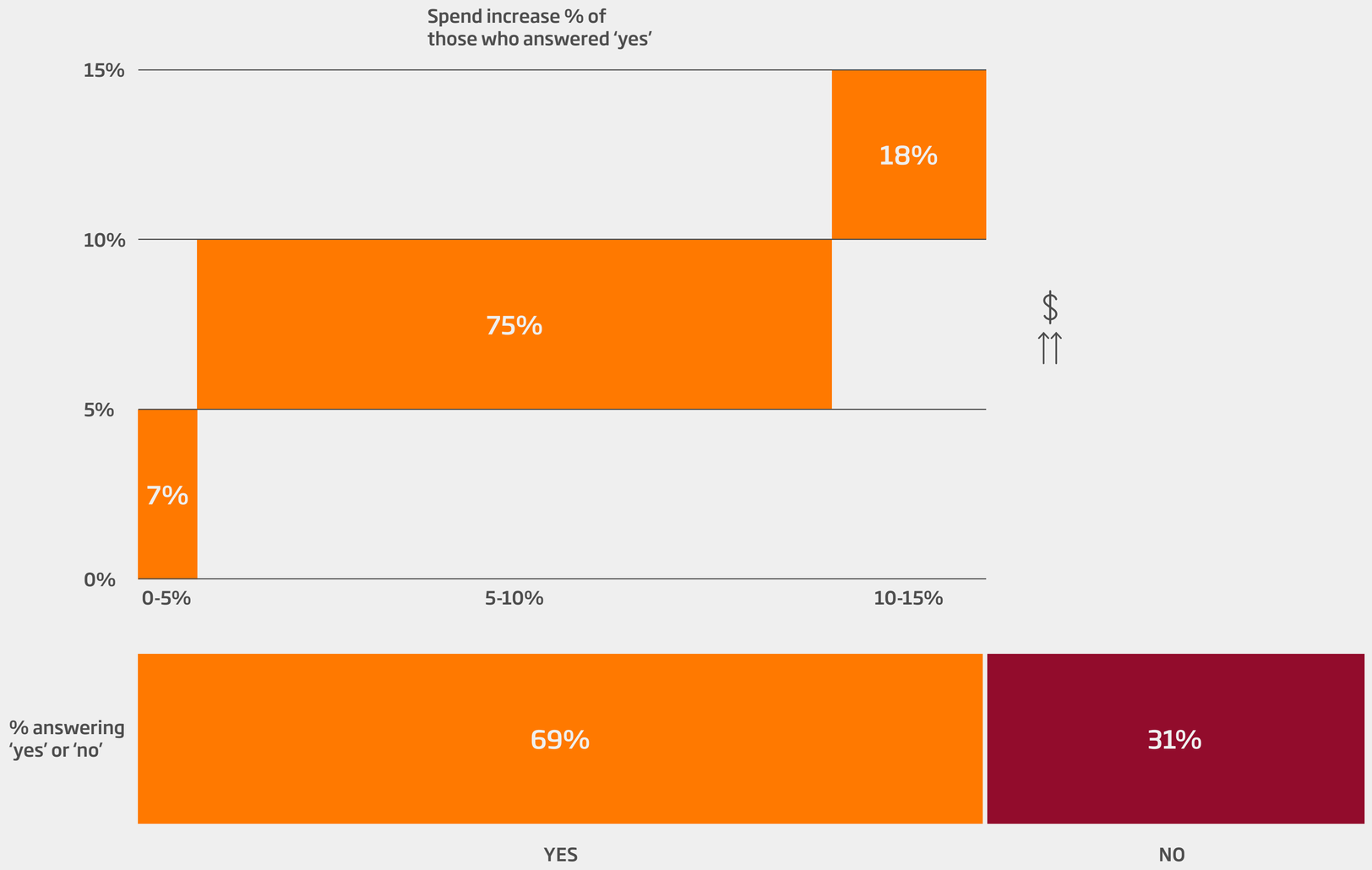
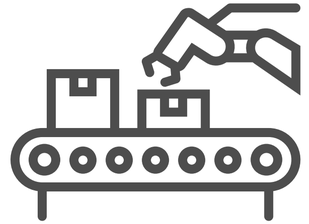


PHOTO: RYAN MCVAY, ISTOCK

A Narrow Mindset

However, not all manufacturers approach packaging strategically. For example, only **25%** place 'use of packaging in our logistics operations' among their top three areas of focus in their supply chain **(see Figure 5)**.

Unsurprisingly, areas of greater complexity dominate the attention of manufacturing executives. Outbound and inbound logistics and sourcing materials are their top areas of focus – even though, as respondents acknowledge, packaging can solve the complexity, cost and waste in these areas.



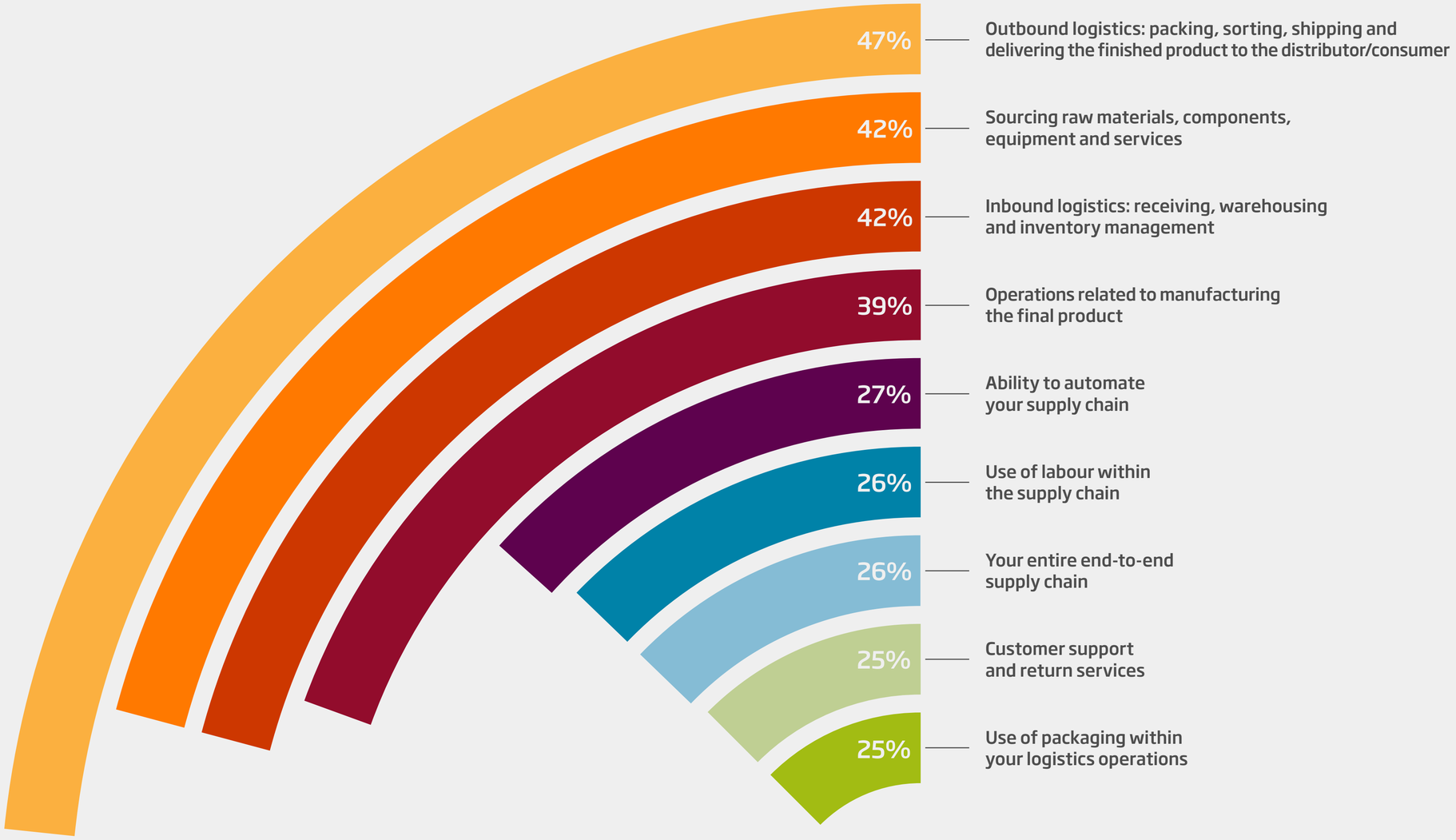
25%

place 'use of packaging in our logistics operations' among their top three areas of focus in their supply chain

FIGURE 5

SOURCES OF SUPPLY CHAIN COMPLEXITY DOMINATE EXECUTIVES' ATTENTION

Q: What is your current area of focus for your supply chain?



68%

prioritise price reduction in isolation

Another indicator of a narrow view of packaging is in the finding that **68%** of respondents must buy packaging at the minimum possible price. The same proportion **(68%)** prioritise price reduction in isolation **(see Figure 6)**, without considering the end-to-end total cost of ownership.

Both of these are barriers to using packaging to overcome supply chain complexity, as these approaches reject big picture thinking and opportunities for radical savings in logistics.

This view varies by industry: pharmaceuticals is the sector most required to purchase packaging at the lowest price **(79%)**, while automotive was most likely to prioritise price reduction in isolation **(72%)**.

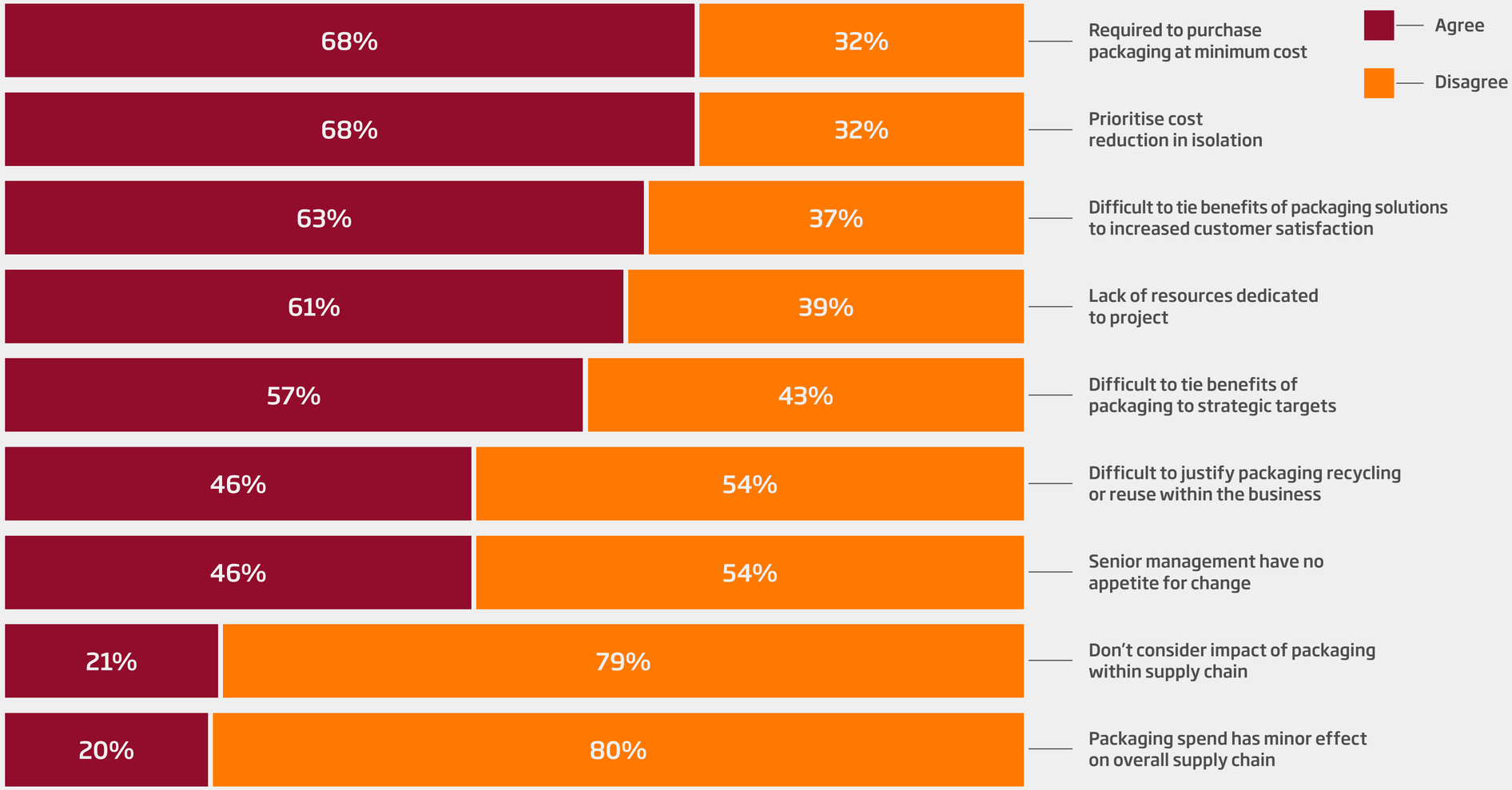
Retail businesses, including electronics and consumer goods, typically view packaging as central to the overall product and critical to consumer appeal. Packaging is designed early in the product development process, and forms a key part of marketing, storing, branding and displaying items for sale.

PHOTO: TODD TRAPANI, UNSPLASH

FIGURE 6

MOST MANUFACTURERS WANT THE PRICE OF PACKAGING TO BE MINIMISED

Q: What prevents you from making better use of packaging to overcome supply chain complexity? (% agree/disagree)



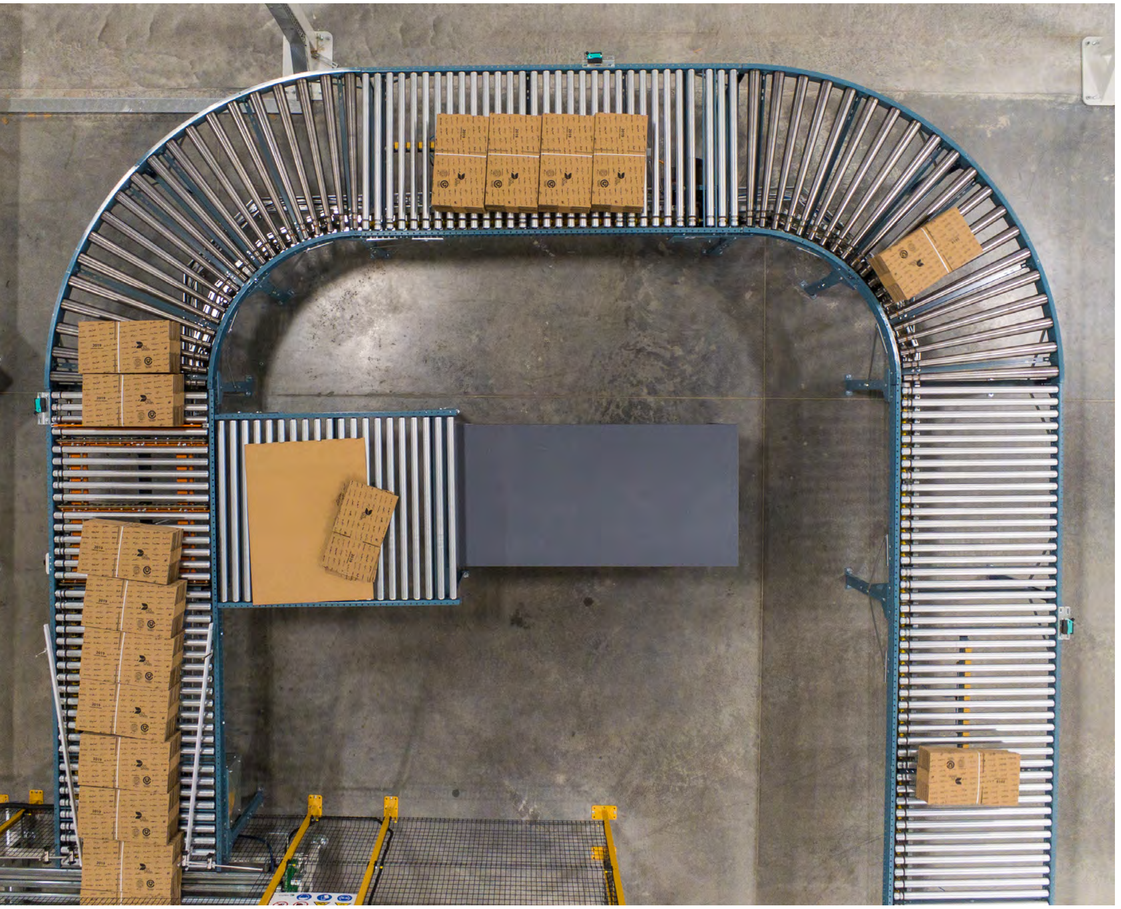


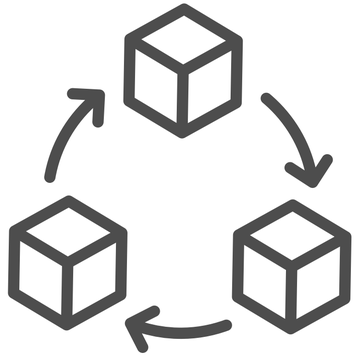
PHOTO: DS SMITH

By contrast, B2B businesses often see packaging purely as a cost. If the aim is to get a product from A to B as quickly and efficiently as possible, packaging is not necessarily seen as a helpful asset in its own right. Packaging is seen more of a cost to be absorbed rather than a driver of value.

Despite this, industrial businesses can use packaging to unlock savings. Well-engineered packaging makes it faster and easier to handle and process goods.

Shaving a few centimetres off packaging dimensions can save several cubic metres of space when you multiply these savings across hundreds of items. Adopting easily reusable and recyclable packaging can help to meet sustainability targets while lowering costs.

“Retail businesses, typically view packaging as central to the product and critical to consumer appeal.”



A narrow mindset deprives manufacturers of the opportunity to transform their supply chains. Better-designed packaging can be engineered and aligned with logistics needs. This creates efficiencies across all other processes by flattening the end-to-end supply chain, eliminating touchpoints and reducing waste.

As we'll see in the following chapters, viewing packaging as part of an overall supply chain solution helps to elevate it from a commodity to a key driver of directly reducing complexity and meeting increasingly stringent sustainability targets.

Chapter — 2

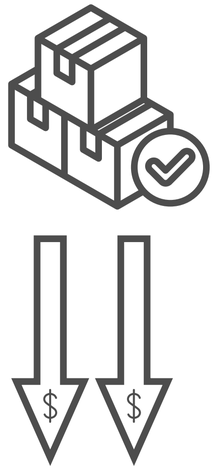
Tackling Cost, Inefficiency and Risk

PHOTO: LEIO MCLAREN, UNSPLASH

While there are many opportunities to cut costs and reduce risk from supply chains, manufacturers need support in tying packaging investments to their strategic aims

Manufacturers acknowledge the potential for optimised packaging to address the costs, inefficiencies and risks that result from the complexity in their supply chains.

When it comes to cutting cost and inefficiency, the biggest opportunities are reducing logistics costs by using the right packaging specifications **(56%)**, ensuring compliance with environmental legislation **(52%)**, and quicker picking and packing **(39%)**, respondents say **(see Figure 7)**. This is particularly important against a backdrop of rapidly changing container prices and transport costs.



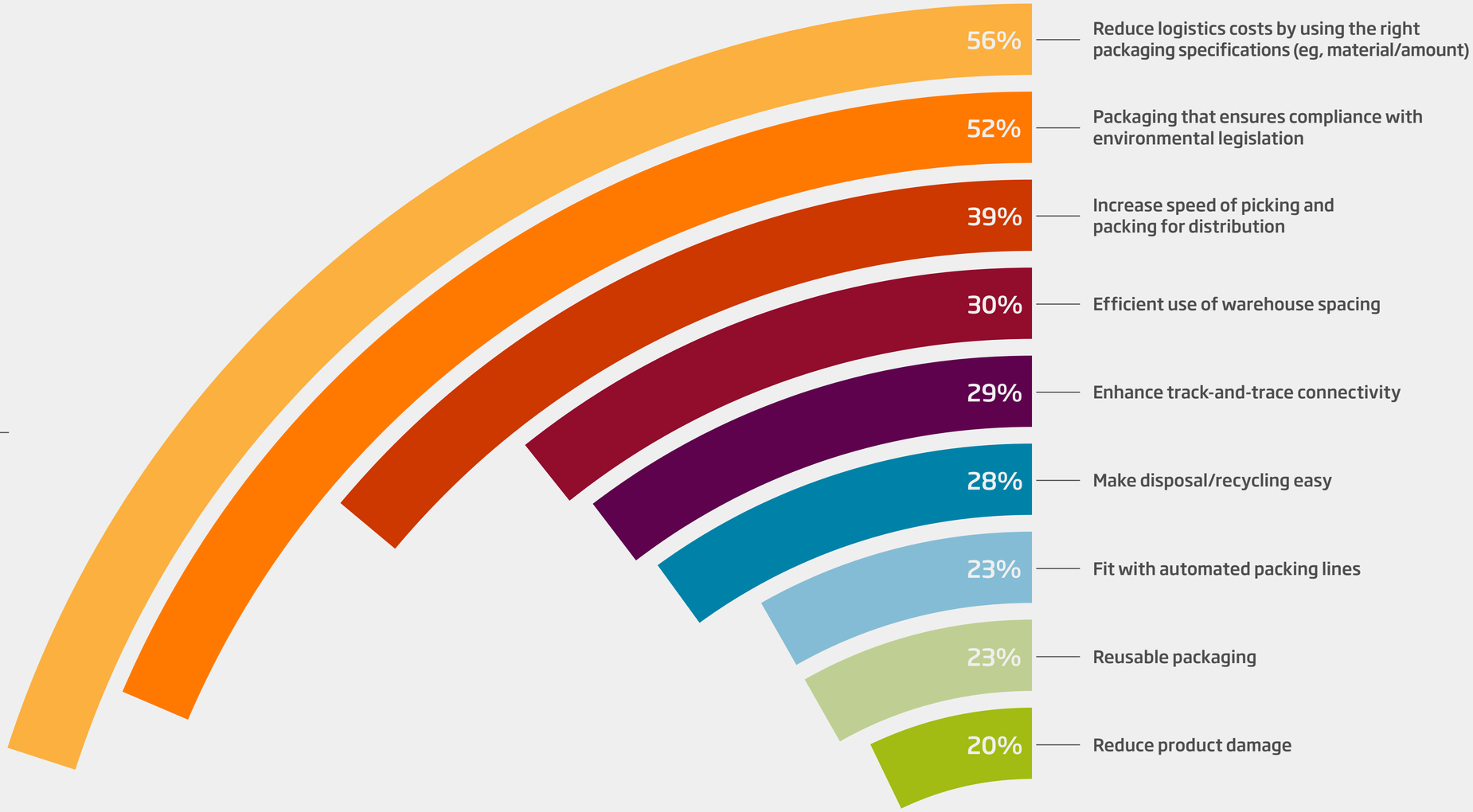
56%

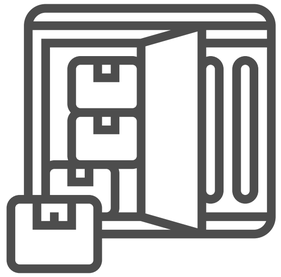
see using the right packaging as the biggest opportunity to reduce logistics costs

FIGURE 7

RESPONDENTS SEE OPPORTUNITIES TO REDUCE COSTS AND INCREASE EFFICIENCIES THROUGH OPTIMISED PACKAGING

Q: When thinking about increased efficiency and lower costs, what are the most important attributes optimised packaging solutions could bring to the table?, % ranking as priority 1, 2 or 3





Half of respondents believe that up to

10%

of container space is wasted. The other half believe that proportion is

10 – 25%

All respondents agree that some space could be saved from their containers. Half believe that up to **10%** of container space is wasted. The other half believe that proportion is higher, between **10%** and **25%**.

Respondents from the pharmaceuticals industry **(63%)** are most likely to believe that between **10%** and **25%** of their container volume is wasted space.

Risks, too, can be managed with optimised packaging, especially those that relate to the condition of products,

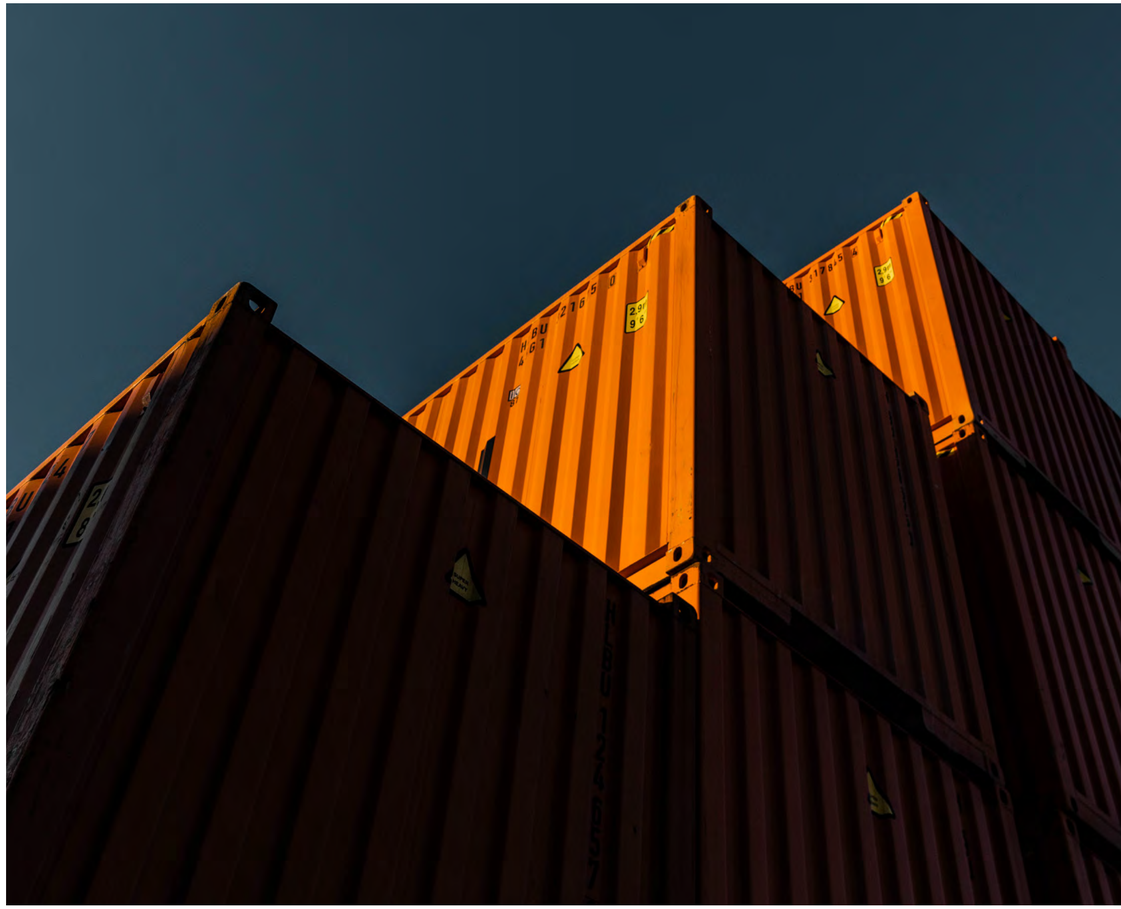


PHOTO: ARON YIGIN, UNSPLASH

“Circular Design Metrics can show how packaging meets circular economy principles”

safety, and environmental compliance.

For three quarters of respondents, using packaging to comply with environmental or hazardous goods legislation is the top opportunity. Almost as many **(68%)** see environmental condition and quality as a top benefit.

This suggests packaging solutions should be designed and implemented with a thorough understanding of existing and upcoming legislation, together with industry expertise on how those requirements will impact specific sectors.

This should be supported by rigorous testing of packaging, together with consulting and certifications that ensures packaging can meet sustainability requirements, for example, by using Circular Design Metrics, which can show whether packaging meets circular economy principles.

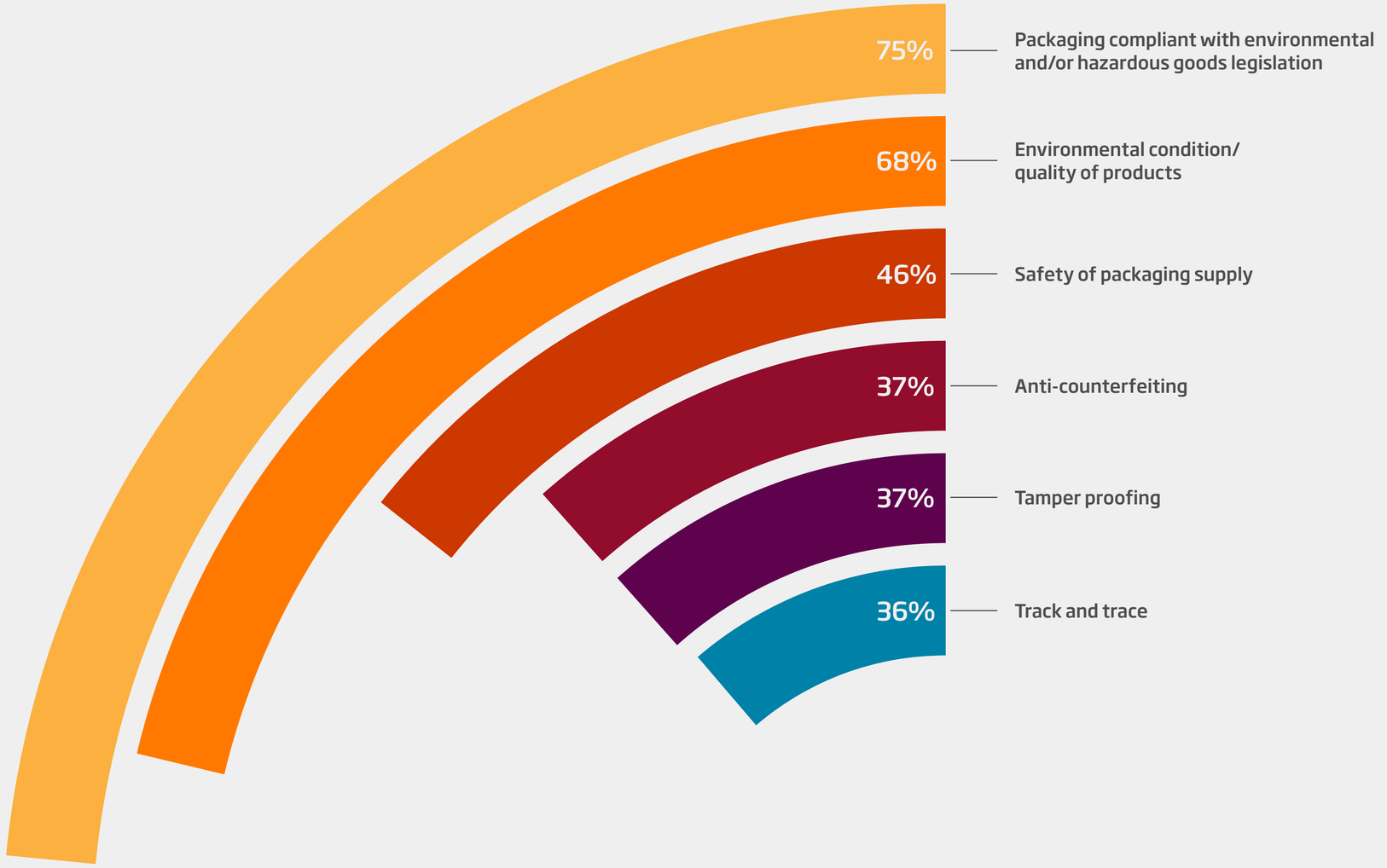
75%

of respondents say using packaging is a top opportunity to comply with environmental or hazardous goods legislation

FIGURE 8

MANY ENVIRONMENTAL CONCERNS ARE EFFECTIVELY OUTSOURCED TO PACKAGING SUPPLIERS

Q: When thinking about managing risks within your supply chain, what is the most important attribute that optimised packaging solutions could bring to the table?, % ranking as priority 1, 2 or 3



Making The Case

Realising these benefits is easier said than done, however, and there are various challenges that prevent manufacturers from making better use of packaging solutions.

As we've already seen, chief among these is a mindset that packaging is merely a cost to be minimised. But another widespread blocker is the inability to link investments in packaging to business outcomes.

For example, **63%** say it is difficult to tie the benefits of packaging solutions to end-user satisfaction, and **57%** say the same of tying packaging to strategic business objectives **(see Figure 6)**. Within these two categories, chemicals had the most difficulty out of all the sectors, at **68%** and **65%** respectively.

There is no doubting the importance of tying investments to these outcomes: every decision made about packaging comes down to reducing cost or realising value. This means developing business cases that link packaging investments to savings elsewhere. These savings come from multiple sources: direct cost savings,

63%

say it's difficult to tie packaging's benefits to end-user satisfaction

streamlining and waste reduction, logistics efficiencies or risk avoidance.

The challenge in developing these business cases is that clients may not have the time, resources or insight to dedicate to an in-depth analysis of supply chains. A packaging partner can fill in the blanks.

They will use their expertise to analyse your supply chain and identify key areas for improvement. A packaging partner can then offer detailed business cases on how end-to-end consulting and design can reduce costs and drive savings elsewhere.

In addition to cost savings, packaging partners offer expertise on sustainability and the circular economy. These areas are becoming increasingly important, and supply chain managers are taking notice. We'll explore sustainability and the circular economy in the next chapter.

PHOTO: ADOBE STOCK

Chapter — 3

Sustainability Through Packaging

PHOTO: SONU JOHN, UNSPLASH

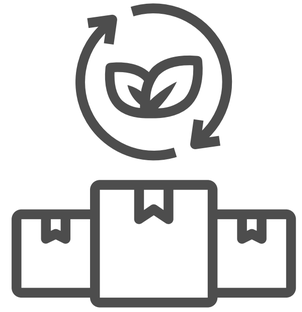
Packaging can support a number of sustainability goals but the biggest prize will be enabling the circular economy

Sustainability has long been a consideration for supply chain managers, who recognise that buying and moving materials and shipping finished goods make a significant contribution to the manufacturing sector's environmental and social impact.

Recently, demands on businesses to measure and manage that impact have intensified. A growing focus on Scope 3 carbon emissions – which derive from a company's value chain, not its own direct operations – reveals how companies are being encouraged to think about the impact of their supply chains.

Here, too, packaging has much to offer. Respondents gave a wide variety of responses on how packaging solutions could help them reduce the environmental impact of their supply chain, including reusing packaging **(for 34%)**, producing less CO2 **(31%)**, and reducing overall consumption and waste **(30%)**.

The reusability of packaging was particularly important to pharmaceuticals **(40%)** and electronics **(36%)** respondents. Reducing overall waste was favoured by those working in chemicals **(32%)** and automotive **(31%)**.



34%

see reusing packaging as the best way to reduce the environmental impact of their supply chain

FIGURE 9

OPTIMISED PACKAGING HAS A WIDE VARIETY OF ENVIRONMENTAL BENEFITS

Q: When thinking about reducing the environmental impact of your supply chain, what are the most important benefits optimised packaging could bring?

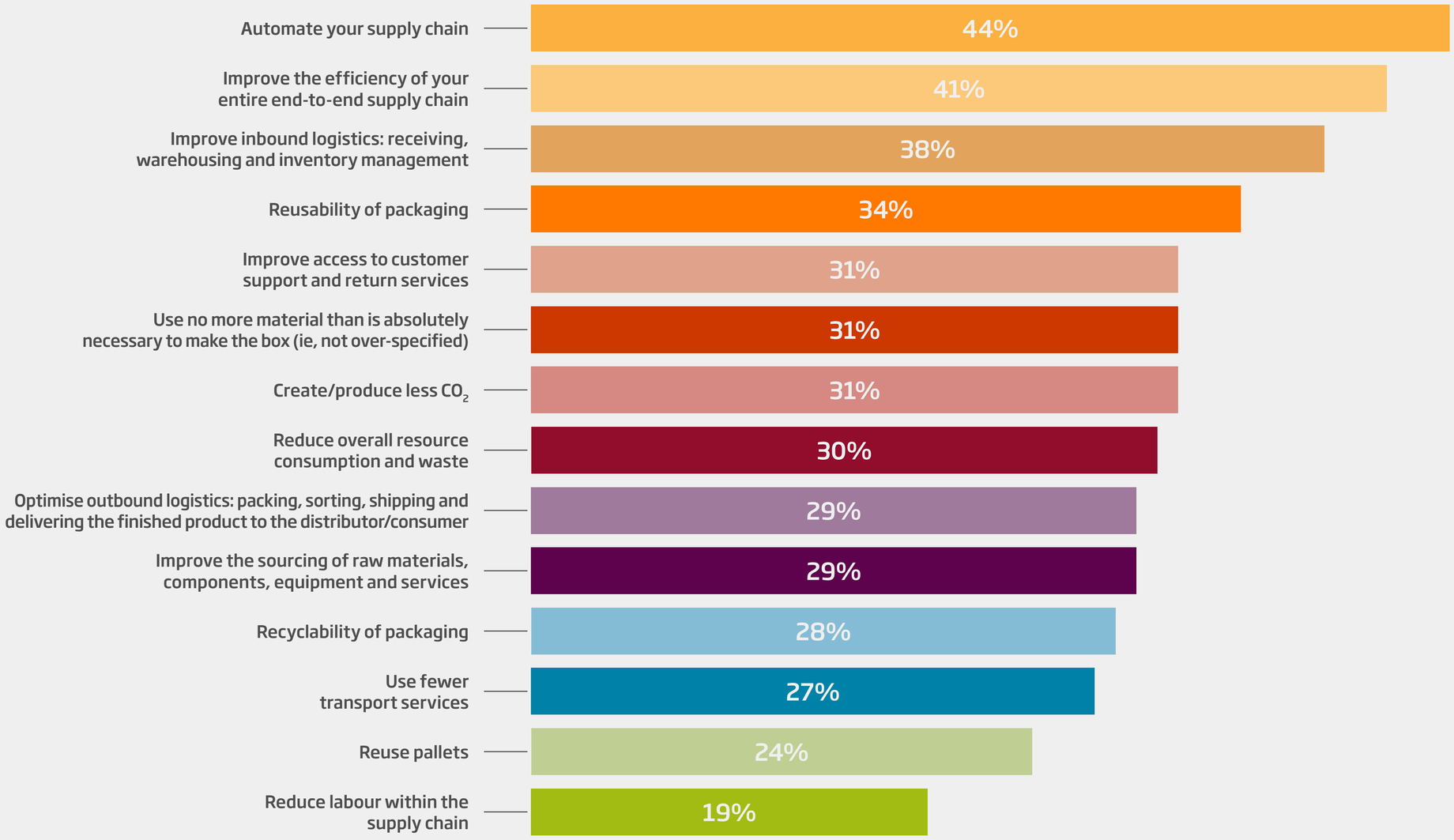


PHOTO: DS SMITH, ADOBE STOCK

Of course, packaging itself has an environmental impact, and supply chain managers must carefully consider the types of materials they use to transport raw materials, parts and finished goods.

In some cases, metal and plastic packaging is the right solution. Even if these materials can be difficult to recycle, extensive reuse makes good environmental sense. In other cases, cardboard will be a better option, as it's lighter, cheaper and easier to transport and recycle.

To find the optimal packaging solution, businesses balance multiple considerations. The flatter and smaller the supply chain, the greater impact optimised packaging will have on reducing emissions and waste.

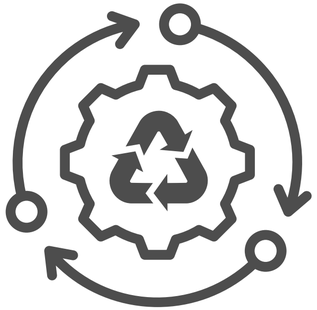
Packaging partners can take these network effects into account and provide multiple options that deliver a mix of benefits. Considering packaging as part of the end-to-end supply chain helps manufacturers and their packaging suppliers work together to reduce emissions, lessen overall consumption and waste, and consider reuse where the necessary infrastructure can be put in place.

"The flatter and smaller the supply chain, the greater impact optimised packaging will have on reducing emissions and waste."

Circular Economy

Taking the mantra of reusing and recycling to its furthest extent is the promise of the circular economy. This is a vision for the future in which the consumption of finite resources is kept to an absolute minimum or eliminated altogether. Instead, new materials are produced through recycling and the use of regenerating natural resources such as timber, with goods and materials reused more times by more people and for longer and at their highest value.

Manufacturers have lent their support to the concept, with **87%** of respondents fully



87%

of respondents fully committed to the circular economy

PHOTO: 2022 PEOPLEIMAGES.COM. YURI A/SHUTTERSTOCK

PHOTO: MAODESIGN, ISTOCK

committed to the circular economy **(Figure 10)**. More than a quarter **(27%)** of respondents say they are already applying circular economy principles throughout their supply chain, while **60%** have only partially implemented them.

This dedication is commendable but manufacturers also acknowledge that they need help if they are to make the circular economy a reality. Seven in ten **(69%)** respondents say they need help understanding how packaging solutions contribute to the circular economy, and **61%** need help encouraging suppliers and customers to reuse and recycle.

Encouraging suppliers and customers to recycle and reuse was a particular concern for chemicals businesses **(71%)**.

If the circular economy is to be fully realised, there must be a business case. This is central to thinking about the circular economy – not just from a legislative, branding and CSR perspective, but it must also be commercially viable.

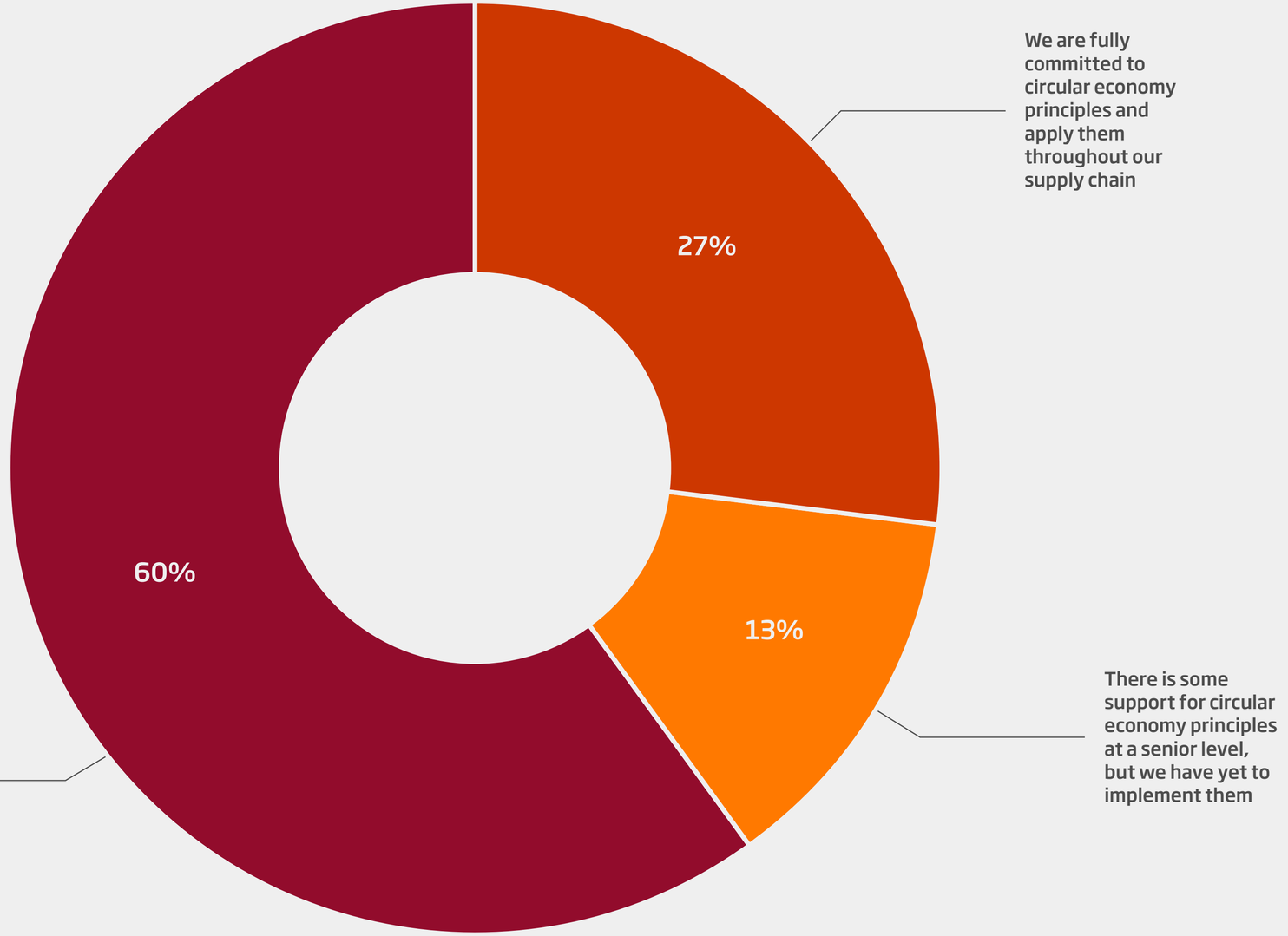
69%

respondents want help understanding how packaging solutions contribute to the circular economy

FIGURE 10

THE CIRCULAR ECONOMY IS A FOCUS FOR ALL BUSINESSES, AND THIS FOCUS WILL DEEPEN OVER TIME

Q: Which of the following best characterises your organisation's approach to the circular economy?



“Cost savings from other areas of the supply chain can be used to offset the costs of transitioning to a circular economy.”

The good news is that cost savings from other areas of the supply chain can be used to offset the costs of transitioning to a circular economy. The benefits of reducing complexity, maximising space, streamlining processes and flattening touchpoints all bring down operational expenses. These cost savings can be redirected to meet sustainability targets.

In this way, manufacturers can design their packaging solutions around their commitments to the circular economy, without impacting the bottom line.

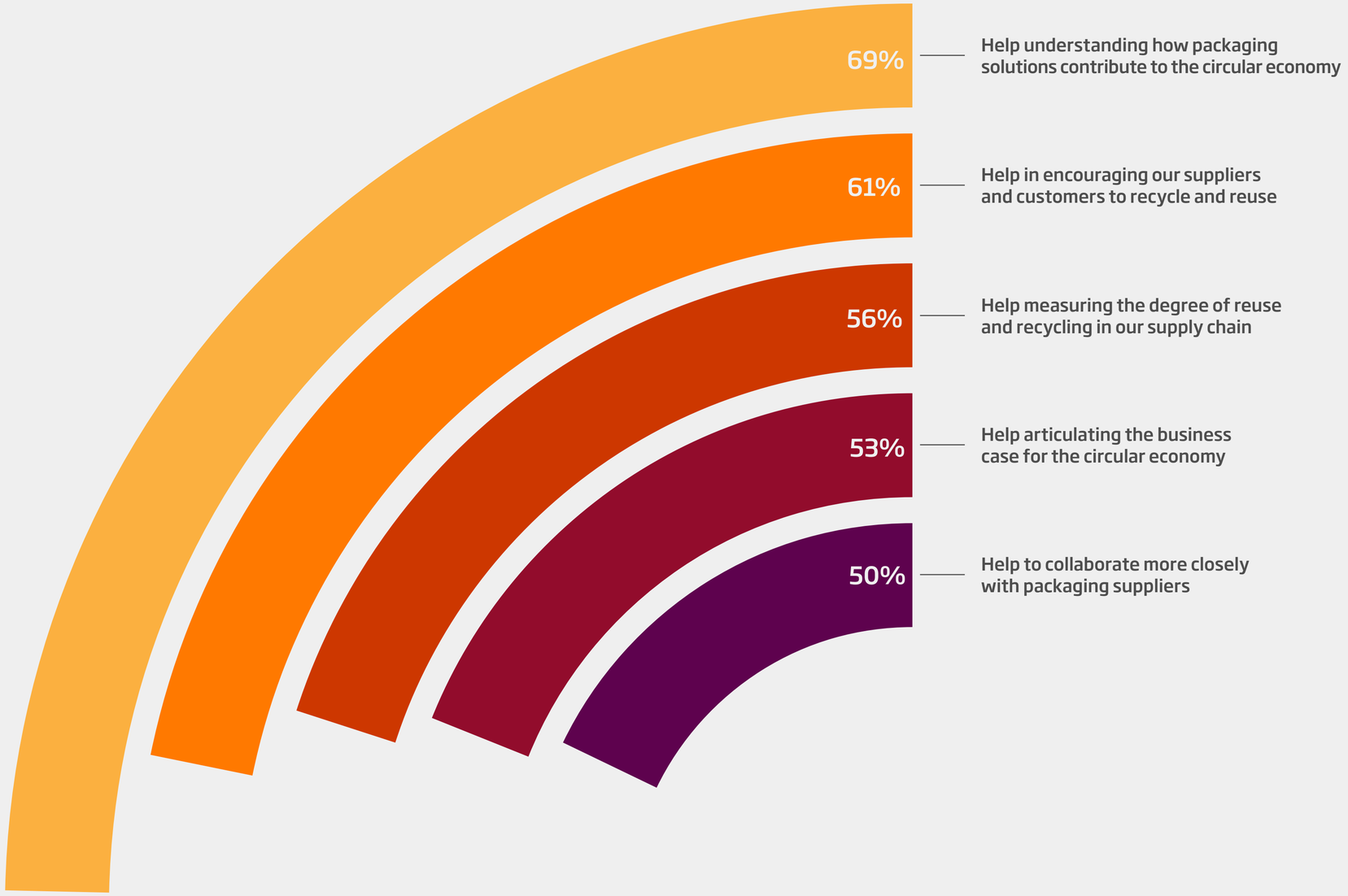
Supply chain managers will need to look at how their packaging supports a circular approach. Providers can build this into their design reports – examining every aspect of packaging materials, including related emissions, transport costs, ease of reuse, recyclability, and other areas. These attributes should also be reflected in marketing collateral related to packaging, giving talking points and proofs, showing how packaging helps brands to meet their environmental commitments.

Ultimately, good packaging is about bringing these disparate areas together: reducing complexity, looking at the end-to-end supply chain, flattening touchpoints, removing waste and streamlining operations. This all helps businesses to realise significant cost savings, while managing risks, meeting sustainability goals and becoming more competitive.

FIGURE 11

WHILE BUSINESSES ARE COMMITTED TO THE CIRCULAR ECONOMY, THEY NEED HELP TO APPLY IT TO THEIR SUPPLY CHAIN

Q: What would you find most helpful in implementing circular economy principles in your supply chain?



Conclusion

Optimised packaging can have positive effects throughout the supply chain, and at scale this can represent significant efficiencies.

Our research highlights the current perspectives, forward-thinking and good work that companies are already doing. At the same time, it reveals many of the complexities and challenges of embracing packaging as an end-to-end solution.

For many businesses, those difficulties come from a strong focus on siloed cost controls that can overlook the need for longer-term investment. This short-term approach is understandable, driven by thinking of packaging as purely a commodity, rather than an enabler throughout other parts of the supply chain.

But there are still opportunities.

There was strong support for increasing packaging spend, as long as it saves money elsewhere. Organisations must understand the options, business cases and savings packaging brings, and get senior management to support any changes.

For those investing, there are substantial benefits. Packaging helps to flatten the supply chain and reduce touchpoints. It's also key to meeting legislative requirements and supporting sustainability.

This is where packaging partners can help. It's our responsibility to help businesses understand the savings they can realise – both directly and as a result of simplifying and streamlining. We need to help companies build these business cases across their key areas and understand when it makes sense to invest.

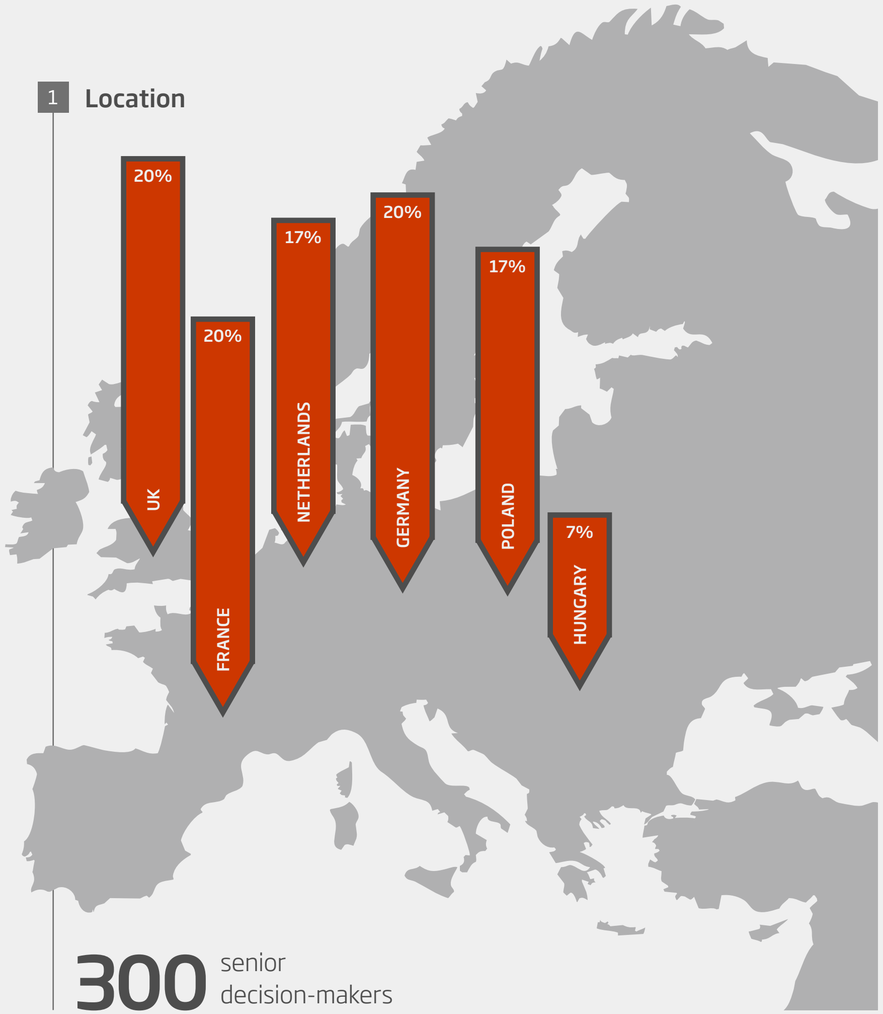
This helps us to collaborate with our partners and present end-to-end solutions that balance cost control, sustainability and a supply chain that works better for everyone.

RESEARCH METHODOLOGY

Field work was undertaken between September and October 2022. Respondents were screened via telephone and then completed an online questionnaire.

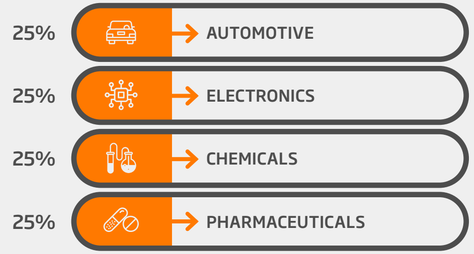
Please note: Throughout, totals may not equal 100% due to rounding

1 Location



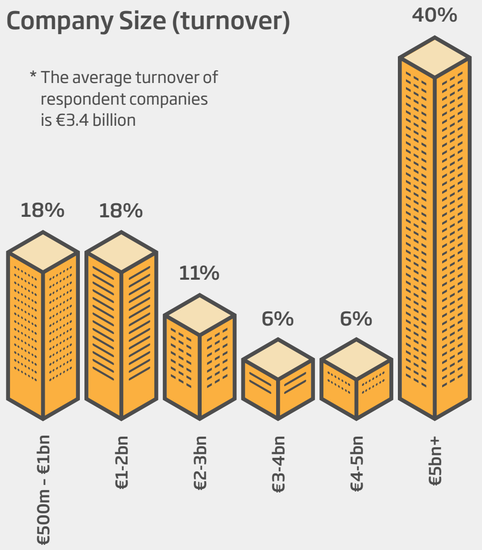
300 senior decision-makers

2 Sectors



3 Company Size (turnover)

* The average turnover of respondent companies is €3.4 billion



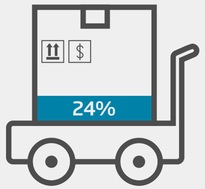
4 Decision-making Responsibility

I am directly responsible for/involved in my company's sustainability

I am directly responsible for/involved in my company's packaging

I am directly responsible for/involved in my company's logistics

I am directly responsible for/involved in my company's procurement



ABOUT DS SMITH

DS Smith is a leading provider of sustainable packaging solutions, paper products and recycling services worldwide. Over the past 80 years our organisation has grown dramatically, as have our services and areas of expertise.

Our story can be traced back to the box-making business started by the Smith Family in East London in the 1940s. During the next half a century we grew our reputation for quality engineering and a dedication to our customers. As we grew our scale, we grew our capabilities – adding papermaking and recycling so we could view our customers' challenges in the whole and not just one part. In recent times, our business has experienced rapid growth, as well as acquiring businesses across Europe and in North America. This growth saw us become one of the largest companies listed on the London Stock Exchange. Our vision "To be the leading supplier of sustainable packaging solutions" serves us well. We are proud of the progress we have made and the growth we have achieved in our chosen markets.

Today, we operate in more than 30 different countries, proudly employing over 30,000 people. It's thanks to the skills and knowledge of our employees that we are able to provide our customers with strategic support across their entire packaging Supply Cycle.

OUR CIRCULAR BUSINESS MODEL

We are recognised around the world for our innovation and for the quality of our packaging. Our products can improve transport and storage efficiency, boost retail presentation and increase product sales for our customers – and we do it with sustainable corrugated cardboard. By recycling the paper fibres in our cardboard, we can save up to 160 million trees every year from being cut down.

For more information, click here:
How to make your packaging circular – DS Smith

Thought leadership services provided by Grist :
www.gristonline.com

INDUSTRY REPORT 01/23

FULFILLING PACKAGING'S POTENTIAL

A Holistic Approach to Supply Chain Optimisation

FOR MORE INFORMATION, CLICK HERE:
SUPPLY CHAIN ANALYSIS - DS SMITH

DS Smith