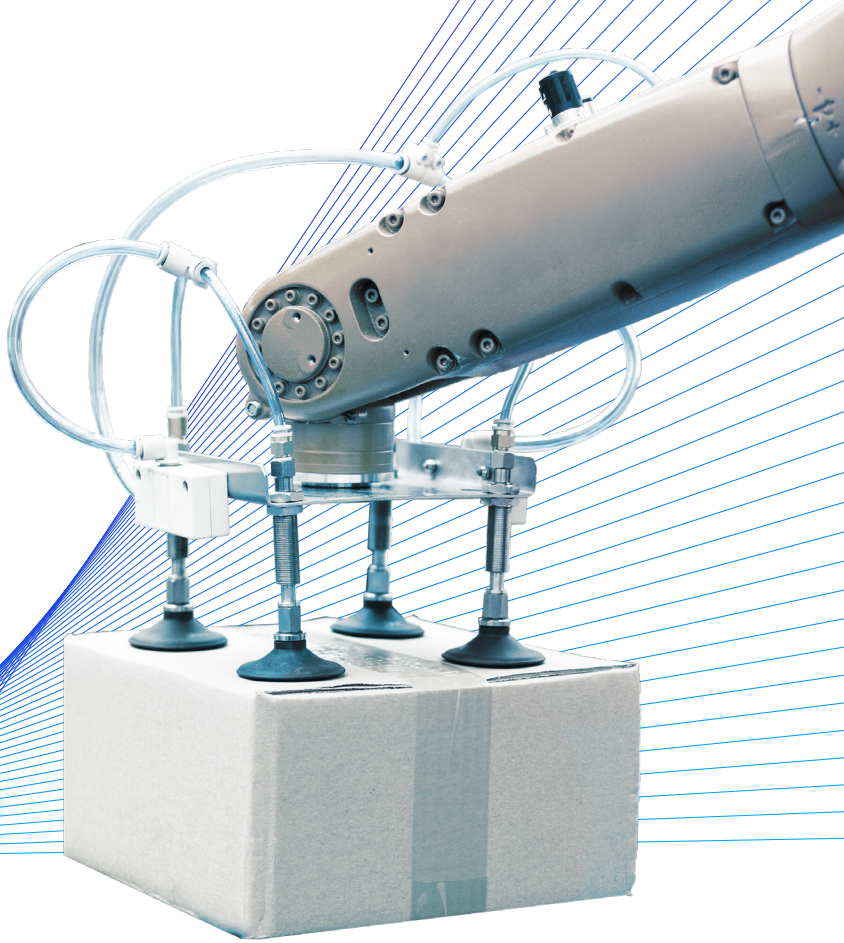


McKinsey
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Packaging Solutions

Poised to take off?

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Preface

The packaging sector provides the materials, equipment, services, and full-fledged solutions that are used for various consumer and industrial products globally. It is a crucial behind-the-scenes enabler. While packaging has historically contained, preserved, and protected products, it is now playing an increasingly sophisticated role in driving customer engagement.

After years of losing value, packaging-solutions (PS) companies in all segments have been generating economic profit since 2013. The next decade could be even more promising. As e-commerce grows and consumer preferences shift, packaging companies will have a chance to move to the forefront of innovation. Technologic advances and increased demand for sustainable packaging will also open new doors. But there are also challenges ahead within end markets, and PS companies must adapt to the changing environment. They will need to maintain a delicate balance—pursuing innovation, which will require significant investment, while also remaining mindful of potential headwinds that could affect margins.

This report provides an in-depth assessment of the PS sector, including an overview of its performance over the last 15 years, the shifting dynamics affecting the sector's future, and the steps that companies must take to capture value and outperform the competition. Our report concludes with a practical discussion of next steps for PS companies that want to take advantage of the emerging opportunities.

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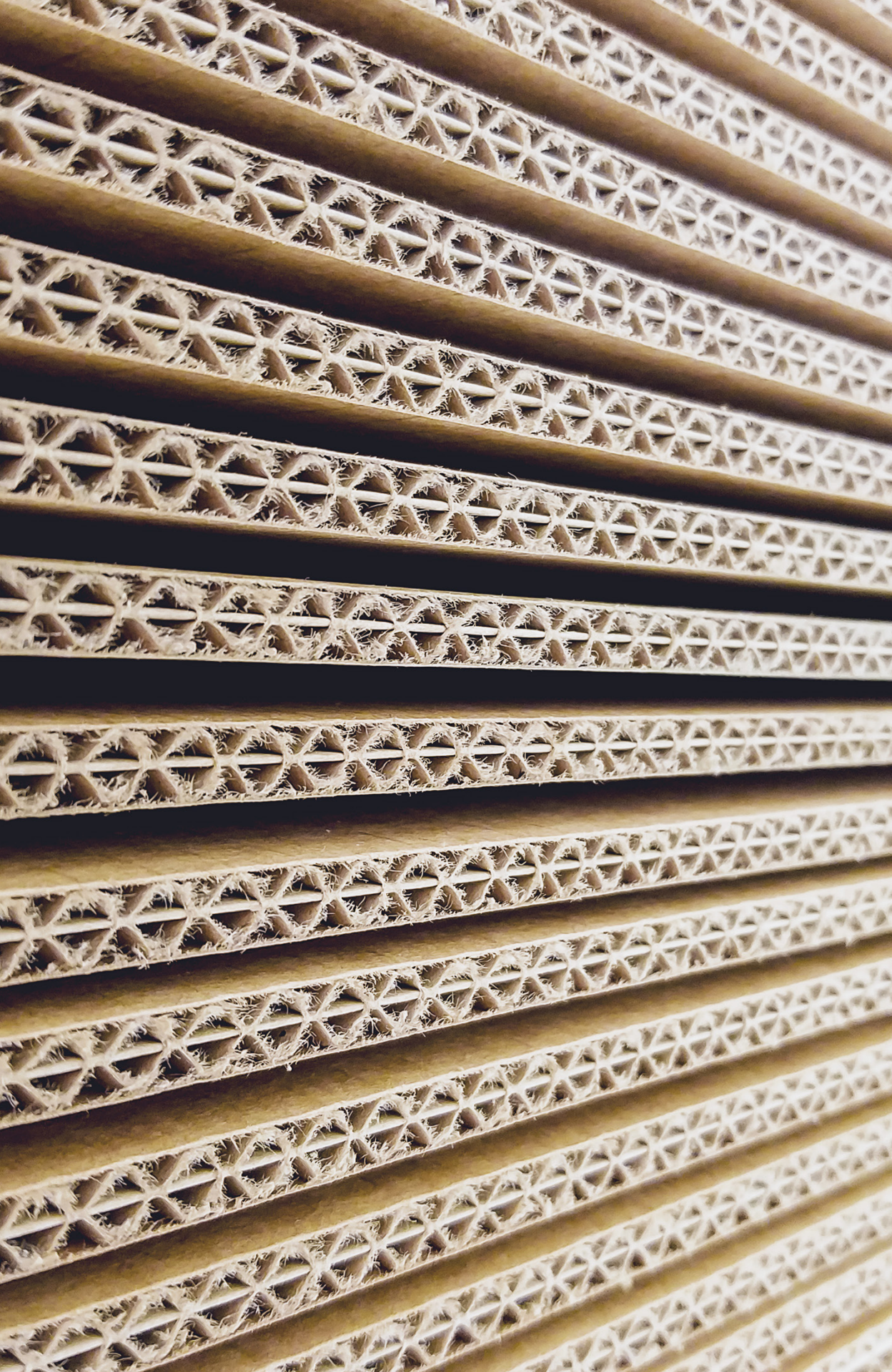
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Executive summary

The packaging-solutions (PS) sector consists of companies providing packaging material, equipment, services, and full-fledged solutions. An important sector within industrials, packaging generates about \$900 billion in annual revenues worldwide. The industry is highly fragmented, with the top 25 to 30 companies accounting for under 25 percent of the market.

After years of failing to create value, PS has generated economic profit every year since 2013. It has also closed the performance gap with the industrial sector as a whole, which has long had a better track record. Three factors are behind this improvement. First, PS companies improved operational performance, with EBITDA margins expanding from 8.3 percent for the period from 2002 through 2007 to 10.3 percent for the period from 2013 through 2017. Second, they used capital more efficiently. Capital turns improved to 1.9 times from 2013 through 2017, compared with 1.7 times for the period from 2002 through 2007. Finally, PS companies had steady revenue growth. They achieved a 2.2 percent compound annual growth rate (CAGR) from 2013 through 2017, compared with -1.4 percent for the industrial sector as a whole.

When we reviewed performance within the PS sector, we found that a few companies strongly outperformed others in each packaging subsegment. After investigating the reasons for their outstanding performance, we also found that those companies expanded margin faster than revenue growth and that their performance was strongly predicted by a company's Quality of Revenue (QoR)—a measure of market and customer attractiveness, as well as the strength of product offerings and business model.

But what will the next decade bring? We believe that the PS industry is poised for additional growth as several trends create tailwinds for the industry, including continued growth in e-commerce and emerging markets, shifting consumer preferences, increased interest in sustainable materials, and the integration of advanced technologies into packaging.

These trends will create new opportunities for PS companies to improve their performance across all dimensions of QoR significantly. They will allow companies to accelerate product innovation through technology (for instance, smart products and tech-enabled solutions). The trends will also enable new business models and drive the next wave of operational efficiency through advanced analytics,

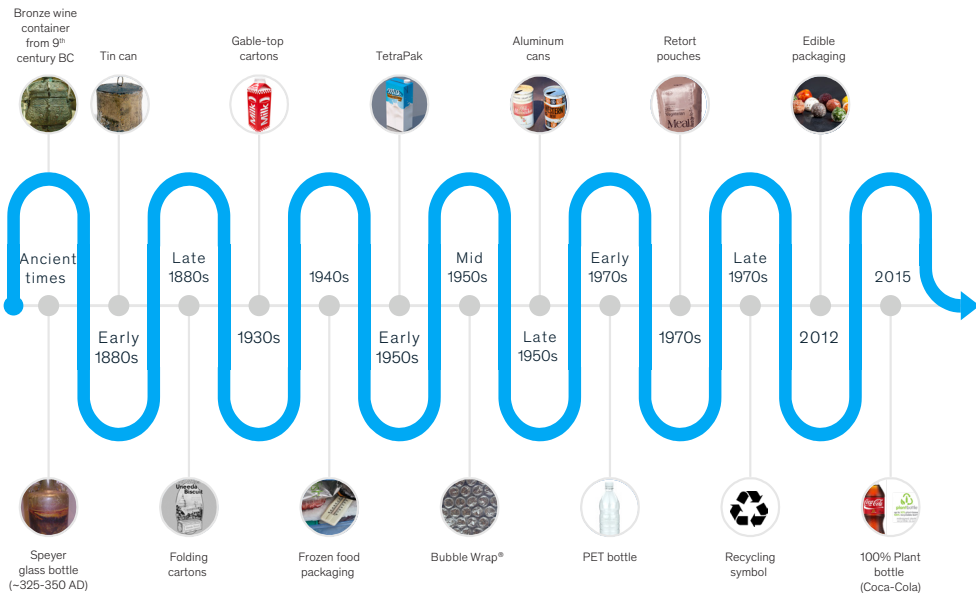
next-generation manufacturing, product improvements, and footprint optimization.

While the exact starting point will vary by company, we believe there are three imperatives for PS players as they try to navigate an increasingly dynamic business environment, improve QoR, and capture value over the next few years. First, companies should consider taking aggressive moves to close the gap between their current performance and full potential. Second, companies should develop a pragmatic game plan for improving QoR and moving to action quickly. Finally, they must establish a strong governance and performance-management backbone to ensure success.

Introduction

In the early 19th century, the French government offered a prize of 12,000 francs to the inventor who could create the best container for preserving food for Napoleon's army and navy. That contest gave rise to the tin can. The number of packaging innovations that have surfaced since that time are too numerous to count. Just a few notable examples are gable-topped milk cartons, Bubble Wrap®, and single-serve pouches (Exhibit 1).

Exhibit 1. The packaging industry has been driven by innovation since the early days



Although packaging originally served only as a container, its role has evolved to include more sophisticated functions, such as advertising. Some packaging is so iconic and easily recognizable that consumers automatically look for it when shopping. More recently, companies have begun investigating “smart” packaging equipped with sensors. For instance, Rémy Martin, a provider of premium cognac, embeds a near-field communication (NFC) chip in its bottles to guarantee authenticity.

The packaging industry has evolved as well. Packaging solutions (PS) is now a \$900 billion market and an important segment within the broader industrials sector. Within PS, players are classified as either packaging converters, which produce or provide materials for packaging, or equipment companies. These are divided into nine core subsegments:

Packaging converters

- Board (corrugated, folding cartons, and liquid paperboard)
- Rigid plastics
- Flexibles (flexible plastics, foil, and paper)
- Metal
- Glass
- Other materials, such as wood and cork

Packaging equipment

- Primary equipment, such as filling, capping, and sealing machines
- Secondary equipment, such as machines for wrapping products or placing them in cartons
- Tertiary equipment, such as case-packing or palletizing machines

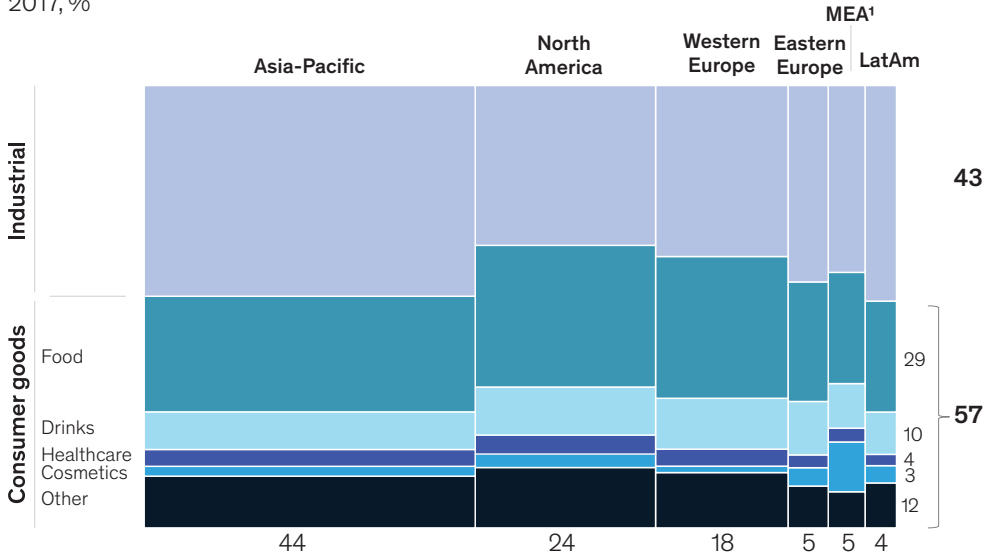
Some PS companies have a stake across subsegments. They may offer both material and equipment or products made of more one type of material. A few companies also provide services, such as maintenance, or sell end-to-end solutions across equipment, material, and services.

PS has a strong global presence. The Asia–Pacific region accounts for most demand—about 43 percent of the total—followed by North America and western Europe (Exhibit 2). At the industry level, consumer packaged goods (CPG) companies represent almost 60 percent of the PS customer base, with food as the largest segment. Industrial companies account for the remainder.

Exhibit 2. Packaging demand varies by industry and region

Packaging consumption by end market and region

2017, %



¹ MEA = Middle East and Africa.

SOURCE: Smithers Pira

Looking ahead at geographic demand patterns, PS will see some shifts. Between 2017 and 2022, about 70 percent of packaging growth will come from emerging markets. Annual growth is forecast to be highest in China (5.2 percent) and India (5.8 percent) during this period. To understand these numbers in context, consider that North America is expected to see only 1.2 percent annual growth. In emerging markets, the high demand for packaging partly relates to shopping patterns and income growth. China, for instance, already has the world's largest online retail market, with sales nearly 80 percent higher than those in the United States.¹

The PS sector is highly fragmented and extremely competitive. The top 25 to 30 companies account for under 25 percent of the total market; over a thousand small, private companies account for the bottom 25 percent. Between these two segments, there are over 500 small to midsize companies. On the Herfindahl-Hirschman index, which measures the typical size of firms in relation to their industry on a scale of 0 to 10,000, PS scores 20. The low score indicates a large number of very small companies and a competitive landscape.

¹ Kevin Wei Wang, Alan Lau, and Fang Gong, "How savvy, social shoppers are transforming Chinese e-commerce," April 2016, McKinsey.com.

Several factors are responsible for the highly fragmented nature of this market. First is the nature of packaging itself. With so many different materials and container forms, the market requires different types of suppliers. Then there are the advantages associated with running a local business. Players that serve nearby customers have lower freight costs, increased supply-chain efficiency, and more efficient delivery times that allow them to provide packaging exactly when customers need it. With these advantages, local companies can compete against big players with economies of scale.

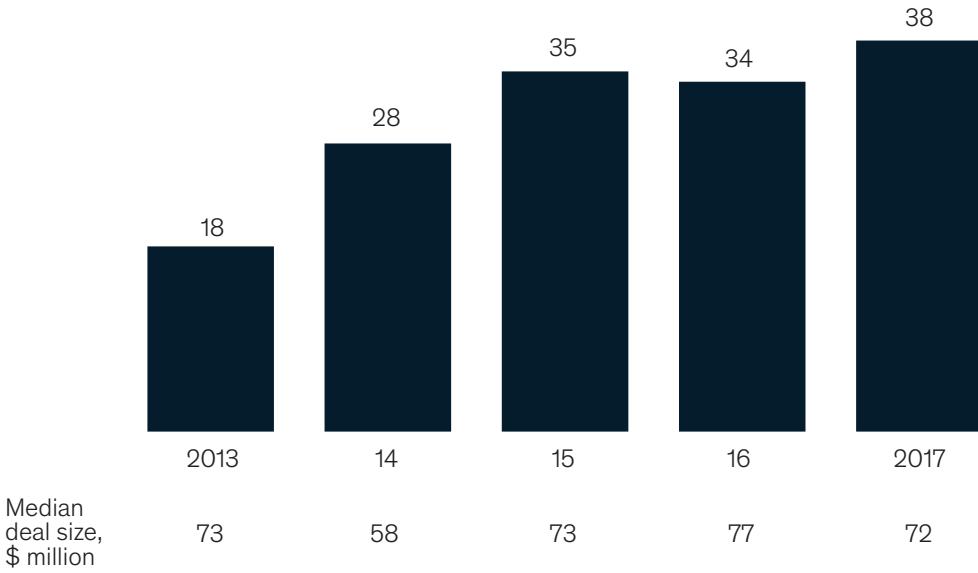
Fragmentation is particularly intense in certain subsegments. Within flexibles and rigid plastics, for instance, the top three players have a collective 5 to 7 percent market share. Within board, the top three have a 15 percent share. Fragmentation is greater in these areas because there are low capital requirements for new entrants, compared with many other sectors, and players do not need to have extensive intellectual property or technical knowledge.

Although the packaging industry has been well known for innovation, the source of the new ideas has varied over the years. For the past decade, most packaging innovation has not typically come from PS players themselves. Instead, it originates with brand owners—the CPG companies that design packages—or with suppliers who provide new raw materials. The lack of innovation, combined with the small size of PS players relative to their customers or suppliers, has left them in a bind. Many packaging companies use acquisitions to gain scale and acquire technologies in search of an advantage. Our analysis of 45 large, public PS companies showed an average of more than three acquisitions per company over the past five years (Exhibit 3). Given the industry landscape, targets are typically small companies, and the median transaction value is about \$70 million.

From a revenue perspective, the packaging industry has seen its share of ups and downs over the years. To get more clarity into market performance, we did a retrospective analysis of some important financial metrics over the past few decades.

Exhibit 3. Many packaging-solutions (PS) companies have undertaken M&A activity to gain scale

Number of M&A deals per year for 45 large PS companies



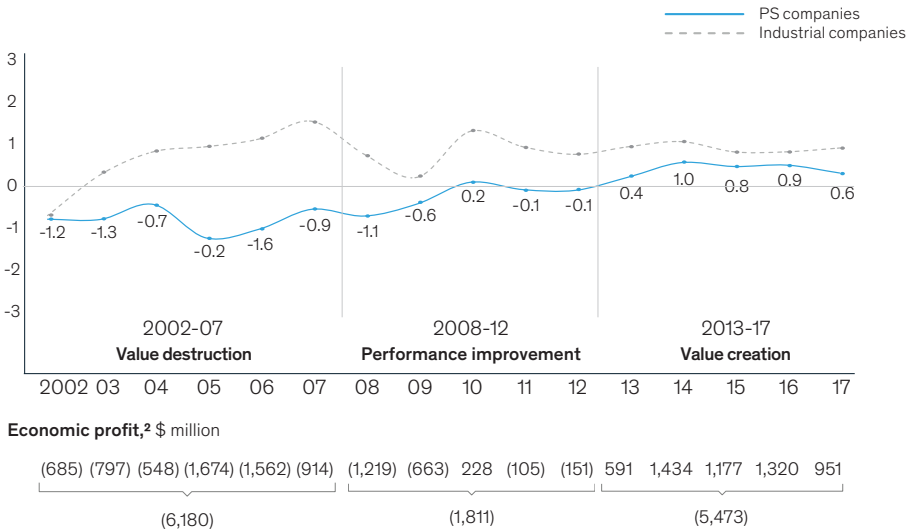
SOURCE: S&P Capital IQ

Historical performance

With so many players competing, many PS companies historically struggled to win market share. The 2000s and early 2010s were an especially difficult time, with players failing to create value almost every year in terms of economic profit—what’s left over after subtracting the cost of capital from net operating profit. This was the case even as other industrial companies delivered solid returns (Exhibit 4).

Exhibit 4. After years of value destruction, the packaging-solutions (PS) segment is generating an economic profit and closing the gap with other industrial companies

Economic profit / revenue for PS companies and the overall industrial sector,¹
%



¹ Based on 45 PS companies with revenue >\$100 million and 384 industrial companies with revenue >\$1 billion.

² Total economic profit generated by 45 PS companies.

SOURCE: Capital IQ, McKinsey analysis

Since 2013, however, PS companies have posted solid gains every year and narrowed the performance gap. When we assessed the performance of 45 public PS companies across all product segments, we found that the improvement related to three factors:

- Margin expansion, which saw EBITDA rise from 8.3 percent for the period 2002–07 to 10.3 percent for 2013–18.

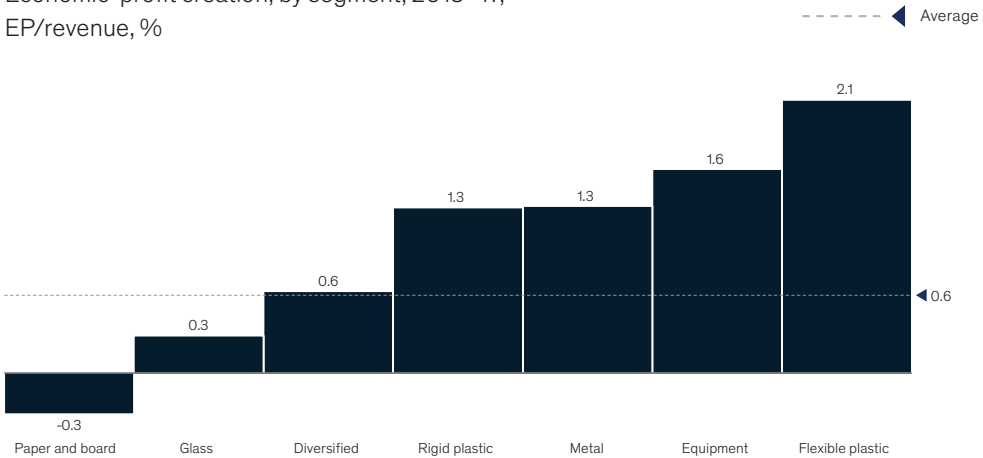
- More efficient use of capital, with capital turns improving to 1.9 times for 2013–17, up from 1.7 times for 2002 through 2007.
- Faster and profitable revenue growth after the 2008 financial crisis, with PS companies demonstrating a compound annual growth rate (CAGR) of 2.2 percent, compared with -1.4 percent for the industrial sector as a whole.

The industry standouts

When we examined PS subsegments, we found that some performed much more strongly than others. In recent years, flexible plastics have demonstrated the strongest performance, generating an average economic profit of 2.1 percent for 2013–17. Only paper and board delivered negative value during this period (Exhibit 5). These trends are quite different from those seen only a few years ago. For instance, metals were the top subsegment in 2008–12.

Exhibit 5. De-averaging economic profit (EP) divided by revenue shows performance variation among subsegments

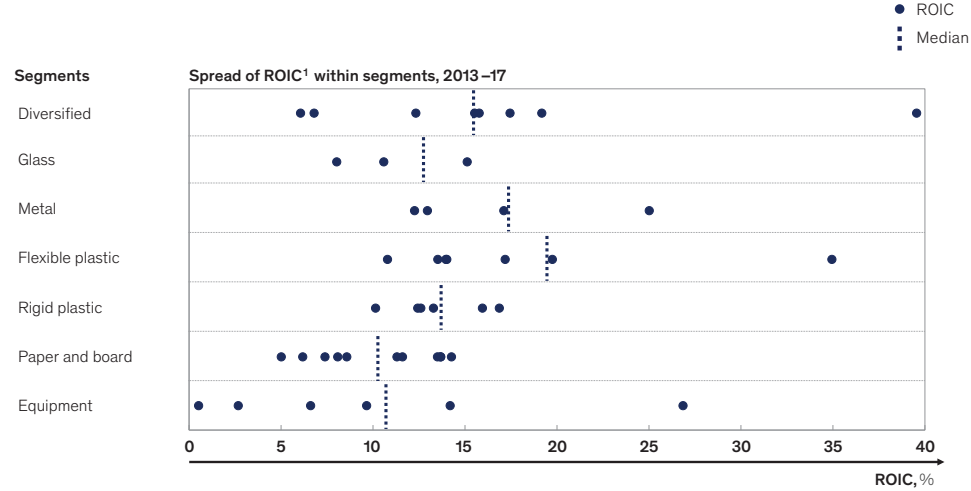
Economic-profit creation, by segment, 2013–17, EP/revenue, %



SOURCE: Capital IQ, McKinsey analysis

In every packaging subsegment, some companies stood out from the pack because of their high return on invested capital (ROIC) (Exhibit 6). This pattern holds true even in subsegments that had low returns. The industry standouts differentiated themselves from their peers on the three metrics that have been most important in helping the PS sector generate economic profit: margin growth, capital turns, and revenue growth.

Exhibit 6. Some companies within each segment had a much higher ROIC than others



1 Average return on invested capital, excluding goodwill and intangibles, weighted for invested capital.
 SOURCE: McKinsey, CPAnalytics

Based on ROIC performance, we grouped companies into quartiles and then compared their rankings for two periods: 2002 through 2007 and 2013 to 2017. We found that over 60 percent of companies switched quartile based on their ROIC performance from one time period to the next, with the number of companies that declined in quartile similar to the number that rose to a higher one (Exhibit 7).

Exhibit 7. A company’s starting return on invested capital (ROIC) is not an indicator of future success

Company performance across cycles

Companies, by quartile on ROIC performance, %
n = 41

■ Improvement
■ Decline

		2013–17			
		Top quartile	2nd quartile	3rd quartile	Bottom quartile
2002–07	Top quartile	15	2	7	0
	2nd quartile	5	2	10	7
	3rd quartile	2	12	5	5
	Bottom quartile	2	7	2	15

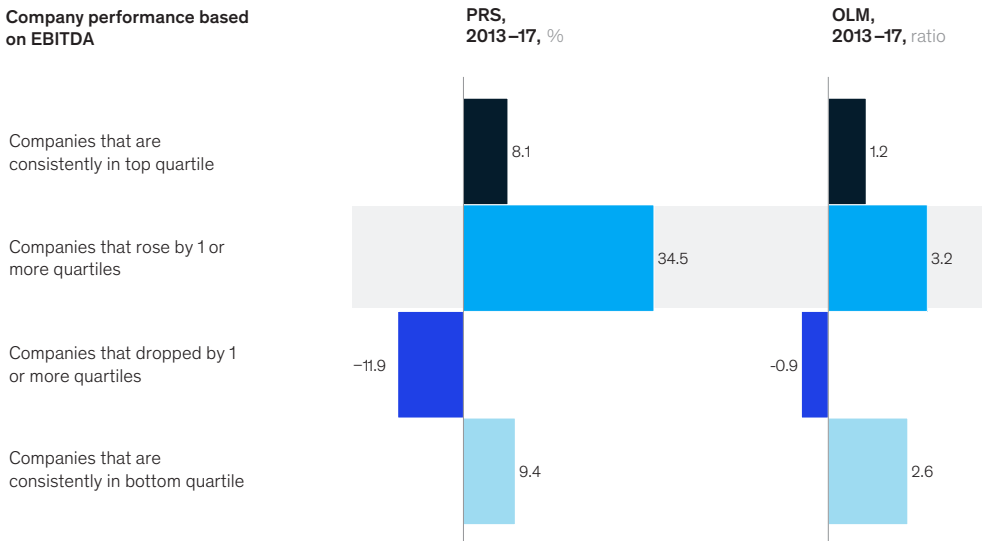
The leading companies—those that were consistently in the top quartile—expanded their margin faster than growth (Exhibit 8). We discovered this pattern in an analysis in which we looked at two metrics:

- **Profit-revenue spread (PRS).** PRS is the difference between percentage growth in EBITDA and the percentage growth in revenue. A PRS greater than 0 implies that EBITDA is growing faster than revenue.
- **Operating-leverage multiplier (OLM).** OLM is the ratio of percentage growth in EBITDA to the percentage growth in revenue. It is indicative of a company’s ability to leverage its fixed assets effectively to expand EBITDA when revenue grows. The higher the OLM, the greater a company’s ability to squeeze out profits from its fixed assets when revenue grows.

Companies with the highest PRS and OLM scores were most likely to be in the leading quartile.

Exhibit 8. Companies that demonstrated the highest scores for profit-revenue spread (PRS) and operating-leverage multiplier (OLM) were most likely to be in the leading EBITDA quartile

Performance of packaging companies, 2013–17



Based on these results, it is fair to ask what helps the companies that lead that pack in performance based on EBITDA. Is it size? Capital deployment? Our analysis suggests that it is neither of these (Exhibit 9). Instead, companies that stayed in the top quartile and improved their performance by thinking strategically about five parameters that fall into three groups:

Strategy and Operations

- The markets in which they operate
- The types of customers they serve (for instance, those serving industry leaders rather than struggling companies)
- Their position within their customer base (for instance, being the favored supplier)

Product offering

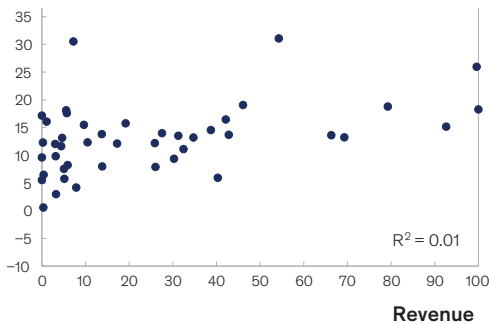
- The uniqueness of their offerings (proprietary products)

Business model

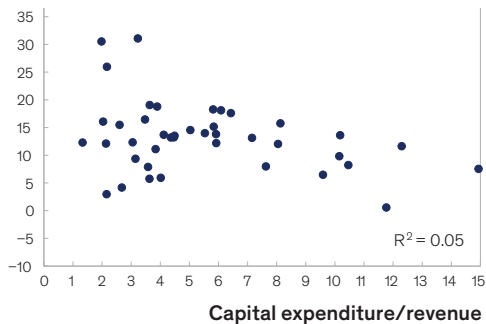
- Their monetization model

Exhibit 9. Company performance was not strongly correlated with starting size or capital expenditures

Impact of starting size (revenue) on performance (ROIC)¹
ROIC, %



Impact of starting capital expenditures on performance (ROIC)²
ROIC, %



1 Index average, 2002–09. Revenues are ranked 0–100 from smallest to largest. Performance measured as average return on invested capital (ROIC), 2012–17.

2 Starting capital expenditure is average capital expenditure per dollar of revenues, 2002–09.

Note: The closer the R^2 value to 0, the weaker the correlation between 2 variables.

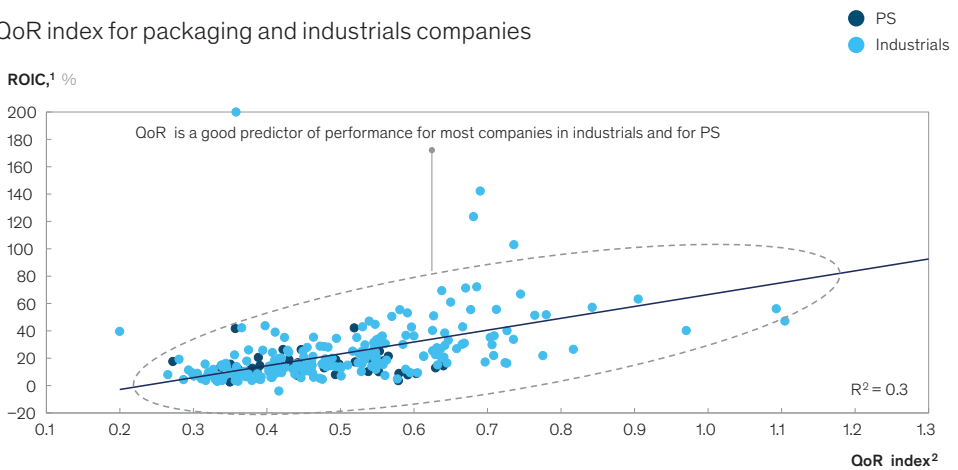
SOURCE: Corporate Performance Analytics by McKinsey and S&P Global

Collectively, these parameters determine “Quality of Revenue” (QoR)—a measure of the strength of a company’s strategy and operations, product offerings, and business model. To calculate QoR score, companies must look at quantitative and qualitative metrics for each parameter, with some having more weight than others. The ratings for each parameter are added together to create an overall QoR index score. Our analysis of over 400 PS and industrial companies shows that performance, as measured by ROIC, is more closely correlated with QoR than with size or capital expenditures (Exhibit 10).

Exhibit 10. Company performance was more closely correlated with Quality of Revenue (QoR) score than starting size or capital expenditures

Historical scale and starting capex are not strong determinants of performance

QoR index for packaging and industrials companies



1 Return on invested capital excluding goodwill and intangibles, 2016.

2 QoR Index calculated based on FY 2016 data.

Note: The closer the R² value to 0, the weaker the correlation between 2 variables.

SOURCE: McKinsey Analysis, CPAT

These findings suggest that improving QoR is key to driving sustained value creation in PS. The playbook for improving QoR will vary by company and depends on its strengths and current position. However, for most players, QoR improvement will involve a multi-dimensional approach that spans products, strategy and operations, and business models.

As companies develop strategies to enhance QoR, they must consider not just where the market is today but where it is headed. What trends are reshaping the sector? And what growth is PS expected to capture over the next few years? Without these insights, their strategies may be ineffective.

(Continued on page 35)



Perspectives from industry leaders

Opportunities in packaging: An interview with Sealed Air's president and CEO, Ted Doheny

Since 1960, Sealed Air has prospered by bringing innovation to the packaging industry, including Cryovac® packaging technology, Bubble Wrap® brand cushioning, and Jiffy® protective mailers. McKinsey's Shekhar Varanasi spoke with Sealed Air's president and CEO, Ted Doheny, about the challenges and opportunities in the packaging sector, as well as its future direction.

McKinsey: What are the important challenges in the packaging industry today? How do you think the industry will evolve?

Ted Doheny: From an industry perspective, the big challenge is this: How quickly can we innovate to save our customers money? From a more global perspective, it's important to think about the tremendous amount of waste associated with packaging—sometimes arising from e-commerce or because things are over- or underpackaged. And there will always be concern about plastics. We can solve our toughest challenges with new innovations that leave our environment and society better than we found them. That should be the focus of the future industry.

The industry will find tremendous opportunities in driving innovation. Think about food. Over 30 percent of the food we grow and harvest is lost. We could work on packaging technologies to extend shelf life, or truck life, or plane life, or in the future, even drone life. It would change so much. The world is also becoming more automated, even in grocery stores, and packaging companies could help drive change there.

McKinsey: The packaging industry has moved from destroying value to creating value over the past 15 years. What are the most important steps you have taken to create value? And what should the industry do in the future?

Ted Doheny: Let's first talk about economic value and how we create it. At Sealed Air, we changed the metrics on how we think about value. We're focused on our return on invested capital (ROIC). We're thinking: "How do we deploy our assets above our cost of capital and actually create value?"

We need to focus on innovation, since that will keep driving profitable growth and value creation. And if we're not moving fast enough, that's when we should think about M&A to fill the gap and drive more growth. But before a company undertakes any deals, it has to be financially solid. It has to be creating value.

McKinsey: How do you become a company that provides end-to-end solutions across equipment, materials, and service?

Ted Doheny: There's a process. Before you become a solutions provider, you have to have tremendous products that actually create value for the customer. These products are essential to the next step—becoming a service player. Then, after you develop great services on top of your great products, you can provide solutions.

So it's really an evolution. You take great products and reinvent them until they're world class. You improve your service capabilities, sometimes using internet channels to provide even better customer interactions. All packaging companies need to get better on the digital-service side before they move to solutions. And that's what we've been doing.

McKinsey: What steps is Sealed Air taking to improve sustainability?

Ted Doheny: Our mission statement says that we solve packaging's most critical challenges with innovative solutions that leave our world better than we found it. We have a plastics pledge, and the goal is to have zero plastic waste. We have a timeline. The question is how do we get there from where we are today.

Our plastics pledge is opening up the door for innovations. We're looking at materials and thinking about changing the components that go into packaging. We're looking at how we make things, investigating digital technology, and helping our customers determine where they should dispose of their waste. We're looking at recycling. We're doing the right thing and opening some business opportunities in the process.

McKinsey: What opportunities are new technologies such as automation, artificial intelligence, and blockchain creating for the packaging industry?

Ted Doheny: It's interesting. If you create a Venn diagram, packaging is actually at the center point where these disruptive technologies are converging. That's because everything is put in a package. How does a package communicate with people who want to know what is inside, when it was filled, how much it weighs, whether it was stolen, and whether the contents are nearing their expiration? Packaging is the focal point of everything.

Think about blockchain. Packaging companies can use digital tools

that note exactly when something went into a package. We can own that information and share it with customers, so they can trace the inputs and track the package. By providing that information, blockchain helps us add value.

Now think about automation. If a person loads a cart in a supermarket, they might get 15 or 20 items in it over a half hour. A robot is now under development that could work at ten times that pace. But it will need to be able to read the digital signature on packages for this to work. Beyond digital communication, we need to think about packaging materials that could help with automation. A robot hand might not be as soft as a human hand. So what packaging is required? We may have to design for both robots and humans.

McKinsey: How are you optimizing capital allocation?

Ted Doheny: For all our capital expenditures, we're asking: What is the return on that capital? How does it drive productivity? How does it drive growth? How does it drive cost savings? We're taking an end-to-end perspective. What's happening in the factories? Could a new innovation help? What about M&A?

We now look at capital allocation collectively, at the company level, instead of considering it by division and region. The new process is more holistic. We're also trying to improve capital allocation by driving process breakthroughs. We're not looking for incremental improvements that might make a process 5 percent better. We're considering full process redesigns. We want people to think out of the box.

Say we're looking at a customer's specifications. It calls for protective material, a box, and instruction books. Maybe we could think of a new design that dramatically lowers the cost. That same thing goes for internal operations. Could we move to fully automated systems that improve processes? If so, capital should flow to release the automation and increase our returns.

McKinsey: How do you balance the tension between short- and long-term benefits when making investment decisions?

Ted Doheny: We rely on numbers and consider risk issues in combination with the timeline. An innovation might be associated with a lot of risk. And if it takes a long time to implement, we won't immediately see returns on our investment. But we need to consider the whole picture. Is the innovation a game changer? Will it transform the company and help us jump past the competition? So there is a financial component to our decisions, and some discipline. But our own judgment also plays a role.

As we innovate, we need to fail faster. We shouldn't keep moving forward if our work doesn't appear promising. We can learn from

our failures. Many of the products we create require a lot of testing and FDA approval. That will always be the case, and our products will always take a long time to develop. But if an innovation isn't working, it doesn't have to go through the full process. We can stop development. We have to increase our failure rate.

McKinsey: You have spoken of the “four Ps” in reference to Sealed Air and the company’s transformation. Tell me a little about them.

Ted Doheny: We’re reinventing the entire company—and that’s not meant to scare anyone. We’re going to have a new way of organizing that relates to what we call the four Ps. The first one is performance. We’re changing our metrics and our focus to ensure that we are a world-class company serving the packaging industry. We’re targeting 40 percent operating leverage. We want to beat our cost of capital. And we will have one bonus pool for all teams.

The second P is process. We want to have common, world-class processes and benchmarks by area, function, and yield. But how will we define world class? How far away are we? The process change will happen throughout the whole company.

The third P relates to products. We have to reinvent our iconic products. Their good record doesn't guarantee their future. Where we've lost our patents, we're going to have to reinvent, and we'll need more significant innovation with our iconic brands. We need to reinvent Bubble Wrap®, reinvent Cryovac®.

The fourth P is really important—that's our people, and we want to reinvent our culture. As a new CEO, I had some meetings with the people on the management team to discuss how we could work as a team or individually, to reinvent the company's culture.

The essence of the four Ps is to drive sustainability and our positive impact on society. What we do affects the world we live in, and that's important. The more we address sustainability and social issues, the stronger the company becomes. It's the right thing to do.

McKinsey: You’ve already talked about the industry’s future. What do you see as the greatest opportunities and challenges for Sealed Air over the next few years?

Ted Doheny: We have to combine our vision and strategy with strong execution. If a company has goals but doesn't execute on them, they're dreaming. But if they move to implementation without first having a clear vision and strategy, it's a nightmare. It simply won't execute well.

We have a clear vision and strategy, but there could be some macroeconomic issues that affect implementation. For instance,

are there certain tariffs that could force us to change our supply base? We have to deal with those things. But what's exciting to me about our business is that we're connected to our customers—some of the major companies in the world. If their CEOs have a packaging issue, they get us in there. I think if we stay connected to our customers at the highest levels, we can fight through any implementation obstacles and gain some great opportunities.

McKinsey: What are the most important things you've learned about being a CEO?

Ted Doheny: I'm a second-time CEO. From day one, when you take over, you're responsible for every problem in the company. When I started at Sealed Air, I knew that I had to move fast, address every problem, and delegate to make that happen. There's always the fear that someone is moving faster than you are.

The most important thing is to find the right people, get a strong team in place, and execute. This is my second time around with a transformation, and my speed is probably twice as fast.

McKinsey: What are three things about you that we wouldn't have guessed?

Ted Doheny: Although I'm a CEO, you might be surprised to know that I'm a private person who sometimes doesn't want to do interviews! Second, I'm an entrepreneur trapped in a big company. I had my own business as a kid, selling fruits and vegetables, and that helped pay my way through college. My longtime friends can't believe I'm still with a big company. People who don't know me probably wouldn't realize that. Third? I guess I'd say that I'm something of a frustrated athlete. As a kid, being an athlete was my identity. I had to give that up, and I still have some regrets.

McKinsey: One last question. How does it feel to have an unlimited supply of Bubble Wrap® to pop?

Ted Doheny: I have wonderful memories of my mom popping Bubble Wrap® therapeutically. How do I feel about my unlimited supply? It's motivating me to develop sealedair.com. It makes me want to make Bubble Wrap® easily available at any time, anywhere, to anybody. We need to make that experience easy to get.



Perspectives from industry leaders

Winning in the new age of packaging: An interview with WestRock's CEO, Steve Voorhees

WestRock, which is headquartered in Atlanta, has operations around the world and expertise in every shopping category. The company has created game-changing innovations in papermaking, packaging design, and retail solutions. McKinsey's Nick Santhanam spoke with WestRock CEO Steve Voorhees to gain his perspective on packaging sector and the road ahead.

McKinsey: How has packaging changed over the past 15 years?

Steve Voorhees: Packaging has served three roles: protecting, promoting, and performing. With protection, needs have evolved as the channels for getting products to customers have changed, and we'll continue to see new developments. Packaging's role in promotion is growing in importance and helping our customers increase their sales. But the greatest changes relate to performance, and that will continue to be the case over the next five to ten years.

McKinsey: How is packaging performance evolving?

Steve Voorhees: First, sustainability is a much more important aspect of what we offer to customers. They like paper-based packaging because it's made from renewable and recyclable resources. Customers also appreciate packaging that contains less material. Those changes help packaging perform its role in promoting sustainability.

Another part of performance relates to new technologies embedded in packaging that allow it to do far more than protecting and promoting products. For instance, consumers can get information about products by scanning labels on some packages.

McKinsey: That brings up another question. Is the new emphasis on sustainability primarily coming from your customers, or are consumers providing the major push?

Steve Voorhees: I think it's driven by the consumers. Look at Earth Day last year, when there were pictures of plastic in the ocean. Consumers were very engaged. Now they're saying, "What can I do, through my individual buying decisions, to help the environment?" For many people, not buying plastic is a way to help. Paperboard packaging nicely fits with this trend. And our customers respond to consumers. It's a virtuous circle.

McKinsey: What is your company doing to increase sustainability?

Steve Voorhees: We're very committed to sustainability at WestRock and we're focused on giving our people opportunities to make a positive impact on the environment, including within the communities where we operate. We have specific sustainability goals and we track our progress closely.

We have a great paper R&D area, and the discoveries allow us to design paper packages that replace plastics across the board. There are many opportunities to do this in different markets—we've done many replacements in beverage over the past few years. We anticipate that there will be more opportunities to replace plastic with paper.

McKinsey: How do you think governments will support the push for sustainable packaging?

Steve Voorhees: I think the consumers are going to encourage governments to take action. It's the same as what is happening with our customers, where consumers are showing their support for sustainability by purchasing products that minimize waste.

McKinsey: Now let's move to another topic. We've seen a lot of mergers and acquisitions within packaging recently. Do you think the consolidation is contributing to the higher returns that we're seeing?

Steve Voorhees: I think companies are benefitting more from scale than consolidation. Some people might say that there is no distinction, since scale results from consolidation, but there is one. As companies become larger, they can serve customers more economically, with a broader range of paper and packaging products. The larger size allows them to be more efficient when trying to meet customer needs. At WestRock, scale is definitely one of our advantages. Our comprehensive portfolio of paper and packaging products works to our advantage.

McKinsey: You like to use the expression "Preparation meets opportunity." Can you talk a bit about how have you capitalized on acquisition opportunities and new technologies?

Steve Voorhees: If you're prepared, you can take advantage of opportunities when they arise. At WestRock, we've designed our organization to be prepared, and we've built the capabilities needed to capture opportunities. And we'll continue to build our capabilities and our business for a long time into the future.

McKinsey: Are you looking at both organic and inorganic opportunities to build capabilities, or are you focusing mostly on M&A?

Steve Voorhees: We're building capabilities organically more than ever before. We've taken that stance since we built WestRock

through the merger of two companies, about four years ago. Now we're reaping the benefits. Of course, we still have the opportunity to grow via acquisition and obtain new capabilities, but the next several years will mostly involve organic growth. We'll benefit from the capabilities that we've built as an organization to meet the needs of our customers.

McKinsey: Even before M & A was popular in packaging, WestRock was very successful in acquiring companies. What's your approach in aligning organizations and cultures after an acquisition?

Steve Voorhees: Well, we've learned from experience, since not all of our acquisitions have been successful with respect to integration. We've built a framework to integrate companies and welcome them into WestRock. And the core of that is our values and our vision and our behaviors.

We want all of our teammates to feel engaged and comfortable in their work. But the mechanics of any individual integration are very much situational. The best way to integrate a new company, particularly with respect to systems, culture and processes, will vary.

McKinsey: Why is cultural integration so difficult for many companies?

Steve Voorhees: I think it's really hard to listen. There's a tendency for people to say, "I'd love to share my ideas with you" when they are speaking to staff from an acquired company. Instead, they should ask, "What are the best things that I can learn from you?" They'll find that people are willing to share their views. You really have to create a situation in which both sides listen to each other. If you can do that, people from both companies will share ideas and end up with better results than either would attain on their own. If the companies don't listen to each other, you're not going to end up with a very good result.

McKinsey: Beyond scale that companies often achieve through M&A, what are some other important value drivers for packaging companies?

Steve Voorhees: The other major value driver is innovation—the application of technology in manufacturing, design, and administrative processes. Technology and innovation feed each other, and they're both enhanced by scale. They'll be the main drivers of value in the future.

McKinsey: We are living in a world of massive disruption brought on by technologies like blockchain and the Internet of Things. What are the implications for the packaging industry and for companies like WestRock?

Steve Voorhees: Technology is having a tremendous impact on

society and industry. At WestRock, we're embracing that by looking at digital and determining how it can make our business more effective. Take product design. There are many opportunities to use technology to improve product design and create packaging that customers really want. And within operations, there are multiple opportunities to use innovative technologies—we can change everything from how we measure our product to our printing methods. We're also using digital tools to improve how we recruit, attract, and retain employees.

McKinsey: What's your vision for connected packaging and how will WestRock support its evolution?

Steve Voorhees: It's an opportunity for us to continue to add value to our packaging. Look at a product we created for 19 Crimes. Each package has a picture of a convict who was transported to Australia for crimes committed in England in the 1700s and 1800s. If you download an app, you can point it at the package and hear the criminals come to life and tell their story. There are also some other interactive features. That's an experience you can only get from connected packaging.

Connected packaging also creates great opportunities to reach customers in stores. If we connect at the store, we might have the opportunity to convince customers to buy our product.

McKinsey: Investing in new technologies costs money. How do you ensure a good return on investment on packaging innovations?

Steve Voorhees: We focus on packaging innovations related to four value drivers that are important to our customers. The first two involve increasing sales and reducing total costs. And for costs, we're not just talking about the price of packaging. We're trying to reduce costs in any way possible, and sometimes the savings we help customers obtain are higher than the cost of the package itself. Beyond sales and costs, we invest in technologies that will minimize risk. Those technologies help ensure that we can deliver complete orders on time, and we've been very successful with that. Last, we focus on innovations that will help customers meet their sustainability goals. As I noted, paper-based packaging can take them a long way toward that goal. Customers are very grateful for the value of our products, and we have a good relationship with them.

McKinsey: How has WestRock increased the proportion of recurring revenues? That's one of the biggest drivers of a metric that we term Quality of Revenue.

Steve Voorhees: I think we'll have an increase in recurring revenue at WestRock because we're getting better at providing differentiated solutions to our customers. We have the world's most comprehensive portfolio of paper and packaging, and we're creating customized

solutions that our customers appreciate. That will encourage them to continue working with us. Our customer retention rate has improved significantly in recent years.

McKinsey: There's an advantage to being a first mover with new technologies, since you get to set the standards and drive change. But there's also some risk because you don't know the potential returns. How do you make decisions about how much you should invest in the core business and how much you should invest in innovative technologies?

Steve Voorhees: That's another great question because those choices are becoming more stark. There's not a perfect answer to that question, beyond saying that you need to look at the alternatives, set priorities, and make judgments. That's what we do at WestRock.

As we look at the future, technology will become more of a given within packaging. Ten years from now, technology will play an even greater role than it does now. I think that's an important consideration as we look at ways to build our company. If we have to choose between investing in new technology and hard assets, we might be more likely to choose technology.

McKinsey: There's a general sense that publicly listed company or publicly traded companies can't take a lot of risk because the market won't allow it. Would you agree?

Steve Voorhees: I think it depends on the risk. Our investors are very knowledgeable and understand our business. If we can make a case that it's an appropriate risk to take, our investors will support it. We pay attention to their concerns, and I think we've been successful.

McKinsey: Many packaging companies are working more closely with their customers, especially big tech companies, on packaging solutions. How do you see this trend evolving over the next three to five to ten years?

Steve Voorhees: I think the line between packaging companies and customers will become increasingly blurred. Technology is affecting all aspects of society and business. We're going to be investing in new packaging technologies, and tech companies might explore that as well. Companies like WestRock, which have scale, will have the resources to invest in new technologies.

McKinsey: What impact will Millennials have on packaging? They shop much differently than older consumers.

Steve Voorhees: Actually, I think the way all customers shop, whether they're Generation X, Generation Z, or Millennials, is changing in response to technology, the advent of mobile phones, and e-Commerce. That creates great opportunities for packaging companies that have the scale to be able to respond to those trends.

Our challenge is to identify those needs and be the first to meet them.

McKinsey: What do you see as the biggest opportunity and the challenge for the packaging industry over the next five years?

Steve Voorhees: Integrating technology into business in a way that reflects market needs.

McKinsey: What's your greatest learning as CEO?

Steve Voorhees: You must stay focused on what's important, and that obviously includes your job. But it's also family and faith. You need a strong foundation. You will have good days and bad days, but having a strong foundation of support and consistent beliefs will get you through. Actually, I think I knew these things coming into my position, so I'm not sure I'd call it a learning. But it has become more true as time's passed.

McKinsey: Many people know you as a CEO. What are a few things they don't know about your life outside of work?

Steve Voorhees: They might not know that I love music. There are so many great songs out there. If you don't know Florence and the Machine, you're missing out.

(Continued from page 21)

Future outlook

A look at the future market provides reason for reassurance that companies can continue the success of the past few years. Five ongoing trends are creating both tailwinds and challenges for packaging (Exhibit 11):

- Growth of e-commerce and the accompanying demand for shipment materials
- Changing consumer preferences
- Lower margins within CPG and retail
- Greater emphasis on sustainability
- Disruptive technologies that are transforming business processes as well as the types of packaging created

Exhibit 11. The packaging-solutions (PS) sector is being disrupted by five trends



None of these trends are new, but they are only now exerting their full effect on PS. What's more, they're offering opportunities for innovation along all three dimensions of the innovation cube

(products, strategy and operations, and business model), potentially giving companies a chance to improve QoR. This section provides an overview of the major changes.²

The growth of e-commerce

Consumer preferences are shifting dramatically, and the first big change involves how consumers make purchases. The global e-commerce market is taking more dollars from traditional retail each year and will continue to grow. In 2022, this channel is expected to account for 14.4 percent of all retail spending, up from 4.2 percent in 2012.

Some analysts believe that e-commerce will diminish the traditional role of packaging in attracting consumer interest. After all, fewer customers will be looking at products on the shelf, so compelling graphics and visuals on packaging will be less important. But other analysts believe that e-commerce will open new and different opportunities for packaging. In addition to greater demand for shipment boxes and other materials, e-commerce could also drive growth for new types of packaging. For instance, companies may develop more robust materials, which can better withstand the jostling that occurs during shipping. With e-commerce producing slim margins for retailers, an advantage may go to companies that can design cheaper packaging or packages that can be quickly filled on production lines. Packaging designs that are well suited to automated packing also may see greater demand, since many e-commerce merchants use robots to remove products from shelves and put them into boxes.

One of the most significant changes may involve the convergence of the primary packaging, which contains a product, and the secondary packaging, which forms an outer container. Large e-commerce players will likely lead the way in asking PS players to create primary packaging that can be shipped without a secondary outer layer.

Some companies have already introduced packaging with e-commerce in mind. For instance, a CPG company modified a detergent box to be lighter and smaller than a typical package, so it saves space in delivery trucks and reduces shipping costs. As an added environmental bonus, the detergent box uses 60 percent less plastic than most packaging.

² For a more detailed discussion, see David Feber, Daniel Nordigården, and Shekhar Varanasi, "Winning with new models in packaging," May 2019, McKinsey.com.

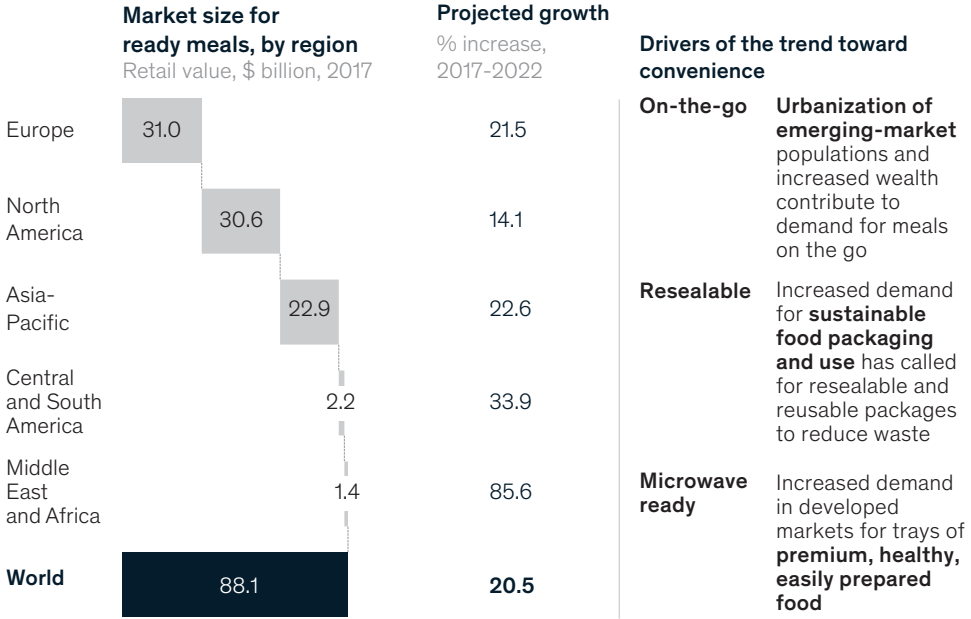
Changing consumer preferences

Consumers are not just changing how they shop; their preferences also are affecting what they buy. Consider some of the greatest shifts:

- **Greater convenience.** Consumers have long favored convenient packaging, and this trend is accelerating. Within the food category, for instance, demand is growing for on-the-go, resealable, and microwave-ready packaging (Exhibit 12). Worldwide, demand for ready meals is expected to increase 20.5 percent from 2017 through 2022. PS companies will find that requirements for convenient packaging are becoming more intense, necessitating greater innovation.
- **Increased personalization.** Consumers increasingly opt for personalization on packaging, which is raising the number of SKUs and pack sizes. The growing online marketplace can easily accommodate such variety.
- **Support for local products.** Over the past few years, consumers have been drawn to local products, both because purchases help nearby merchants and because they are viewed as safer. This is particularly true of the younger generation. Compared with baby boomers, for instance, Millennials are 3.7 times more likely to avoid buying products from the “big food companies.”³
- **Focus on health and wellness.** Across segments, consumers are becoming more conscious of health issues, including childhood obesity and age-related impairments. In response, demand is soaring for fresh produce, organic food, and health-related products. PS companies may find new opportunities in this area, especially if they create packaging that communicates the value proposition of health and wellness products.
- **Heightened price awareness.** In developed economies, many consumers have less disposable income and thus are increasingly focused on price. McKinsey’s 2017 Global Consumer Sentiment survey showed that 42 percent of US consumers were looking for ways to save money. Checking prices has become easier, thanks to online channels and cost-comparison tools. In response, CPG and retail companies are attempting to reduce prices and offer less expensive products. As they look for savings, these companies will likely attempt to cut packaging expenses.

³ McKinsey Millennial Survey, US only.

Exhibit 12. Consumer food preferences are shifting toward convenient ready meals, increasingly imposing new requirements on packaging



SOURCE: Euromonitor, McKinsey expert interviews

Compression of margins within CPG and retail

Although CPG companies and retailers would like to cut prices to satisfy consumers, they are also dealing with higher costs across the board. In many cases, the increasing complexity of products, materials, and suppliers is pushing costs upward. Simultaneously, labor costs are rising because companies need more skilled employees. Even investments in automation and digitization, though aimed at improving performance in the long run, can require higher spending levels in the short run. These trends are putting intense pressure on the margins of CPG companies and retailers, with net profits declining from about 15 percent to 5 percent or less. To prevent further losses, they will collaborate with PS players to find cost-effective packaging solutions. Some CPG companies and retailers may also try to find global partners to supply their packaging, hoping that the increased volume will result in a better deal.

A shift toward sustainable materials

The amount of waste associated with packaging is immense. Single-use packaging accounts for about a quarter of the total volume of plastics and around 95 percent of the value of plastic packaging material (representing \$80 billion to \$120 billion annually).⁴ The environmental impact of such waste can be devastating. By 2025, for instance, 250 million metric tons of plastic are expected to be in the ocean unless companies and other stakeholders institute some protections.⁵ Without action, the ocean will contain one ton of plastic for every three tons of fish.

With environmental awareness increasing, many large economies are now regulating the use of plastics and creating ambitious targets to reduce waste. Some, for instance, are placing tax levies on packaging materials, while others are setting higher recycling goals.

With sustainability issues escalating, retailers and CPG companies have made commitments to reducing waste. Many, for instance, want packaging with high percentages of recycled content.⁶ But these companies are also confronting a problem: a mismatch between consumers' desire to reduce waste and their willingness to pay for the necessary changes. That means PS companies must focus on cost-effective solutions when developing sustainable packaging.

Technological innovations

Over the past few decades, technological innovation has disrupted how we live and work (Exhibit 13). The first wave, which saw the rise of the mobile internet and social networks, focused on the aggregation of information. We also experienced the growth of the sharing economy and e-commerce. And now we are in the midst of another wave—call it Disruption 2.0—in which technologies like artificial intelligence (AI), machine learning (ML), the industrial Internet of Things (IIoT), autonomous driving, and blockchain are changing how industries approach their strategy and operations and business models. This phase of disruption will be characterized by automated activities, a step change in productivity, and new types of interactions with machines.

⁴ "The new plastics economy: Rethinking the future of plastics," January 2016, McKinsey.com. (published jointly with Ellen MacArthur Foundation, World Economic Forum)

⁵ "A sea change in how we use plastics," February 19, 2015, McKinsey.com.

⁶ 2018 McKinsey Consumer Survey: Sustainable Packaging—attitudes and behaviors.

Exhibit 13. Disruption 2.0 technologies will lead to large productivity improvements



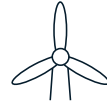
Artificial intelligence/
machine learning



Industrial
Internet of
Things



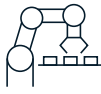
Virtual and
augmented
reality



Energy storage
and clean energy



Autonomous and
connected
vehicles



Advanced
robotics



3D printing
and additive
manufacturing



Fintech and
blockchain









Next-generation
genomics



Regenerative
medicine

Of these technologies, six will have a particularly strong impact on industrials: AI and ML; virtual and augmented reality; the industrial IoT; additive manufacturing and 3D printing; advanced robotics; and blockchain (Exhibit 14). For instance, IoT sensors on machines in plants can detect vibrations that signal an imminent breakdown, making it easier for companies to undertake preventive maintenance. While many of these technologies, including AI and ML, have been available for years, the pace of innovation is now much faster and more intense than anything we have seen previously. Already, some PS companies have adopted these technologies to improve specific operations and increase productivity. As one example, digital printing is improving product tracking and quality control along supply chains by allowing companies to have a unique digital code on every package.

Exhibit 14. Six Disruption 2.0 technologies will have a particularly significant effect on PS companies

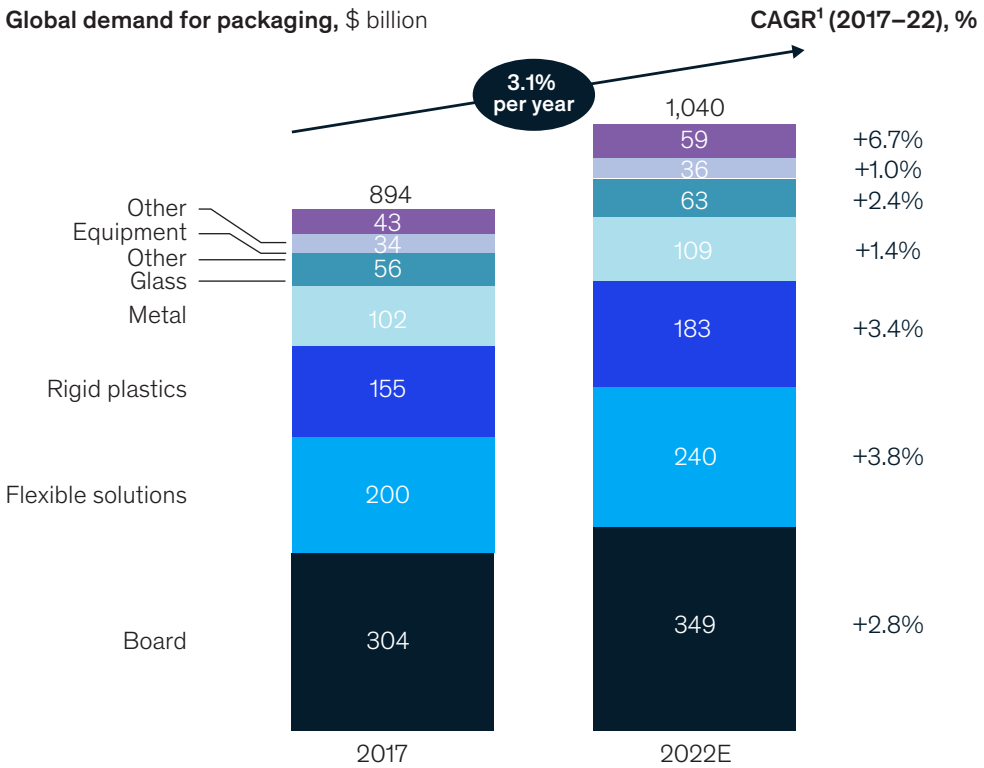
		From ...	To ...
	Artificial intelligence/ machine learning	You do the thinking	Machines think for you
	Virtual reality/ augmented reality	You search for the information	Information is displayed for you
	Industrial IoT	You manage the tools	Tools “discuss” and manage themselves
	Additive manufacturing and 3D printing	Products are built in large production runs	Ability to quickly and cheaply 3D print low-volume or customized products
	Advanced robotics	Robots are used in fenced-in robot only areas	Collaborative robot learns tasks and works side by side with humans
	Blockchain	You go through a middleman/central platform	Information is shared through decentralized networks

Beyond general technology trends that affect operations and productivity, technology is also driving packaging innovations. For instance, consumers can now scan quick-response (QR) codes—scannable squares—on food packaging to get nutritional data. Over the next 10 to 15 years, we expect that more retailers and CPG companies will seek to integrate digital technology into their packaging to differentiate themselves from the competition and appeal to consumers. PS companies that look for innovative solutions in this area may capture much of their business. As one example, they might provide packages with codes that allow complete traceability of food products along the supply chain. In addition to letting consumers know the source of their food, such packaging could assist with product recalls and quality management. Digital packages could also improve customer interactions, increasing sales.

Overall outlook

The five trends are expected to contribute to strong year-over-year growth within PS through 2022 (Exhibit 15). Investors are confident about the sector’s future, as reflected by rising EV/EBITDA multiples (measuring a company’s enterprise value divided by its EBITDA). These multiples have been averaging about 9.5 over the past five years—the highest the industry has seen since 2000. But success will not be automatic. Rather than following their old playbook, companies that want to rise to the top must focus on improving QoR.

Exhibit 15. The outlook for the packaging-solutions (PS) industry is positive



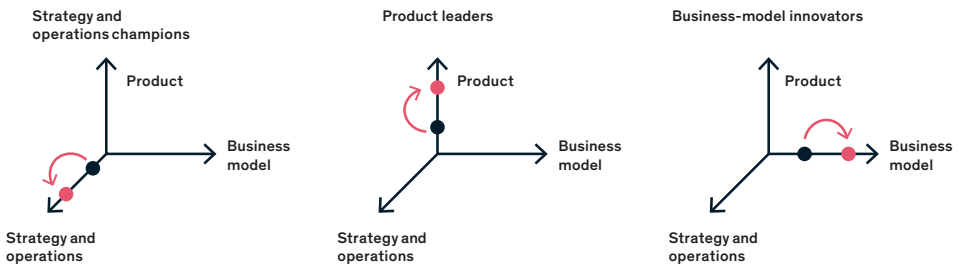
¹ Compound annual growth rate.

SOURCE: PIRA Report on Global Packaging, 2017

Enablers of success

When it comes to improving QoR, companies have almost limitless options—especially if they harness the tailwinds produced by the trends transforming packaging. We have studied how various companies have enhanced the three elements that determine QoR: strategy and operations, products, and business models. Our analysis uncovered many successful examples (Exhibit 16).

Exhibit 16. PS companies should drive innovation in strategy and operations, products, and business models



Elements of the new playbook

Advanced analytics	Smart products, such as those using the Internet of Things, to reduce packaging waste	An improved portfolio of business
Next-generation manufacturing	Better traceability along the supply chain, especially for food	Better monetization models
Product-portfolio optimization	Greater use of sustainable materials	An optimized go-to-market approach
Production-footprint optimization	New packaging for e-commerce products	Greater focus on emerging markets

Strategy and Operations

PS companies have long used technology to improve processes and increase efficiency. But some recent innovations may allow the industry to make even greater leaps. For example, advanced analytics—the use of big data and sophisticated algorithms that rely on artificial intelligence—is transforming supply-chain forecasting, pricing and discount optimization, and areas of manufacturing operations. Similarly, next-generation manufacturing, through adoption of industry 4.0, is reshaping how companies create products while simultaneously driving substantial improvement in productivity and costs. Some companies are increasingly relying on

information from sensors and devices, including those connected to IoT, to make decisions. They are also improving human-machine interactions through improved interfaces or other tools, such as virtual-reality headsets.

Already, some PS companies have introduced a few of these innovations within operations. A packaging-solutions company that generates about \$5 to \$10 billion in revenues and serves over 100 countries has applied advanced analytics to optimize production planning. The company's portfolio includes thousands of SKUs produced on a made-for-delivery basis, with an average lead time of 10 to 15 days. The tool that the company created allowed it to maximize yield, leading to a one-to-three percentage-point decrease in material waste, and reduced the number of setups by 20 percent. The productivity of schedulers and planners increased up to about 30 percent because they no longer had to determine the production sequence manually.

Other PS companies have made strides through adoption of next-generation manufacturing technologies. One packaging converter, for instance, formed a partnership with an instrument company to develop software for automatically inspecting products. Another company, a packaging-equipment player, applied augmented reality—a technology that imposes a computer-generated image on a user's view of the world—to improve service and maintenance. The augmented-reality tool helps offsite specialists see and hear everything that specialists experience onsite, enabling them to reduce breakdown times and service costs.

Products

Product innovations are already transforming packaging, and the pace of change will only accelerate. While the list of potential innovations is impressively long, a few stand out:

- Smart packaging, which could include sensors that collect information or tags that provide data when scanned
- Blockchain for food—technology that guarantees transparency and traceability along the supply chain
- Innovation in sustainable materials
- Better e-commerce packaging

Examples of these innovations already abound. For instance, a major packaging player has launched NFC-embedded packaging, which is intended to combat counterfeiting in alcohol and spirits. Buyers with smartphones can tap the chip embedded in the bottle's tag to verify its authenticity. In another advance, a major player in food packaging created a platform, built on a blockchain solution, that allows trading partners to see all relevant transaction data, such as information on

when a product was harvested. The system is encrypted to provide security. In addition to reducing paperwork, the blockchain solution increases trust and transparency.

Business models

For business models, innovation can span multiple areas. Some of the most effective strategies may involve optimizing the portfolio of business by refocusing efforts on attractive micro-verticals in which a company has an inherent advantage. Companies could also transform their monetization models—basically, how they obtain revenue—by migrating from a product focus to services and solutions. Again, some leading companies have already begun the transformation process.

For building a portfolio of businesses, consider the success of Excellence United, a strategic alliance run by five German companies that are market leaders in different segments of equipment for pharmaceuticals packaging. One member, Harro Hofliger, specializes in equipment for inhalers, injectables, oral solids, and oral solutions, for instance, while Fett Compacting offers tablet presses, capsule-filling machines, and tableting tools or services. Together, the five partners cover the entire value chain.

Pregis took a similarly innovative approach toward monetization. It now relies on a business model in which it installs and maintains high-quality, premium machinery for customers on their premises at no charge. Customers pay only for the consumable packaging materials, not the machines. This business model gives Pregis a dependable and recurring revenue stream. It also decreases the churn rate, since customers that want to move to other packaging would need to change their machinery first.

How to get started

The trends transforming the PS sector will provide ample opportunities for companies to outperform their peers and accrue value, provided that they focus on improving QoR by pursuing innovative strategy and operations, products, and business models. But companies must move quickly to develop new strategies, since those that stick to the old playbook for success may be left behind.

So how should companies get started? While the exact starting point will vary for each business, we believe there are three imperatives for companies as they try to navigate an increasingly dynamic business environment and capture value from these opportunities for the next few years. These involve improving core performance, creating a pragmatic game plan to improve QoR, and establishing strong governance to drive transformation and innovation.

Strengthening core performance

Companies must start by improving their core performance—basically, undertaking an accelerated transformation to improve their traditional processes, products, and business models. Without this solid foundation, they will have difficulty freeing up the capital required to explore innovative improvements. An accelerated performance transformation should involve three steps (Exhibit 17):

- Developing a clear picture of a company's full potential
- Measuring the absolute change in EBITDA, not simply cost reductions
- Driving a coordinated effort

Exhibit 17. Companies should take an accelerated approach to improving their core performance

Determining full potential	Getting detailed insight into baseline performance
	Conducting analyses of head count, operational expenditures, cost of goods sold, cash flows, and revenues
	Creating a list of initial improvement actions
Measuring absolute change in EBITDA, not deltas in cost	Ensuring tight integration between improvement actions and P&L outcomes
	Creating an early-warning system
	Monitoring all changes that could affect earnings before interest, taxes, depreciation, and amortization (EBITDA), including unexpected headwinds
Driving a coordinated effort	Establishing individual accountability
	Eliminating conflict among business units, functions, and sites
	Getting input from frontline workers

To understand their full potential, companies must establish detailed baseline numbers for head count, operational expenditures, cost of goods sold (COGS), cash flow, and revenues (Exhibit 18). For instance, they must map all personnel based on job and location for head count and determine spending by site and product line for COGS. Companies can then conduct analyses to determine the potential for improvement and identify some preliminary activities that will help them reach their goals. They might conduct a supply-chain analysis to minimize the disruptions that are increasing COGs, or they could design new travel policies and monitor compliance with them to reduce operational expenditures.

Exhibit 18. Companies must develop baseline performance metrics for five pillars of the business



Baselining



Focus areas

Head count right-sizing

Detailed head-count map by function and site

General and administrative
Sales and administrative costs
Cross-company consolidation

Operational-expenditure reduction

Breakdown of spend by cost center and type

Engineering
Sales and administrative
Company policies
Indirect spend

Cost-of-goods-sold reduction

Understanding of direct material spend by site and product line

Manufacturing
Installation services
Direct material pricing and consumption

Cash optimization

Baseline cash metrics (accounts payable, accounts receivable, etc.) by site

Inventory levels
Networking capital reductions
Collection improvements

Revenue optimization

Understanding of historical evolution of prices by site and product line

Pricing strategy
Price-increase realization
Change-order management

Companies evaluating the impact of a performance transformation have generally focused on measuring the results of their improvement initiatives—for instance, how much they reduced costs. But it is more important to look at the absolute EBITDA, a figure that is affected by multiple forces, including top-line growth plans, changes in product volume or mix, and headwinds or tailwinds that influence the industry. As companies plan ahead and forecast EBITDA, they must consider all of these issues.

While some companies might begin an accelerated performance transformation with pilots, leaders should begin planning for organization-wide rollout as soon as possible. Timelines will vary, but some companies may begin to see improvement within 12 to 18 months with this approach.⁷

⁷ Siddarth Madhav, Abhijit Mahindroo, Kristian Nolde, and Nick Santhanam, "Accelerating profitability for medium-size industrial companies," January 2019, McKinsey.com.

Building a pragmatic game plan

To capture value from the positive trends over the next few years, companies will have to build a pragmatic game plan to improve QoR that considers all three dimensions of the innovation cube: strategy and operations, products, and business model. Many potential opportunities will exist at every company, but limits on resources will make it impossible to pursue them all. Therefore, companies will have to make hard choices and evaluate strategic questions to chart their path forward. Ideally, they will make two or three strategic bets and deliver some quick wins to build enthusiasm—for instance, a product that can be launched relatively quickly.

The following questions can help companies set priorities.

Strategy and Operations

- What use cases are enabled by disruptive technologies, such as lead scoring, manufacturing automation, rapid prototyping, and supply-chain traceability?
- What impact is each of these use cases likely to have on top-line growth, as well as cost and margin? Which use cases deserve priority?
- How much investment is needed, and what is the likely business case?
- What is the right approach to building and implementing these use cases (for instance, an agile model for testing and refining the application in short iterations)?

Products

- What innovative solutions can we enable by leveraging technology disruptions, such as predictive-maintenance tools or remote monitoring and management?
- What are the key components of the technology stack for each solution?
- How much value is created by these solutions? What value is associated with each element of the stack?
- What control points must we own to capture this value? What intellectual property is required to own these control points?
- How much investment is needed to build the solution? What is the expected ROI?
- What is the right trade-off between building a solution versus forming a partnership, undertaking an acquisition, or buying a patented product?
- How can we leverage partnerships and acquisitions to accelerate development?

Business models

- What potential business model options exist for monetizing new solutions (for instance, subscription, service-contract, profit-sharing models)?
- What are the relative pros and cons of each business model? Which option is right for each new offering or solution?
- What is the right approach to testing and launching these models (for instance, a controlled pilot in one region or customer segment)?
- What is the value proposition for potential customers?
- What impact will the business model have on the core business? What is required to protect the core business?
- What are the overall economics of the model? What is the cost to deliver the model, and how will value accrue over time?

Strong governance to drive transformation and innovation

As companies undergo an accelerated performance transformation, they must establish a strong governance system that emphasizes employee input during all phases. This level of engagement helps build support for the transformation and ensures long-term sustainability. The three most important elements of transformation governance include:

Transparency. Leaders must clearly describe every improvement initiative, including baseline performance metrics and improvement goals. They should also assign responsibility for each initiative, note why it is important, and establish timelines. It often helps to establish a control tower to provide oversight.

Communication. All individuals and business units must be aware of their responsibilities. In addition to communicating clear expectations, leaders must constantly ask employees, especially frontline staff, for feedback on current and potential improvement initiatives. If companies hold frequent meetings to review progress and discuss roadblocks, they are more likely to stay on track.

Actions. For every activity related to a performance transformation, leaders must specify how the current process differs from past activities, as well as the reasons for these changes. Teams will work with category owners to ensure that all essential activities are completed on time.

Companies also need strong governance to drive innovation, although the model will differ from the one used for transformations. There is inherent uncertainty whenever a company is developing new products or experimenting with novel processes, so it is important to follow a test-and-learn approach. There should be clear milestones for each innovation, as well as associated metrics to measure success. Following this model, companies can quickly change course if things are not going as planned.



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FRAGILE
Handle with care
DO NOT DROP!

Conclusion

After failing to deliver economic profit for many years, the PS sector turned a corner in 2013 and entered a new phase of value creation. The future is bright, and growth is expected to accelerate. But companies must remember that the traditional playbook will not be sufficient to capture their full potential as the industry adapts to the trends that are reshaping the packaging landscape. Instead, PS companies will need to embrace disruption and adopt a disciplined approach to improving their QoR. Companies that are able to drive improvement across all three dimensions of QoR—products, business models, and strategy and operations—will emerge as winners and capture a disproportionate share of the value created over the next few years. Are they ready for this challenge?





Glossary/Acronyms

Advanced analytics

A range of analytic techniques and tools for the acquisition and transformation of raw data into information to predict future outcomes

AI

Artificial intelligence; typically defined as the ability of a machine to perform cognitive functions we associate with human minds, such as perceiving, reasoning, learning, interacting with the environment, problem solving, and even exercising creativity

CAGR

Compound annual growth rate; describes the mean annual growth rate over a number of years

Capital turns

Computed by dividing sales by average invested capital, excluding goodwill

Cloud computing

On-demand delivery of computing power, database storage, applications, and other IT resources via the internet

COGS

Cost of goods sold

CPG

Consumer packed goods; includes items used daily by average consumers that require routine replacement or replenishment, such as food, beverages, clothes, tobacco,

makeup, and household products

Earnings multiple

Computed by dividing net enterprise value (NEV) by EBITA

EBIT

Earnings before interest and taxes

EBITA

Earnings before interest, taxes, and amortization

EBITDA

Earnings before interest, taxes, amortization, and depreciation

EP

Economic profit; calculated as net operating profit less adjusted taxes (NOPLAT) - weighted average cost of capital (WACC) x invested capital (IC)

EP/R

Economic profit divided by revenue

FDA

Food and Drug Administration; a federal agency of the United States Department of Health and Human Services responsible for protecting and promoting public health

IC

Invested capital

Industry 4.0

The next phase in the digitization of the manufacturing sector, driven

by four disruptions: the rise in data volumes, computational power, and connectivity; the emergence of analytics and business-intelligence capabilities; new forms of human-machine interaction such as touch interfaces; and improvements in transferring digital instructions to the physical world, such as advanced robotics and 3-D printing

Internet of Things

Network of connected devices that can communicate online without human intervention

IP

Intellectual property; includes copyrights, patents, trademarks, and design rights

Leading companies

Companies that were in the top quartile of their product segment based on EP/R performance

M&A

Mergers and acquisitions; transactions in which the ownership of companies, other business organizations, or their operating units are transferred or consolidated with other entities

ML

Machine-learning; involves algorithms that detect patterns and learn how to make predictions and recommendations

by processing data and experiences, rather than by receiving explicit programming instruction

NEV

Net enterprise value

NFC

Near-field communication; a short-range wireless connectivity standard

OLM

Operating-leverage multiplier; the ratio of percentage growth in EBITDA to the percentage growth in revenue

Operating leverage

Percentage change in EBITA less the percentage change in revenues

PRS

Profit-revenue spread; the difference between percentage growth in EBITDA and the percentage growth in revenue

PS

Packaging-solutions sector; consists of companies providing packaging material, equipment, services, and full-fledged solutions

QoR

Quality of Revenue; a measure of market and customer attractiveness, as well as the strength of strategy and operations, product offerings and business model

ROI

Return on investment

ROIC

Return on invested capital

SKUs

Stock-keeping units; a unique identifier of an item for sale

Trailing companies

Companies that were in the bottom quartile of their product segment based on EP/R performance

Tangible capital ratio

The ratio of IC, excluding goodwill, to IC including goodwill

TRS

Total return to shareholders; includes capital gains and dividends

WACC

Weighted average cost of capital

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