

How to accelerate revenue growth in chemicals



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How innovation, pricing strategy and customer centricity can deliver a sustainable future in chemicals

In the Transformative Age, chemical companies are focused on overcoming a weak sector outlook to find new ways to achieve organic and sustainable top-line growth.



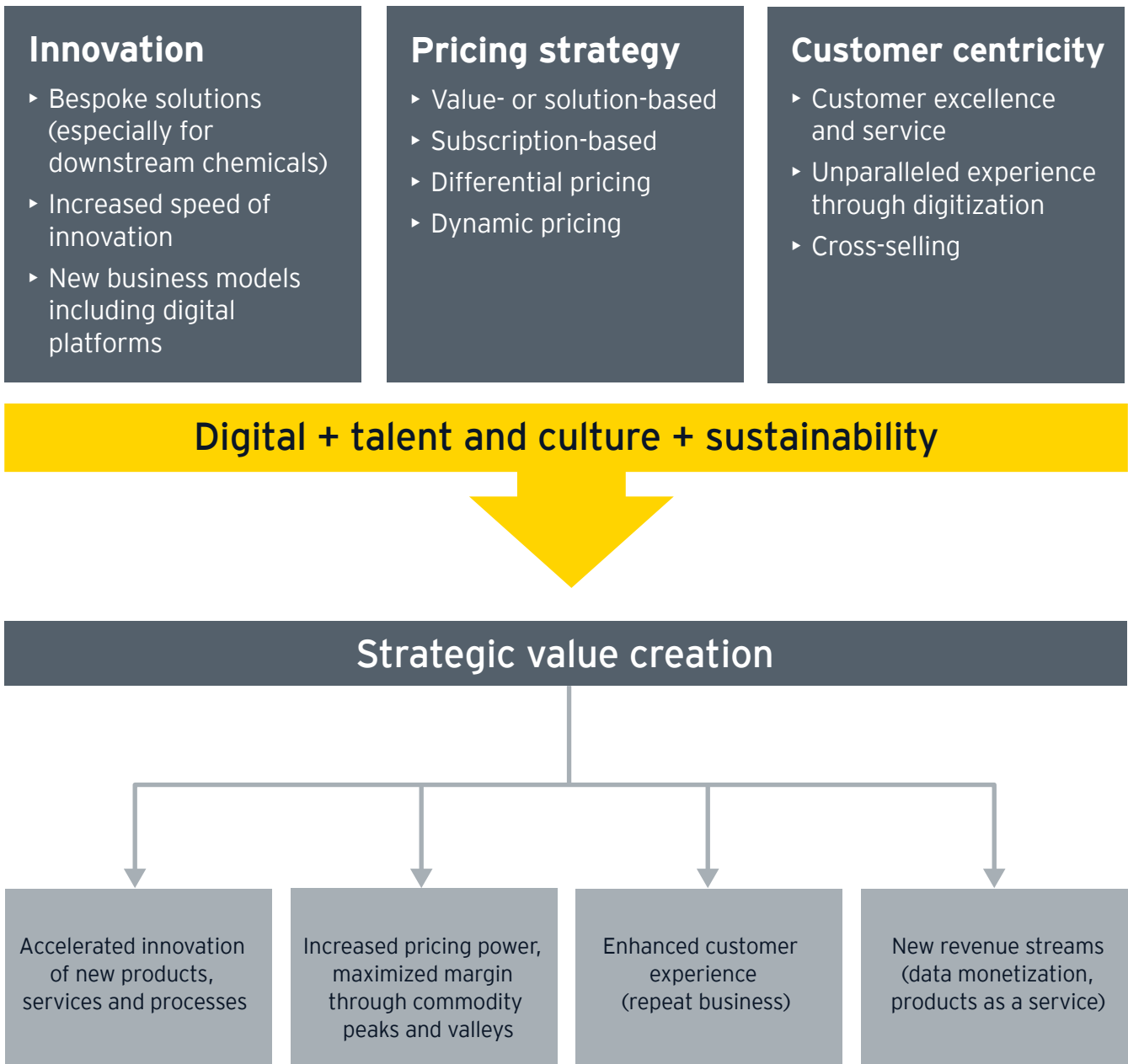
Chemical companies are faced with slower global economic growth, trade disruptions and weakened end-market demand from key industries such as automotive and construction.

The general downturn in demand, coupled with ongoing oversupply in commodity chemicals and weaker pricing, makes achieving organic growth even more difficult.

Though growth may be elusive, it's not impossible. The strategies and operating models of high-growth chemical companies offer three core levers that companies should use to achieve sustainable growth: innovation, pricing strategy and customer centricity.

Companies need to focus on these core levers simultaneously, balance them appropriately – and start now. Each lever relies on strong capabilities in digital, talent and culture, and sustainability, so business leaders will need to think, operate, organize, hire and invest differently.

Three core levers to achieve sustainable growth



The need for organic revenue growth

For most of the past decade, many chemical companies have been investing in cost and efficiency efforts as the growth agenda receded into the background. After years of consolidation, product commoditization, the rise of new competitors in growth economies and increasing cost control programs, achieving organic growth has become increasingly challenging. The dynamic and challenging environment makes the question of where to invest for growth even more critical.

From 2013 to 2018, the rate of growth in the chemical industry has been slower than that of global GDP, and the revenue of the top 50¹ chemical companies has grown at a meager 1.1%. Further, the American Chemistry Council² reports that global chemical production grew by 1.2% in 2019 and is expected to grow by 2% in 2020. These growth figures already include all of the feedstock advantages (tight oil surge and crude oil prices declined by more than 45%).

This period also saw heightened M&A activity, pointing to challenges with

organic growth. The pace of acquisition in chemicals is notably high – deal value increased approximately 3.5 times during 2011–2016, and transaction values are up 30.4% in 2018 over 2017. As a result of this activity, there has been a continuous focus on cost optimization and operational improvements.

In its quest for growth, the chemical industry faces a variety of challenges:

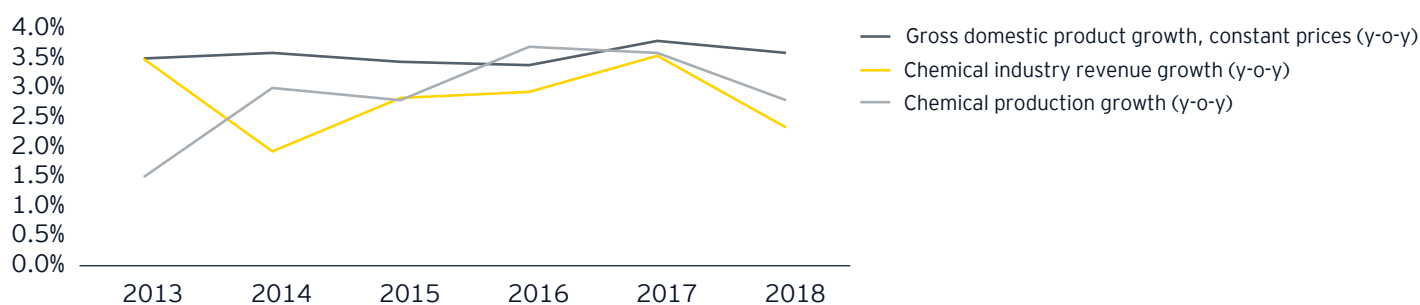
- ▶ **Internal challenges** include aging assets, changing consumer preferences, cyclical nature of the business, increasing competition from new entrants (including tech startups), the changing role of value chain participants, fewer capacity additions for intermediates, overall supply chain issues and a talent shortage.
- ▶ **External challenges** include globalization, geopolitics, supply chain disruption by trade and tariffs, regulations and climate change policies, technology disruption, and tectonic shifts in customer industries.

These challenges have pushed companies to think beyond traditional growth options and to rethink their strategy and focus to achieve their long-term growth vision. Industry executives need to consider several critical questions while developing their medium- and long-term strategies.

Questions to consider

- ▶ Where is the growth going to come from – traditional business model vs. new business model?
- ▶ How do we capture more value in the chemical industry of tomorrow?
- ▶ How do we set up our growth engine to grow over multiple time horizons: now, next and beyond?

Chemical industry growth lags global GDP



Source: IMF, Oxford Economics, EIA

¹ Top 50 to be consistent chemical companies as per 2018 revenues

² 2020 vision: "Scoping out trends that will shape year ahead," ChemWeek, Chemweek.com/CW Document/108285/2020-vision-Scoping-out-trends-that-will-shape-year-ahead

What leaders are doing across the sectors

Despite sluggish growth, the EY Global Capital Confidence Barometer 2019 indicates that 64% of chemical sector respondents expect their revenue to increase in the next 12 months.



Regardless of whether chemical companies are in an upswing or downturn, they should focus on achieving sustainable growth through three critical levers: innovation, pricing strategy and customer centricity. These levers can combine in interesting ways and already appear to be on executives' radar.

According to the EY Global Capital Confidence Barometer, more than 40% of chemical sector respondents are planning significant investments and see significant opportunity in improving customer experience and creating new products and services.

1 Innovation

Innovation needs to be embedded in every company's corporate DNA to drive organic revenue growth, but no company can do it alone

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It's time to understand that customer demand is not actual or forecasted orders, but buyer values matched with innovative, differentiated solutions. Orders then follow.



Jade Rodysill
EY Americas Advisory
Chemicals Leader

Innovation, a long-term driver of future financial performance and value creation, directly impacts competitiveness. The EY Industrial Products Innovation Survey 2018 indicates that 54% of chemical companies rated innovation as the most influential megatrend on their business over the next three years. Furthermore, 70% of respondents said that they are making a significant investment in innovation beyond traditional product R&D, investing in digital, big data and advanced analytics, and offering new process and business models, solution development, ecosystems and more.

Innovation in the chemical industry should not be limited to developing new products. Chemical players need to leverage the entire chemical ecosystem to develop new business models, explore new markets and increase innovation efficiency. Companies can innovate in products and new discovery methods, as well as in several additional areas.

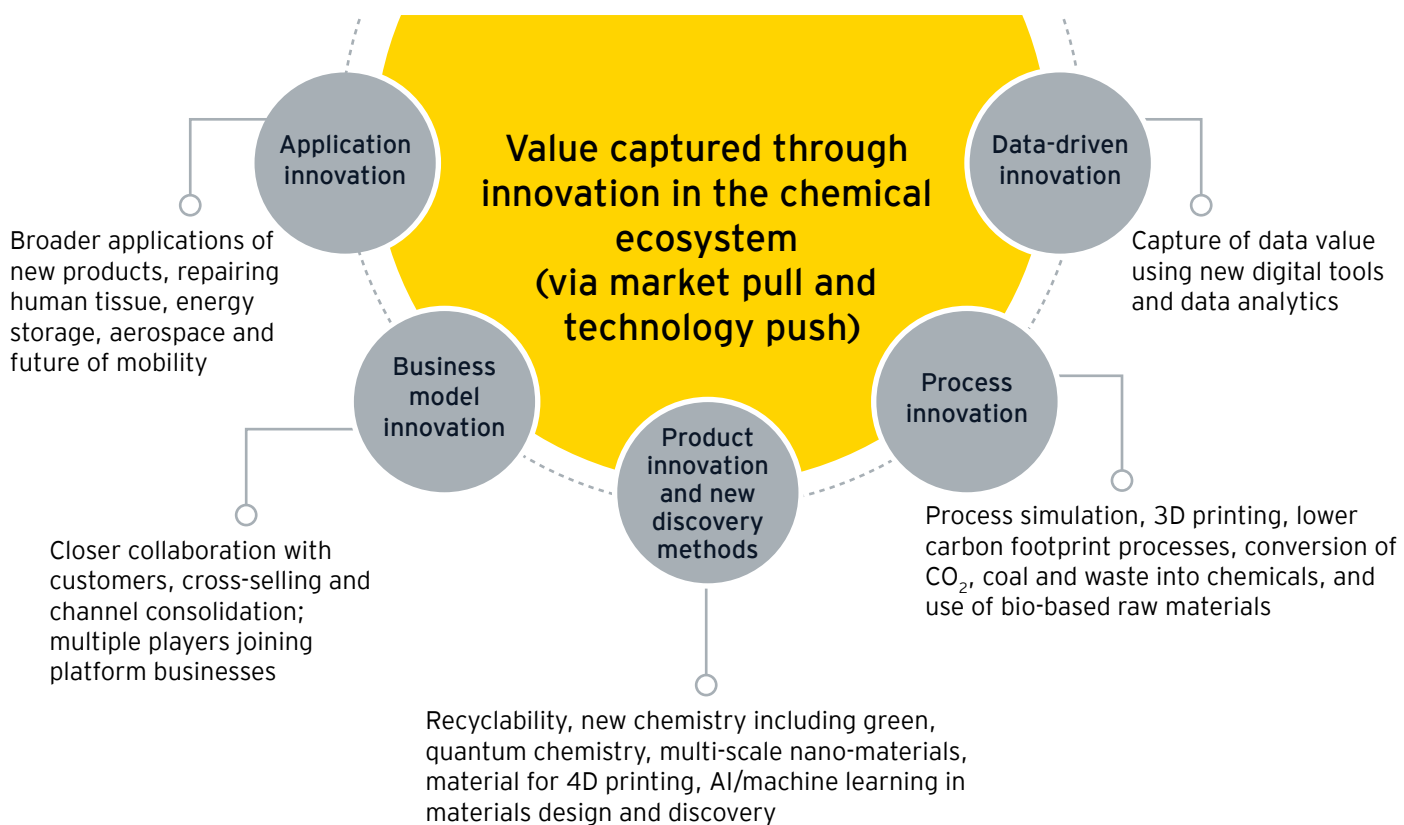
While companies are increasingly turning to data-driven innovation, they also need to focus on new business models, applications and processes to sustain a robust innovation pipeline.

Companies should also consider their investment allocation. They cannot afford to miss current trends, but at

the same time, they need to prepare for upcoming megatrends to innovate faster than competitors. Internally, management should promote a culture and environment of open innovation through a model of test fast, fail fast, reiterate. Externally, they need to be agile to co-create with various members of the ecosystem, from suppliers and technology partners to customer organizations and consumers. They also should seek to crowdfund new ideas and work with idea providers from concept to product scale stage.

Questions to consider

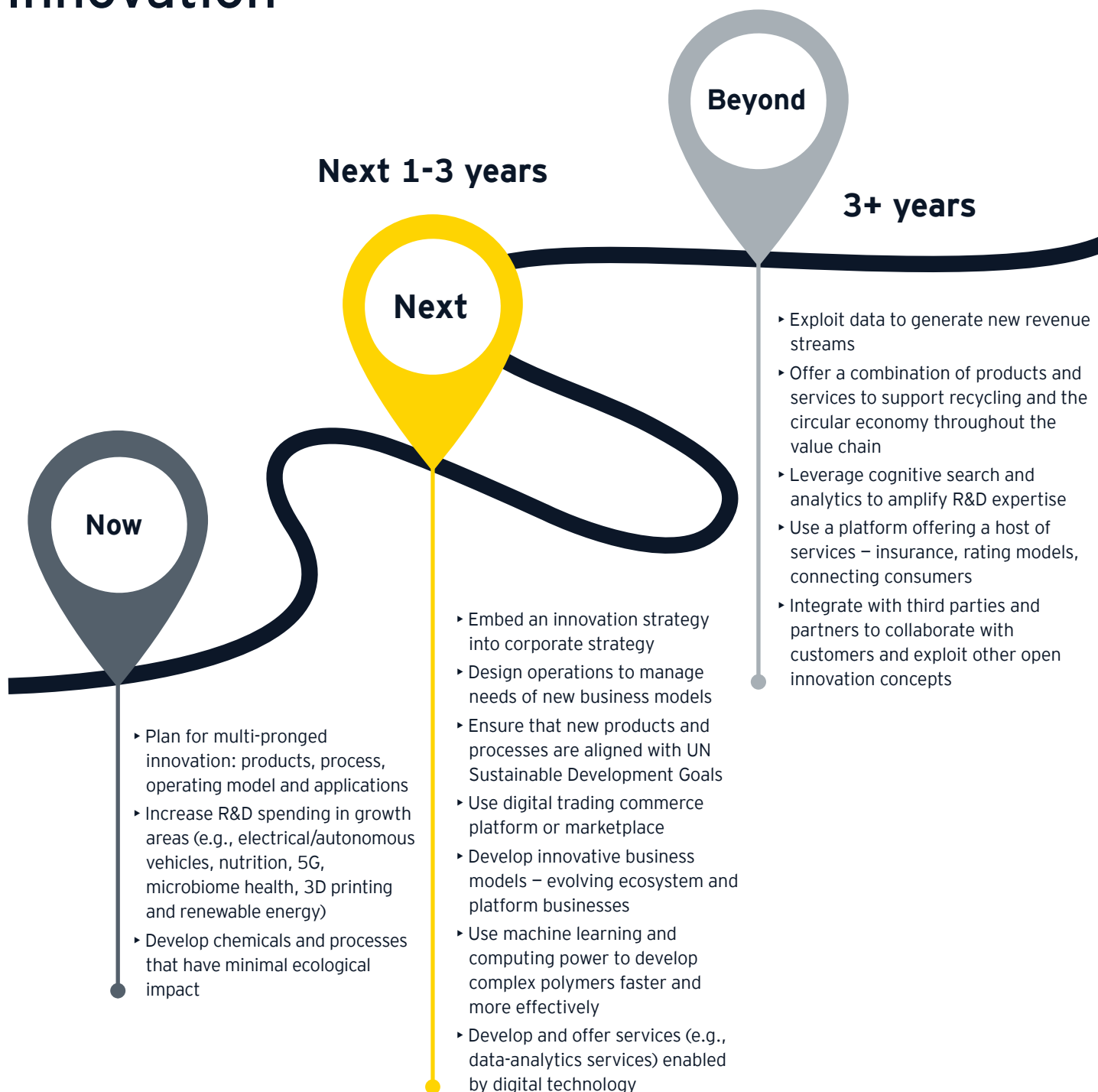
- ▶ How do we scale innovations more quickly with meaningful impact?
- ▶ How do we maximize our innovation return on investment?
- ▶ How do we build and engage our workforce and empower them to innovate?



Recommendations from other industries for achieving innovation

	Case study	What they did	Value delivered
1	A leading toymaker embraced innovation by co-creating with external organizations and collaborating with customers on new products.	<ul style="list-style-type: none"> ▶ The company involved and enthusiasts in product development. ▶ It provided a web platform so customers could upload product designs. ▶ The company built micro pilots to test its capabilities and to assess consumer needs. ▶ It learned from internal practitioners through feedback and interviews. ▶ It co-created new products with a research/innovation lab. 	<ul style="list-style-type: none"> ▶ Increased speed and reduced risk ▶ Improved existing products and processes ▶ Created distinctive product launches and access to new markets ▶ Adopted a more transparent approach to product development
2	A global pharma company embedded large-scale breakthrough innovation into life sciences by adopting cutting-edge technologies to improve human health and crop science.	<ul style="list-style-type: none"> ▶ It collaborated with biotech and agriculture companies on societal challenges like critical illness and food supply shortage. ▶ The company placed long-term equity investments in multiple startups (e.g., a company that designs microbes for sustainable agriculture) and allowed them to operate autonomously. ▶ For social innovation, it co-created an ecosystem of social entrepreneurs, nongovernmental organizations and companies. 	<ul style="list-style-type: none"> ▶ Created long-term value for multiple stakeholders (customers, shareholders, employees and the financial community) ▶ Provided aid to innovative biotech startups ▶ Made positive impact on at least 100 million people – smallholder farmers and their families
3	A global sportswear company is continually adopting new innovations into their ecosystem, focusing on consumer experience, sustainable manufacturing and supply chain practices.	<ul style="list-style-type: none"> ▶ The company adopted augmented reality and virtual reality to improve the design process and the end-product. ▶ The company introduced a foot-scanning solution to find the best shoe fit using computer vision, data science, machine learning, artificial intelligence and recommendation algorithms. ▶ It created 3D-printed sneakers and chip-enabled sports jerseys (Internet of Things and wearables). ▶ It used materials that were more than 70% recycled for footwear and apparel. ▶ It set a goal of running on 100% renewable energy by 2025. 	<ul style="list-style-type: none"> ▶ Improved consumer experience through connected products ▶ Developed competitive edge in the physical and digital spaces ▶ Delivered product performance with low environmental impact to drive sustainable and profitable growth

Innovation



2 Pricing strategy

A robust pricing strategy is fundamental to accelerating revenue growth

Marketing and sales excellence is a key driver for organic growth, and it has often been a hot topic for chemical companies. Within a company, there is a significant connection between the development of the sales organization and long-term success, including profitability and market share growth. Successful companies are much better positioned with respect to the levers from the EY sales and marketing excellence model (shown at right) due to their clear alignment of the sales and marketing functions.

Ideas for improvement can be found in all sales functions, but implementation of those remains a challenge. A systematic review of key marketing and sales success levers is needed to navigate a digitizing environment.

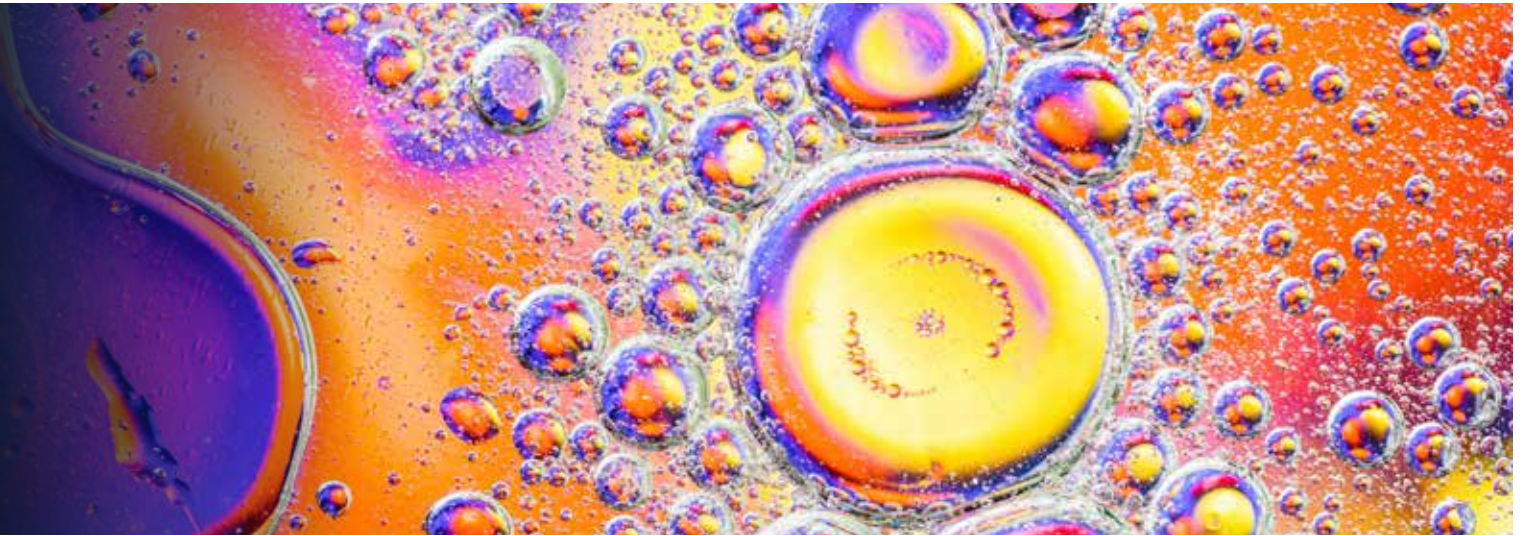
The EY model provides sales excellence guidance by addressing eight fundamental elements of sales, divided into strategic or operational elements and company- or employee-driven elements. By applying this model as an analytical and optimization tool to various chemical industry segments, successful organizations were found to be significantly stronger in all eight sales elements. Out of this framework, strategy and voice of customer heavily influenced pricing strategy, which is key to achieving sustainable organic growth by capturing maximum value from each customer.

A review of the top 20³ chemical players who stated the impact of price on revenues in their business presentations found they were able to pass on to the

customer only about one-quarter of any cost-of-goods increase. Numerous challenges drive this phenomenon, including increasing competition among chemical players, a volatile oil price environment, increasing environmental regulations and the continued commoditization of core products.

Unrealized price potential represents one of the biggest lost opportunities for chemical companies as they try to maximize both top-line and bottom-line growth.

³ Top 20 chemical players as per 2018 revenues – only includes those players that disclosed the impact of prices on their revenues.



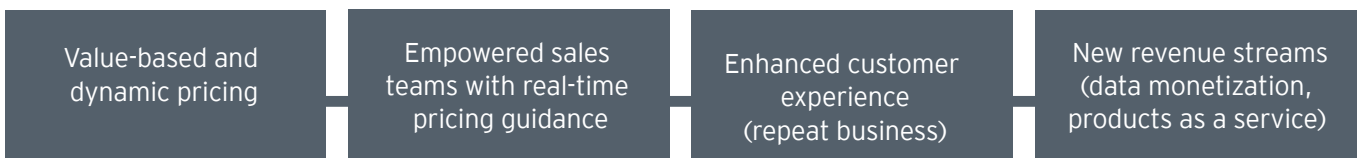
EY sales and marketing excellence model



How can chemical companies develop an effective pricing strategy?



Increased pricing power



Recommendations for effective pricing strategy from multiple industries

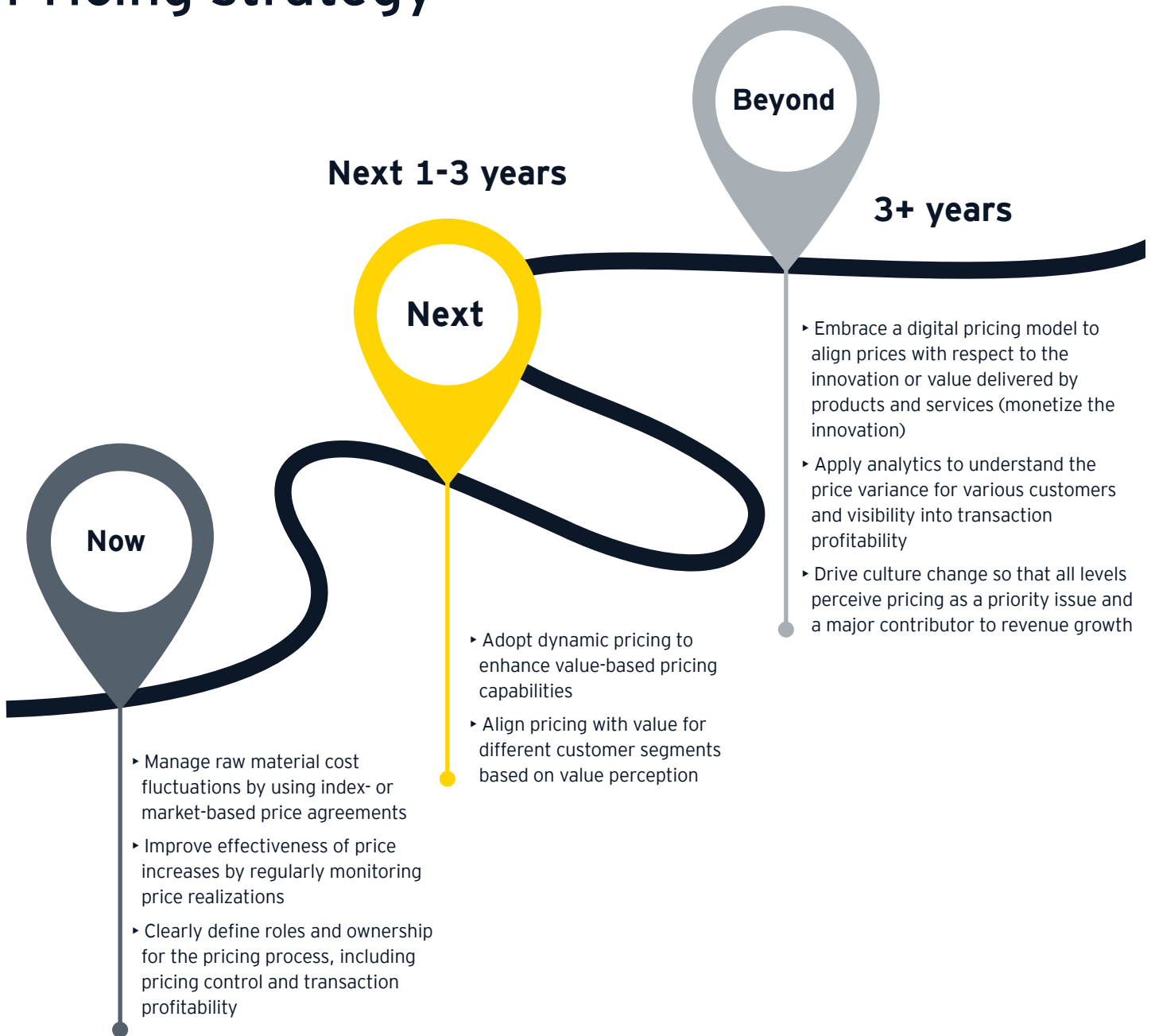
	Case study	What they did	Value delivered
1	A large technology company achieved success by adopting a dynamic pricing strategy.	<ul style="list-style-type: none"> ▶ The company's pricing algorithms are now driven by demand and prices can change millions of times per day. ▶ Factors that influence prices on its platform include demand, customer intent and pricing patterns from other retailers. ▶ The company's retail prices change throughout the day based on the lowest competitive price from other retailers. 	<ul style="list-style-type: none"> ▶ Dynamic pricing, coupled with a strong user interface and customer services, to enable the company to outperform competitors ▶ Proper synchronization of e-commerce, omnichannel and brick-and-mortar stores
2	A large medical device company implemented a differentiated pricing model to meet customer needs.	<ul style="list-style-type: none"> ▶ The company used conjoint analysis to differentiate customers by their willingness to pay for service plan offerings. ▶ Findings helped define which services to include in silver, gold, and platinum service plans. 	<ul style="list-style-type: none"> ▶ Value proposition targeted to customer segments based on relative preference for features such as parts cost coverage, labor cost coverage, response time and uptime guarantee
3	A leading chemical player employed an analytics-enabled pricing solution to drive margin improvement.	<ul style="list-style-type: none"> ▶ The company worked with EY professionals to develop a price optimization toolkit that considered historical price volume elasticity, cost and demand forecasts, and business-specific macroeconomic and feedstock indicators. ▶ The advanced analytics solution and pilot platform offered on-the-fly analytics, customized algorithms and scalable interactive web applications for rapid adoption. 	<ul style="list-style-type: none"> ▶ Margin improvement of 2% to 5% ▶ Reduction in time for pricing decisions from hours to minutes ▶ Self-service pricing analytics platform that offers flexibility, ease of use and low maintenance ▶ Total cost of ownership is low due to use of existing technology stack

In addition, differentiated supply chain models for distinguished product groups are a baseline for proper allocation of production and fulfillment cost. This provides another pricing advantage in a commodity and specialty environment, since it provides real cost per product group and not just averages. Chemical companies have rarely considered pricing as a top management

priority, which explains why the industry has lagged in managing price effectively. In this era of digital transformation where the customer has increasing access to pricing information and competitors are rapidly advancing their digital capabilities, companies that are slow to act may find it difficult to maintain margins as raw material and freight costs fluctuate. However, increasing prices

is not always an option. Productivity gains can provide a better price position especially for commodity chemicals. Nevertheless, companies that focus on the key pricing strategy levers can outgrow the competition in terms of organic revenue while maintaining a strong bottom line.

Pricing strategy





3 Customer centricity

Technology advances must be embedded into the whole customer experience for chemical companies to evolve in today's changing consumer world

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Chemical players need to place the customer at the beginning of their value chains by aligning customer strategies and priorities with their own. It's only when you truly understand the needs of the customer of your customer that you are able to provide real differentiated solutions that stand out from the rest.



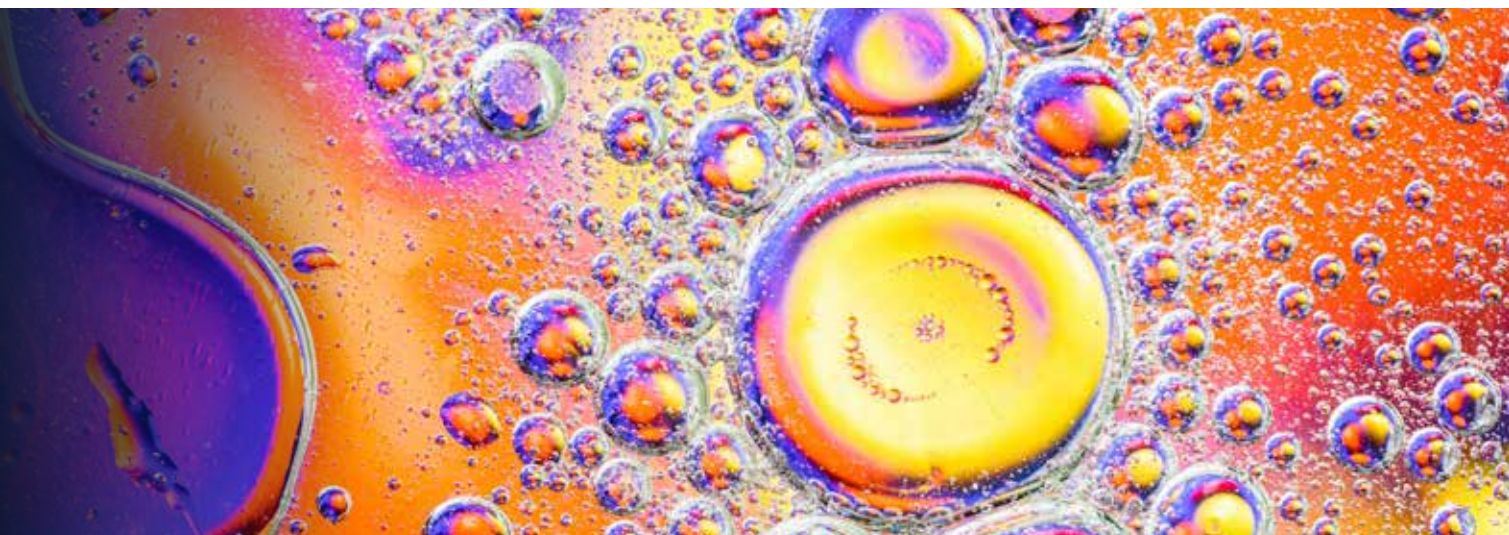
Dr.-Ing. Frank Jenner
EY Global Chemical Industry Leader

The EY Commercial Transformation 2019 survey indicates that 64% of leading manufacturing companies (with revenue growth between 5% and 15%) are customer-centric.

As technology advancements enable a better customer experience, the customer needs of end-use industries increase. These dynamics, coupled with intensifying competition, cause B2B customers to require much more than simply a low-cost product. They value everything from the speed of delivery, high customization and multichannel buying portals to technologically advanced and environmentally friendly products.

Emerging technologies such as artificial intelligence, the Internet of Things, and augmented and virtual reality are beginning to enable solutions to increasing customer expectations.

B2B e-commerce platforms are setting standards of efficiency and speed in delivery, further increasing chemical



customer expectations. Lastly, increased demand for green products and the implementation of sustainability-oriented regulations by governments are pushing chemical players to intensify their development of sustainable products and processes.

Developing and implementing a customer-centric strategy requires revisiting the company's strategy and moving ahead with the customer at the core. This strategy and set of values need to be reflected in the company's policies and culture. Chemical players need to align their customer focus areas such as marketing and sales, product enhancement and customer experience with their internal strategy, policies, communication and culture.

There's also a need for chemical companies to move closer to their customer's customer. Only then will they be able to promptly act or react to demand dynamics (tailored products, reduced time-to-market and cost

savings). Such a transition will lead to a win for all participants. However, moving out of a pure supplier role will not be easy for chemical companies. While co-creating products has many upsides, end customers do not want to be locked in with one supplier and unable to switch in an environment of constant price increases and little innovation.

Moving in this direction could entail becoming part of the customer ecosystem, buying data to innovate and provide better service through enhanced AI or apps, or being a user or ecosystem partner but not necessarily an owner of a platform. Additionally, digitization can provide key tools to enable customer engagement and add value to the customer experience beyond the product being offered. Like B2C players, chemical companies need to provide omni-channel sales networks by ramping up e-commerce, both direct and through third parties. Further, chemical companies can enhance their offering

by using machine learning for additional post-sale services, blockchain-protected processes for instilling trust, and data and analytics to help enhance post-sale product performance.

To achieve this, EY Ops Chain Public Edition (PE) prototype has been introduced as the world's first implementation of zero-knowledge proof (ZKP) technology on the public Ethereum blockchain. This technology is a first that will allow companies to privately and securely create and sell product and service tokens on a public blockchain with private access to their transaction records.

It's clear that chemical companies need to incorporate their customers' key focus areas into their medium- to long-term strategies. A consistent customer connection from as early as product development will lead to sales that can enable chemical players to keep pace with their customers' evolving needs and demands.

Customer centricity challenges and potential solutions

1

Product commoditization and lack of innovation

- ▶ Developing agility across the organization to enable rapid and cost-effective innovation (e.g., an innovation “hub” operating model to fast-track processes)
- ▶ Building internal and external innovation platforms (including the customers) for improved ideation and commercialization
- ▶ Facilitating continuous business and product portfolio evolution to stay ahead of peers
- ▶ Shaping the future value ecosystem by identifying customer and partner needs

2

Lack of customer-centric strategy and portfolio

- ▶ Developing a customer-focused purpose and integrating it with relevancy into every function, role and job with associated metrics
- ▶ Manifesting the value proposition for the customer across business activities and organization culture
- ▶ Optimizing product portfolio that targets maximum returns across customer segments and re-evaluating it regularly

3

Inefficient sales strategy and operations

- ▶ Enabling integration across marketing, sales, supply chain and procurement by establishing an efficient organization structure
- ▶ Developing skills and capability to manage omnichannel sales
- ▶ Utilizing data and analytics for characterizing customer segments, optimizing prospect-to-cash performance, etc.
- ▶ Optimizing alignment of resources across products, services and channels to deliver on the most profitable opportunities

4

Inadequate data management capability

- ▶ Consolidating data across technological and organizational silos internally while deriving customer segments and the relevant strategies
- ▶ Designing and implementing next-generation data, analytics and technology solutions to generate differentiated insights for various customer segments, products and regions
- ▶ Leveraging cloud-based managed services for marketing and sales performance optimization analytics

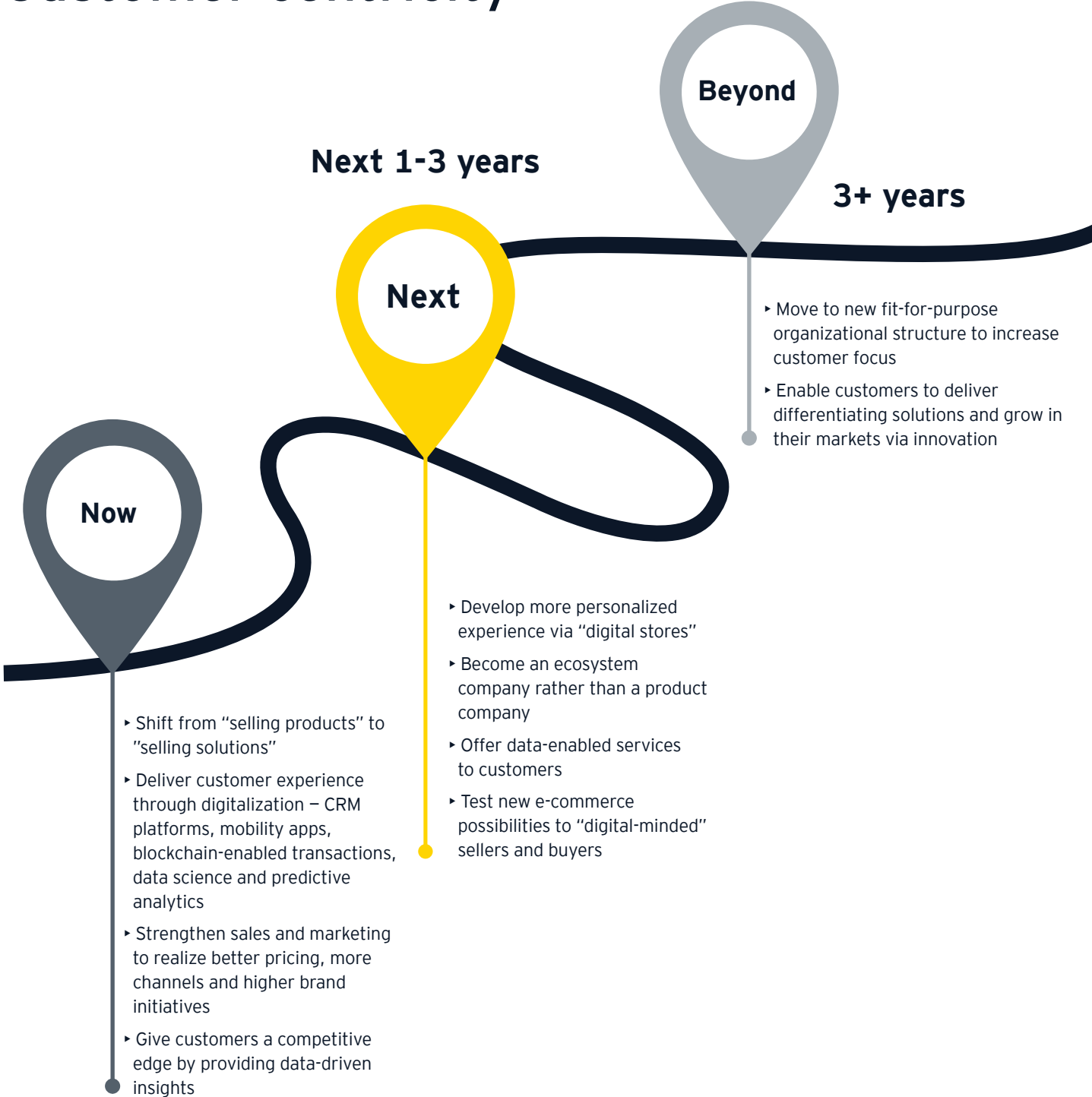
■ Client challenges

■ Solution

Recommendations for customer centricity from multiple industries

	Case study	>	What they did	>	Value delivered
1	An industry conglomerate built customer experience centers to showcase the manufacturing process from design to prototyping to operations, offering transparency to their customers.		<ul style="list-style-type: none"> ▶ A new facility for customers opens access to the company's design and development process, supporting collaboration and innovation. ▶ The centers allow customers to work with company experts on the design and validation of a digital or connectivity solution before it goes into service. ▶ Visitors can see a merging of virtual and physical worlds with demonstrations of "digital twin" simulation technology. 		<ul style="list-style-type: none"> ▶ Ease of working with a broader range of partners ▶ Increased speed of product development and project execution ▶ First-hand customer experience of value of new product or technology
2	An industrial products conglomerate introduced customer innovation centers to provide unique solutions to customer challenges in diverse markets.		<ul style="list-style-type: none"> ▶ The centers provide an infrastructure to involve key customers in the innovation process and uncover new synergies between platform technologies and customer needs in target industries. ▶ The company is generating valuable insights while improving product development. 		<ul style="list-style-type: none"> ▶ Productive, long-term customer relationships and valuable insights while improving product development and marketing effectiveness
3	An industrial machinery OEM pushes dealers to become more customer-centric by leveraging real-time customer data.		<ul style="list-style-type: none"> ▶ The company is using analytical techniques such as real-time data analysis and predictive analytics to prepare for sudden future shifts. ▶ The company is encouraging better communication and collaboration among the distributors. ▶ The company is highlighting the need for dealers to provide global customers across the globe with a consistent experience in all aspects, including e-commerce platforms, and parts and services pricing. 		<ul style="list-style-type: none"> ▶ US\$9 billion to US\$18 billion revenue opportunity in after-market sales by enabling dealers to utilize real-time customer data ▶ Ability to access lucrative fleet management business through dealers, helping customers increase their productivity and efficiency
4	A global chemicals producer adopted an innovative customer-centric test-and-learn approach with their clients and partners in their value chain to create new products.		<ul style="list-style-type: none"> ▶ The innovation studios house a collaboration room for solution-based thinking, laboratory facilities with tools for packaging material development, and film fabrication and testing equipment to validate packaging applications. ▶ Such facilities allow customers to collaborate on-site with the company's technical team and test, prototype and develop adhesives products without interrupting commercial production. 		<ul style="list-style-type: none"> ▶ Enablement of faster and more efficient commercialization of new and improved packaging ▶ Potential cost reduction and reduced cycle time on fabrication, prototyping and testing during new product development

Customer centricity





Toward a sustainable future

The challenge for all chemical companies, regardless of size, is to consistently focus on commercial growth in all economic and industrial cycles – upward or downward. A steady focus on sustainable business growth will prove to be a firm's competitive advantage and enable it to weather challenging times.

Chemical companies need to identify key industry or macro trends that will spur the next wave of growth. For example, meeting rising global demand for food and achieving food security is a UN Sustainable Development Goal. There is a need for strong collaboration and thus a significant opportunity for the energy,

fertilizer and agricultural markets to help achieve these objectives.

Today's leaders must create businesses and cultures capable of driving the duality of optimal performance today and innovation for the future. The approach illustrated below helps companies apply innovation at scale by rapidly developing and iterating a portfolio of new solutions.

To focus on the three growth levers in a balanced and integrated manner, companies need to embed these levers in their strategy, culture and mindset. But they also need to realize it will take time to achieve top-line benefits. One

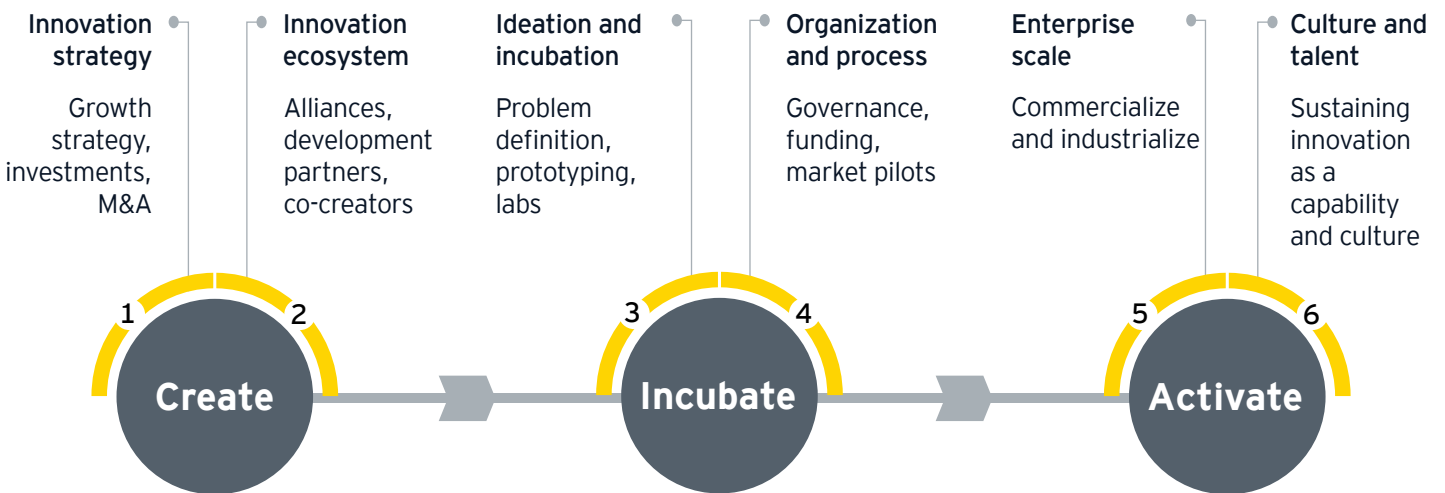
approach is to determine what can be changed now, over the next three years and beyond.

An evolving mindset will help chemical companies embrace the strategic levers that can lead to organic growth. This mindset capitalizes on strong capabilities in digital, talent and culture, and sustainability to overcome today's challenging environment through innovation, pricing strategy and customer centricity.

As chemical companies embark on their transformation journey to accelerate revenue growth through the three key

A broad agile approach to innovation

Helping EY clients to embed innovation and rapidly develop and iterate a portfolio of new solutions while simultaneously preparing the organization for sustained evolution and scalability



growth levers, they should adopt an agile mindset. This can be more challenging than it sounds because change involves taking people out of their comfort zones (and their current way of working) and pushing them to do things differently. The leadership role becomes most critical in driving that change throughout the organization.

There are various opportunities through which chemical companies can drive a shift in mindset from “traditional” to “agile”:

- ▶ From being a manufacturer of products to identifying as a provider of solutions and services that may require manufacturing
- ▶ From being broadly risk-averse to adopting a risk profile that is fit-for-purpose – being thoughtful but agile
- ▶ From having a “do it in-house” mentality to collaborating with various ecosystem participants (e.g., suppliers, customers, universities, 3PLs)
- ▶ From defining customer needs by orders to defining their needs by their buyer values and their customers’ buyer values
- ▶ From focusing solely on attracting talent to focusing equally on attracting, retaining and developing talent



- ▶ From focusing on technology infrastructure too much and too soon in lieu of process and people to becoming business-led, process-driven, technology-enabled
- ▶ From having a short-term focus that self-justifies continuous improvement to having a longer-term focus enabling agile transformation
- ▶ From rewarding for responding to problems and issues to rewarding for a lack of “noise” – sensing and assessing over-responding

- ▶ From running safe plays or replicating peer strategies to exploring innovative solutions built on tested, trusted methods and components

Accelerating and sustaining momentum across innovation, customer centricity and pricing levers requires companies to be self-critical and self-aware of the traits and tendencies typically displayed in the chemical industry. Such awareness will enable a new mindset that drives agility, individual and business performance, and shareholder value.

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