



cutting through complexity

Global Manufacturing Outlook

Preparing for battle:
Manufacturers get ready
for transformation

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Foreword

With disruptive forces of change so pervasive around the world, it would be easy to believe that the manufacturing sector is in the midst of a massive transformation. Dig a little deeper, however, and it quickly becomes apparent that – while the enablers of transformation are all around us – few manufacturers are truly transforming. Instead, most are tweaking and adjusting their business models and operating structures in preparation for the battle they know must come.

The reality is that a major transformation is coming to the manufacturing sector, led by the forces of technology, innovation and new innovators. As a result, we see the pace of innovation accelerating and new disruptive innovators revolutionizing new product development, manufacturing processes, automation and business models. This, in turn, will drive the need for more agile, transparent and demand-driven supply chains and integrated business planning models.

It would seem that many manufacturers are being a bit too cautious given the enormous opportunities and risks that are already emerging in this pre-transformation era. As in years past, perennial priorities around growth, cost and supply chain efficiency are still on everyone's agenda. But steps to implement 'next generation' strategies remain modest.

We believe that manufacturers will need to make bigger bets on research and development (R&D), with broader, more inclusive innovation models and tech-savvy partners to help them capitalize on breakthrough innovation opportunities. At the same time, manufacturers will need to invest in technology and talent or risk losing the innovation battle.

KPMG International's Global Manufacturing Outlook (GMO) report explores the steps that manufacturers around the world are taking to prepare their organizations for the innovation and technology-driven transformation that is to come. The insights and take-aways contained within this report will help manufacturers better understand their competitive position and prepare their organizations for long-term growth and competitive advantage.



Jeff Dobbs
Global Sector Chair
Industrial Manufacturing

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Executive summary



Today's manufacturers understand that the world's economy is undergoing a period of massive change and uncertainty. And, until the opportunities become clearer, most seem to be focused on building up their war chests and keeping their powder dry.

Incremental changes are being made in cost structures, supply chains and business models as companies 'tweak' their operations rather than transform them. At the same time, those focused on innovation-led growth are increasing their investment into R&D and adopting new manufacturing technologies to drive greater efficiency and innovation.

However, KPMG International's Global Manufacturing Outlook (GMO) report also shows that manufacturers are painfully aware of the many short-term challenges they face. Increasing competition, volatile energy and input costs, new technologies and supply chain visibility are all creating immediate challenges for organizations that – at the same time – are fighting to prepare for the launch of the 'next wave' of innovations.

Key highlights of this year's GMO report include:

- **Manufacturers are increasingly innovation-led and focused on improving R&D efficiency and value.** Half of all manufacturers say their strategic focus is innovation-led. Thirty-two percent cite the development of new products and R&D as a top strategic priority. Thirty percent say the biggest challenge for their organization is R&D inefficiency.
- **Sales growth and cost reductions continue to top the agenda as manufacturers prepare for increased competition.** Fifty-five percent of respondents cite sales growth as a top priority and 41 percent say they are focused on reducing the cost structure. Almost 40 percent say that their biggest challenge stems from intense competition and pressure on prices.
- **Manufacturers are increasingly looking for breakthrough innovations and are increasing investment into R&D.** Forty-one percent of respondents say their primary strategy for innovation is to pursue breakthrough advances. Seventy-four percent of respondents say they will spend upwards of 4 percent of revenues on R&D over the next two years.
- **Manufacturers are entering into partnerships and adopting new technologies in order to improve speed-to-market and lower innovation costs.** More than three-quarters of all respondents say that partnerships will form the basis of innovation for their company. Almost half say they are adopting new manufacturing technologies to drive innovation.
- **Reducing costs and preparing for new product launches are high priorities for manufacturing supply chain organizations.** Lowering costs and working capital levels is cited by 46 percent as a top supply chain priority. Twenty-nine percent say they will restructure to support growth and 32 percent say they are reconsidering their global footprint based on growth expectations.
- **Concerns about supplier performance and capacity remain high but visibility into supplier organizations remains surprisingly low.** Behind the need for greater flexibility, supplier performance and supplier capacity is cited as the second and third biggest supply chain challenges globally. Yet just 14 percent of respondents claim to have complete supplier visibility into Tier 1, 2, and beyond.



Getting **fit for battle**

“Industrial manufacturers are facing potential disruptive forces from many directions – new technologies are emerging, their competitors are ramping up their speed of innovation and the technology innovation cycle is shortening.”

Todd Dubner,
Principal, Strategy practice, Industrial Manufacturing, KPMG in the US

The past few years have been anything but easy for industrial manufacturers. Constant disruptions, rising pricing pressures, volatile input costs, intense competition and continuous innovation have all forced manufacturers to rethink their business models and long-term growth plans.

Yet, while many manufacturers seem to understand that the surest path to long-term growth is through smart innovation, it is also clear that reaping the rewards of those investments takes time, patience and – importantly – the right business models.

Not surprisingly, today’s manufacturers are preparing themselves for the competition to come; getting their organizations into top shape, empowered with the right technology, talent and capabilities to fight – and win – against the coming competition for growth.

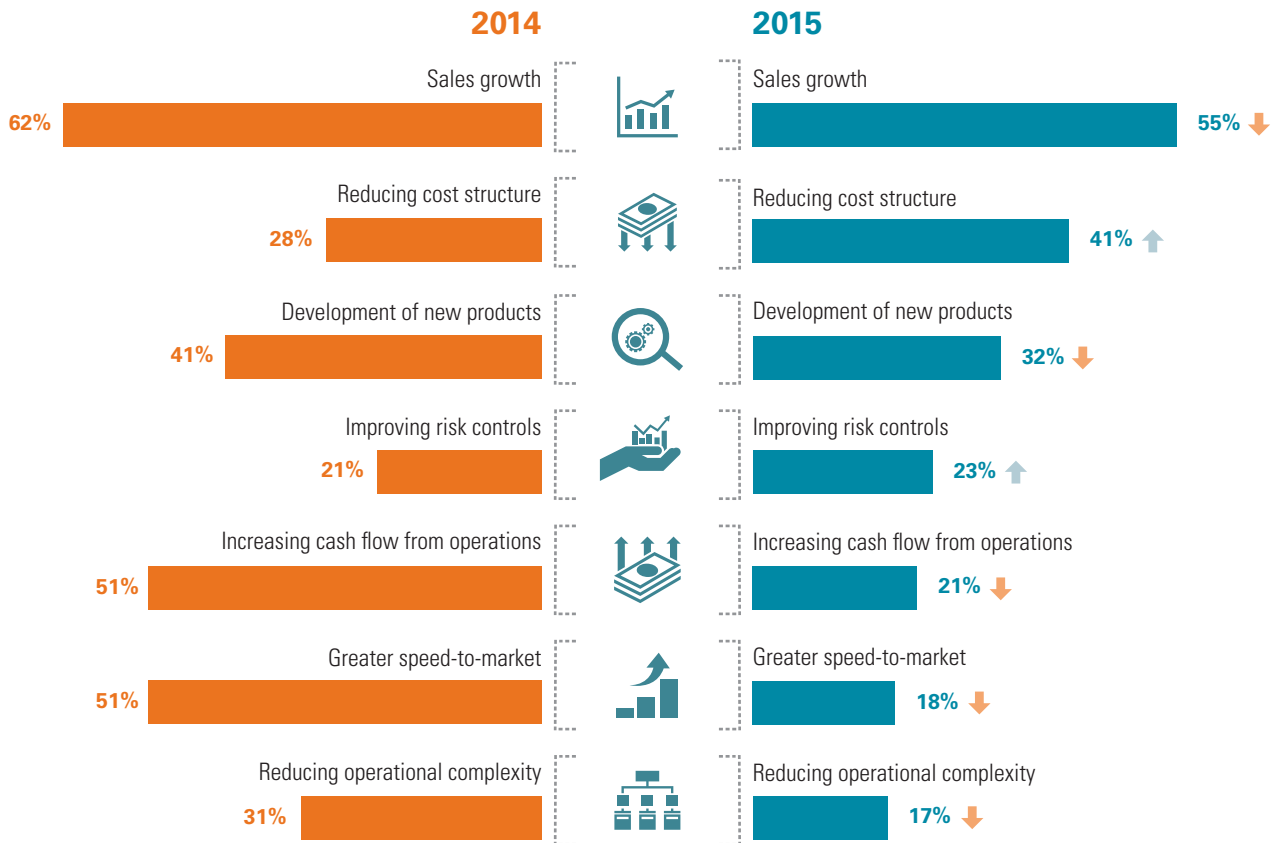
Organizations across all manufacturing sectors clearly believe they will need to become more innovative if they aim to grow in the long term. Almost a third of respondents in this year’s GMO report say that the development of new products will be one of their top strategic priorities over the next 2 years. And exactly half of all respondents say that their organization’s strategic focus is now ‘innovation-led’.

“Industrial manufacturers are facing potential disruptive forces from many directions – new technologies are emerging, their competitors are ramping up their speed of innovation

and the technology innovation cycle is shortening,” notes Todd Dubner, Principal, Strategy practice, Industrial Manufacturing, KPMG in the US. “Given all of this rapid change, it’s not surprising that manufacturers believe they need to be ‘innovation-led’ in order to win in the new environment.”

Clearly, manufacturers understand that an innovation-led strategy takes time to start paying dividends. But many also recognize that they will need to make good use of that time if they hope to properly prepare their organizations for the growth opportunities ahead of them.

Top strategic priorities



Note: Respondents selected top three options.
Source: Forbes survey, January 2015.

“Manufacturers must evaluate the rapidly changing innovation ecosystem and develop a strategy for how they fit into it. Everything should be on the table, from re-evaluating your internal innovation organization design, access to partnerships with new niche disruptive innovators, utilization of open innovation communities or a reallocation of R&D investments to new and bolder product development ideas,” notes Jeff Dobbs, Global Sector Chair of KPMG’s Industrial

Manufacturing Sector. “You can’t just sit back and wait for your current strategy for innovation to start driving growth; you must begin transforming that strategy if you expect to remain competitive in the new world order of manufacturing.”

This year’s GMO data suggests that manufacturers are looking to achieve both top-line and bottom-line improvements from their

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existing models. More than half of all respondents say that sales growth is one of their top strategic priorities for the next 12 to 24 months, led largely by Automotive respondents (64 percent of whom cite sales growth as a top priority).

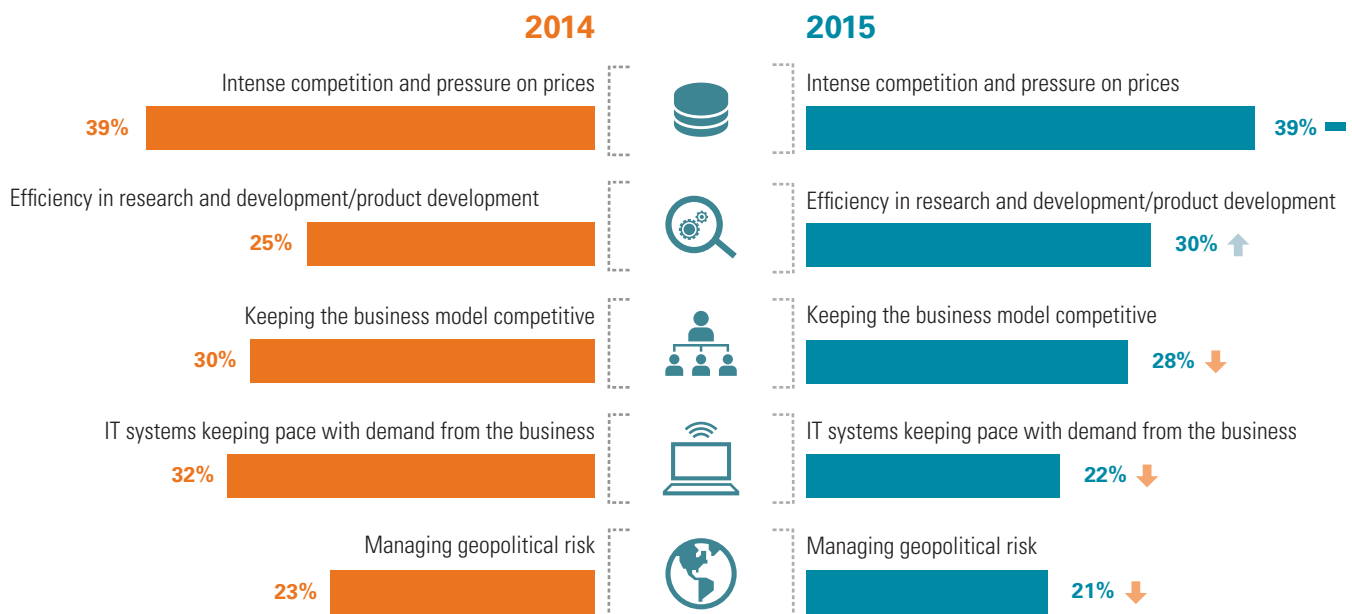
At the same time, manufacturers seem more focused than ever on improving the bottom line. Indeed 'reducing the cost structure' ranks as the second most important short-term strategic priority this year, up significantly from its sixth place ranking in 2014. Forty-one percent of respondents this year say they will focus on reducing their cost structure over the next 2 years. Interestingly, speed-to-market fell as a strategic priority versus 2014 when it was ranked as the second highest priority overall.

The 2015 GMO data also suggests that respondents may be losing focus on managing risk in the new environment. "As models shift and new approaches and partnerships take form, we expect

to see risk return to the manufacturing agenda; those that are unprepared could suffer significant disruption over the next 5 to 10 years," notes Stephen Cooper, Head of Industrial Manufacturing and Automotive, KPMG in the UK. "The fact is that the risk environment is changing. Innovation will drive a new kind of risk and will exacerbate existing risks such as those related to geopolitical change, currency exchanges, commodity prices and demand volatility."

This year's GMO data suggests that, for many, the initial skirmishes in the war for growth are already well underway. Indeed – for the past 3 years – manufacturers cite competition and pricing pressures as their greatest short-term challenge to growth. More than a quarter also admit they are facing significant challenges keeping their business model competitive, up significantly to third place from its fifth place ranking in 2014.

Top 5 biggest challenges



Note: Respondents selected top three options.
Source: Forbes survey, January 2015.

“Innovation doesn’t stop at the product level – today’s manufacturers need to be equally innovative in the way they adapt their business models,” says Todd Dubner. “But innovating the business model is not easy and will require executives to combine proprietary insights on the emerging needs of their customers with signals on emerging trends from the broader marketplace.”

In the short term, the 2015 GMO data implies that most manufacturers are focusing their technology spend on improving engineering, manufacturing and supply chain systems.

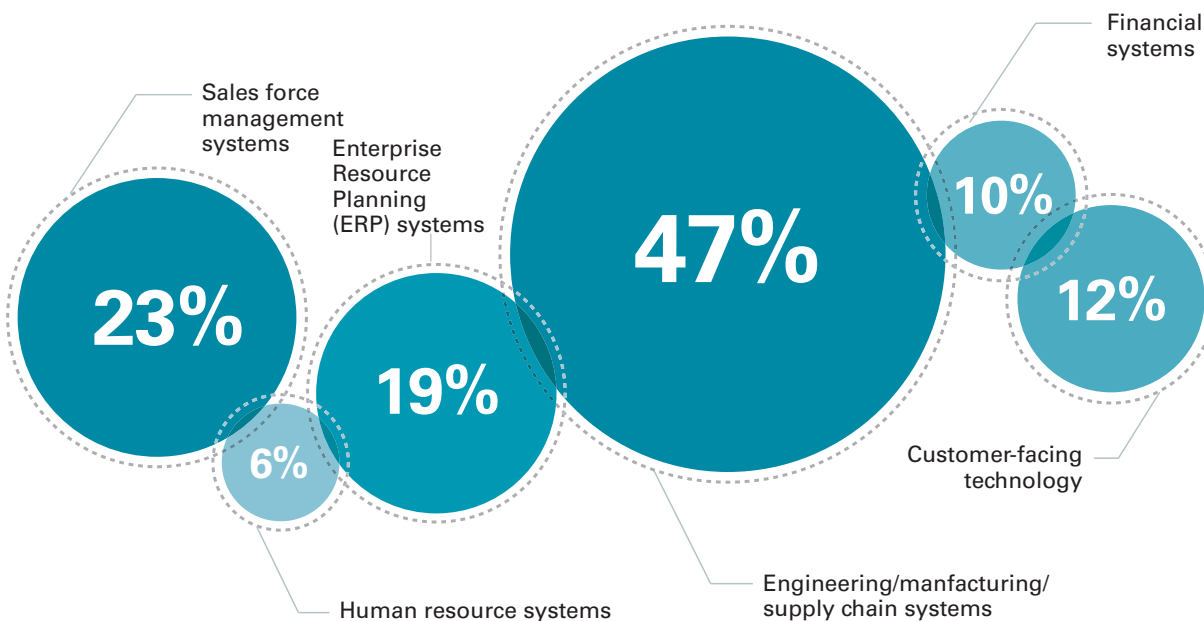
Forty-seven percent of respondents say they will allocate a significant portion (more than 20 percent) of their total technology spend on systems intended to improve the pace and value of innovation (engineering, manufacturing

and supply chain) next year. About a quarter of respondents say they will allocate an equal amount on sales force systems. Interestingly, only 12 percent say they will allocate significant portions of their total technology budget towards customer-facing technology.

In part, this lack of focus on customer-facing and sales force technology is not entirely surprising. “Few industrial manufacturing organizations have a high degree of comfort using customer-facing technologies and – combined with an overall shortage of skills and capabilities in this area – are therefore loath to invest in new technologies until they can create the right environment to turn those investments into value,” adds Damian Morgan, Managing Director, Strategy practice, Industrial Manufacturing, KPMG in the US.

Interestingly, only 12 percent say they will allocate significant portions of their total technology budget towards customer-facing technology.

What are respondents allocating 20 percent or more of their total technology spend on?



Source: Forbes survey, January 2015.

What is surprising, however, is that – while most respondents say that sales growth is one of their top strategic priorities for this year – very few are focusing on improving the effectiveness of their sales force in order to create opportunities for incremental sales growth.

Take, for example, after-market sales; many sectors are starting to find that the real growth potential for their organizations will come not from the sale of their products, but rather from the high-margin services and maintenance that they can provide after the sale has been made. Yet just 12 percent of respondents say that

growing after-market sales is a top priority for their organization over the next 2 years.

“This lack of focus on the after-market is indicative of the need for manufacturers to focus their innovation attention on adapting their business models to take advantage of new revenue streams and growth opportunities,” adds Damian Morgan. “Product innovation is hard, but business model innovation can be even harder and there are few proven models to borrow from; making the right changes at the right time will take insight and a disciplined and determined approach to addressing the risks and opportunities.”

Case study

Improving the business model to reduce costs

As this year’s GMO report clearly shows, manufacturers are keenly focused on reducing their cost structure. In many cases, manufacturers are looking for ways to not only cut costs, but also to improve business flexibility and performance.

For one Tier 1 Aerospace and Defense components manufacturer, the need to transform their operating model was quickly becoming clear. With operations spread across almost 50 separate business units and clear opportunities for cost savings through consolidation, combined procurement and improved operations, the organization recognized that its current operating model was impacting its ability to grow.

“While the executive team valued the decentralized and entrepreneurial business model they had created,

they had begun to question whether – as a corporation – they were creating enough value over and above the sum of the individual operating units,” notes Tom Mayor, Principal, Strategy practice, Industrial Manufacturing, KPMG in the US.

Working closely with KPMG, the organization elected to take a ‘strategy to results’ approach that would provide quick wins and incremental improvements in phases, while ultimately driving towards a larger transformation of business models and processes.

Organizational engagement and preparation was key and required the project team to create individual team charters, communications plans and processes to support a bottom-up detailing of the opportunities. At the

same time, the team focused on helping the manufacturer’s leadership understand the opportunities and challenges involved in transformation in order to secure high-level support and buy-in.

While the transformation journey is still in progress, the organization is already reaping significant benefits. More than USD400 million worth of potential cost-saving opportunities was identified in the initial phase alone, with the potential for much greater ongoing savings as the business model transforms.

“Today, the organization uses our objective-driven change approach to build bottom-up detail, define actionable plans and realize those benefits,” adds Tom Mayor.





Smart investments into smart targets

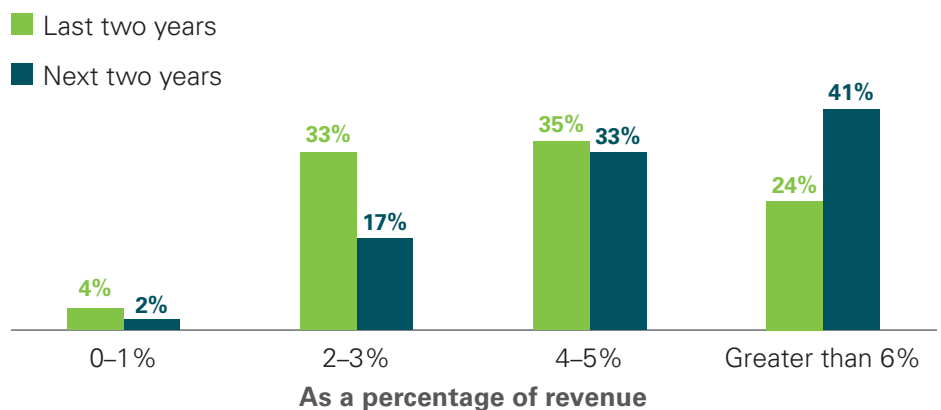
Everybody wants the next breakthrough innovation, but nobody wants to 'bet the farm' when so much is in flux. As a result, manufacturers are shifting their innovation focus towards making smart investments into a handful of technologies and working with new partners to drive new ideas and efficiencies.

Finding the right investments and the right models will not be easy; sustaining innovation will be even harder. This year's GMO data suggests that manufacturers can likely expect to see increasing competition for innovation and greater pressure on their innovation models as new technologies and new approaches emerge.

In a world of mounting pricing pressures, increased competition and disruptive technologies, today's manufacturers know that they will need to innovate

in order to survive. This year's GMO data clearly shows that most expect to dramatically increase their R&D investments as a result.

Spending on R&D/innovation continues to increase



Note: Percentages may not add up to 100 percent due to rounding.
Source: Forbes survey, January 2015.

Almost three out of every five respondents say that they spent more than 4 percent of their revenues on R&D in the past 2 years. Almost a quarter of respondents say they spent more than 6 percent of revenues on R&D in the same time period.

While these numbers already indicate a high level of investment into R&D, this year's GMO data shows that investment is about to explode as competition increases. Almost three-quarters of our respondents say that – over the next 2 years – they will spend more than 4 percent of revenues on R&D and 41 percent say they will spend more than 6 percent of revenues going forward.

“Innovation waits for no one; those who fail to embrace the new reality of the innovation cycle will quickly be left behind,” says Jeff Dobbs. “Investing more is certainly helpful, but manufacturers need to also focus on continuously improving and adapting their innovation models if they hope to survive.”

Not surprisingly, a growing number of manufacturers are pinning their hopes on finding the next breakthrough innovation. In fact, since 2013, KPMG International's GMO data has shown increases of about 5 percentage points per annum, suggesting that – should these trends continue – manufacturers may soon be almost as equally focused on breakthrough innovation as they are on achieving incremental innovation.

“Everyone has a different definition of what ‘breakthrough’ means – for some

it's the creation of an entirely new product or service, for others it may simply mean a radical simplification of parts on the manufacturing line,” notes Eric Damotte, KPMG's Global Head of Metals. “The reality is that most manufacturers are actually focused on achieving very large – but still incremental – innovations rather than investing into absolutely new product segments.”

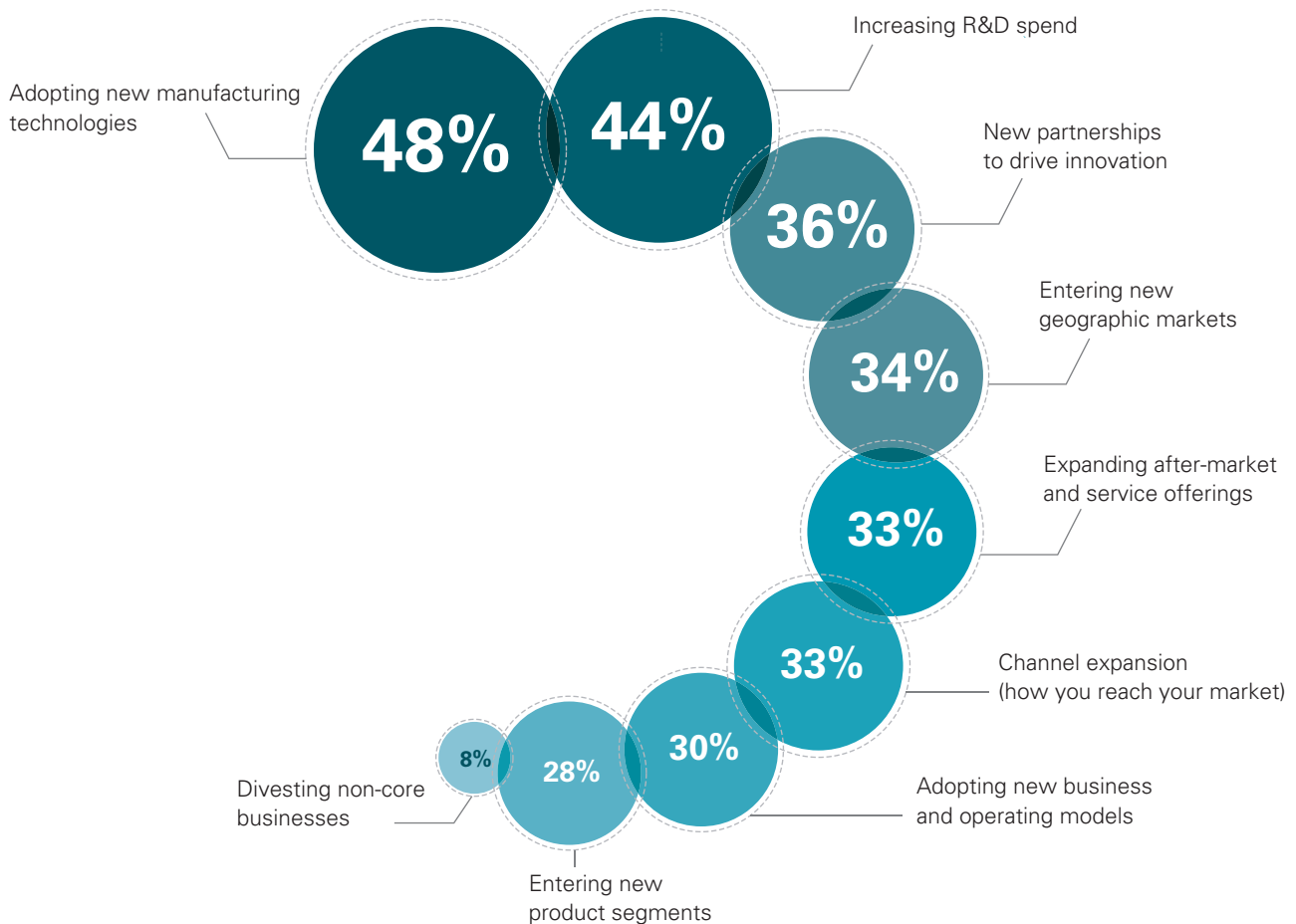
Yet, while a growing number of respondents say they are looking for breakthroughs, data suggests that few are willing to take on higher-cost and higher-risk bets such as expanding into new channels or new product segments. Indeed, when asked how they will drive new growth and innovation, respondents are much more likely to cite strategies such as adopting new manufacturing technologies and increasing R&D spend than they are to suggest they will enter into new product segments or expand into new channels.

“Manufacturers are looking for opportunities that either address an unmet customer need or that help improve their manufacturing processes, productivity and efficiency,” says Brian Heckler, Partner, Advisory National Advisory Leader Industrial Manufacturing, KPMG in the US. “In this environment, we believe that the convergence of traditional products with new technologies – such as 3D printing and nanotechnology – will be adopted much faster, and will be much more disruptive than most people expect now.”

“Innovation waits for no one; those who fail to embrace the new reality of the innovation cycle will quickly be left behind.”

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Focus areas to drive new growth and innovation



Note: Respondents selected top three options.
Source: Forbes survey, January 2015.

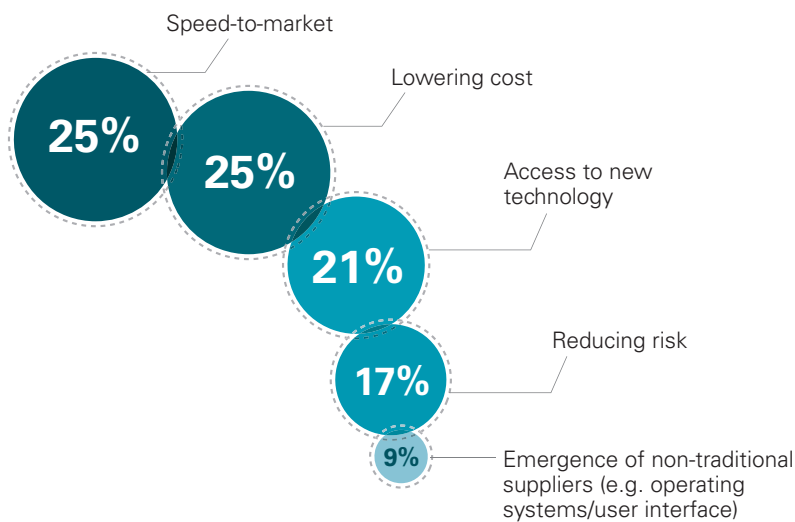
Most manufacturers also understand that investing into breakthrough technologies is often a long-term bet. More than two-thirds of respondents say they are more focused on long-term (5 to 10 years) innovation strategies rather than short-term ones. Of those that say they are more focused on breakthroughs, 82 percent say they are taking a long-term strategy for innovation.

However, while many are taking a long-term view of innovation, the vast majority of manufacturers also say they expect to start seeing benefits from their product innovation pipeline within the next 5 years. Only 20 percent of respondents say they will wait more than 5 years for product innovations to start flowing; just 5 percent say they expect to wait 7 years or more.

“The pace of innovation is picking up rapidly; whereas in the past, organizations were willing to wait 10 to 15 years to develop and commercialize a new disruptive technology, today’s stakeholders expect new innovations constantly,” notes Dieter Becker, Global Sector Chair, Automotive, KPMG International. “In the Automotive sector,

for example, organizations need to be moving forward on developing new breakthroughs such as driverless cars and electric vehicles while also focusing on the smaller and more incremental innovations they need to continuously add more features to their current vehicle lineups.”

Motivation for collaborating on innovation



Note: Percentages may not add up to 100 percent due to rounding.
Source: Forbes survey, January 2015.

In part due to the speed of the innovation cycle – but also as a means to reduce the risk and cost of innovation – most manufacturers are now exploring and striking new partnerships with suppliers, customers and technology firms.

Collaboration for innovation takes many forms. Some are partnering with their suppliers and vendors to develop new innovations at the parts-level, while others are joining up with non-traditional players and technology vendors to identify, develop and commercialize new innovations.

“Original Equipment Manufacturers (OEMs) and major manufacturers are increasingly looking to their suppliers as sources of incremental innovation, working closely with them to harness the competitive advantages of the value chain,” adds Doug Gates, KPMG’s Global Head of Aerospace and Defense. “But the reality is that the changing dynamics of relationships in the innovation model will likely further accelerate the pace of change as manufacturers fight to continuously improve and adapt their approach to innovation.”

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Indeed, more than three-quarters of respondents agree that partnerships, rather than in-house efforts, will characterize the future of innovation for their organization. Eighty-one percent say that they are adopting more collaborative business models with suppliers and customers to improve the value of their innovation investments.

“The bottom line is that you can’t simply throw money at researchers and expect to beat the competition; it takes real

focus and a clear understanding of what your organization wants to achieve,” notes Ken Seel, KPMG’s Global Head of Conglomerates. “We believe that being an innovation-led organization requires manufacturers to develop a set of capabilities that provide broad market ecosystem sensing, new insights into unmet customer needs, the ability to rapidly commercialize new ideas and the processes to integrate new ideas back into the product development process.”

Corporate perspective of a Chief Technology Officer

Delphi: Safe, green and connected

For automotive supplier Delphi Automotive PLC, growth potential is largely focused within “three megatrends: safety, sustainability and connectivity,” says Jeffrey Owens, Chief Technology Officer. The first two legs of that stool – safety and sustainability – are relatively non-negotiable, largely driven by global regulations.

Connectivity, however, is an area of clear competitive advantage that is being driven by consumers. “Unlike green sustainability regulations, connectivity is not about fulfilling demands for better mileage and efficiency; it’s increasingly about being able to connect drivers

digitally to their vehicles. Delphi’s ability to drive future sales growth, therefore, will be further influenced by additional content, which is why we invest in our innovation pipeline, in our technology development and in our R&D,” Owens says.

Today’s automobiles are already the most sophisticated piece of electronics equipment that most people own; newer-model cars often include more than 50 computers and close to 100 million lines of software code on premium vehicles. And as demand for improved safety, economy and entertainment increase, Delphi recognizes that innovation will be critical to growth. “We want to be sure we’re ready with the latest solutions and able to

deliver them globally as new content comes on the market,” said Owens.

Delphi’s innovation strategy includes both in-house innovation and partnerships. For instance, Delphi has entered into joint ventures and partnerships with a number of technology companies, notably in the software and semiconductor industries, a space that moves incredibly fast. Indeed, for Owens and Delphi, the challenge is less about defending their market against new competitors and more about speed-to-market. “We need to be on top of semiconductor development and software content integration or risk missing an innovation cycle,” Owens cautions.





Tightening the supply chain

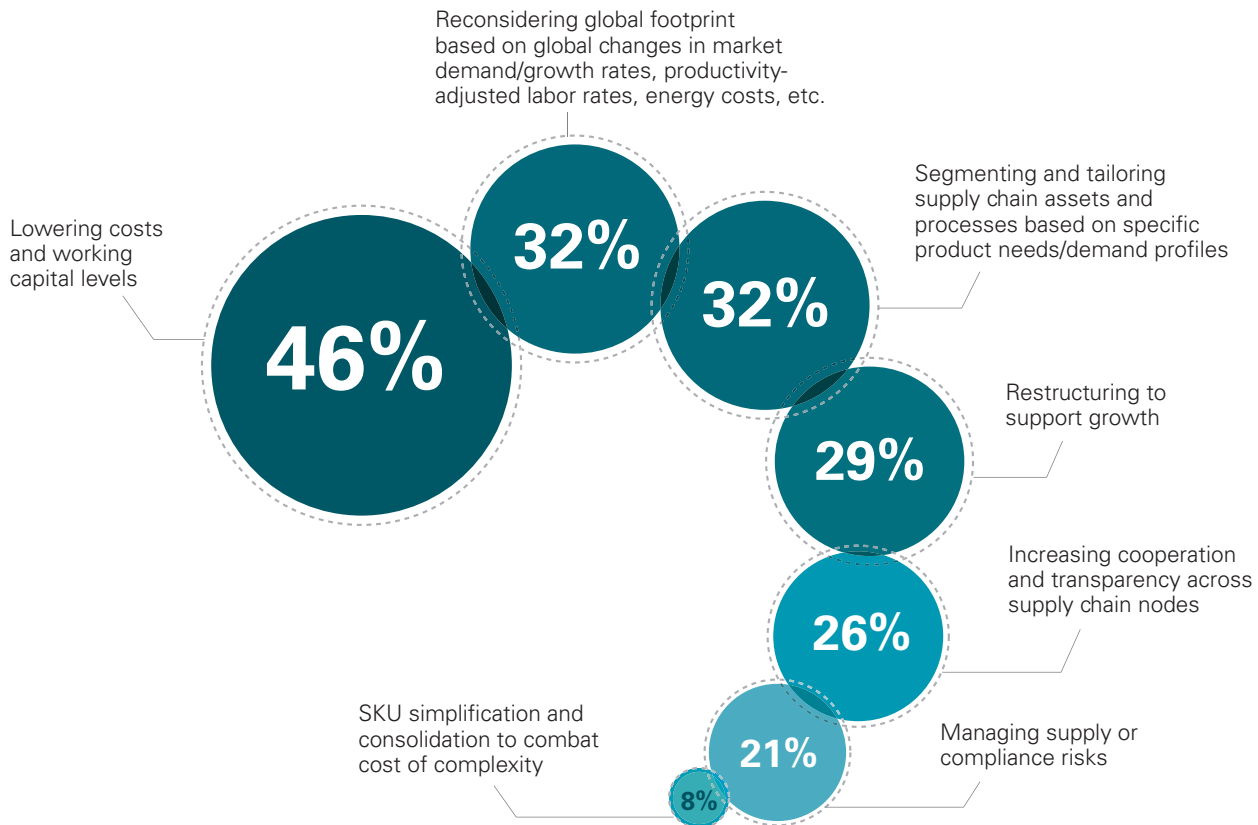
If manufacturers hope to both grow and drive new innovations to market, they need to continue to focus on improving their agility and integrating their supply chain strategies.

Achieving the appropriate level of supplier visibility is key, along with investment into greater technology enablement. The bigger challenge, however, will come from creating the right supply chain strategy to meet future product requirements and demand without driving up costs.

With most organizations keenly focused on cutting costs in the short term and investing in growth for the long term, it is perhaps not surprising that cost and growth-related priorities are rising to the top of the supply chain agenda.

But while almost half of all respondents cite lowering costs and working capital levels as one of their top three strategic supply chain priorities, many manufacturers are starting to feel that they have squeezed all of the efficiency they can from their existing operations.

Supply chain strategic priorities



Note: Respondents selected top two options.
Source: Forbes survey, January 2015.

“What we are increasingly finding is that supply chain executives are enhancing their priorities from traditional cost-cutting to growth, capacity and improving demand signal alignment initiatives,” notes Erich L. Gampenrieder, Head of KPMG’s Global Supply Chain Center of Excellence. “The reality is that growth and new product launches tend to turn supply chains into increasingly complex operations and that can often become a drag on agility and competitiveness.”

While cost-cutting will clearly remain a priority for supply chain managers for the foreseeable future, many are starting to refocus their attention

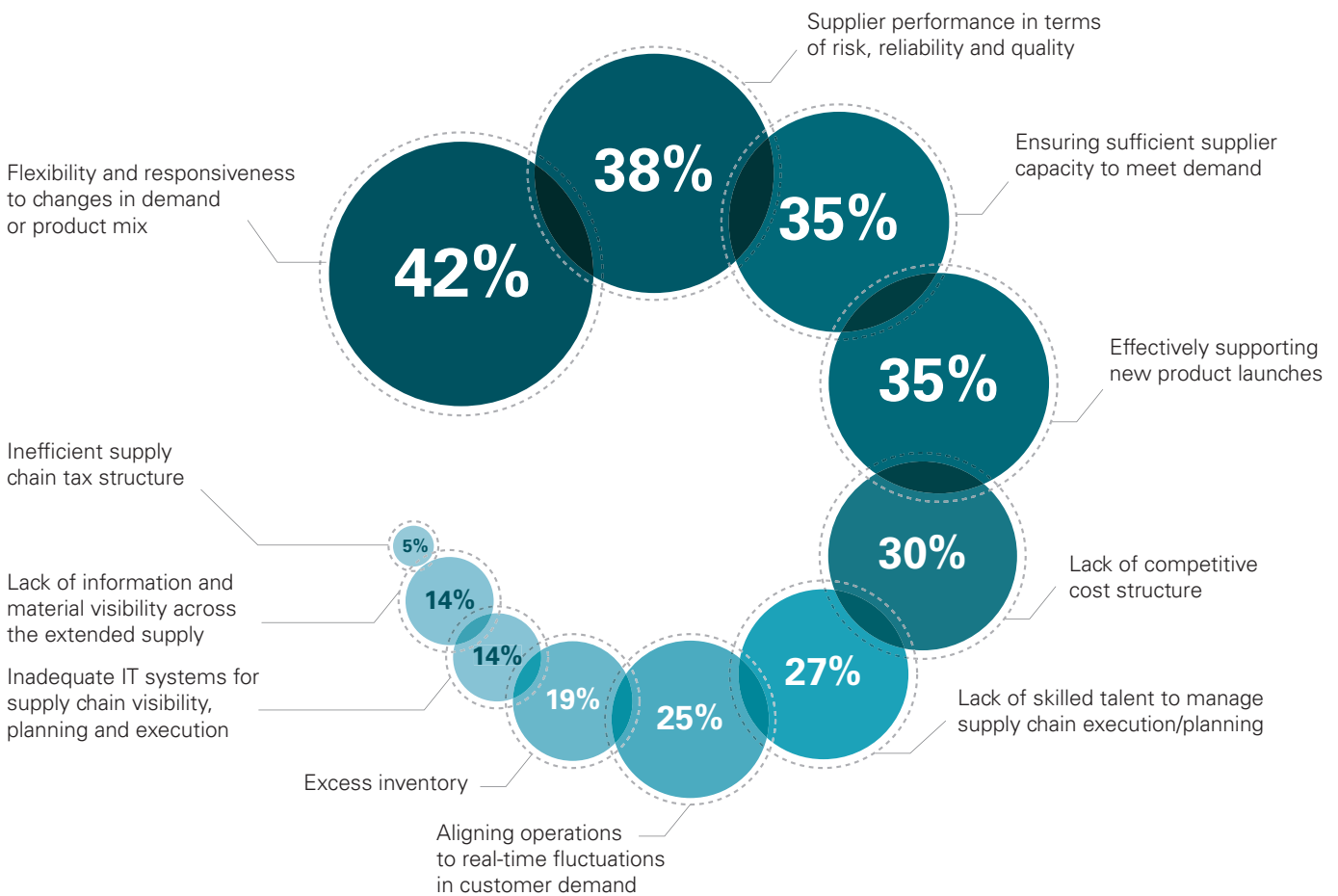
towards developing the right strategy and models to support growth.

“Manufacturers have spent years trying to squeeze more juice from the lemon and many are now at the point where further cuts will only lead to diminished flexibility and reduced customer satisfaction,” adds Erich Gampenrieder. “Instead, many organizations are now looking at their available cash to see how they might merge, acquire or consolidate their supply chain and customer service assets to drive – by product segment and/or technology area – improved service levels that are in balance with the cost to serve customers.”

Almost a third of this year's GMO respondents say they are reconsidering their global footprint based on growth and market demand. An equal number say they are starting to segment and tailor their supply chain assets based, in part, on demand profiles. Twenty-nine percent of respondents say that restructuring to support growth is one of the top strategic priorities for their organization's supply chain.

"We are having a lot of discussions with manufacturers about what parts of the supply chain they need to own and what parts can be delivered more flexibly through renting capacity or outsourcing," adds Tom Mayor. "For some of the faster-moving technologies, manufacturers may prefer to push the technology risk onto a third party manufacturer who might be better placed to carry that risk across the scale of the industry as opposed to being owned by a single player."

Top supply chain challenges



Note: Respondents selected top three options.
Source: Forbes survey, January 2015.

While new models are being developed and tested, many manufacturers say they are also starting to face significant challenges as they recalibrate their supply chain for growth. Indeed, a lack of flexibility and responsiveness to changes in demand or product mix is the most frequent challenge facing manufacturers' supply chains. Ranked third are concerns regarding the supply chain's ability to effectively support new product launches.

"Manufacturers will need to start focusing their data and analytics capabilities towards analyzing, understanding and improving their supply chain operations," says S.V. Sukumar, Partner, Management Consulting, Head of Strategy and Operations Practice, Advisory Services, KPMG in India. "Along with improved analytics, we believe that greater collaboration across the supply chain, improved visibility and enhanced integration can help manufacturers overcome some of these challenges."

Somewhat surprisingly, few manufacturers suggest that they struggle with creating the right tax structure for their supply chain. "Given all of the changes now going on across the sector and around the world, manufacturers should be more focused on tax than ever before," says Joerg Strater, Global Head of Tax for Industrial Manufacturing, KPMG in Germany. "The evolution of multilateral tax regimes and renewed focus on tax from the G8 and The Organisation for Economic Co-operation and Development (OECD) are bringing tax back to the forefront; those who ignore this fact do so at their own risk."

Supplier management seems to be a key challenge for many manufacturers. Yet, while many are clearly concerned about supplier performance and

supplier capacity, this year's GMO data suggests that few have adequate visibility into their Tier 2 suppliers to make informed decisions about individual supplier performance and capacity.

"Rapid and unpredictable geopolitical risks can significantly influence the business environment in general and supply networks in particular," notes Alexey Nazarov, Head of Strategy and Operations, KPMG in Russia and the Commonwealth of Independent States (CIS). "The lesson from recent shifts is that manufacturers need to improve their supplier visibility and diversify their supplier and customer base which, in turn, should help reduce geopolitical risk and create a more sustainable platform for future growth."

Less than one-in-six respondents in this year's survey claimed to have complete supplier visibility into Tier 1, 2, and beyond. Thirty-seven percent admitted they only have limited Tier 1 visibility, while 5 percent indicated that they have no visibility into their suppliers at all.

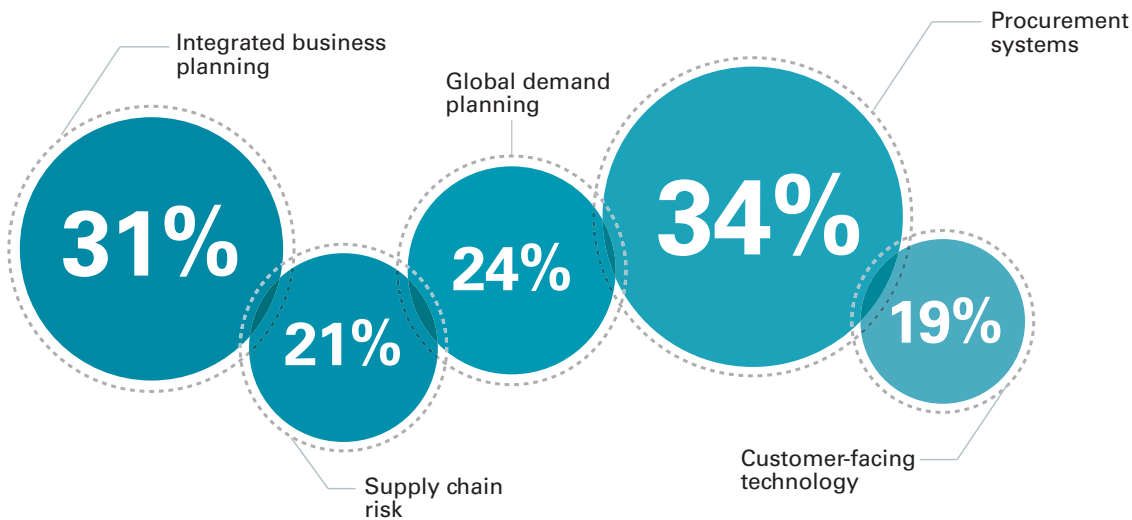
What is surprising, however, is that few manufacturers seem to see their lack of visibility as a problem. Indeed, respondents rank 'lack of information and material visibility' as only their ninth biggest supply chain challenge, tied with concerns regarding the adequacy of their technology systems to deliver supply chain visibility.

This year's GMO data indicates that – in part – organizations are struggling to identify a clear payback on the investment required to achieve deeper visibility. However, our experience suggests that most organizations feel that they have almost achieved the right balance between visibility, complexity and cost to manage their own unique supply chain risks without over-investing in technology.

"The evolution of multilateral tax regimes and renewed focus on tax from the G8 and the OECD are bringing tax back to the forefront; those who ignore this fact do so at their own risk."

Joerg Strater,
Global Head of
Tax for Industrial
Manufacturing

Where are manufacturers allocating 20 percent or more of their supply chain technology spend?



Source: Forbes survey, January 2015.

Where organizations are investing significant portions of their supply chain technology budget, however, is into technologies that can offer lower costs, better planning and improved enterprise collaboration. For example, more than a third of respondents say they will place significant investment into improving their procurement systems and 31 percent of respondents say they will allocate significant supply chain technology spend on Integrated Business Planning (IBP) systems.

“While many organizations seemingly suggest that they are investing heavily into new procurement systems, much of this spend is likely being allocated towards ‘add-on’ technology investments aimed at improving the efficiency and flexibility of the supply chain rather than wholesale enterprise resource planning (ERP) system implementations or updates,” notes Erich Gampenrieder. “Most

organizations have a solid technology backbone but now need to tweak the platform to unlock improved flexibility and collaboration.”

Although 19 percent of respondents said they would allocate significant supply chain technology spend towards customer-facing technology, it is somewhat worrying, however, 12 percent of respondents indicate that they have no plans to invest in customer-facing supply chain technology. “Given innovation-led sales growth is a top agenda item for our participants, it is quite surprising that we don’t see more IT focus on understanding, sensing and enhancing the customer experience of today’s increasingly connected consumer,” says Tom Mayor. “Sensing and truly understanding unmet needs faster than the competition will be key to winning the battle as the pace of connected product innovation continues to accelerate.”

Case study

Creating a customer-centric supply chain

When a leading consumer goods manufacturer wanted to improve their 'on-time delivery in full', executives knew they needed to enhance their supply chain operations in order to better respond to demand and improve their ability to make faster fact-based decisions with their extended business partners.

Working with teams from KPMG in the US, the organization set out to develop a customer-centric supply chain powered by a 'Supply Chain Control Tower' that brings together the organization's financial planning, replenishment, global trade and risk information to provide a single global view across the end-to-end supply chain.

Achieving this would require significant change and improvements across the supply chain. From redefining their operational metrics

through creating new end-to-end planning processes that more effectively translate demand changes at the shelf into manufacturing supply plans, the organization was laser-focused on achieving their objective of creating a more customer-centric supply chain.

The first phase of the program, which started in 2014, involved four separate work-streams – functional design, technology architecture and integration, master data management, and organizational change management – which were integrated under a fifth work-stream for overall program management.

"A key area of focus was on organizational change management, including leadership alignment and foundational training on leading practices for demand-driven supply

chains and supply chain control tower concepts" noted Rob Barrett, Managing Director, Operations Advisory, KPMG in the US. "Creating a more customer-centric supply chain isn't just about buying technology or simply sharing data, it's about transforming how you measure, manage and execute the supply chain in a way that is truly aligned with customer needs and expectations. It's also about eliminating information latency and improving an organization's ability to make rapid, fact-based decisions and trade-offs."

Once the multi-year project is complete, the manufacturer expects to enjoy a 10 percent improvement in 'on-time delivery in full', reduced excess and obsolete inventory (by an estimated USD75 million per year) and an approximately 35 percent drop in operating costs.

Corporate perspective of an EVP of New Equipment

KONE: Global collaboration

When product safety and reliability simply can't be compromised, the demands on a supply chain are high. "We want reliability and consistency; your mobile phone lasts two years, and then you throw it away. You can't do that with an elevator," says Heikki Leppänen, EVP of New Equipment Business at Finnish elevator and escalator manufacturer KONE.

KONE is at the center of a value-chain that involves hundreds of suppliers in its supply chain that furnish the company with raw materials, manufacturing components and modules, provide

transportation services and install its products. Rising demand in emerging economies, especially in Asia and the Middle East, has put pressure on the organization's global supply chain, often requiring the organization to create a fine balance between quality and speed. "Safety is a preeminent issue. That means sometimes — through testing and validating — slowing down things that are moving quickly. We want things to be correct, every day, in every area," says Leppänen.

KONE's aim is to "create better supplier networks all the time," says Leppänen. "That won't happen without collaboration and hard

work." To this end KONE cooperates with its first-, second- and third-tier suppliers to drive continuous supply chain improvements. In some cases, the company has entered into collaborative research and development projects with its suppliers.

Leppänen also stresses the important role that information technology plays in KONE's supply chain logistics, allowing the company to optimize its global supplier base to reflect changes in capacity, cost levels or exchange rates. Constant improvement is key. "It is a global solution, and it's developing all the time," sums up Leppänen.



Charles Kriek
Partner in Charge,
Audit,
KPMG in Brazil

Brazil

Brazil may be experiencing some difficult times, but it's not time to give up on the country just yet. Nobody can argue that the past year has been difficult for Brazil's economy. Corruption scandals, massive cost-overruns preparing for FIFA and the Olympics and poor economic management all came to a head at the end of 2014, creating significant uncertainty and sapping confidence from both consumers and manufacturers.

The impact has been significant. The Automotive sector – which at the start of last year accounted for almost a fifth of the total industrial output in Brazil – has reduced production by between 20 and 30 percent. Parts and component manufacturers have all but halted production as a result. Similar situations are at work in the Oil & Gas and Construction sectors, both of which have direct impacts on Brazil's manufacturers.

For Brazilians, the general consensus is that 2015 will be a year focused on survival but that growth will pick up again in 2016. The reality is that there are still a number of strong fundamentals to Brazil's market. Those that view this period of disruption as a 'buying opportunity' should be well-placed once growth roars back to the Brazilian economy.



David Frey
Head of Strategy
and Operations,
KPMG in China

China

As always, the China marketplace continues to evolve rapidly. Indeed, with China now entering into a 'new normal', characterized by slower growth and less reliance on investment, many of China's manufacturers are now looking to innovation and expansion to achieve their growth targets.

China's government is already taking significant steps to encourage entrepreneurship and innovation as a way to spur economic growth. The new "Mass Entrepreneurship and Innovation" campaign, for example, is expected to propel innovation within the already fast-developing small-to-medium enterprise (SME) segment. Those operating in China will likely gain some competitive advantage by developing the right in-house functions to monitor developing innovations in the SME segment.

China's manufacturers are also increasingly looking overseas for growth which, in turn, is accelerating change within the domestic manufacturing industry as well. In fact, recent activity suggests that Chinese manufacturers' overseas acquisition strategies may be less about conquering new markets abroad in the near term, and more about gaining access to new technologies, know-how and processes that can be integrated back into the business to improve competitiveness in the domestic market over the medium to long term.

The bottom line is that China's manufacturers are looking for new opportunities to grow and compete. Given the scale and pace of change in China, we expect to see new innovations emerge that will push manufacturers well beyond the 'imitator' space and into the 'creator' space.



Harald von Heynitz
Head of Industrial
Manufacturing,
KPMG in Germany

Germany

It is not surprising that German – and other European export-led economies – are focused strongly on growth and cost reduction. Weaknesses in the Eurozone have forced European manufacturers to shift their focus overseas (particularly to markets where local currencies are tied to the US dollar) while, at the same time, increased competition in new markets is driving manufacturers to become ever-more cost efficient in both their production and their administrative cost structures.

Manufacturers across Europe often talk about the shift towards an 'Industry 4.0' where data is exchanged in real-time between manufacturing assets, suppliers and customers in order to drive increased efficiency, productivity and innovation. But combining old-school manufacturing techniques with the rapid technology innovation of today will not be simple. New business models, new processes and new partnerships will certainly be required.

Given the comparative weight of the Automotive sector on the German economy, it is clear that much depends on what priorities and models are adopted by original equipment manufacturers (OEMs). The reality is that cost-cutting and growth targets across the supply chain are largely influenced by demands from the OEM. But so, too, are innovation budgets.



S.V. Sukumar
Head of Strategy
and Operations,
Advisory Services,
KPMG in India

India

The fact that manufacturers in India are highly focused on innovation is not surprising. As domestic competition increases and prices start to come under pressure, many in India recognize that they will need to innovate in order to protect their margins and attract premium prices for their products. This, in turn, is driving India's manufacturers to quickly start embracing high-tech and advanced manufacturing technologies.

However, it is clear that – in India and in the rest of the world – manufacturers could be gaining much more value from data and analytics (D&A), particularly on the supply chain side. Indeed, we believe that those manufacturers able to leverage their customer-facing D&A experience and capabilities to improve their supply chain operations will ultimately win in the marketplace.

India is clearly changing. And new consumer pressures, new market reforms, new competitors and new innovations are starting to help elevate the market from being a 'low-cost' manufacturing destination into a 'high-value' and 'high-quality' destination instead. While this will clearly provide significant dividends for India's manufacturing ecosystem, it will also mean that manufacturers will need to keep a close eye on their costs if they hope to remain competitive in one of the world's fastest-growing marketplaces.



Takahiro Irie
Partner,
Management
Consultant,
Advisory,
KPMG in Japan

Japan

There have been significant changes in the business environment for the entire manufacturing industry in Japan, influenced by trends such as depopulation, population ageing, advancement of the global optimal production, industrial restructuring by digitization, expansion into foreign markets and the response to energy and environmental issues.

Against this background, we see three areas that require medium to long-term responses from manufacturers in Japan.

- 1. Responses to current issues:** We expect to see increasing responses to some of these issues through activities such as the corporate tax rate reduction, the correction of the yen appreciation, the promotion of EPAs (Economic Partnership Agreements), a more formal response to rising energy costs, responses to environmental regulation and the easing of labor regulations (though more will be required to resolve the shortage of manpower, the fostering of a working population, and the utilization of alumni). We expect to see a new, more virtuous economic cycle characterized by wage increases and commercial relations adjustment (pricing shift).
- 2. New initiatives for the future:** Business reorganization and the development of collaborative relationships will be driven by accelerating business reorganization, promotion of joint development by identifying corporation areas, determining global benchmarks and the reinforcement of supply chains – including overseas bases. New markets will also be created in areas such as 'next-generation' vehicles, airplanes, space, robots, advanced materials (special steel, fine chemical products, carbon fibers and cellulose nano-fiber, for example), regeneration, medical care and biomedical products. Regulatory reform such as the Special System for Corporate Field Tests and the System to Eliminate Regulatory Gray Zones will be key, as will increased support for R&D and the advancement of open innovation. A general improvement in the overseas business environment will catalyze a new drive to secure new leaders, to find support for infrastructure export overseas and to respond to the changes in Asian production structure.
- 3. Responses to the transformation by digitization:** Japanese manufacturers will need to look ahead to understand their response to new technologies, such as: the Internet of Things (IoT), Industry 4.0 and the coming realization of the 'robot-revolution'.

KPMG's Global Industrial Manufacturing country perspectives



Alexey Nazarov
Head of Strategy and Operations, KPMG in Russia and the CIS

Russia

As Russia's experience over the past few years clearly demonstrates, geopolitical risk and uncertainty can have significant impacts on growth and profitability. The ongoing cycle of sanctions and counter-sanctions is now widely viewed as a 'black swan' event for many sectors in Russia, resulting in loss of market positions, profits and the postponement of key projects and initiatives.

That being said, there are clear indications that some sectors were better prepared for market disruption, in part due to consistent government policy in certain areas and strong efforts from the business community. The devaluation of the ruble also provided local producers with a temporary cost advantage compared to foreign competitors.

It is hoped that recent governmental policy encouraging diversification towards Asia and several programs of localization may help support a new paradigm shift towards deeper production localization and market diversification. This, combined with a lower ruble and supportive government policies should also encourage a greater interest in value-added production in Russia.



Stephen Cooper
Partner, Head of Industrial Manufacturing and Automotive, KPMG in the UK

United Kingdom

UK manufacturers are keenly aware that innovation will be the key to future growth. Yet, they also know that timelines are shrinking; the lead-time from concept to commercialization is dropping dramatically for those manufacturers hoping to remain competitive in today's technology-driven business environment.

The UK has always been viewed as a leader in manufacturing innovation and there are clear signs that this will continue to be the case: encouraging tax rates, stable markets and growing investment into new technologies – such as graphene – continue to provide competitive advantages for UK manufacturers.

However, in innovation and manufacturing, including supply chain and business model transformation – tightening access to talent could limit UK manufacturers' ability to evolve, grow and adopt new technologies. While there is additional effort being made to increase the number of apprenticeships, which can only be good, more must be done to attract young people to become engineers. Their ongoing retention within the manufacturing sector is ever more challenging while the recruitment of other smart and innovative people is necessary to drive forward the manufacturing models of tomorrow.

These are exciting times for the UK and manufacturing is evolving rapidly, such as in the Automotive industry where 'connected cars' alone offers the UK huge opportunity to develop and commercialize new technologies. This type of activity, in turn, will attract new talent, new investment and new technologies to the wider UK manufacturing sector.



Brian Heckler
Partner, National Advisory Leader Industrial Manufacturing, KPMG in the US

United States

As the US dollar strengthens, many manufacturers in the US are starting to refocus on improving their cost structures in order to remain competitive in the global markets. As a result, we have seen increasing focus on creating greater efficiency, particularly in supply and operations planning.

Some of this activity is evident in the recent uptick in the 'near-shoring' of assets and suppliers to locations either within, or in close proximity to, the US market. This, too, has reinvigorated the focus on improving supply chain flexibility and visibility and reducing risk.

Likely the biggest long-term trend for the US market, however, is the increasing convergence between technology and products which, in turn, is impacting everything from the way products are designed and launched through to how sales and services are conducted.

Business models are also rapidly changing; consider, for example, how the ability to monitor and/or control performance, identify issues and deliver wireless updates to previously 'dumb' products – from cars through to refrigerators – will impact warranty claims, after-market sales models or maintenance contracts.

Clearly, US manufacturers benefit from a strong ecosystem for innovation. In fact, the challenge for US manufacturers may be less about discovering the next big innovations and more about understanding their impact and value.





Doug Gates

Global Head of
Aerospace and
Defense

Aerospace and Defense

With the mature defense markets of the US and Europe continuing to stagnate, defense contractors and suppliers are under growing pressure to make good on their promises to deliver growth in new and emerging markets.

Yet, growth for growth's sake is not a strong strategy for success; defense organizations must first think about where their best opportunities for growth lie and then focus on ensuring they have the right portfolio to achieve those goals. As a result, we expect to see further consolidation in the industry – particularly in the US – as organizations spin-off or divest of non-core or non-profitable businesses.

Ultimately, the focus for defense contractors over the next year will remain firmly on rightsizing the product and business portfolio in order to prepare their organizations to take advantage of future growth opportunities, wherever they may emerge.

For their part, the commercial aerospace organizations – led by Boeing and Airbus – continue to enjoy strong books of business and long product backlogs. Even so, the sector continues to innovate, particularly in the area of all-composite bodies and the development of increasingly efficient components and parts.



Dieter Becker

Global Sector
Chair of Automotive

Automotive

The winds of change are sweeping through the Automotive industry, with growing demand for new services from ever-more sophisticated customers. But increasingly strict regulatory standards call for a strong focus on powertrain optimization, rationalization and standardization.

That is why the Automotive sector will need to achieve a balance between its traditional product and technology-driven past and a future consisting of more and more tech-savvy and lifestyle-oriented consumers, who are helping to create a completely new mobility culture.

To stay ahead, traditional Automotive players will need to check their blind spots and move forward on developing new breakthroughs such as connectivity solutions and self-driving vehicles. They need to reinvent their business models and capture the real value of connectivity by using the power of data to get inside customers' heads, understand what drives their behavior and adapt business models to ever-smaller target groups of like-minded individuals.



Ken Seel

Global Head of
Conglomerates

Conglomerates

In today's fast-changing and disruptive business environment, conglomerates can no longer survive by being 'all things to all people'. To win in the competitive marketplace and to achieve the best returns for their investments, conglomerates will need to start bringing focus to their portfolio.

This will require conglomerates to think carefully about where they have a competitive advantage and where they want to compete. This focus will be critical for conglomerates in this period of pre-transformation and change.

It will allow organizations to better allocate their R&D investments towards real growth opportunities; it will allow leadership to focus on strengthening the core business; and it will deliver greater capital resources with which to improve the business.



Mark Barnes
Global Head of
High Growth
Markets

High Growth Markets

Many of the manufacturers in this year's GMO survey will be – quite rightly – looking at the High Growth Markets (HGMs) for their next growth opportunity. Already, we are seeing increased inflows to HGMs and this trend is expected to pick up over the coming years.

In particular, manufacturers seem increasingly interested in Africa and the Association of South East Asian Nations (ASEAN) region. This is not entirely surprising. Indeed, with increasing stability across the African continent, growing consumer confidence and purchasing power and improved infrastructure, we are seeing increased investor confidence in Africa, particularly in areas such as manufacturing, healthcare and energy.

In ASEAN, heightened interest is being driven by the formation of the ASEAN Economic Community, which should drive increased growth based on the community's vast natural resources and large consumer market base.

However, as manufacturers increasingly look to partner with local companies to drive localization, innovation and improved supply chain management, culture will become critically important. Those hoping to succeed in the HGMs should not underestimate the value of understanding, embracing and working within the local culture of their target markets.



Chris Stirling
Global Sector
Chair, Life
Sciences

Life Sciences – Medical Devices

More than any other sector, Life Sciences has a special stake in innovation, as the nature of the business requires companies to elevate their performance in order to offer better life-enhancing and life-saving technologies.

At the same time, Life Sciences companies are at a crossroads. In the face of enormous pressures across the healthcare ecosystem, traditional business and operating models are being reviewed, and often replaced by new strategies designed to accommodate the rapidly evolving and globalized marketplace.

What is clear from this year's GMO is that medical device and diagnostics (MD&D) manufacturers are investing heavily in R&D, and are shifting their innovation strategies from incremental innovation toward achieving breakthrough innovation. This level of investment and distinct drive for breakthrough innovation is in contrast to the other manufacturers polled in other sectors.

The results clearly indicate the MD&D sector's willingness to boost speed-to-market by deepening collaboration and tightening integration with suppliers, and it's likely they will lead manufacturing in innovation in the years to come.



Eric Damotte
Global Head of
Metals

Metals

Facing heightened pressure as a result of overcapacity and sagging iron ore prices, metals manufacturers are now entering a period of intense competition. Everyone is looking for new growth opportunities and – at the same time – are keenly focused on reducing their costs.

This ultra-competitive metals environment is impacting the sector. In China, pressure on margins and overcapacity has already translated into record export levels and will eventually result in significant domestic consolidation. Outside of China, however, much of the competition will revolve around metals organizations' ability to understand and meet customer demand.

As a result, we are seeing increasing focus on the development of new products – such as ultra-light alloys – and the adoption of new manufacturing technologies that could help respond to an emerging need in the market and stricter environmental regulations. At the same time, metals organizations are focusing on enhancing their supply chain operations in order to not only reduce working capital levels, but also to become more flexible and responsive to customer demand.

Even so, expectations for significant mergers and acquisitions activity outside of China are low. Instead, we expect to see a growing focus on the development of partnerships with other players and collaborative efforts with both customers and suppliers to drive new growth and innovation opportunities.

Five key take-aways for manufacturers

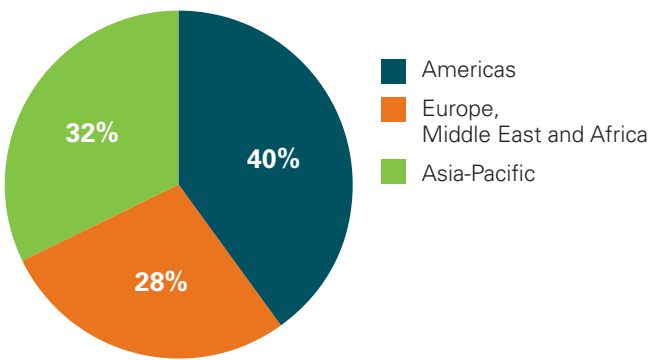
1	The manufacturing sector is in a mode of early transformation. Growth and innovation, cost structures and supply chain efficiency are all at the top of the agenda, but steps to implement 'next generation' strategies remain modest.
2	The pace of innovation will continue to accelerate as new disruptive forces and innovators revolutionize product development, manufacturing processes, automation and business models. Failure to participate in this rapid rate of innovation will threaten manufacturers' competitiveness.
3	New products, business models and disruptors will drive manufacturers to develop more agile, transparent and demand-driven supply chains and integrated business planning models. But supply chain visibility remains low and significant opportunity exists for greater collaboration.
4	Manufacturers are making bigger bets on R&D initiatives, attracting talent and creating broader, more inclusive innovation models and collaborating with tech-savvy partners to capitalize on new opportunities. Manufacturers must continue to invest in technology and talent to win the innovation battle.
5	Great opportunities will emerge for the winners as the sector moves towards large-scale transformation and – in the short run – more can be done to improve the sales growth opportunities already available, such as after-market sales, improved customer-facing technology and channel expansion.

About the survey

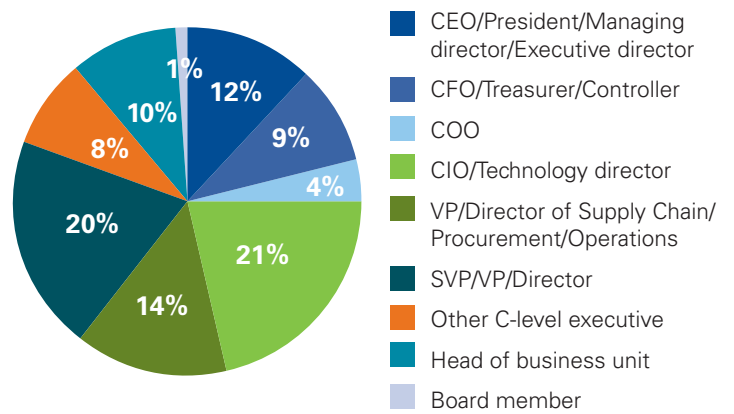
The Global Manufacturing Outlook 2015 is based on a survey of 386 senior executives, conducted by Forbes on behalf of KPMG International, completed in early 2015. Respondents represented six industries: Aerospace and Defense, Automotive, Conglomerates, Medical Devices, Engineering and Industrial Products and Metals.

Fifty-five percent of respondents held C-level positions and two-thirds represented organizations with more than USD5 billion in annual revenue. Respondents were distributed between the Americas, Europe and Asia.

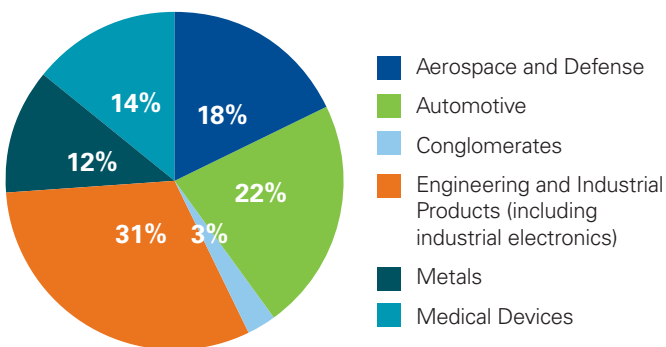
Where are you personally located?



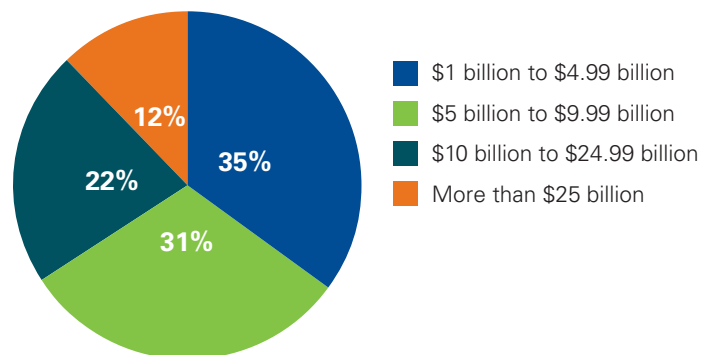
Which of the following best describes your title?



What is your primary sector within the manufacturing industry?



What are your organization's global annual revenues in US dollars?



Note: Percentages may not add up to 100 percent due to rounding.
Source: Forbes survey, January 2015.

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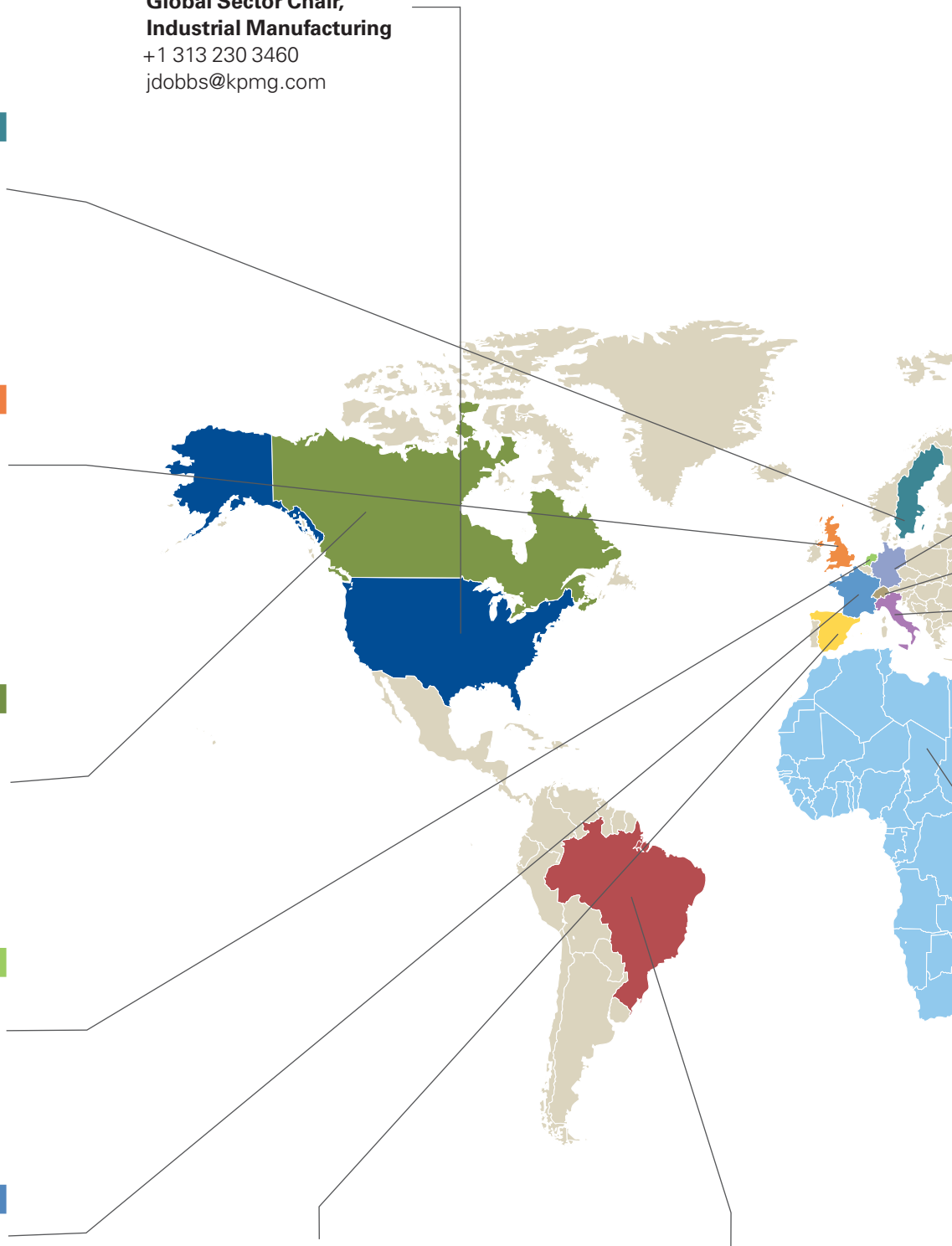
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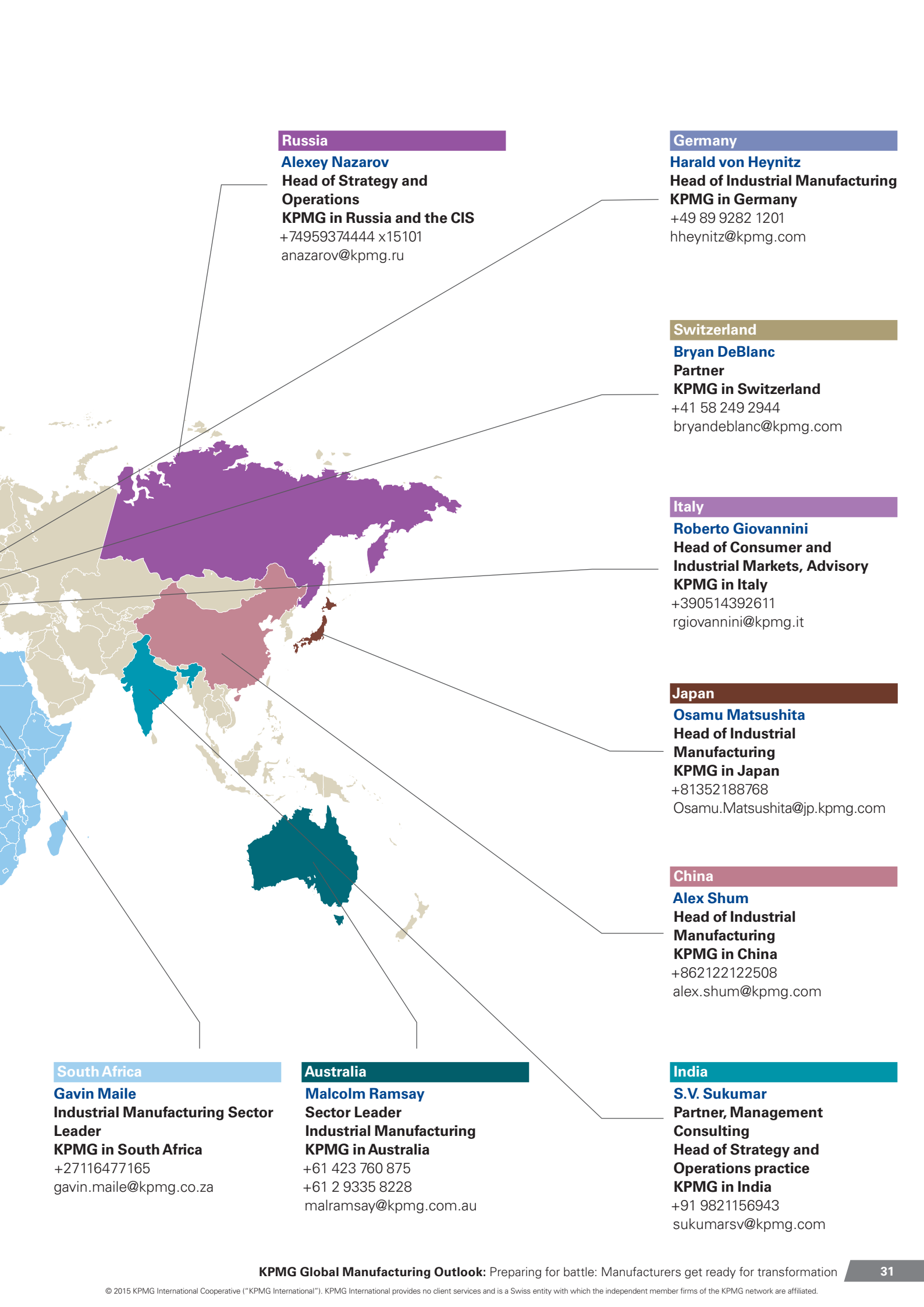
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How KPMG Industrial Manufacturing can help

KPMG's dedicated Global Industrial Manufacturing network of professionals, based in member firms around the world, works with some of the largest and most successful manufacturing companies.

Over 9,100 professionals in our Global Manufacturing Group, including 670 partners, bring together KPMG's Audit, Tax and Advisory practices to deliver broad-ranging approaches to clients' activities within the industry.

With our global industry knowledge and involvement in key industry events, we believe we are truly the advisors of choice to the Industrial Manufacturing industry.

Our services focus on helping member firms' clients address major issues and market priorities facing the Industrial Manufacturing industry, including:

- Business model transformation
- High growth market strategies
- Market entry and expansion
- M&A and transaction services
- Corporate finance and valuations
- Private equity investment



The growth agenda

- Supply chain and distribution solutions
- Procurement transformation
- Improving operational efficiencies
- Finance transformation
- Internal improvement and sourcing advisory
- R&D management strategies



Cost and competitiveness

- Enterprise risk management
- IT advisory solutions
- Governance, reporting and regulatory services
- Debt advice and securitization
- Global tax and transfer pricing services
- Sustainability and the environment



Risk, governance and regulatory matters

KPMG's Global Industrial Manufacturing teams offer proactive, forward-thinking services to member firm clients, helping them take advantage of the sector's growth potential and overcome the main issues and challenges within the sector.

Global Industrial Manufacturing

thought leadership



Global Aerospace and Defense Outlook (June 2015)

This report examines how aerospace and defense organizations are focusing on improving their visibility into their profitability and costs, building new partnerships and focusing on new opportunities to leverage their existing products and services.



Global Metals Outlook (2015)

This annual Metals Outlook examines how metals organizations are focusing on improving their understanding of their cost and profit levers, entering into partnerships and driving innovation in order to create a platform for profitable growth. Based on a recent industry-wide survey of 83 metals company executives, this report will stand out as a critical resource for metals executives and decision-makers around the world.



Industrial Manufacturing Mega Trends

This report analyses 10 key trends in Industrial Manufacturing, provides added value with KPMG perspectives, approaches, solutions and KPMG Services.

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