

Global Manufacturing Outlook

Competitive advantage:
enhancing supply chain
networks for efficiency
and innovation

An Economist Intelligence Unit
research program sponsored
by KPMG International



cutting through complexity

The
Economist

Intelligence
Unit



Interviewees

We would like to thank the 335 executives who participated in the survey and the 4 interviewees below for their valuable time and insight.

Carol Burke

Managing Director, Unipart
Manufacturing Group

Paul McGartoll

Vice President of Strategy and
Business Development, Textron

Sylvain Levesque

Vice President of Corporate Strategy,
Bombardier

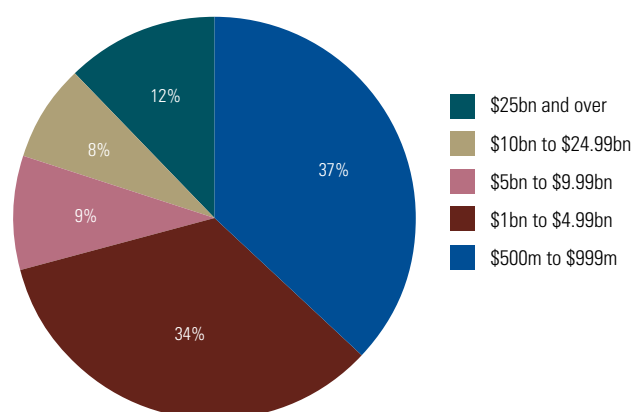
Bill Scotting

Executive Vice President,
ArcelorMittal

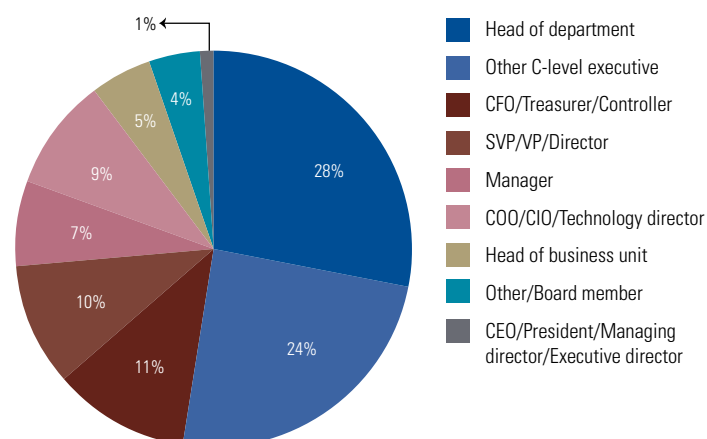
About the survey

This report is based on a survey of 335 senior executives, conducted in November 2012. Executives represented 5 industries: Aerospace and Defense, Automotive, Conglomerates, Engineering and Industrial Products, and Metals. Forty-six percent were C-level, including board members. Respondents came from companies of many different sizes: nearly 30 percent represent companies with more than US\$5 billion in annual revenue. Respondents are distributed globally, with nearly a third each from the Americas; Asia-Pacific; and Europe, the Middle East & Africa.

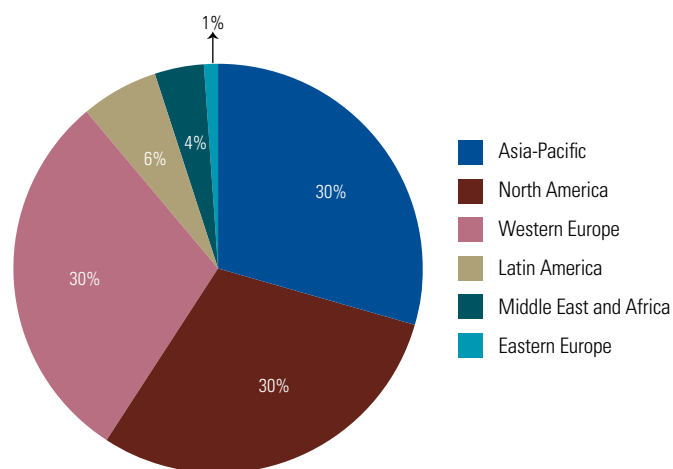
1. What are your organization's global annual revenues in US dollars?



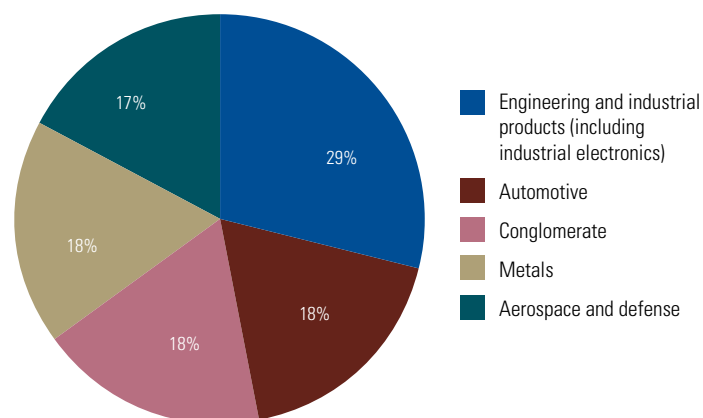
2. Which of the following best describes your title?



3. In which region are you personally based?



4. What is your primary industry?



Source: Economist Intelligence Survey, Nov. 2012

Note: Graphs may not add up to 100% due to rounding.

Foreword

The market headwinds of intense global competition, slow to modest growth, public sector budget constraints, and Euro-zone instability continue to challenge industrial manufacturing companies to transform their business models and their cost structures in ways unimaginable only a few years ago. In the midst of the continuing focus on cost, some might say that manufacturers have hunkered down to weather the storm. To the contrary, we believe this year's Global Manufacturing Outlook (GMO) reveals that these companies are positioning themselves for a new era of growth driven by innovation, collaboration across the value chain, and rapidly changing manufacturing and decision support technology.

On the innovation front, nearly one-third of the respondents to this year's survey indicated that they intended to pursue "breakthrough" or "disruptive" innovation strategies in the product development area. Further, there was a marked (15 percent) increase in the number of respondents increasing their R&D budgets to 4 percent or more of their revenue, an upward trend we believe will continue over the next 2-3 years. Finally, the innovation process is quickly shifting to a "partnership model" bringing together internal resources, customers and suppliers, third party research, and external funding sources. Speed to market, enhanced products, and the right innovation business model will ultimately be the differentiator in the battle for global market share.

The economic impact of the evolution of the supply chain over the past few years has been dramatic. The concept of nearshoring or sourcing/manufacturing closer to the end market to reduce cost and risk was a hallmark of the post-recession recovery. As the recovery gained momentum, new models of cooperation and collaboration between OEM's and the value chain helped to optimize processes and further reduce cost. As you will see from the 2013 GMO, the next wave of supply chain gains will be the most dramatic yet, with a new spirit of partnership, transparency, and visibility across the value chain creating enormous economic value from a technology-enabled demand-driven supply chain.

Underpinning the new models in innovation and supply chain is the extraordinary advancement in the technology to support everything from the R&D and manufacturing processes to decision support and data analysis tools, as well as supply chain visibility and other business intelligence needs. The emergence of niche players coupled with the capabilities of the traditional players will make this a technology-rich environment for global manufacturers. Exploiting these technologies and managing the resulting explosion of data will be critical to remain at the top of the competitive heap.

One thing we know for sure, the volatility that we have seen the past 5 years will continue and the strategies, relationships, and tools to compete in this ever-changing environment must become much more sophisticated. We hope that you will find this year's GMO thought provoking and stimulating as you consider your company's plans for driving growth and prosperity in the continuing "manufacturing renaissance."



Jeff Dobbs

Global Sector Chair, Diversified Industrials

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Executive summary



Over the past several years, global manufacturers have had to adapt to remain competitive within a volatile and fast-moving economic environment. Today, with the global economy stabilizing, the emphasis on caution is shifting more towards a focus on opportunity. In this Economist Intelligence Unit report, written on behalf of KPMG, and our fourth annual global manufacturing outlook, we find global manufacturers generally optimistic about the future, and taking steps to capitalize on potential opportunities. Companies are adopting a number of strategies to stay ahead of the curve, including a deeper emphasis on collaboration with partners and suppliers in the search for new ideas.

Key findings from the 2013 report are:

- **Global manufacturers are increasing transaction activity to take advantage of growth opportunities in global markets, while reassessing operations and product portfolios to control costs.** Nearly a third of all companies in our survey are planning mergers or acquisitions to capitalize on opportunities in new markets, and close to half of larger companies (those with revenue over US\$5 billion) are doing so. 4 in 10 say they plan to exit unprofitable, non-core product lines and unprofitable, non-core business units over the next 2 years.
- **Companies are viewing their channel partners as more of a “network” which is critical to achieving a “demand-driven” supply chain, i.e. one that provides a real-time view to total demand, supply, and capacity information.** For companies of all sizes, genuinely closer working relationships between suppliers and other partners will be critical to maximizing their responsiveness to changes in the market. More effective and efficient collaboration enables firms to optimize inventory, logistics, and other operational costs.
- **Visibility is the new watchword in supply chain optimization and a major opportunity for many companies.** Many companies have a substantial opportunity to boost performance, agility, and resilience by improving visibility across their supply chain network. Nearly half of the companies say they lack visibility beyond their Tier 1 partners. And only 9 percent say their firm can assess the impact of supply chain disruptions within hours, although for the biggest companies (revenues of US\$5 billion or more) this rises to 20 percent.
- **Increasingly, companies are placing the supply chain at the center of their strategies to innovate.** Many companies are starting to see their suppliers as a source, not just of production and logistics, but also of ideas. Half of our survey respondents say that partnerships, rather than in-house efforts, will characterize the future of innovation. And investing in R&D and innovation remains a priority: 42 percent expect their company to invest greater than 4 percent of their revenue in innovation over the next 2 years.
- **Companies see value in both breakthrough and incremental innovation to stay competitive.** Nearly a third of respondents whose firms are stepping up R&D say their company will invest in breakthrough innovation. The remaining two-thirds of respondents who see a resurgence of R&D activity are focused on incremental innovation – enhancing existing product lines and services. This number rises to 78 percent among larger companies (revenues of US\$5 billion or more), compared to 64 percent of smaller companies. The focus on both breakthrough and incremental innovation suggests companies are revisiting R&D strategies according to what’s most effective for their operations.

Positioning for opportunity

Global manufacturers are redoubling their efforts to become more efficient and innovative.

The past few years have brought both large-scale upheaval and major new opportunities for global manufacturers. The repercussions on the world economy of the 2008 global financial crisis prompted companies to reduce costs and shrink operations. Yet at the same time, the spreading ubiquity of digital technology and the emergence of innovations like 3-D printing have opened exciting new horizons.

This Economist Intelligence Unit study, written on behalf of KPMG, finds global manufacturers redoubling their efforts to become more efficient and innovative, both to stay competitive in mature markets, and to capitalize on growth opportunities in the emerging world. Firms are looking to deepen their relationships with partners, invest in innovation and strengthen their operations to prepare for growth.

Global manufacturers remain focused above all on the world's 2 biggest economies, the United States and China, for sales growth. The US represents a new source of optimism, with signs that a new era of manufacturing dynamism may be dawning. A number of factors, among them rising production costs in Asian countries and lower energy costs brought on by the domestic shale gas revolution, are convincing some to revisit the US, with its technological prowess, attractive talent pool and scaling opportunities, as a primary base. For similar reasons, China continues to be a magnet for global manufacturing companies: although economic growth there has decelerated and costs have risen, the economy remains one of the most dynamic in the world; as a production base it offers tremendous efficiency, and a strong engineering skills pool.

At the same time, companies expect to maintain a global presence in markets beyond the 2 major powerhouses. Other markets that continue to be regarded as the top ones for sales growth span India, the UK, Brazil, and Germany. In our past surveys, these have consistently featured among the top markets that companies look to for sales growth. As Sylvain Levesque, vice president of corporate strategy at Bombardier, puts it: "While most dollar growth in our business is coming from traditional economies in terms of percentage growth, the fastest are South Asia, China, India, Brazil, and certainly other South American countries."

For ArcelorMittal, the principal areas for expected sales growth are Brazil, South America, Africa, Middle East, along with the US. "Despite some economic disruption associated with the "Arab Spring" we are expecting some growth in North Africa, especially Algeria, in the oil and gas industry," says Bill Scotting, executive vice president of ArcelorMittal.

While companies look to global markets to leverage opportunities, mergers and acquisitions feature on the agenda of nearly a third of our respondents; this number jumps to 47 percent for larger companies (those with revenue

Mergers and acquisitions feature on the agenda of approximately 1/3 of our respondents.

KPMG Insight



Stephen Cooper
Partner,
Head of Diversified
Industrials and
Automotive,
KPMG in the UK

UK Open for Business

The 2013 survey ranks the UK 4th as a country where global companies expect sales growth in the next 12-24 months. This is an increase in ranking from the 2 previous years (5th in 2011, and 6th in 2012), and whilst this may be linked to recent UK government initiatives to encourage both exports from the UK, and investment into the UK by foreign companies, it may also be reflective of the recent weakening of other countries such as Germany and Brazil.

The Eurozone has traditionally been the UK's biggest export market. With the Euro Crisis impacting European demand, the UK is increasing its focus on emerging markets. From 2007 – 2012 British companies more than doubled their exports to the fast growing BRIC markets, supported by UK Government trade missions, and the weakening of the

pound over recent years which has made British exports cheaper.

The UK government has launched initiatives to encourage local production and foreign investment in UK manufacturing. Examples such as the Patent Box regime which gives tax incentives for companies to register patents in the UK and reductions in the UK corporate income tax rate (reduced by 2 percent since 2010) are part of the UK Government's stated objective of having the lowest corporation tax rate in the G20. The UK has recently seen numerous automotive manufacturers investing in plants in the UK such as Jaguar Land Rover, Nissan, BMW, Toyota, General Motors, Honda and Nissan.

The UK is showing the world that it is 'open for business'.

36 percent will divest noncore assets or activities in the next 2 years.

of over US\$5 billion). Indeed, the number of companies that are not considering any transaction activity, 16 percent, is at a low level compared to past years. Forty-five percent of larger companies also say they will invest in Greenfield projects to increase capacity in growth markets. Companies are also using transaction activity to rationalize operations: over a third say they will divest noncore assets or activities in the next 2 years. At the same time, companies recognize the need to reassess

their current operations. 4 in 10 respondents say their cost-control priorities over the next 2 years consist of exiting unprofitable or non-core product lines and business units.

As companies look to maintaining – and widening – their global footprint, it will become even more critical to ensure that their operations are efficient and minimize waste. This research finds that companies have many opportunities to make significant improvements in these areas.



KPMG Regional Perspective

Alex Shum

Head of Diversified Industrials, KPMG in China

China remains the fastest growing economy in the world and one of the most attractive investment destinations globally in many industry sectors, if not all.

Under the 12th 5-Year Plan, the Chinese government's policies remain on course in terms of favoring investments in high-end equipment manufacturing, high-tech, energy-efficient products and new materials sectors. In large part, these measures are aimed at modernizing the manufacturing sector, moving domestic manufacturers up the value chain and protecting the environment. In turn, this helps divert overseas and domestic investments and attracts managerial and R&D talent to these sectors; a welcome trend for Chinese companies who are increasingly recruiting overseas talent for key management positions.

While China provides a large talent pool for R&D, the cost of recruitment and retaining such talent continues to rise on the back of inflation and high costs of living which – in the more developed regions of the country – have been driving expectations of pay rises for skilled labor. Uncertainty also prevails as to technology platforms and options.

Investment spending also remains cautious in China, driven by uncertainty as to the timing and magnitude of a global economic rebound and the potential impact of measures recently announced by the new Chinese central government leaders.



KPMG Regional Perspective

Dr. Gerhard Dauner

Europe, Middle East, and Africa, Head of Diversified Industrials, KPMG in Germany

Over the past few years, European manufacturers have made great progress in embedding efficiency initiatives and cost-cutting programs into their operations, closing unprofitable businesses and divesting of non-core assets. Based on recent improvements in margins reported across the continent, it seems that these measures are taking hold.

But while cost reduction remains important and deeply embedded in the minds of Europe's manufacturing managers, we expect to see new measures emerge to further improve operational effectiveness. These may include the optimization of existing processes along the value chain in order to build "clusters" of competence; greater focus on local development and production facilities within existing markets; and the development and implementation of incremental and (to a lesser degree) pioneering innovation as a way to safeguard product differentiation and reduce time to market.

However, we believe that achieving sustainable cost reduction requires a transformational change supported by cross-functional and inter-company programs. In other words, Europe's manufacturers will need to focus on changing the mind-set and the daily routines of their people and suppliers rather than chasing one-off initiatives.

As such, Europe's manufacturing executives would be well advised to review their past sourcing and footprint decisions in light of today's environment and be willing to take on radical new approaches such as the re-shoring of outsourced functions, the installation of local R&D departments and the development of production facilities focused on individual market demands.



The future is in the supply chain

The #1
challenge
is “intense
competition
and pressure
on prices.”

Manufacturers are placing the supply chain at the center of their efforts to achieve their strategic priorities. Global manufacturers’ ability to optimize performance and cost in their entire supply chain will be key to helping them become more competitive and resilient. “The supply chain is going to be absolutely critical in the future,” says Carol Burke, managing director of Unipart Manufacturing Group, a supplier to the auto, energy generation, and oil and gas industries.

Many companies are seeing an opportunity for improved collaboration with channel partners to help them stay at the forefront of the market and be more responsive to changes in customer demand. While the lean manufacturing revolution was focused on getting businesses’ own houses in

order, the challenge now is to improve supply chain performance through genuinely closer working relationships and collaboration across the network. As Mr. Levesque expresses it, “We are pushing the limits of lean manufacturing; [we are] “leaning” the supply chain.”

For survey respondents, the biggest challenges their company faces are intense competition and pressure on prices, keeping the business model competitive, and uncertain demand. Ms. Burke sees suppliers playing a bigger role in helping companies overcome their challenges and meet their strategic goals: “Providing a combination of manufacturing, logistics, and consulting is going to be the way forward.”

Companies that are starting to view partners as more of a “network” than a “chain” are finding other significant benefits. As companies step up investment in innovation, whether in search of “breakthrough” R&D or incremental improvements to existing products and services, they are increasingly looking to their supply network for ideas: 51 percent of our survey respondents say partnerships, rather than in-house efforts, will characterize the future of innovation.

Suppliers that work for a range of firms are likely to be able to contribute more.

In the words of Paul McGartoll, vice president of strategy and business development at Textron, “Collaboration in the supply chain...is the nature of the business. If someone is supplying just us, they’re not going to be as competent as people working with a number of customers. We work with suppliers to adapt their capabilities for our requirements.”

Companies are recalibrating their supply chains as they seek to capitalize on opportunities and respond to challenges. A majority (57 percent) of survey respondents say that optimizing

Just over
1/2 say
partnerships,
rather than
in-house
efforts, will
characterize
the future of
innovation.



KPMG Sector Perspective

Eric Damotte
KPMG Global Head of Metals

Metals outlook

All things considered, 2013 will likely be remembered as a year of foundational change for the metals sector. Restructuring and cost cutting will continue in the slow growth markets of Europe; investment will pick up in the high growth markets in Asia; and consolidation will continue, particularly in China where significant room still remains for the industry to modernize.

Much like the respondents in the broader survey, metals companies are keenly exploring new opportunities for cost cutting. In those markets where overcapacity is perceived to be more structural in nature, we expect to see a further restructuring of assets. At the same time, continued restrictions on available capital and a temporary drop in resource prices around the world has catalyzed metals organizations to focus more on the optimization of their existing assets rather than the acquisition of new ones.

The supply chain has also come sharply into focus for metals companies. Over the past year, I have noted a

move by many organizations to reduce downstream costs and capture some of the value lost to intermediaries by rethinking their distribution and customer service offerings. On the upstream side, we expect to see an uptick in the pace of partnering and joint ventures as metals organizations look to secure the cost benefits of vertical integration without outlaying massive amounts of capital or shouldering too much risk.

Likely the greatest competitive advantage, however, will come from renewed efforts to drive product and process innovation. Indeed, as customers become more sophisticated in their needs and regulators add increased pressure for environmentally-friendly products and more efficient energy use, those organizations that are able to quickly respond to shifts in demand and location will ultimately capture a greater share of the market.

KPMG Insight



Loek Helderman
KPMG Head of
Global Tax Efficient
Supply Chain
Management,
KPMG in the
Netherlands

Embedding tax into the optimization strategy

As this year's Global Manufacturing Outlook indicates, most multinational manufacturers are currently struggling to 'triangulate' their supply chain to achieve end-to-end visibility among customers, suppliers, partners and intragroup entities. This is not just about improving ERP systems or other ICT elements; it also requires organizations to carefully plan and monitor the division of roles, risks and tangible and intangible assets amongst the group.

Value chain management has always prioritized the ability to achieve operational cost savings and improved control while also optimizing tax (and, in some cases, creating a tax saving), particularly in areas such as asset, risk and function location-selection. Many executives are keenly aware

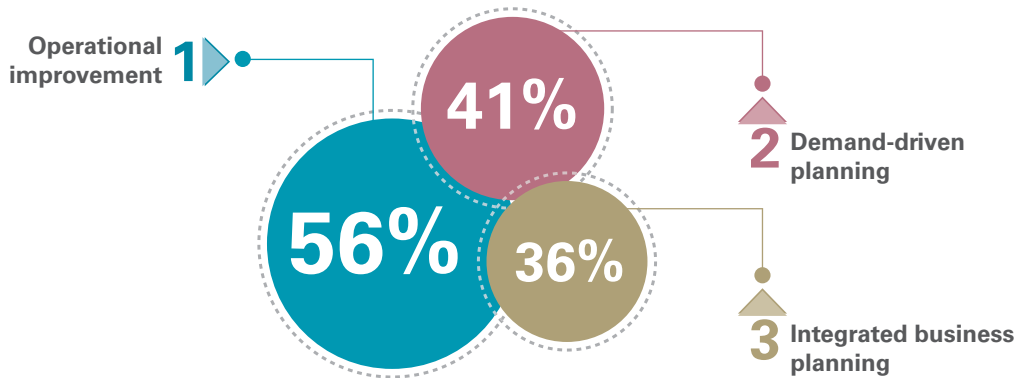
of the impact of more common factors such as the availability and cost of a skilled workforce, general location costs and local income tax rates, but few seem to pay close enough attention to the longer-term transfer pricing picture.

In order to stay competitive, multinational enterprises must therefore continue to consider the impact of tax in optimizing a company's overall value chain (including situations where post-merger integration may be impacted). Simply put, companies will need to ensure that the location of the group's functions, risks and assets are properly aligned and embedded in a transfer pricing policy that is consistent with the business economics.

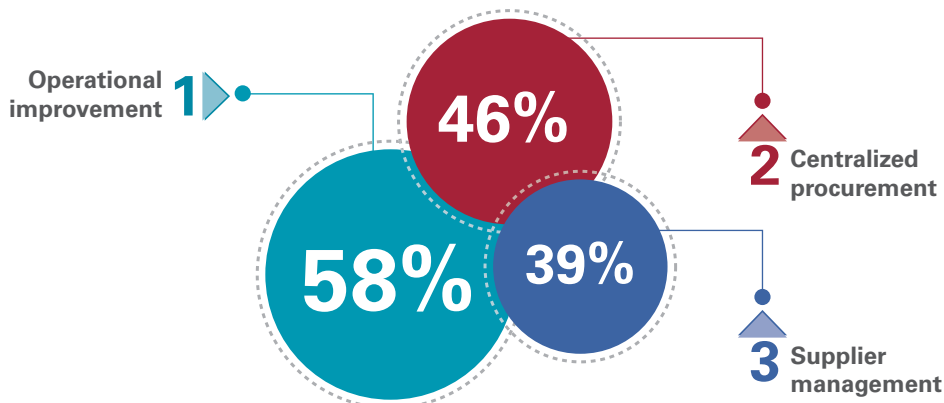


Supply chain strategies that characterize companies' top operational priorities

Large companies (revenue over US\$5 billion)



Small companies (revenue under US\$5 billion)



Source: Economist Intelligence Unit survey, Nov. 2012.

inventory, transportation, logistics, and other operational costs is central to achieving operational priorities. For large companies in particular, demand-driven planning (cited by 41 percent) and integrated business planning (36 percent) figure among their top strategies for supply-chain optimization.

Recalibration is geographical as well as operational. Fifty-eight percent of respondents say they will regionalize/localize supply chains to improve the management of their supply chain risk.

Fifty-five percent say they will diversify their manufacturing locations, and half of respondents say they will diversify their supply bases.

A critical challenge facing many companies as they seek to promote greater collaboration among their network of partners is achieving a greater level of transparency and communication than many practice now. Doing so will require them to attain greater visibility into how their entire supply and partner network fits together.

58 percent say they will regionalize/localize supply chains to improve the management of their supply chain risk.



The visibility imperative

47 percent struggling to align operations to real-time fluctuations in customer demand.

Visibility is becoming a new watchword in supply-chain optimization. Improving speed, communication, and resilience is a major opportunity for most companies, and increasing end-to-end visibility in the supply chain will be a key factor of success. Without a complete picture of their whole supply chain, companies cannot achieve the true demand-driven planning they aspire to because they cannot respond efficiently to changes in supply, capacity, and demand.

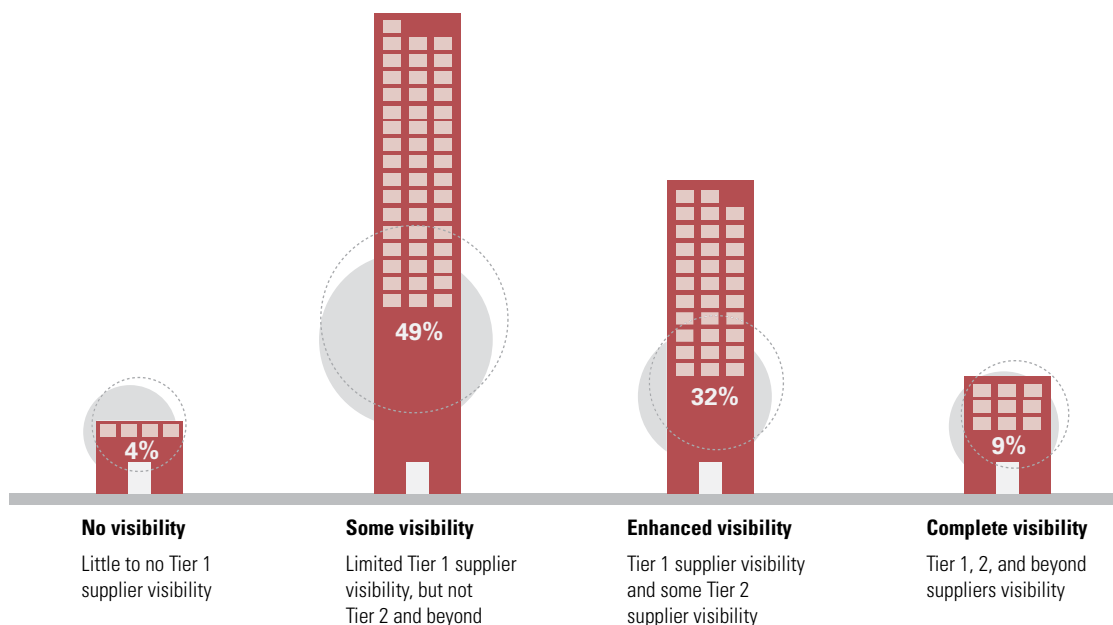
Improved end-to-end visibility of the supply chain can enable firms to get partners working together more efficiently – and thus be more responsive to changes in today's fast-moving global marketplace. In our survey, nearly half (47 percent) of respondents say a top challenge to their supply chain efficiency is aligning operations to real-time fluctuations in customer demand, followed by

supplier performance in terms of risk, reliability, and quality (45 percent). When asked about their supplier visibility, the largest proportion of survey respondents, 49 percent, say their companies are familiar only with their immediate tier 1 partners in the supply chain; they know very little about partners beyond, let alone their entire network.

Increased transparency across a supply chain helps foster better and faster communication and collaboration between partners and even customers. According to Ms. Burke from Unipart, her company is spending time and money to do just this. "We are getting closer with suppliers and further into the supply chain," she says. Moreover, as global companies expand into new markets or products/service lines, strong visibility can help ensure that the addition of more partners doesn't merely add to complexity.

Companies have little visibility beyond tier 1 suppliers

How much visibility of supply and capacity information do you have across your suppliers and logistics partners?



Source: Economist Intelligence Unit survey, Nov. 2012.

KPMG Insight



Rob Barrett
Managing Director,
Advisory,
KPMG in the US



Amit Gupta
Partner,
Advisory/
Management Consulting,
KPMG in the US

Demand-driven supply chain

As manufacturers look to become leaner, more cost efficient and more customer focused, we have seen a growing trend towards “demand-driven” supply chains where all planning, purchasing, and replenishment decisions are aligned with actual demand at the furthest point of consumption. To get there, companies are establishing multi-tier visibility and reducing information latency across the supply chain, resulting in inventory-related, operational and capital cost savings while simultaneously improving delivery performance and customer service.

Adopting a demand-driven supply chain model is a journey and therefore the demand-driven processes will evolve over time. However, this new model does require a shift in thinking away from traditional “supply chains” towards the concept of highly integrated “supply networks” where multiple tiers of companies are working off the same shared view of total demand and total available supply with common processes and metrics.

The greatest challenges for most organizations may not be technical,

but rather philosophical. Do current processes and policies reflect a demand-driven culture where information is willingly shared and all material movements are driven by consumption? Have trusted relationships and agreements with partners and suppliers been properly established? How will the added value be measured for customers, suppliers and partners, and how will this value be shared among the participants?

Experience has proven that the best-designed demand-driven networks are those developed in collaboration with key suppliers/customers and rolled out through an iterative approach with continuous process improvement measured against a shared benefits model.

Business leaders should note, however, that this is often an emotional journey replete with its own highs and “valleys of despair.” But those that are able to manage the transition effectively will find that demand-driven approaches allow companies to leapfrog their competitors and sustain a competitive differentiation for an extended period of time.



Joerg Strater
KPMG Global
Head of Tax
for Diversified
Industrials

A taxing environment for manufacturers

It may be time for manufacturers to put their tax department on speed-dial. Indeed, as I look across the findings in this report, one thing becomes clear: the issue of tax is even more important for manufacturers than ever before.

And rightfully so. Those organizations that are able to enhance their competitive position and reduce their risk using smart and transparent tax planning will almost certainly gain an advantage over their peers.

Some, such as those seeking to expand into new markets and segments, will want to hone their tax capabilities in foreign markets and develop a clear understanding of local tax requirements. Others, like those investing in R&D, will find opportunity to maximize their investment by comparing available tax incentives offered by certain jurisdictions. And, as my colleague Loek Helderman notes on page 10, the tax implications surrounding supply chain operations or optimization efforts are myriad.

And while tax planning – in and of itself – is certainly key to success, manufacturing organizations will also need to be highly cognizant of how their tax strategies and structures may be perceived – not only by tax authorities but also by the public in general. Right around the world, we have seen major organizations come under heavy fire for creating overly aggressive or artificial structures. Reputations have been damaged, relationships with tax authorities have been bruised and loyalty with customers has been diluted.

Over the coming years, we expect to see tax authorities develop and promulgate new sets of rules designed to eliminate aggressive tax strategies, increase transparency in reporting and protect the tax ‘take.’ Those manufacturers that are able to get out ahead of this evolving tax environment will almost certainly enjoy an easier transition to tax compliance and a better relationship with their key stakeholders going forward.

Only 9 percent say their organization can assess the impact of unplanned supply chain disruptions in a matter of hours.

Good visibility also strengthens operational resilience. Currently, only 9 percent of respondents say their organization can assess the impact of unplanned supply chain disruptions in a matter of hours, while 17 percent say it takes 3 weeks or longer. Larger companies may be better equipped to deal with unforeseen shocks. Twenty percent of companies with revenue of US\$5 billion and over say they can assess the impact of a disruption in a matter of hours. That said, this still leaves 80 percent of them with room for improvement.

But while catastrophic disruptions – or “black swan” events such as the Fukushima earthquake and tsunami, have focused much media attention on the role of the supply chain in disaster response, for most companies, a huge opportunity lies in strengthening day-to-day operations. As Mr. Levesque of Bombardier notes, “It is not so much catastrophic disruption; rather, it is about

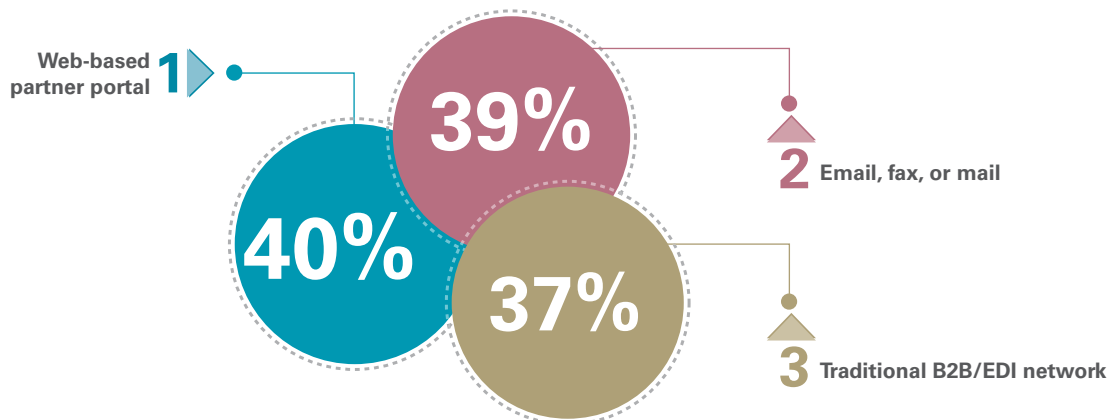
ensuring that we have different suppliers who can do more at the right quality.”

Those firms that successfully harness emerging technological applications will be best placed to optimize visibility and communication. According to Mr. Levesque, the aircraft industry uses a mix of old modes of communication, like faxes, as well as open network technology, such as enterprise resource planning systems (ERP). “IT is both an enabler and a ticket of admission,” he says.

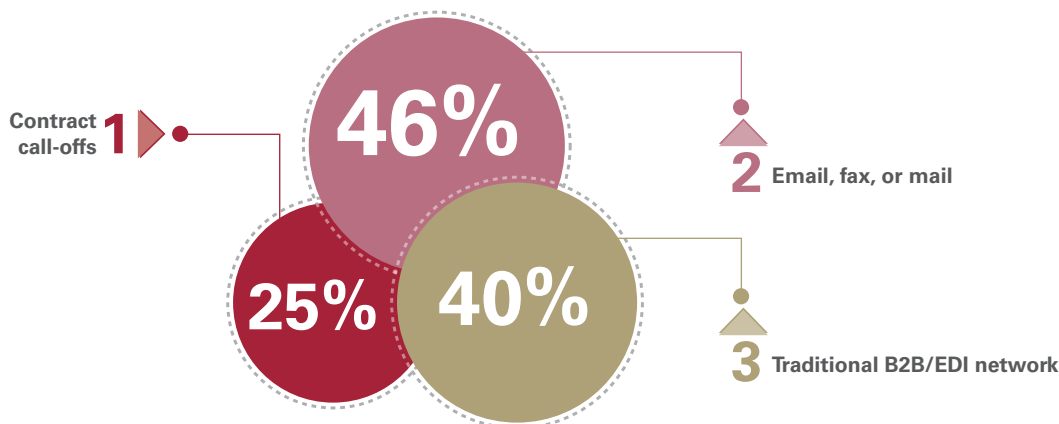
Connectivity is clearly an area in which companies see room for improvement. A significant portion of respondents say they use email, fax, or mail as one of the top 2 ways to share data and transmit information about demand through the supply chain. This is followed by traditional B2B networks and web-based partner portals. Smaller companies (companies with revenues of less than US\$5 billion), are more likely to use email, fax, or mail (cited by 46 percent of

Data-sharing methods to transmit information across the supply chain

Large companies (revenue over US\$5 billion)



Smaller companies (revenue under US\$5 billion)



Source: Economist Intelligence Unit survey, Nov. 2012.
Respondents selected top two.

respondents, compared to 39 percent of larger companies). Larger companies (those with revenues of US\$5 billion or over), meanwhile, are more likely to prefer web-based partner portals, followed by email, fax, or mail and traditional B2B/EDI network. Although the increased use of portals has led to improved transparency and connectivity, the limitations of such portals do not yet allow for more comprehensive transparency across the network.

The high number of respondents that still use email, fax, or mail is

surprising – though this can be attributed to the more common use of email. However, as technology becomes cheaper and communication software becomes a more effective way to communicate, companies may find more ways to collaborate efficiently across networks rather than hierarchically. Along the way, companies may find that greater information-sharing at different levels and stages of the production process can spark new ideas to help firms enhance their products.

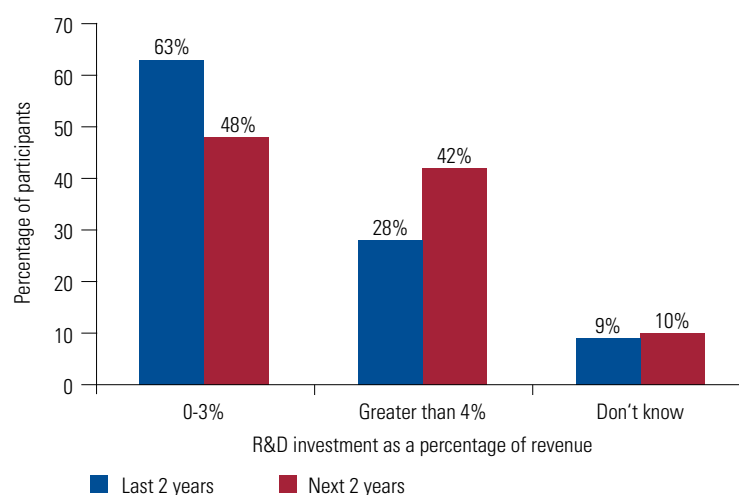


Innovation: forging ahead

Companies remain well aware of the importance of R&D and innovation in strengthening their competitive advantage. A majority of respondents, 57 percent, say they expect at least 10 percent of their company's revenue over the next 2 years to come from innovations. Even when firms were contending with an economic downturn, last year's report found that well over a third of all respondents said they expected to expand innovation and R&D efforts over the next 2 years.

This year's study finds that the trend towards investment in R&D continues, with 63 percent of respondents saying that their company invested up to 3 percent of revenue in R&D and innovation in the previous 24 months, and 28 percent invested greater than 4 percent. The outlook for the near future is even more positive. The number of respondents who expect to invest at least 4 percent of their revenue in R&D over the next 2 years is 15 percentage points greater than the number who invested this over the last 2 years.

R&D investment



Source: Economist Intelligence Unit survey, Nov. 2012.

Increasingly, companies are finding that their supply chain partners can play as critical a role in their innovation strategies as can investments in R&D, provided they can overcome a series of challenges in deepening collaboration with outside partners. Currently, 43 percent of respondents

say that the links between their R&D function and supply chain are not very strong. And 32 percent of respondents say that one of the top challenges companies face to innovation is complexities in collaborating with suppliers and partners. Mitigating such challenges requires a shift in thinking.

43 percent say that the links between their R&D function and supply chain are not very strong.

Top 5 innovation challenges companies face

What are the major challenges your company faces in its ability to innovate?

- 1▶ **Aligning innovation**
to company strategy
- 2▶ **collaborating with suppliers and partners**
Complexities in
- 3▶ **Executing**
on innovation – on time and on budget
- 4▶ **Shortage of ideas**
to drive innovation
- 5▶ **needs of our customers**
Incomplete view of/difficulty understanding the

Source: Economist Intelligence Unit survey, Nov. 2012.
Respondents selected top three.

2/3 of respondents are focused on incremental innovation while 1/3 are focused on breakthrough innovation.

As communication across the supply network improves, companies are turning more to their network of partners in the supply chain for new ideas. As previously mentioned, half of the companies surveyed say that partnerships will characterize the future of innovation. "In terms of innovation, we work closely with OEMs themselves," says Mr. Scotting of ArcelorMittal. "We are involved in the early stages of platform development – something like 7 years out."

Most companies that expect a resurgence in R&D efforts seem to think that incremental innovation – enhancing existing product lines and services – is the preferred path to staying competitive, but 31 percent do think breakthrough opportunities exist.

This is fewer than might have been expected from last year's survey. Nearly 3 in 5 of all respondents in last year's survey said their company would increase radical innovation over the next 2 years. Still, a significant portion of respondents in this year's study see value in focusing on breakthrough innovation. In particular, among respondents from the automotive industry who are seeing resurgence in R&D, this figure is as high as 41 percent.

Meanwhile, of the respondents who say there has been a resurgence of R&D in their business, 68 percent are focused on incremental innovation. This is largely unchanged from last year's survey, when 72 percent of respondents expected their incremental innovation activity to



KPMG Sector Perspective

Doug Gates

KPMG Global Head of Aerospace and Defense

Aerospace & Defense Outlook

These have not been easy times for the aerospace and defense (A&D) sector. On the commercial aerospace side, backlogs have hit record levels and projections show that growth is not likely to let off anytime soon. For the defense sector, the picture is somewhat more challenging as governments slash defense budgets to balance the public books. But with continued economic uncertainty ahead, it seems clear that organizations in both the aerospace and the defense sectors will need to undergo a paradigm shift if they hope to enhance their margins, retain their balance sheet strength and grow their competitive advantage.

This report – and our companion A&D Sector Report – provides ample evidence that some of this necessary change is already underway. Large A&D players are 30 percent more likely than the industry average to say they would be cutting back or delaying planned investments and almost 10 percent more likely to say they would exit unprofitable product lines in the next 2 years. Some may say this is simply a 'hunker down' mentality; others would

suggest these organizations are focused on trimming fat and growing their core business to prepare for the future.

Other A&D leaders are finding new opportunities to grow. Some are finding success in 'repurposing' their existing products, services and business models laterally into adjacent markets. A new solution in cyber security – a key requirement for the A&D sector – may also play well in the financial services sector, for example, while unmanned aircraft designed for the defense sector are showing their value as a vital tool in areas such as border security and protection for major events.

The next few years should also see a rise in the number of A&D organizations expanding into new global regions. However, executives should be warned: success in foreign A&D markets takes much more than a sales presence. It will require long-term local relationships, a keen understanding of customer demands on the ground and a market-savvy approach to regulatory and legal compliance.



Competition heats up

Clearly, the world of manufacturing has become much more competitive. With minimum positive growth on the horizon, companies continue to compete on cost and – as a result – are searching for new approaches and models that will trim any remaining excess out of the product cycle. No wonder then that manufacturing executives have turned their eyes towards reworking their engineering, design and supply chain processes with a view towards greater collaboration both upstream and downstream.

Everything I see in both this report and the actual market indicates that competition is only going to heat up from here. According to this report, manufacturers are seriously rethinking their plans to expand into new and unfamiliar markets and product lines. And while this will effectively reduce risk and capital costs, it also narrows the scope for new growth. Indeed, in this hyper-competitive environment, any gains in market-share must, by necessity, be taken off the shoulders of competitors. This can only be achieved by

developing lower-cost products or creating greater value for the end customer.

Both are a challenge. Driving further costs out of an already tight structure requires companies to look beyond the back office towards the actual costs of engineering, manufacturing and procurement. At the same time, adding more value to their products requires manufacturers to gain ever-clearer insight into the needs and preferences of their customers, requiring them to not only understand how their competitors deliver value, but also how to predict what customers will want in the future.

Ultimately, this year's report shows that – to win in this complex and constantly evolving environment – manufacturers will need to focus on 2 key priorities going forward: process innovation and customer insight and service. Those that get it right should eat well; those that don't will simply be eaten.

increase or significantly increase. Seventy-eight percent of large companies that say there has been a resurgence of R&D say incremental innovation is their primary strategy, compared with 64 percent of smaller companies that say the same.

"When we're looking at a "clean sheet," a new aircraft, we will seek a step change in innovation. But even then, it incorporates many technologies from the past as well," says Mr. Levesque of Bombardier. "For example, regional jets started with 50 seats, then they went 70, then 90 were specified. But essentially it was the same avionics and design at the core." Mr. Levesque points out that the benefits of an incremental approach to innovation are not just in the end product, but also the way in which incremental innovation can help improve processes. For example, R&D might be focused on delivering a better way of assembling a plane, and also end up improving guidance systems by positioning parts in a way that improves quality and efficiency.

As firms rethink their innovation strategies in the context of leveraging opportunities in global markets, they may start rethinking their R&D destinations as well (see Spotlight on sourcing decisions). For now, many companies do not see much benefit moving their R&D beyond the markets in which they are established. A majority (75 percent) of companies, both large and small, say they are not considering moving their R&D to a new country. Among the 18 percent that say they are considering such a move – and these are overwhelmingly smaller companies (revenue less than US\$5 billion) – China and India are the preferred destinations.

Regardless of R&D locations, companies overall see the benefits of investing more in innovation. This reinforced push for innovation among companies suggests the manufacturing sector's optimistic outlook may be warranted.

75 percent of companies say they are not considering moving their R&D to a new country.

Spotlight on sourcing decisions

Where companies will be sourcing their products, services and R&D

In November 2012, *The Economist* argued that, for manufacturers, “product innovation will go hand-in-hand with production breakthroughs, so more companies will want their research and development teams close to their factories.”

This year’s EIU research certainly finds many global manufacturers looking to source closer to home, as well as keep their R&D units closer to their production base. A majority of respondents from the 5 biggest economies where our survey respondents are based, say they expect to increase sourcing from their home country over the next 2 years. And almost all of these respondents expect R&D and product development to be carried out at home.

Owens-Illinois, a US glass bottle manufacturer, announced in September 2012 that it would build a new R&D center in Ohio. More recently, a smaller company, Eclipse Inc, announced in March 2013 that it would create formal R&D departments in the US. The trend goes beyond US companies. Last fall, Hero Motorcycles, an Indian manufacturer, announced plans to establish new R&D centers in its home country.

Perhaps unsurprisingly, China is, on average, the second most popular sourcing destination after the home country among respondents from the 5 major manufacturing markets in our survey (China, US, Japan, Germany, and UK). But for respondents from one major manufacturing power (the UK), sourcing from the US is expected to be just as important as sourcing from China—and the US also figures relatively high on the list of preferred sourcing destinations for

respondents from Japan, another global manufacturing powerhouse.

For global companies that do look to locate manufacturing plants outside their home countries, they select their R&D locations based on a number of considerations. Established markets typically offer more financing options and better IP enforcement than most emerging economies, but other considerations include a favorable business operating environment, availability of skilled talent, and lowest overall total cost.

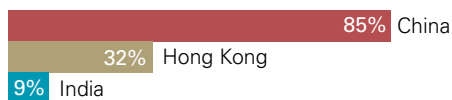
Taking all of these factors into account and combining them with longer-term, growth-market demographics, China and India are prime destinations for increased investment. This is true of Textron, which recently announced a joint venture with AVIC, China’s major aircraft manufacturer, and will see an assembly plant located in the country to serve the burgeoning Chinese aviation market. Meanwhile, its engineering and R&D facility is located in Bangalore, India’s tech hub. In February 2013, they announced plans to further expand its engineering center by adding more personnel. The center focuses on creating new products for all of Textron’s offerings, including helicopters, aircraft, automotive, and industrial segments.

Bangalore is an area in which Textron is moving aggressively to exploit the aviation industry capability in India, according to Paul McGartoll, vice president of strategy and business development at the company. “The benefits include language, quality of education and the tradition of engineering. If China is becoming the workshop of the world, India is becoming its design office.”

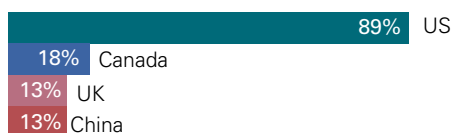
Sourcing Destinations

Where respondents based in China, US, Japan, Germany, and UK expect to increase sourcing over the next 2 years.

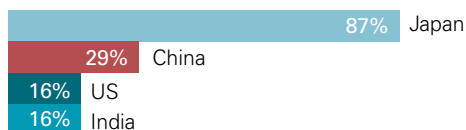
China



US



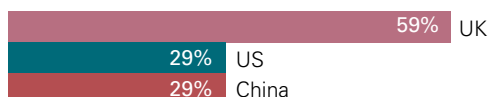
Japan



Germany



UK



Source: Economist Intelligence Unit survey, Nov. 2012.

Collaboration

Collaborating with partners and suppliers on innovation **helps to bring the best ideas to the table quickly and gives manufacturers an edge**. Choosing the right partners and opportunities is critical. Who works best with our company? Do we have the right processes to ensure speed to market? Moving past business as usual is essential to succeed in the new economy.

Ken Seel

Global Head of Conglomerates,
KPMG in the US

Reverse innovation

Savvy manufacturers seeking to enter new markets are rethinking and re-engineering their products to meet the unique needs and price points of the emerging markets. In **a trend known as 'reverse innovation,'** manufacturers are locating their R&D efforts in countries like India and China and **creating simpler, lower cost designs better suited to a number of emerging markets**. For example, GE Healthcare's initiatives to develop designs and products for the Indian market is expected to create new demand segments at lower price points for the company, while Honeywell is reportedly building innovation hubs in India and China to develop systems and solutions that may drive its growth in several regions.

Richard Rekhy

Chief Executive Officer,
KPMG in India

Japan staying competitive

While many continue to hope that the much-discussed '6 difficulties' of the Japanese business environment will be overcome by the second Abe Administration (which was elected towards the end of 2012), Japanese manufacturing companies continue to struggle.

For the most part, Japan's manufacturing sector is fighting to secure its competitiveness in a global business world where emerging countries such as China, India, and ASEAN countries offer a clear cost advantage. Moreover, recent advancements in digitalization and the modularization of parts manufacturing now underway in the emerging markets is effectively nullifying the quality advantage of "made in Japan" products.

And while this may be good news for global companies (and Japanese manufacturers) attempting to develop global supply chains, it also raises a distinct risk of commoditization of products. Historical evidence suggests that Japan will only achieve price competition once manufacturers have identified the unique value that they offer to the markets that they serve.

The challenge for Japan's global companies, therefore, is to **balance the need to be globally cost competitive while still being seen as unique and value adding**.

Given the expectations of decreasing domestic consumption, it seems increasingly likely that Japanese companies will need to be the front runners of the movement to establish a new global business model that satisfies both of these critical demands.

Mina Sekiguchi

Associate Partner,
KPMG in Japan

R&D tax incentives

Governments across the globe are looking to partner with industry by offering R&D tax incentives that specifically promote and target innovation and growth. Over **40 countries are now offering R&D incentives** that provide tax-effective options for locating and structuring R&D operations. This is a win-win situation for both the countries, who can **reap substantial spin-off economic benefits**, and the businesses, who can **benefit from increased innovation** to bolster their growth and profitability.

Carlo Ciaramitaro

KPMG's Canadian and Americas R&D Tax Incentives Leader,
KPMG Canada

General & administrative spend

While most companies have been keenly focused on optimizing manufacturing costs over the past few years, some of the more **savvy organizations have now started to refocus their efforts onto the growing impact of general and administrative spend**. In many cases, general & administrative functions such as corporate governance, sales effectiveness or procurement are being re-cast as not only a cost driver, but also a potential value creator. As such, we are seeing companies develop and implement effectiveness and efficiency target operating models for their general & administrative functions that – in many cases – are comparable to the approach taken within the manufacturing network.

Dr. Alexander Riedel

Partner, Advisory,
KPMG in Germany

Brazilian government incentives

Things are (finally) **looking up for Brazil's industrial sector**. Indeed, while other sectors of the local economy have been seeing positive growth – largely as a result of low unemployment, growing income levels and rising credit – results from Brazil's industrials sector have been somewhat contradictory over the past few years.

In part, this mismatch between local market economics and the performance of the industrials sector has been the result of difficulties related to competitiveness and the appreciation of the local currency which dampened export growth. But competition for skilled and qualified professionals is also hampering growth by pushing up the cost of labor.

Recently, the **government** has taken steps to respond to slow growth in the sector **including initiatives to increase production, tax rate reductions, tax incentives and greater control over foreign exchange**, all of which should set the tone for 2013 and bring some relief to the sector.

The first budding signs of recovery can already be seen. In January, industrial output grew by 2.5 percent over last December, the greatest monthly advance in almost 3 years (and 5.7 percent growth year-over-year), according to the Brazilian Institute of Geography and Statistics IBGE's data. And while February 2013 may have resulted in a slight decline, the overall picture seems to indicate that good news is on the horizon for both Brazil's manufacturers and foreign investors.

Charles Kriek

Partner in Charge, Audit,
KPMG in Brazil

Conclusion

Slow growth in the global economy and advancing technologies in the manufacturing sector present global manufacturers with a mix of challenges and opportunities. Companies are looking to deepen collaboration with partners in their supply chains to strengthen operational efficiencies and move towards more flexible demand-driven operations.

End-to-end visibility will be at the core of improved performance and collaboration. Currently, companies have limited visibility beyond their immediate tier 1 suppliers. Yet they need a comprehensive picture of supply and capacity across all levels of their network if they are to maximize responsiveness to changes in market demand.

Innovation and R&D strategies remain critical to staying ahead of the game and manufacturing companies are increasingly placing their partner network at the center of their strategies to generate fresh ideas. Half of our respondents say that their firms will rely on partners for innovation. Communication with key supply chain innovation partners will be vital in order to drive the necessary product enhancements with the speed, quality and cost the market is demanding.

At the center of all this is fine tuning supply chain links to work more effectively with partners. Companies that make the most of their supply chains have the potential to become more profitable in the years ahead. As Carol Burke from Unipart puts it, "Supply chain effectiveness is the invisible advantage."



Diversified Industrials Major Country Leadership

Global/USA

Jeff Dobbs

**Global Sector Chair,
Diversified Industrials**

+1 313 230 3460

jdobbs@kpmg.com

Sweden

Björn Hallin

**KPMG Partner/Head of
Industrial Markets
KPMG in Sweden**

+46 8 723 96 26

bjorn.hallin@kpmg.se

UK

Stephen Cooper

**Partner, Head of Diversified
Industrials and Automotive
KPMG in the UK**

+44 20 73118838

stephen.cooper@kpmg.co.uk

Canada

Don Matthew

**Partner, Canadian Lead
Diversified Industrials
KPMG in Canada**

+1 604 527-3770

dmatthew@kpmg.ca

Netherlands

Tom Van der Heijden

**Partner
KPMG in the Netherlands**

+31206 567520

VanderHeijden.Tom@kpmg.nl

France

Philippe Grandclerc

**Partner
KPMG in France**

+33155686952

pgrandclerc@kpmg.fr

Spain

Manuel Parra

**Partner/Head of Diversified
Industrials**

KPMG in Spain

+34914563400

mparra@kpmg.es

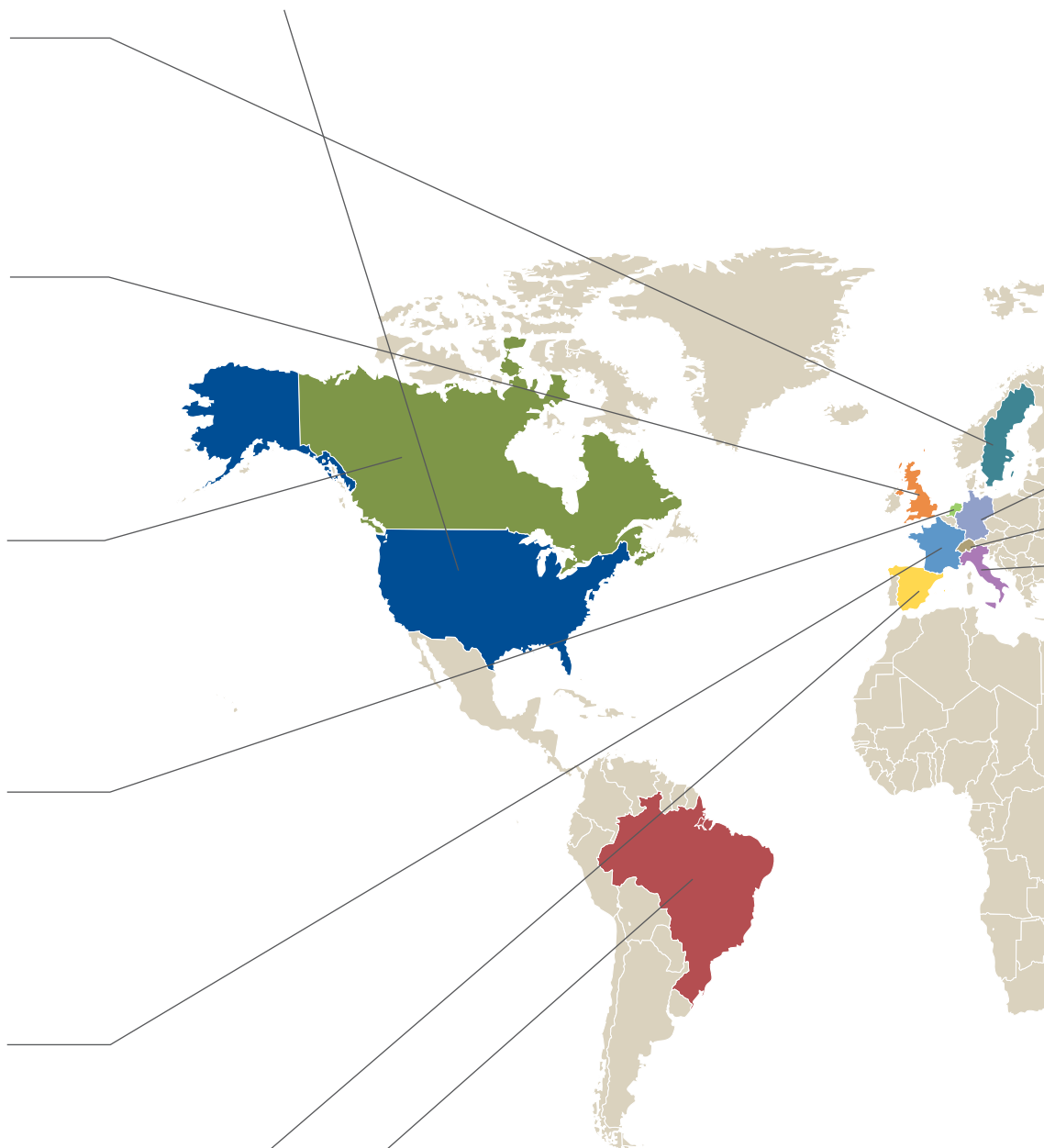
Brazil

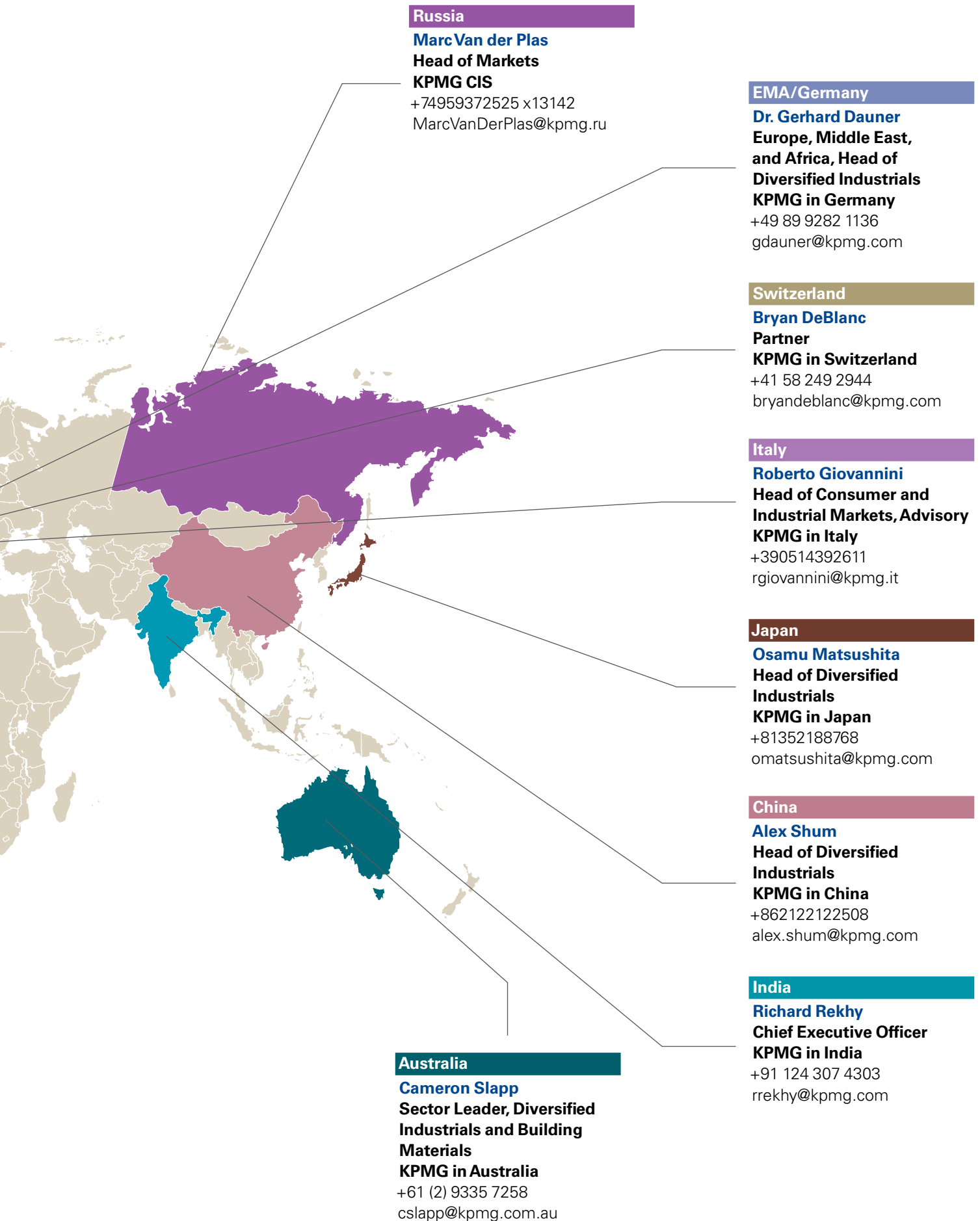
Charles Kriek

**Partner in Charge, Audit
KPMG in Brazil**

+551121833102

ckriek@kpmg.com.br





KPMG's Global Diversified Industrials Steering Group:

Jeff Dobbs

**Global Sector Chair,
Diversified Industrials**
+1 313 2303 460
jdobbs@kpmg.com

Eric Damotte

Global Head of Metals
+349 1456 3406
edamotte@kpmg.es

Dr. Gerhard Dauner

**Europe, Middle East, and Africa,
Head of Diversified Industrials
KPMG in Germany**
+49 89 9282 1136
gdauner@kpmg.com

David Frey

**Head of Strategy and
Operations Consulting
KPMG in China**
+86 108 508 7039
david.frey@kpmg.com

Doug Gates

**Global Head of
Aerospace & Defense**
+1 404 222 3609
dkgates@kpmg.com

Osamu Matsushita

**Head of Diversified Industrials
KPMG in Japan**
+81 352 188 768
omatsushita@kpmg.com

Mathieu Meyer

Global Head of Automotive
+49 711 9060 41730
mathieumeyer@kpmg.com

Marty Phillips

**Global Head of Management
Consulting for Diversified Industrials**
+1 678 525 8422
mwphillips@kpmg.com

Ken Seel

Global Head of Conglomerates
+1 203 406 8526
kseel@kpmg.com

Joerg Strater

**Global Head of Tax for
Diversified Industrials**
+49 211 475 8381
jstrater@kpmg.com

Additional contributors:

Robert H Barrett

**Managing Director, Advisory
KPMG in the US**
+1 480 459 3535
rhbarrett@kpmg.com

Carlo Ciaramitaro

**Canadian and Americas
R&D Tax Incentives Leader
KPMG in Canada**
+1 519 251 3522
cciarmitaro@kpmg.ca

Stephen Cooper

**Partner, Head of Diversified
Industrials and Automotive
KPMG in the UK**
+44 20 73118838
stephen.cooper@kpmg.co.uk

Amit Gupta

**Partner, Advisory,
Management Consulting
KPMG in the US**
+1 847 274 4533
agupta10@kpmg.com

Loek Helderman

**KPMG Head of Global Tax Efficient
Supply Chain Management
KPMG in the Netherlands**
+312 06 56 1415
helderman.loek@kpmg.nl

Charles Kriek

**Partner in Charge, Audit
KPMG in Brazil**
+55 112 183 3102
ckriek@kpmg.com.br

Richard Rekhy

**Chief Executive Officer
KPMG in India**
+91 124 307 4303
rrekhy@kpmg.com

Dr. Alexander Riedel

**Partner, Advisory
Performance & Technology
KPMG in Germany**
+49 89 9282 1210
ariedel@kpmg.com

Mina Sekiguchi

**Associate Partner, Business
Strategy and Development
KPMG in Japan**
+813 32 667 007
mina.sekiguchi@jp.kpmg.com

Michele Hendricks

**Global Executive for
Diversified Industrials
KPMG in the US**
+1 203 406 8071
mhhendricks@kpmg.com

Martha Collyer

**Senior Marketing Manager
KPMG in Canada**
+1 416 777 3505
mcollyer@kpmg.ca

kpmg.com/socialmedia



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