BAIRD

2016–2017

Global Industrial Report

Navigating Complexity in an Uncertain World

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Reliable Perspective in an Unpredictable World

2016–2017
Global Industrial Report

A LETTER FROM JON LANGENFELD

As new economies and markets have emerged, the evolving global environment has presented many opportunities for industrial companies over the past several decades. But more recently, and with increasing frequency, the dynamic nature of our increasingly interconnected world has created challenges – many of them difficult to foresee.

From our 1919 origins as a broker headquartered in the center of the U.S. Industrial Belt, Baird has not only closely watched but participated in the global growth and transformation of leading companies. And as different as that world looks today from our offices on three continents, our perspective remains just as relevant and dependable because of our long-term commitment to the sector, the breadth of our experiences and the strength of our relationships.

Baird's annual Global Industrial Conference has demonstrated the advantages of these attributes to increasing numbers of attendees for more than 45 years. And we believe this 2016–2017 Global Industrial Report helps illustrate why Baird has remained a constant for quality companies, their leaders and their investors in an increasingly unpredictable world.

Jon A. Langenfeld

Institutional
Equities & Research

Global
Investment Banking

Baird Capital

Controlling the Controllable

Executive Perspectives on Planning and Risk in an Unpredictable Global Market

Baird asked a panel of global Industrial company executives and consultants to discuss the new challenges of operating in a more interconnected world. All agreed that change is a constant and that agility, adaptability and flexibility have become absolutely necessary to success.

MODERATED BY
ALLEN ROOT

Long at the forefront of globalization, Industrial companies have significantly broadened their horizons in terms of production and distribution opportunities. And while the benefits have been considerable, the resulting landscape is also more interconnected and interdependent – a place where a natural disaster, a terrorist attack or even a surprising political outcome in one location can impact operations around the globe.

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> Who anywhere two years ago would have predicted that oil would be down in the $40 range from well over $100? How do you crystal ball that in a traditional Michael Porter Five Forces analysis?

ALLEN ROOT {BAIRD}
HOW DOES THE EVER-PRESENT REALITY OF UNPREDICTABLE GLOBAL MARKET EVENTS IMPACT THE WAY INDUSTRIAL COMPANIES APPROACH STRATEGIC PLANNING AND INNOVATION?

MAC MOORE

As I think back on almost 40 years in industrial businesses, the theme that comes to mind over and over is that, as an industry, we so often seem to get tripped up by concentration and lack of diversification. I think that we all need to do a much better job of assessing risk in our businesses – geographic risk, market segment risk, vendor risk or specific customer risk. We're all more vulnerable to global forces that have become more pronounced, including supply chain disruptions and huge swings in commodity pricing. This is true for even the smallest businesses. I believe we all have to think more proactively about what could happen. Things that ten years ago seemed to be remote possibilities are more prevalent and more real.

Risk management was completely different just a few decades ago. We've taken such a cold shower in oil and gas the past year. Who anywhere two years ago would have predicted that oil would be down in the $40 range from well over $100? How do you crystal ball that in a traditional Michael Porter Five Forces analysis with your key executives? Now we're taking a deeper dive and more thorough look at risk analysis. And perhaps we're being a little more pessimistic, thinking more about Plans B and C. I think we're devoting more intellectual rigor to the process. That sounds kind of stuffy, but I mean it. I think we're really vetting our options a little more deeply. We're modeling things perhaps more carefully. So implicit in this is more analysis, more discussion, more thoroughness.

NICK SANTHANAM

Most companies realize they have to do things differently in this market. How quickly they react and adjust their strategic planning is an entire spectrum.

I think the number one thing companies need to do better is agility. If you compare where we are now to the Industrial Revolution, where the sector took off, I would say disruption is happening 10 times faster. It's taken us about 10–15 years to double GDP versus 150 years from the Industrial Revolution. We're at 300 times the scale if you consider that the U.K. had about 9 million people at the beginning of the Industrial Revolution compared with 3 billion people currently in all emerging markets. All of this leads to a pace of change today that is 3,000 times greater. Today's companies need to move fast – they need to know when a change is really happening, identify the type of change, figure out their play, determine how to act and actually act. The speed of response has to be significantly higher. Some companies are definitely doing it well, but many are not.

> Don't dig your heels in. When it's wrong, it's wrong. If you look for that last spreadsheet, that last ROI, that last survey, you'll never get anything done.

DAVID HUBERFIELD

In addition to my current role at IGP, I previously ran TASI for the firm and I've had a number of executive and operational roles at many industrial companies over the years. IGP owned TASI through a significant growth spurt and one of the ingredients was agility in how we planned and executed. There are several things I recommend managers do to encourage agility in planning. First – involve as many people as you can. The more people you have who understand the message, the quicker they'll execute on the message, changes to the message and changes to the strategy. Second – keep it simple. Third – keep your planning documents short, brief and to the point. Discuss strategy all the time so that it's not a once-a-year exercise. Lastly – don't dig your heels in. When it's wrong, it's wrong. If you look for that last spreadsheet, that last ROI, that last survey, you'll never get anything done. I think it's a matter of finding the right balance of intuition, fact and analysis that gets you to the objective. But when it's not working or one of your markets is clearly in some kind of more-than-short-term decline, then course-correct. These points were always central to our ability to navigate global markets.

MAC MOORE

It's not just the agility but the willingness to change course when necessary. A favorite idea is I believe the products have a right to die and that we need to be looking at our product portfolio in terms of this notion, questioning whether we really need to be quite as extensive.

I feel it's my job to get out and communicate, communicate, communicate to our team and articulate the implications of emerging trends for our business. I think it's a huge challenge, and there are things we can and should be doing better. I want to make sure that our managers are focused globally and that they're motivated to work as one focused global organization. I tell them to be actively watching for emerging trends, to be willing to revisit some of their strategic assumptions more often.

NICK SANTHANAM

Also, how much a particular change impacts your business really depends on where you sit in the value chain. I lead McKinsey's Industrial practice, and we work with clients that make semiconductor chips and electronic components all the way up to the companies that make a range of full systems such as industrial motors, kitchen equipment and jet engines. We've found that those closest to the consumer see a bigger impact from major changes. Whether it is the rapid urbanization in emerging countries like China and India, the oil boom and bust, or the overall "new normal" of a shared economy in an increasingly global environment, they are feeling the impact of uncertainty more. Across the value chain from semiconductor and component companies to full systems, we find roughly a quarter of companies are well-geared to survive these disruptions and are "secure," so to speak.

Many of the companies that are doing well are leveraging two common tools to make their strategic planning process more agile. First, they're managing strategic planning as a journey instead of a once-a-year exercise. This typically entails continually re-examining the critical assumptions embedded in their business models for resilience to unthinkable events, doing shorter and quicker loops between setting the strategy, driving the strategic planning, moving to AOP/budgeting and then going back to reassess the strategy. They're also getting better at scenario planning – articulating possible futures and defining strategic options in the face of uncertainty. By employing these tools, these companies are able to better prepare their organizations for multiple plausible outcomes.

> "I believe the products have a right to die and we need to be looking at our product portfolio in terms of this notion."

> "Today the interdependence means events in one geography affect the others quickly, so the adaptability of your organization is key."

ALLEN ROOT
HOW DOES THE INHERENT UNPREDICTABILITY OF THE GLOBAL LANDSCAPE IMPACT OPERATIONS?

DAVID HUBERFIELD
Global landscapes have always been unpredictable, but we are way more interconnected today. It used to be global diversity brought strategic offsets – one geography up, another down. Today the interdependence means events in one geography affect others quickly, so the adaptability of your organization is key. To get there, I emphasize broad-based communications, posting information everywhere so the whole team can optimize adaptability and nimbleness. Boards have become more engaged tactically and strategically with their management teams.

In addition to all of this, I think timelines have just compressed. Customers who were quite happy to wait a year for something like a full-scale system solution a year ago now want it in six or nine months. Some want it in weeks, and you go, "I've never done this in weeks. I've done this in six months or nine months." I think what people that I've worked with have come to believe is you can do almost anything you want if you set your mind to it. While you might think it's not possible as a steady diet to run an organization at this 120% level, you can do it. It requires a kind of philosophy change and almost a cultural change. The industrial world probably doesn't move at this pace naturally, but your customers do, so you have to.

MAC MOORE
It is becoming so much more difficult to plan inventory and maintain delivery performance. The just-in-time order fulfillment model is a wonderful concept in a steady or rising economy. But the reality is that we are all better capital managers today across the supply chain. This implies a very conservative approach to sales forecasting and inventory retention. So for industrial businesses with longer lead times like Twin Disc, there is a fundamental disconnect in this environment between efficient working capital management and reliable order fulfillment.

ALLEN ROOT
SOME GLOBAL MARKET CATALYSTS OCCUR QUICKLY AND WITHOUT MUCH WARNING. CAN YOU THINK OF EXAMPLES THAT HAVE IMPACTED THE COMPANIES YOU'VE WORKED FOR OR WITH IN RECENT YEARS? HOW DID THEY RESPOND AND WHAT DID YOU LEARN?

MAC MOORE
While it can be a double-edge sword, Twin Disc is fortunate to be fairly well-established internationally in terms of both product distribution and manufacturing. That kind of provides a natural strategic hedge against some of these global market events.

That said, there were two events in particular that really had a significant and adverse impact on our business. One was the dramatic decline in oil pricing, and the second was an unanticipated bankruptcy at one of our key suppliers. Our response to the vendor closure was timely and as effective as it could be: We reduced expenses, we looked at other vendors. But it really was a hard lesson in the reality that there aren't a lot of short-term planning options, and that there doesn't seem to be a neat device or a traditional planning tool when you face a catastrophic market decline or a critical vendor bankruptcy. So, in both cases we found ourselves overly concentrated. That's part of why we're more focused on risk analysis and Plan B and C contingency planning.

NICK SANTHANAM
All companies have a strategy. Top-quartile companies have a dynamic reprioritization approach to strategy. They realize that the "playbook" is not the Bible – it is not immune to challenge. You have to be able to recognize when it's time to do something else.

A great example of this is if you go back to 2011, when the tsunami hit Japan. Japan is the world's third-largest economy, and a lot of the Industrial supply chain sits there. After the tsunami, a number of supply chain footprint questions were raised. "Do we need to have multiple suppliers?" "Do we need to get vertical integration?" "What's our risk mitigation plan?"

What I found very interesting is some companies said, "Look, the tsunami is the kind of event that happens infrequently, and I'm not going to do something differently in the aftermath". Others fixed their "Japan supply chain issues." Best-in-class companies implemented much better, more agile planning for risk – how they identify, manage and mitigate risk. Right now, we are seeing it in the aftermath of changes in China and Brexit. The speed of response is significantly different between companies that are doing something about these events versus those that are simply choosing to live with the changes or just reacting to them.

> My view has been that it's our job as managers of businesses to be successful with whatever deck of cards we're dealt, in whatever environment we're in.

DAVID HUBERFIELD

Clearly, the number one change that we've had to take advantage of and participate in is globalization. In my past CEO role and board work, there have always been exogenous events. We had the Asia crisis in 1998. We hyperventilated about Greece. For a long time we had mini-invasions involving Russia and Ukraine and certainly Crimea and Georgia. Most recently, Brexit emerged as a major economic and political event.

My view has been that it's our job as managers of businesses to be successful with whatever deck of cards we're dealt, in whatever environment we're in. You don't retreat under the bedsheets just because there are these external events that knock you off course. I think it's really important to take the long view. The change, operationally, has been that businesses just have to get better and better at strategy and execution.

The components of those processes seem to be more finely tuned than ever before – things like speed, agility, adaptability and a little humility to know when you've screwed it up and got it wrong. All of that should enable you to focus with customers and try to discern the drivers that create opportunity in the midst of these external events.

ALLEN ROOT

WHICH MACRO TRENDS ARE YOU KEEPING AN EYE ON TODAY AND HOW DO YOU SEE THEM UNFOLDING OVER TIME?

MAC MOORE

Our products are fairly complex, and we're very dependent on skilled labor and machining. We're going to be staying very close to shop floor technology and labor market trends.

For example, people ask if we're insourcing or outsourcing more and the answer is both. That's because some past assumptions about both are upside-down today. A company that decides to take advantage of lower labor costs in one

market may not find the opportunity quite as compelling when analyzed in the full context of product delivery cost. Unexpected logistics costs, overruns in packaging costs, delays in the supply chain – sometimes, moving operations back to the U.S. can actually offset labor costs. That's part of why I think it's so important to go back and revisit your previous assumptions.

DAVID HUBERFIELD

I worry about trade barriers and tariffs that I think work to the disadvantage of companies that I've been involved in as well as companies that export a lot. My own view is that the global markets need to stay open. I would think most people in the C-suite or close to it want that. It's good for us.

From an operating perspective, I think it's crucial to continue the talent conversation. The one thing I regret when I look back – my "What would you do differently?" moment – is about talent acquisition in the Industrial marketplace. If I ever encounter something even remotely close to 2009, which I hope never happens to all of us again, I would think more deeply about talent retention. I probably wouldn't have made some of those balance-sheet expense decisions and trimmed my technical talent pool so far. It is so difficult to build top-notch management teams and have them be cohesive throughout your organization and around the world.

There's a critical lack of top-notch engineering talent in the United States. The talent gap has certainly widened here, particularly on the software and electrical engineering side. Customers are shrinking their supply bases and want more from you as a supplier as automation and the systematization of solutions take hold. It's a tough predicament, because you're trying to run profitable businesses, and yet you need enough of the right people to get the job done quickly because customers are much more demanding. If you're quicker, you win business. Hire the best talent. Don't decide you're going to hire a suboptimal person and save yourself a few thousand a year. Hire the best because, at the end of the day, the best will pay for themselves.

> Don't decide you're going to hire a suboptimal person and save yourself a few thousand a year. Hire the best because, at the end of the day, the best will pay for themselves.

NICK SANTHANAM

If you look at the last 15 years, the Industrial sector has been the third best-performing sector in terms of economic profits, generating roughly $420 billion in delta between ROIC and WACC times the invested capital. However, these 15 years have not been homogeneous. The first phase of 2001–2007 was a period of rapid growth, with the industry growing at 9.7% CAGR and creating $120 billion of economic profit. The second phase from 2008–2010 was a period of slump and recovery, when the industry generated about $85 billion in economic profits. The last phase from 2011–2015 was a period of flatlining, when the industry generated $215 billion of economic profits but growth largely disappeared as the growth rate flatlined at -2.2% CAGR.

How will the next five years look? We believe that will be dictated by trends and subtrends in six areas: demographic shifts, geographic regions, social behavior, geopolitical and regulatory events, technology and the end markets.

We believe trends in technology and social behavior will drive the biggest disruption in the Industrial sector. For example, technology infrastructure – storage, computers and networks – is becoming cheap and even "free," which is leading to a proliferation of end devices. This in turn is driving an exponential increase in data generation, something we have never seen before. The monetization of this data will lead to different behavior and different business models, again things we have not seen before. The historical monetization model of "one-to-one," meaning I sell you something and you pay me, is being replaced by a "one-to-n" model, meaning I sell you something, and then n different people pay me. The Industrial sector hasn't figured out how to make this work yet. The puzzle of setting up this monetization model is an interesting challenge for the sector.

New companies and new segments will rise, and a bunch of current segments, product lines and companies, if they do not change, will become outdated. This will lead to more micro-cycles in the future – more booms and more busts, which will happen quickly. You will have more volatility, where certain segments are going to grow really fast while others will drop very quickly. Companies will need to be agile to dynamically reprioritize resources, bandwidth and mind share so they can capitalize when there is an opportunity. When there's no opportunity, they need to be able to say, "Okay, fine. Time to move on."

In the past, I would have said trend is your friend, but I would say going forward speed is your friend. Efficient and effective decision-making is critical. The businesses that are able to move faster will be able to capture a bigger portion of the profit. There's no question about it. It's true across the board, all the way from strategy, to strategic planning, and to developing the organization's DNA.

"In the past I would have said trend is your friend, but I would say going forward speed is your friend. Efficient and effective decision-making is critical."

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Global M&A: A Rewarding Tool in Uncertain Times

Acquiring Attractive Industrial Targets Can Be Costly but Strategically Important

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In the new normal of global economic uncertainty, industrial corporates and investors are searching for tools to help realize growth and manage risk. M&A is proving to be a critical, but increasingly expensive, means to that end. But despite high prices, buyers are generally being rewarded for strategic investments that increase organic growth, are accretive to margins and bring new technologies or provide access to new markets.

A CONFLUENCE OF UNPRECEDENTED FACTORS

The backdrop to the current environment is a confluence of both macro and sector dynamics. The world is experiencing a prolonged period of lackluster economic growth. As a consequence, central banks around the world have embarked on an aggressive and prolonged period of monetary easing, resulting in historically low yields.

Given the absence of acceptable returns in most asset classes, investors have increasingly shifted to equity markets. As a result, the DJIA, S&P 500 and NASDAQ indices are all up, north of 10% over the past year, and are regularly setting new high-water marks.

In addition to these macro trends, there are industrial sector dynamics at play, starting with performance imbalance across different Industrial subsectors. While certain subsectors are experiencing healthy growth, others are flat or declining. Many consumer-related end markets, including construction, automotive, commercial aerospace, healthcare, food and beverage and water/environmental, are doing quite well. On the other hand, end markets that are linked to commodities, such as agriculture, mining, chemicals and oil & gas, are steadying but still relatively weak.

In addition, some of the end markets that are currently performing well have tended to be cyclical, and investors are increasingly concerned about the sustainability of performance given that we are in the seventh year of the current economic recovery. As a result, fewer targets are well-positioned for an exit, and only those with a strong "story" are being taken to market.

Finally, more capital is chasing fewer assets available for sale. With an all-time record of $1.7 trillion in cash on U.S. corporate balance sheets, over $500 billion of private equity capital on the sidelines, wide-open credit markets and large emerging pools of capital from markets like China, the M&A market is extremely competitive. In addition, investors are underwriting transactions to lower returns. Corporate buyers must acquire growth to meet shareholder expectations, and many private equity firms risk losing their unused capital. The result is an average industrial M&A transaction multiple of approximately 11× EBITDA for deals valued from $50 million to $1 billion year-to-date.

DIAMONDS IN THE ROUGH

Despite historically high valuations, M&A transactions are providing the catalyst for growth. Of particular focus for many buyers are those targets that can enhance their organic growth profiles, improve their margin structures and provide a source of stable, recurring revenue. Several major areas of interest have emerged that provide some or all of these positive attributes.

Enhanced efficiency demands. With intensifying global competition and sustained low-growth rates, many industries are investing heavily in technologies that can improve their bottom line. Often, the most competitive industries with the thinnest margins – such as retailing, textile manufacturing and transportation – are in most need of tools to drive efficiency. As a result, automation systems and robotics are being heavily deployed in many end-market applications, including hospital pharmacies, precision agriculture, manufacturing, warehousing, logistics fleet management and building infrastructure.

Changing consumer preferences and technology disruption. Almost every industry is susceptible to evolving consumer preferences and technological disruption, which is occurring at an accelerated rate. Buyers that identify these trends early and invest in enabling products and services are seeing outsized benefits. Two salient examples are the ongoing shift to e-retailing, which is driving significant investment in automated warehouses, and the development of autonomous or semi-autonomous vehicles, which is spurring unprecedented innovation in the automotive industry.

Increased utilization of software in industrial applications. Software is rapidly becoming a mainstream product for traditional industrial companies and a critical offering for increasing their value proposition and differentiation. With the proliferation of the Industrial Internet of Things, data is rapidly becoming more accessible and usable in a variety of industrial applications, including managing logistics operations, monitoring equipment, optimizing fleets and running service organizations. In addition to enhancing the customer value proposition, software models generally drive high recurring revenues and attractive margins.

A greater focus on aftermarket and complimentary services. Traditional manufacturers increasingly recognize aftermarket service as an attractive offering to increase customer intimacy and drive high-margin, stable, between-purchase revenue. As a result, many industrial companies are acquiring targets that provide consulting, calibration, asset management and repair services. Others are interested in leveraging their technology and end-market experience to acquire companies with complementary services such as testing, inspection monitoring and certification services.

While targets exhibiting these attributes are relatively expensive in the current environment, they can yield highly attractive returns. Indeed, transactions are providing much-needed fuel for growth and innovation and are enhancing shareholder value, making it an exciting time to deploy capital in these and other strategic and rapidly growing segments.

Hype or History in the Making?

Baird Capital's Industrial Solutions Team Considers the Implications of Industry 4.0 on Mid-Market Industrial Businesses

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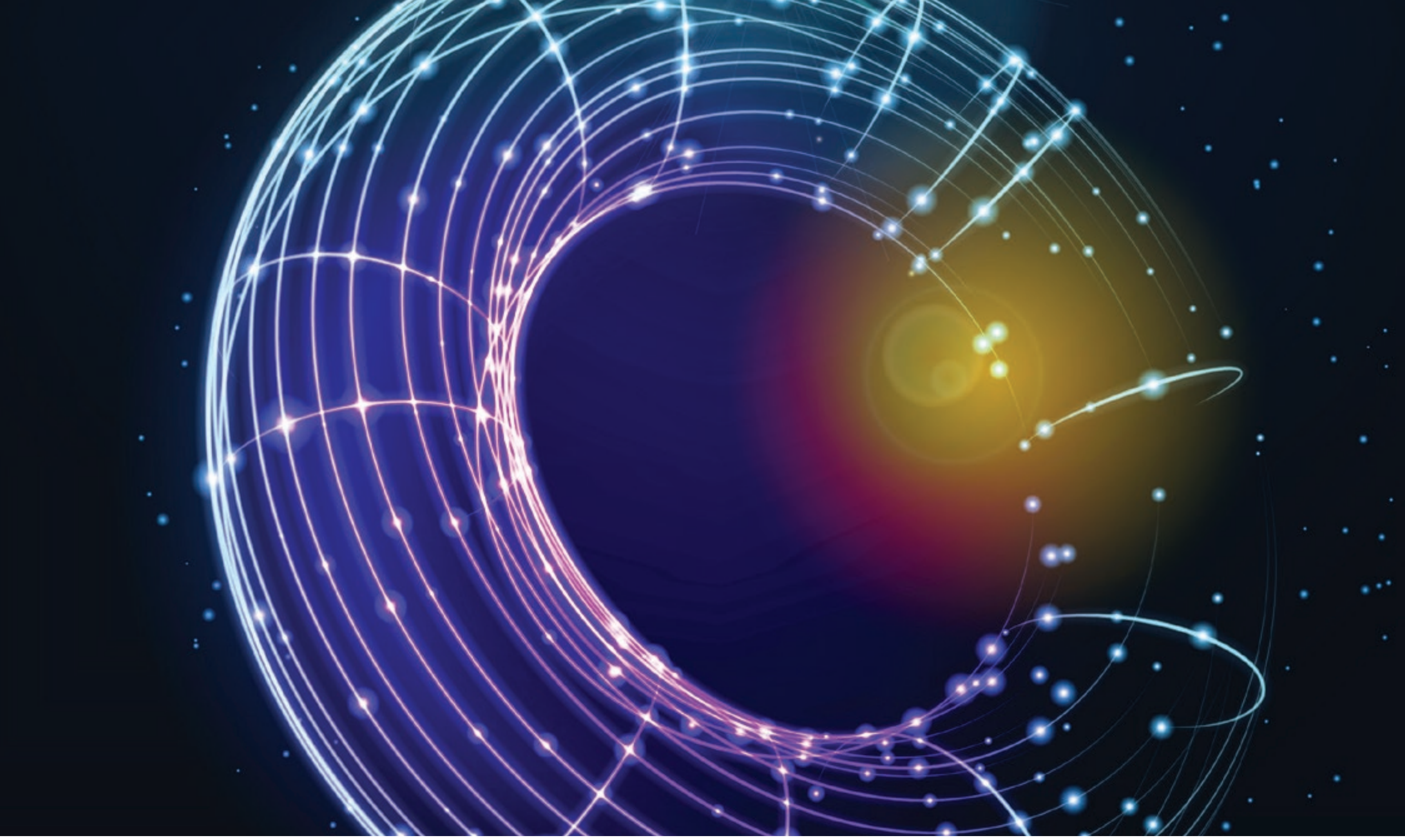
When discussing catalysts for change in today's global industrial marketplace, Industry 4.0 is a term that looms large. This concept encapsulates the end-to-end digitization of the production and sales processes within businesses. It envisages a world in which physical assets talk to each other, sales pull demand through the supply chain and manufacturing and assembly processes are highly automated.

IS IT HERE YET?

In truth, many elements of Industry 4.0 have been present in high-tech manufacturing for a number of years. There are anecdotes about consultants pitching Industry 4.0 concepts to automotive manufacturers only to be told they have been utilizing them for years. But a truly connected digitized industrial supply chain does not yet exist in 2016. The level of integration required to create a fully networked industry requires a number of missing components to come together.

PIECES OF THE PUZZLE

Manufacturing technology, cost and availability. If you know where to look, groundbreaking manufacturing technology is already out there. Manufacturing simulation in "3-D" caves of virtual process and manufacturing lines is already used by aerospace OEMs. A single machine that uses automated inspection to identify damage to an alloy turbine blade, perform high-speed machining to remove the damaged area and replace the missing material using laser cladding technology won an industry award over three years ago. The machine in question could replace several manufacturing cells in a factory or even several subcontractors in a supply chain. Net-shape hot isostatic pressing can already create complex shapes in exotic (and expensive) alloys with less than 10% of the waste of conventional forging and milling techniques. Today these technologies are hard to find and prohibitively expensive, but the savings that could be achieved in manufacturing processes and supply chains will get harder to ignore.



Advanced manufacturing and systems integration capabilities. Many of the skills required to design, plan and implement Industry 4.0 are hard to find today and can only be found in isolation. For this future of manufacturing to become a reality, intellectual capital is needed that stitches together a diverse range of disciplines such as material technology, engineering and design, systems integration, robotics, software, telecoms and ERP. For now, this piece of the puzzle is missing.

Network connectivity. Connectivity remains a barrier for many manufacturers in implementing many aspects of Industry 4.0. Mobile data coverage remains patchy and data speeds vary. Existing manufacturing sites weren't designed with the need for data connectivity in mind. To enable reliable connectivity between different locations, different machines and business systems, we are waiting for the rollout of 5G globally from 2020.

Leading the charge. Large OEMs have the most to gain from the benefits of Industry 4.0, and with larger capex budgets and greater potential opex savings they have been (and will continue to be) first movers. However, many smaller mid-market businesses have already been instrumental in helping the OEMs achieve this, from consultancies and technical service providers to spin-outs from research-led institutions. But for your average mid-market entrepreneur, we are just at the tip of the iceberg in terms of the changes that will impact their businesses. Even in less-structured supply chains outside of automotive and aerospace, shorter product lifecycles and more demanding end customers will drive the need for both increased production flexibility and reduced cost throughout the supply chain, something Industry 4.0 promises to deliver.

OPPORTUNITY OR THREAT?

Industry 4.0 will not happen overnight. The key pieces of the puzzle are not yet in place. There will be trial and error along the way. Progress will be slow, punctuated by meaningful steps forward as the technology, intellectual and integration resources, and data connectivity become available.

Mid-market businesses engaged in the manufacturing of goods face a dilemma as to when to invest – wait for existing capital equipment to reach the end of its useful economic life, or invest early to get ahead of the competition? The risks are inherent – invest in unproven technology and potentially suffer disruption, delays and cost overruns in implementation, with lower-than-forecast savings. Invest too late and risk business failure as the competition is able to lower prices, increase choice and improve customer experience.

In the end, the biggest hurdles for Industry 4.0 for the mid-market will be expertise, capital availability and appetite for risk. The rewards for the bold and the brave who are well-funded and who have access to the right resources could be as dramatic as those achieved in the last Industrial Revolution. Given the challenges and potential rewards, private equity should be able to spur the confidence for middle-market firms to innovate.

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$3.1 billion

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[1]Greenwich Associates U.S. Equity Investors – Small-/Mid-Cap Funds, April 2016. Survey conducted with 96 small-cap and mid-cap fund managers. Rankings for qualitative metrics are based on leading research firms in survey.