How the Internet of Things is Pivoting Manufacturers into Service Providers

written by admin | February 2, 2016
(Triple Pundit – Jennifer Tuohy: 1-27-16) Do you know the name of the company that made your doorbell?

If not, you're pretty typical: Many homeowners make a single purchase from a manufacturer and never return to buy updated models, instead moving on to another vendor or even another product. Industry insiders call it "one and done" – but the age of the smart home is turning this concept on its head.

Nowadays, baked-in Internet connectivity enables everything from your smart thermostat to your smart doorbell to upload new features "over the air." Thanks to the Internet of Things (IoT), one-and-done now means purchasing one product that gets better the longer a consumer has it.

It's a positive new spin on a perennial customer-loyalty problem, but it's one that poses some unique challenges.

Now, manufacturers must plan to continue to work on products, offering improvements and enhancements that can be delivered after the product leaves the loading dock. But this comes with a new responsibility for manufacturers: service and support. Manufacturers will need to be involved in the entire lifecycle of the product, not just its birth. Are they up to the challenge?

The start of a beautiful new relationship

The ability to improve a product after it is in the consumer's hands is the key for manufacturers looking to unlock the promise of IoT. Building sensors and Internet connectivity into a product are just the beginning. What truly makes a product smart is the ability for it to develop intelligence — to learn and improve. It can either do this on its own through learning algorithms, or through after-market manufacturer

input that improves the product with updates based on feedback from sensors and the users.

This new model is a reversal of the consumer-adverse process of making the initial product cheap, then increasing the price of the products needed to keep it functional (think: printers and ink or razors and blades). It hits on two of the core goals businesses should be striving for in today's market space:

1. **Increased profits.** By providing an Internet connection, a manufacturer can reach into a product after it's left the loading dock and fix any issues before they become bigger problems. As any company that has ever dealt with a recall knows, this ability will save millions of dollars. "A big part of the IoT's power comes in its ability to help businesses operate proactively instead of reactively; it essentially addresses problems before they've become problems," wrote Tom Chapman in this post for TriplePundit.

1. **Keeping Customers Happy.** The after-market value IoT can facilitate is almost limitless. By continuously adding value to its products, a manufacturer can transform its relationship with the consumer, creating brand loyalty that will extend to future purchases. For example, Nest Learning Thermostat debuted as a simple smart thermostat in 2011. It learned your routines and programmed itself for you, removing what was once a major pain for consumers.

Four years later, the Nest thermostat is the closest thing a smart home has to sentient brain. A Nest, whether it was bought in 2011 or 2015, can not only control the climate without input from the homeowner, but it can also control compatible lights: turning them on when it senses you are home and off when it senses you are away. It can activate Nest's compatible security camera to record when you leave the house, and shut down the HVAC system when its compatible Nest Protect detector senses smoke or carbon monoxide.

None of these features were a part of the original launch of the product, but now any Nest owner can benefit from them. Nest also works with other manufacturer's products through its Works With Nest program, further extending its value to the consumer.

The new challenge: Service and support

Of course, this possibility of ongoing iteration presents a new challenge for manufacturers: No longer can a company simply manufacture the best doorbell engineering can produce and move on to the next model. The introduction of something changeable to a product, in this case connected "smarts," necessitates a service to go with it. Whether that service is simply support for the product, or whether it develops into an entire ecosystem that includes monthly fees (as Nest does with its cloud-based video recording for the Nest Cam), is a complicated choice. But in either case, the pivot to providing service and support with the product, while initially costly, will reap huge benefits.

For many Kickstarter-born or Silicon Valley startup products, support and the manufacturer go hand-in-hand, but for larger, more established manufacturers with legacy systems to circumnavigate, the pivot to becoming a service company poses a logistical challenge. Putting smarts into your product and then not providing support to back it up will, in the age of online customer reviews and Twitter, ensure a swift and brutal end to a product's lifecycle.

Better for the consumer, better for business

So, what are the benefits? The combination of data received through an IoT product and feedback through the service/support loop is incredibly valuable. After all, data is the currency of the new millennium. How that data is put to use will vary for each product, but first and foremost it can and should be used to inform product development, whether the product is already in the hands of consumers or still to come.

Take the example of Ring's Video Doorbell. The product was originally envisioned as a simple way to remotely communicate with whomever was at your front door. In an interview with TechCrunch, Ring's founder and CEO, Jamie Siminoff, said the company learned from early customers that many were finding strangers coming up to their front doors and ringing the doorbell, then leaving when it was answered. This led the company to pivot from a simple connected doorbell to a full-featured security product, complete with motion alerts and motion-sensing recording, so that the doorbell doesn't even need to be pressed for the video to start recording. That

video is then stored in the cloud, accessible anytime by the user for a monthly service fee.

The iteration didn't end there. Today, customers who purchased a Ring doorbell can have it unlock their front door, too, if they have a compatible smart door lock. Further integrations within the home are planned for Ring, meaning that while a $200 doorbell sounds like an extravagance, its current and future capabilities could one day save your home.

Service as a product

As manufacturers grapple with the changes IoT is bringing to their business, keeping the concept of service and support as a product foremost in the development process will serve them well. As we've seen, the benefit of a closer relationship with the customer will help produce products the consumer wants, driving up profits and minimizing the impact costly manufacturing mistakes have on the planet.

(Jennifer Tuohy is a tech enthusiast who is fascinated with Internet of Things smart products and the future possibilities they hold. She provides interesting insight on what IoT means for manufacturers.)

Manufacturing 4.0 on the Rise

written by admin | February 2, 2016

(Manufacturing Leadership – Jeff Moad: 1-21-16) A year ago, organizers of the massive German industrial trade show *Hannover Fair* released the results of a survey showing that, despite a rising chorus of attention devoted to the topic, *Industry 4.0* was a subject of conversation at only 50% of manufacturers. Keep in mind that many of the respondents to this study were from Germany, where the government embraced and invested in what it calls Industrie 4.0 as part of its High-Tech Strategy 2020 Action Plan in the hope of establishing the country as a leader in

integrated digital industrial technologies.

That led some to note that there was a significant gap among manufacturers between the *attention being paid* to Industry 4.0 (*we call in Manufacturing 4.0)* and *interest in investment*. No big surprise there. Hype around technology-based innovation often outruns reality.

Recently, however, we've begun to notice signs that manufacturers are indeed beginning to take Manufacturing 4.0 much more seriously. In fact, results of a soon-to-be-released Manufacturing Leadership Council survey strongly suggest that, not only are manufacturers internally discussing M4.0, a great many—37%–are already implementing discrete or companywide M4.0-related projects. Twenty-nine percent said they even expect substantially all their production and assembly processes to be digitized within the next five years. That's up from 8% saying those processes are already digitized today.

Forty-eight percent of respondents to the MLC study said the M4.0 notion of digitizing and integrating core processes for the purpose of improving real-time visibility and agility represents nothing less than a new era in manufacturing. Another 44% called it a significant trend.

(Full details of the Manufacturing Leadership Council *Factories of the Future* study will be published in the February issue of the Manufacturing Leadership Journal.)

This was reinforced on a recent Critical Issues roundtable discussion call for Manufacturing Leadership Council Members entitled "Plant Floor Migration Strategies to Manufacturing 4.0." On the call, which featured a presentation by Prof. Dr. Detlef Zuehlke, Founder of Germany's Smart Factory Consortium and a leader in the Industrie 4.0 movement, several manufacturers said their companies are either researching and planning their M4.0 roadmap or actively implementing smart factory technologies.

A top manufacturing executive from a large industrial firm said his company is aggressively educating itself on M4.0 opportunities while assessing the current machine footprint in its factories.

An executive from a large maker of industrial materials, meanwhile, said his company has launched a M4.0 adoption effort. Central to that effort, he said, is training and education for workers and executives intended to help them understand how their roles and their thinking will need to change in a M4.0 era.

A manufacturing executive at a large pharmaceuticals manufacturer said his company is creating a roadmap that will allow it to transition from focusing on smart devices in its plants to entire smart factories. The initial focus, he said, is on strengthening connections between manufacturing execution systems and equipment control systems.

And an executive at a large, diversified industrial company said, after having spent the past two years researching M4.0 and planning for adoption, her company is launching pilot implementations across dozens of plants worldwide.

These manufacturers said the opportunity to reduce operating costs—through improvements such as predictive maintenance and greater equipment utilization—is only part of what's driving their interest in M4.0. Even more important, they said, is the opportunity to become much more agile and responsive to increasingly demanding customers by reducing cycle times, getting new products to market faster, and delivering greater value through smart, software-enabled products.

Indeed, said Dr. Zuehlke, M4.0 represents an opportunity for manufacturers to correct some of the damage that has resulted from a narrow focus on cost reduction over the past few years. That focus has resulted in outsourcing, long lead times, long product lifecycles and, ultimately, compromised customer satisfaction.

"Customers expect to be able to order by mouse click and to receive extremely fast deliver," said Dr. Zuehlke. "So we have to change our production strategy and bring production closer to the customer."

Dr. Zuehlke emphasized that the road to agile, digitized, and smart factory networks will be a long one for most manufacturers. He estimated this will be a five-to-ten-year process, with plenty of challenges along the way. Standards that can support modular, plug-and-play smart M4.0 systems are still incomplete. And, he said, manufacturers will need to think differently to develop new business models that can

take advantage of smart factories and smart products.

Given such challenges and the extended time frame that will be required for widespread adoption, it's certainly possible that manufacturers will, over time, lose their enthusiasm for the concept and that M4.0 will be just another buzzword footnote. (Remember Computer-Integrated Manufacturing?)

But, at least for now, manufacturers' commitment to M4.0 seems to be on the rise.

Governor Wolf Announces Final Phase-Out of Capital Stock and Foreign Franchise Tax

written by admin | February 2, 2016

Governor Tom Wolf today announced the successful January 1 phase-out of Pennsylvania's Capital Stock and Foreign Franchise tax, calling it "an unfair tax on business" that he was committed to eliminating.

"As I noted in my budget address, Pennsylvania's economic prosperity has long been hobbled by an outdated tax structure that fails to incentivize job growth," Governor Wolf said. "It was well past time for Pennsylvania to finally remove the Capital Stock and Foreign Franchise tax from the books."

The Capital Stock and Foreign Franchise tax dates to 1844. Its phase-out had been proposed as far back as 15 years ago, but the elimination had been delayed by previous administrations.

These taxes were imposed on corporations with capital stock, joint-stock associations, limited liability companies, business trusts, and other companies doing business within Pennsylvania. Domestic corporations were subject to the capital

stock tax, while foreign corporations are subject to the foreign franchise tax on capital stock apportioned to Pennsylvania.

“I am committed to fostering a business climate that encourages job creation by creating a tax structure that is fair to businesses and taxpayers,” Governor Wolf said.

The Pennsylvania Department of Revenue noted that the elimination of the Capital Stock and Foreign Franchise tax means that many business types, such as S corporations, LLCs taxed as pass-through entities, and business trusts will be filing their final corporation tax returns for 2015. These returns should be marked as final returns. More information will be available on the department’s website at www.revenue.pa.gov.

Media Opportunities: Call for Pitches

written by admin | February 2, 2016

DCED is proud to relaunch our proactive media pitching initiative by sharing a brand-new editorial calendar for top site selection publications read by site consultants and business leaders across the country.

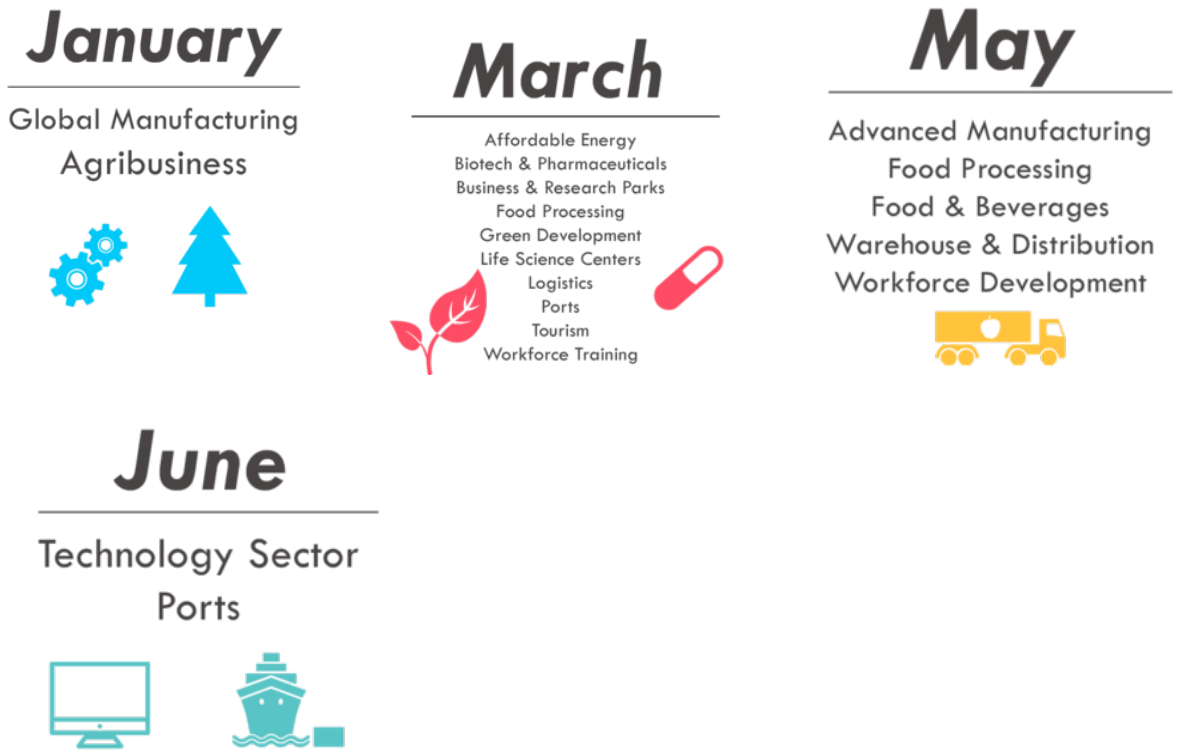
Our team will write and send the pitch to our media contacts for consideration. While we can’t guarantee that all pitches will be picked up, we can make sure to share the good ideas you have to offer.

What we look for in a pitch idea:

- A recent, compellinig, Pennsylvania-centric story about a community, a company, or industry in your region
- A point of contact willing to speak about their story

And that's it!

We're collecting pitches on the following topics:



Have a pitch idea?

If you have an idea for a media pitch, please contact Jenna Lefever by email or 717-231-5334 with your ideas.

Worried about forgetting? Don't be! DCED will send reminders in March, May, and June, too. If you don't have a story idea right now, DCED will take them any time inspiration strikes.

2016 Shale Gas Innovation Contest

written by admin | February 2, 2016

Put Down Your Shovels and Enter the 5th Annual 2016 Shale Gas Innovation Contest – Applications due by Midnight, Feb 1st!

STATE COLLEGE, PA – The snowstorm is over! Now it's time for innovators in Pennsylvania and West Virginia to complete their applications to enter the **5th Annual Shale Gas Innovation Contest!** If you are developing or recently commercialized a new product or service that has applicability to any aspect of the O&G industry, and you're located in one of these two states you should be entering the contest. The contest, sponsored by the Ben Franklin Shale Gas Innovation and Commercialization Center (www.sgicc.org) offers a total of **$80,000 in cash prizes**.

Any new technology that could be employed along the entire O&G industry value chain is of interest, including ancillary technologies like novel coatings or chemicals, sensors, IT management concepts, and EH&S focused concepts. A simple online application can be found at http://www.sgicc.org/2016-shale-gas-innovation-contest.html.

Appalachian Drilling Services accepts Winner's Check at 2015 Finals Event. Pictured are Bill Hall, SGICC Director, Seth Martin, President & CEO, and Trent Muthler, VP Sales of ADS, and Jennifer Leinbach, PA DCED Office of Tech & Innovation

Applicants chosen as Finalists will gain exposure to investors, potential partners,

and industry sponsors at the **May 18th, 2016 Finals Event** which will be held at the Hilton Garden Inn in Southpointe, PA. Mark your calendars now and plan to attend this **FREE EVENT** which will also include a poster session highlighting promising technologies under development at regional universities and research centers.

Finalists will be chosen by a panel of industry experts. The contest is open to small businesses, researchers, or entrepreneurs in Pennsylvania or West Virginia. To review the eligibility requirements and download an application, visit www.sgicc.org and click on the **2016 Shale Gas Innovation Contest** tab. **Deadline to enter is 11:59PM on February 1st, 2016.** For questions regarding eligibility or for any other questions, contact Bill Hall at either 814-933-8203 or billhall@psu.edu.

The Pay Premium for Manufacturing Workers as Measured by Federal Statistics

written by admin | February 2, 2016

Historically, manufacturing jobs have offered relatively high pay, but there is not a consensus on the size of the pay premium for manufacturing jobs relative to the economy as a whole or even whether a premium continues to exist.

This report calculates and compares the average pay of manufacturing workers and the average pay of workers overall using 10 federal datasets, each of which allows us to calculate and compare the average pay of manufacturing workers and the average pay of workers overall.

Read more…

The State of Manufacturing Technology in 2016… and Beyond

written by admin | February 2, 2016

New technologies are changing the economies of scale so that large- and small-scale value chains can be successful.

(IW – Kimberly Knickle: 1-8-16) As an industry, manufacturing is "hot." Regions are creating manufacturing initiatives, countries are creating policies to lure manufacturing back and prepare the next generation of talent, maker fairs show entrepreneurs and small-scale artisans how they too can design and manufacture their own products, what manufacturers sell goes well beyond the 100-year-old recipe and the mechanical drawings, and new technologies are changing the economies of scale so that large- and small-scale value chains can be successful.

Worldwide manufacturers will spend an estimated $323 billion on external IT expenditures, according to IDC's Pivot Table: Worldwide Manufacturing IT Spending Guide, Version 2, 2013–2018. All of this change means that IT is increasingly an integral part of manufacturing's success and we're on our way to a digital transformation.

Our predictions span topics that are relevant across the entire company, in the plant operations, engineering and R&D, supply chain planning and execution, and service delivery. Key themes relate to customer engagement and customer service, supply chain modernization to support evolving market requirements and manufacturers' "need for speed," the fundamental nature of innovation in processes, products and services, and the fact is it isn't enough just to have technology—companies must work to create value from their investments and have the right talent. And most importantly, the rapid adoption of new technologies and innovation accelerators is changing business models.

I’d like to set the stage with some background, essentially a few of the drivers or expectations behind manufacturers’ business priorities, IT initiatives and the predictions we share below. Our first driver is digital business transformation (DX) (see graphic at the top of the page) and the fact that manufacturers are applying and must apply third-platform technologies and innovation accelerators to enable DX. In our graphic, you can see the core technologies that includes, from Big Data and analytics to next generation security. For manufacturers, DX is changing the way manufacturers design, make and deliver products and services, as well as how they define those products and services.

Our second key driver is cyber-IQ, combining technologies such as the Internet of Things (IoT) and cognitive with massive datasets and advanced analytics and improving the way people and machines interact. In the manufacturing industry, this impacts everyday work and processes in our organizations as well as connections to suppliers and customers.

A couple of our drivers relate to manufacturers’ dynamic business environment, including the way geographic regions increase competition, add customer complexity and operating challenges. Regional variations above and beyond cost will continue to factor into many manufacturing decisions—for example, which markets are emerging, where the best talent is located, and which factors are most relevant when selecting a new location for a plant.

Similarly, change in the value chain is also a factor in our predictions. Regardless of how vertically integrated manufacturers are, they’ve always recognized the success of their products in the market is based on their ability to cooperate and collaborate as a network. In some manufacturing industry segments, OEMs are increasingly relying on Tier 1 or even Tier 2 suppliers for innovation or cost savings, with mixed results.

Similarly, manufacturers across all industry segments are putting more information and influence in the hands of their customers. This elevates the requirement for collaboration, communication and coordination in a secure, organized and resilient manner.

Two of our drivers are about key assets—information assets and the workforce. IDC

estimates the digital universe is growing at 40% per year, and will reach 44ZB, or 44 trillion gigabytes by 2020. The challenge is to exploit information as an asset that can fuel digital transformation—to create new efficiencies or generate new revenue streams. Information must be usable for analysis and in turn analyzed; this will provide manufacturers with visibility into the actual product performance and create a foundation for continuous improvement and new products and services.

In the workforce, manufacturers have long-time, experienced workers close to retirement and a new generation of tech-savvy workers; knowledge is leaving the organization, and new ways of working are entering the organization. There are an increasing number of manufacturers without the talent and workers they need in their factories, supply chains, engineering, and research and development. As a result, manufacturers are embedding tech into everyday work life, to help their employees do their jobs—manage their operations, design products and develop new intellectual property from anywhere in the world and more easily access critical work-related information from anywhere.

And our final driver is about business-relevant security, spanning cyber and physical security across IT and OT (operations technology). In addition to securing data centers, networks, transactional systems, customer data and engineering designs, the convergence of IT and OT and the addition of sensor data on connected assets, products and supply chains are changing the security roadmap. An integrated approach to security will also account for sensors, supervisory control and data acquisition (SCADA), GIS, GPS, data historians. Really a mix of IT and OT, or a mix of what's traditionally on the network and what's just getting onto the network.

Top 10 Manufacturing Predictions for 2016

With that introduction, let me share our predictions for 2016:

1. The Impact of Customer Centricity: By the end of 2017, those manufacturers that have leveraged customer-centricity investments will gain market share growth in the range of 2-3 percentage points.
2. Global Standards for Global Manufacturers: In 2016, 90% of manufacturers will impose their global standards on all operations, including outsourced operations and suppliers, to decrease risk and increase market opportunities.

3. Value Realization: By the end of 2016, 65% of manufacturers will have metrics in place to evaluate and drive pervasive changes in the workplace with their new technology investments.
4. Building on IoT-enabled Products and Processes. By 2019, 75% of manufacturing value chains will undergo an operating model transformation with digitally connected processes that improve responsiveness and productivity by 15%.
5: Redefining Modern Supply Chain Logistics. By 2019, 50% of manufacturers will have modernized their logistics network to leverage 3-D printing, robotics and cognitive computing to support innovative postponement strategies.
6: The Decline of Short-Term Forecasting. By the end of 2019, enterprise-wide improvements in resiliency and visibility will render short-term forecasting moot for 50% of all consumer products manufacturers and 25% of all others.
7: Enterprise Quality via the Product Innovation Platform. By 2018, 60% of top 100 global manufacturers will be using a product innovation platform approach to drive enterprise quality throughout the product and service lifecycles.
8: The Digital Twin. By 2017, 40% of large manufacturers will use virtual simulation to model their products, manufacturing processes, and service delivery to optimize product and service innovation.
9: Smart Manufacturing with Cloud, Mobile, and Big Data and Analytics. By the end of 2017, 50% of manufacturers will exploit the synergy of cloud, mobility, and advanced analytics to facilitate innovative, integrated ways of working on the shop floor.
10: IT Transformation for Digitally Executed Manufacturing. In 2016, 20% of manufacturers will begin to break down organizational silos, reshape IT portfolios, and import new IT talent in the plant for digitally executed manufacturing.

New technologies and enhancements are necessary to achieve the digital transformation required for the next generation of manufacturing. Manufacturers must review their current application portfolio; modernize processes in the back office and the plant, and in all aspects of the value chain upstream and downstream; and upgrade their decision-making capabilities.

Consider the following to ensure you maximize the value from current and future technology investments:

• Help your IT talent learn new technologies and better understand the needs of their business customers.
• Ensure that IT and line of business are collaborating as true partners in the selection and implementation of new technology.
• Consider how your investments in IT and operational technologies can lead to business transformation, not just incremental improvements.
• Look to your employees and customers for innovative ideas for the use of new technology and best practices in terms of implementation and use.
• Work with partners to accelerate your IT capabilities and serve the line of business. As you embed more technology in how you operate, external resources and expertise can help you move quickly and effectively.

2016 promises to be an exciting year for those manufacturers that can move forward on their digital transformation journey.
(Kimberly Knickle is research vice president of IDC Manufacturing Insights.)

Outsourcing Manufacturing: A 20/20 view

written by admin | February 2, 2016
(Supply Chain Management Review — Peerless Research Group: 1-11-16) Outsourcing Manufacturing is becoming a well-established approach for companies that want to strategically manage materials in today's fast-paced business environment.

While feedback from respondents was varied, it's clear that outsourcing is here to stay. Even with the current trends of reshoring and bringing manufacturing in-house, outsourcing remains a key strategy for most firms. While they may tactically "reshuffle" or rebalance in-house vs. outsourced manufacturing, there does not appear to be a wholesale move away from reliance on outsourcing.

Supply Chain Visibility as an Equalizer

Outsourcing is by no means a large company phenomenon. Technology advances have leveled the playing field, bringing benefits to small, midmarket, and large companies alike. The major drivers of outsourced manufacturing for smaller firms include access to expertise, while midmarket companies typically benefit from increased margins.

For companies of all sizes, and across all industries, outsourced manufacturing works best when brand owners/original equipment manufacturers (OEM) have broad visibility into and the ability to share forecasts, orders, and inventory across partners in the entire supply chain. With this visibility, companies can ensure continuity of supply, jointly resolve disruptions when problems occur, and gain access to expanded revenue opportunities.

Improved visibility also enables better risk management of inventory liability and a host of opportunities for process improvement and cost reduction. In return, manufacturers see various benefits from outsourcing to reliable manufacturing and logistics partners, including cost and asset reductions, access to skilled labor, third-party design, and manufacturing expertise, along with the ability to quickly scale production up or down.

An outsourcing strategy also allows brand owners to focus on their core competencies of design, brand management, and sales, while relying on partners to manage manufacturing and distribution.

But has the promise of outsourcing truly been fulfilled over the past two decades?

To find out, Peerless Research Group (PRG), on behalf of Supply Chain Management Review and E2open, conducted a survey of 94 top supply chain executives in companies with $250 million or more in annual revenues.

The survey was commissioned to assess the current state and future plans for outsourcing manufacturing.

Researchers sought to better understand:

• how companies outsource their tasks;
• what the outsourcing forecasts look like for the next couple of years;
• what level of visibility there is over the end-to-end process; and
• how technology is being used to manage the process.

In assessing today's typical manufacturing environment, business-to-business (B2B) information sharing remains largely manual point-to- point communication of important information such as forecast and inventory positions. This serial communication approach often leads to poor visibility for shipments and material stock and in turn prevents manufacturers from realizing the full benefits of their outsourced strategy.

By leveraging outsourced manufacturing and complementing it with visibility platforms, companies can increase the productivity of their partners' external operations by more effectively negotiating, working, and collaborating with their business partners. With partner visibility and collaboration working in unison, additional benefits include faster time-to-market of new products with higher quality.

Key Findings:

Outsourcing Manufacturing Tasks

The majority (84 percent) of organizations surveyed outsource their manufacturing production to some extent. Among those companies that do outsource, one in four subcontracts out more than half of their manufacturing processes.

The main benefits gained from outsourcing their production tasks include decreased manufacturing costs and associated costs of goods sold, and the ability to leverage core competencies from companies who have more knowledge and experience with manufacturing and logistics processes.

Main Reasons for Outsourcing Manufacturing

• Reduce manufacturing/COGS costs
• Rely on third parties for manufacturing expertise/core competency
• Rapid growth/expansion

• Increase responsiveness/agility
• Asset reduction (asset-lite strategy)
• Product design expertise
• Regional/local expansion

Due to these ongoing benefits, very few companies plan to decrease their outsourcing activities over the next two years, according to the survey. In fact, one in three firms predicts an increase in the level of outsourced manufacturing services that they use, while almost half (46 percent) plan to continue their current outsourced manufacturing strategy.

Companies that outsource manufacturing have realized valuable improvements from their decision to offload activities to reliable partners. For nearly half (44 percent) of respondents, operating margins have grown and nearly a third (32 percent) are seeing earlier new product introductions. One continuing challenge is increased lead times:
improved collaboration could help companies manage to this constraint.

Forecast for Outsourcing Levels During the Next Two Years

• Increase outsourcing – 33%
• Decrease outsourcing – 22%
• No change – 46%
figure 3
Unfortunately, visibility appears to be inadequate for many companies. While companies see the greatest level of visibility with their tier 1 contract manufacturers, visibility with these partners still lags for many: just over half (52 percent) of the firms say visibility with these top tier trading partners is either on medium or low levels. Visibility with partners in other tiers is even lower: 66 percent of organizations surveyed assess visibility with their tier 2, tier
3, and tier 4 suppliers to be, at best, medium or low.

Outsourcing Strategies

The survey found that companies are most likely to use outsourced manufacturing either with newly developed products or those with long production cycles. Products

that have shorter production cycles, or are more highly tailored, tend to be handled in-house.

figure 5

Circumstances When Manufacturing is Outsourced

- Longer lifecycle products
- New products
- Short life cycle

13%

Other outsourced supply chain planning, fulfillment operations and product design, for example, are largely managed internally, while third-party partners are more apt to have "ownership" of manufacturing tasks and kitting. There is still a great dependency on partners for information, which is why collaboration is vital to the success of outsourcing manufacturing.

Collaborative Planning

The responsibility for managing raw materials, components, and finished goods is divided between the original equipment manufacturer (OEM) and the contract manufacturer (CM). Either the OEM obtains components directly from the supplier and sends them to the third party manufacturer or it has the supplier send parts directly to the CM.

How Components are Managed and Supplied

- Contract manufacturer orders from supplier – 54%
- Brand owner/OEM sends components to CM – 47%
- Brand owner/OEM orders from supplier and supplier sends directly to CM – 46%

figure 7

In most instances (60 percent) the brand owner/OEM has clear visibility into the CM's component inventory, according to the survey. Yet, as previously cited, visibility is lacking for about one in four (23 percent) of companies, while 17 percent of organizations report they are "unsure" of the brand owner/OEM's visibility.

As for supply chain visibility, access to data regarding in-stock position, purchase

orders, and in-transit inventory are among the top processes for which suppliers have visibility. A potentially large benefit to the brand owner exists for supplier visibility to upside availability, effectively what could be sold, given the availability of product. Brand owners have an opportunity to drive increased revenue directly through supplier collaboration and visibility to
this category of demand.

OEMs (49 percent) and Tier 2, Tier 3 and Tier 4 suppliers (42 percent) share fairly equally in the ownership of parts inventory. This proves that there is a sense of "sharing" or collaboration across the supply chain, where both brand owners and suppliers take equal responsibility for purchasing and maintaining stock levels necessary for servicing end users. Unfortunately, there remains a lack of visibility across these various pockets of inventory.

Interestingly—yet perhaps not surprisingly— the majority of businesses still share forecast data with their suppliers using conventional methods, such as spreadsheets sent via e-mail (54 percent). Only slightly more than one in
three organizations employ an integrated B2B systems approach, while a small percentage (6 percent) of companies surveyed report that they don't share forecast information at all with suppliers.
e 8
Purchasing and Inventory

In looking at changes that have taken place due to outsourced manufacturing, inventory throughout supply chain networks remains mostly higher for outsourced products. Slightly more than one in three companies (39 percent) say inventory is higher, more than one in four (27 percent) believe it's lower for products outsourced, and about one-third (34 percent) have seen no change in inventory levels.
• e 12
Summary and Conclusions

The outsourcing trend is expected to continue into 2016 and beyond. Whether a manufacturer is looking to scale up quickly (and is unable to do so using internal resources), expand globally, or focus on core competencies, outsourcing can provide

these capabilities.

The promise of outsourced manufacturing: saving money; reducing manual, error-filled communication; and improving visibility and control in the supply chain is showing results.

But there exists a real opportunity to unlock even greater efficiencies and effectiveness with:

• extended visibility across multiple tiers of suppliers;
• still untapped upside responsiveness between brand owner and suppliers; and
• mutually beneficial approaches to reducing overall inventory liability.

Only slightly more than one in three organizations employ an integrated B2B systems approach, while a small percentage (6 percent) of companies surveyed report that they don’t share forecast information at all with suppliers.
e 13
Applicable for companies of all sizes, outsourcing works most efficiently when brand owners/OEMs have complete end-to-end visibility of their supply chains—something many have not yet achieved. To meet this goal, moving supply chain networks onto an integrated, collaborative platform can empower brand owners and their partners to see, share, and act on the best possible information in real-time—a single source of truth—when plan deviations can
still be turned into cost savings or revenue opportunities. This degree of collaborative planning and execution enables brand owners, suppliers, distributors, and customers to leverage the collective brainpower of their trading partner communities to manage end-to-end supply chain processes and to respond intelligently to continuous change in supply, demand, products, and partners.

What’s the Strategy Driving your Innovation

written by admin | February 2, 2016

Six key questions to ask to create a clear market-driven new product strategy for your company’s innovation efforts.

(IW – Mike Dalton: 1-11-16) It’s almost axiomatic – business growth requires a clear vision or goal and strategies to support it. However, a lack of clear direction continues to be one of the most common complaints I hear from the development groups of industrial business to business companies. Of course a lack of direction also means wasted innovation resources, so let me share a story about a company dealing with that issue.

I was meeting with a group of top managers from a mid-size lighting company struggling with new product programs that were severely delayed. They were being constantly interrupted with smaller opportunities and just couldn’t seem to make progress on what the team felt were the really big opportunities and threats they were facing in the market. As a result, growth had stagnated and an increasing percentage of their sales were becoming commodity driven.

Of course, that prompted me to ask about their strategy. If these new areas had been identified as important elements for success, what was the strategic level plan to address the gaps? One of the managers replied “What strategy—we don’t have one!” Another replied, “No that’s not fair, there’s a strategic plan and it’s managed by the CFO.” That’s when I knew what a big part of their problem was.

Nothing against CFOs in general, but in this case what they were calling a strategic plan was actually just a top-down, multi-year budgeting exercise. It didn’t really address key market facing initiatives and cascade them down to the focus areas and activities within each part of the company—not all that uncommon in mid-size and smaller firms.

When I asked how they knew what areas they should be focusing on, the VP of R&D

looked across the table at me and just shook his head, “We know what the important drivers are in the market and try to run projects against them, but sometimes I feel like our strategy is to just work on projects for whichever customer is the biggest or screams the loudest. For once, I’d like to be sharing new products that we’ve already developed in anticipation of their needs.”

The company was at a point where they needed to make a transition from customer driven to market driven, but without a clear delineation of their new product strategy and its importance to their growth, they were struggling with the transition.

So here are some of the key questions the company needed to answer in order to create a clear market driven new product strategy around each potential market driver or unmet need:

• What’s changing in your customers’ world making it harder for them to do business?
• What kinds of challenges are those changes creating for your customers in terms of new sales throughput, working capital and operating expenditures (Delta T, I, and OE for those familiar with Theory of Constraints)?
• What solutions (products, services, or a combination) could you potentially offer to help them address the change?
• What value would your solution create for your customer and for downstream users as compared to competitive alternatives?
• How would you share in that value through either value-based pricing strategies or through new business models?
• Would that share of the value be a good return on your development investment?

If a cross-functional team can answer these questions to provide a compelling argument for investment, then it’s time to put dedicated resources against a plan to build that new market segment. From there, execution still requires competent project and resource management, but recovering this hidden innovation capacity all starts with a clear strategic focus on unmet market needs.

Manufacturing Trends to Watch in 2016

written by admin | February 2, 2016

(Manufacturing Leadership: 1-5-16) As the New Year begins, the editorial team at the Manufacturing Leadership Council offers 12 business and technology predictions for the year ahead. Included are predictions about global manufacturing growth, the adoption of Manufacturing 4.0 concepts and technologies, manufacturing skills sets, cybersecurity, smart products, and how the subject of manufacturing might fare in the U.S. presidential election campaign.

Global Manufacturing to Grow Modestly: Economists and governmental organizations are predicting respectable industrial growth in 2016, assuming that there are no disruptive political or economic events. A 2.6% growth rate is foreseen in the U.S. China and India, although currently in contraction, are seen as faring better, with 6% growth predicted in China and as much as 8% growth foreseen for India. With its economy continuing to recover, European manufacturing growth, while uneven country by country, is expected to grow faster than the U.S. The yet-unknowns: the migrant crisis in Europe, the global threat of ISIS terrorism, and the possibility of more sophisticated cyberattacks, any of which could upset business conditions and damage growth.

U.S. Election Year Blues: Despite a rise in state-sponsored manufacturing competition from countries such as China and India, U.S. manufacturing will struggle for visibility during the U.S. Presidential election year as terrorism, immigration, and rising income inequality, among other topics, dominate the national political debate. None of the major candidates from either political party have demonstrated knowledge of or a focus on manufacturing. The one bright spot: the selection of the U.S. as the partner country at the world’s largest industrial event, the Hannover Fair, in April in Germany. And the participation of President Obama, the first time a sitting U.S. president will be in attendance at the Fair.

Manufacturing 4.0 In Action: 2016 will be the year when the much-vaunted theories behind Manufacturing / Industry 4.0 that have been developed over the last few years move into real-life practice as front-line use cases begin to bring to life the opportunities for applying advanced new digital, cyber-physical approaches to plant floor automation and processes to significantly improve manufacturing productivity, flexibility, quality and efficiency. Companies that can serve as role models for others will emerge. And end-user demands for interconnectivity and software standards will intensify.

Small Manufacturers to Fight the 'Digital Divide': Concerned that they could fall rapidly behind global competitors with greater financial and other resources, small- and medium-size manufacturing companies will move more aggressively to develop strategies to embrace Manufacturing 4.0 concepts and technologies. For many, this will include modernizing plant floor equipment and moving to state-of-the-art operational systems, including cloud-based ERP systems, to better manage information.

The Rise of the Chief Digital Officer: Many manufacturers will begin to realize that current siloed organizational roles are inadequate for the new digital era of manufacturing and will appoint specific executives with the cross-functional power to drive digital transformation across the enterprise. Chief Digital Officers will not only be silo-breaking evangelists of the new digital age, but will actively lead initiatives to help create end-to-end 'Digital Threads' that stretch from the supply chain, to production sites, to the development and deployment of smarter products.

IoT Drives New Smart Business Models: Internet of Things (IoT) technologies will be everywhere this year — from the tools you use, to the products you make, to the devices you wear. This digital pervasiveness will drive the creation of new, smart business models for manufacturers built around embedded connectivity, big data, advanced analytics, and new data-driven services. Such services will not only be single-company or product based, but will also begin to emerge as disruptive, collaborative, shared industry platforms in areas such as healthcare and transportation.

'Smart Products' Value More Clearly Identified: Manufacturers will push not just to design and connect more smart products, but increasingly they will seek to secure and monetize those smart platforms. Having connected the majority of their new models, auto manufacturers, for example, will dig deeper to understand the unique

value that they can deliver through these smart platforms as they seek to differentiate themselves from device providers such as Google and Apple who are planning to enter the automotive space.

New Technologies Will Push Boundaries: A host of advanced technologies – collaborative robots, 3D printing, simulation, augmented reality, cloud-based software systems, to name a few – will gain a greater share of mind among manufacturers as many embark on the journey to Manufacturing 4.0. The year 2016 will be one of intense information gathering and education as manufacturers seek to understand how they can apply these technologies to their own operations, what the business case can be, how to identify and select suppliers, and how these technologies will re-shape their organizations, skills inventories, and work patterns.

Robots Get Collaborative: Among the advanced technologies manufacturers will increasingly embrace, the flurry of announcements last year around more affordable robots that can work safely alongside human employees in collaborative ways will begin to transform many plant floor working environments in the year ahead. Heuristic capabilities based on visual analysis and machine learning will make these collaborative robots easier to program for intricate tasks, more flexible in the variety of jobs they can perform, and easier to deploy in front-line manufacturing roles. Labor issues may hinder deployment in some cases, but the overall adoption trend will be unstoppable. At the same time, more affordable general-purpose robots will be increasingly adopted by small- and medium-size manufacturers.

3D Printing to Gain Ground: Also among the advanced technologies is 3D printing, which will continue to challenge traditional production models. Consumers will adopt personalized 3D printing for self-printed clothing, parts, and household items, while businesses will acquire them to aid in the production of their products and product parts. Further innovations, including quality improvements, to enable 3D printers to use metals and other materials more effectively will drive demand for the machines in the aerospace, medical, and automotive sectors.

Cybersecurity Becomes More Formalized: Manufacturers of all sizes will increasingly be expected to demonstrate that they have put in place the state-of-the-art technologies and internal processes needed to protect their plants, intellectual property, supply chains, and customers from cybersecurity vulnerabilities. Much of the push for security audits and documentation will come from industrial customers. But regulators such as the SEC will also get in on the act, requiring that

manufacturers prove that they have mitigated the kinds of security threats that could have profound financial impacts.

Skill Sets Will Be Rethought: As digitization increasingly demands a much more integrated, agile, and responsive organization, manufacturers will rethink the backgrounds and skill sets required of contributors up and down the corporate structure. On the plant floor, manufacturers will seek out and encourage workers with strong communication and collaboration skills and who are comfortable with new technologies. Meanwhile, in leadership ranks, manufacturers will value those who can cultivate engagement and exert their positive influence across functional boundaries.

Better Demand Planning Emerges: As demand continues to fluctuate unpredictably—particularly in markets such as Europe and China—manufacturers will create more agile, demand-driven planning processes, replacing traditional but increasingly inaccurate push-based forecasting models that are based on historical patterns. This will require manufacturers to accelerate the digitization of existing processes, break down internal functional silos, and vastly improve collaboration and communication with supply and demand chain partners.

(David Brousell is Global Vice President, General Manager and Editorial Director of the Manufacturing Leadership Council. Contributors to this blog include Jeff Moad, Sankara Narayanan, and Paul Tate.)