The Factory of the Future

How disruptive technologies and megatrends will shape manufacturing

EPICOR

What's Inside...

Introduction

It's no great surprise that technologies and trends are having a profound impact on manufacturing all around the globe. In this eBook, we'll explain how to deal with and benefit from them.

More precisely, we'll highlight life- and business-changing megatrends with new technological tools that ultimately enable you to:

1. Improve efficiency

2. Reduce cost

This will keep you competitive and—most importantly—deliver greater value to your customers. This eBook will help guide you there. First, take a look at the numbers.

The numbers

By 2020, there will be 30 billion connected devices on earth

It's not the number of smartphones and tablets and wearable technologies that's alarming, it's the sheer volume of data generated by these devices. Machines communicating with people—and other machines—are creating so much information that, according to one study, we will have generated more information in the past two years than in the previous 5,000 years of human history.

Source: The Internet of Everything is the New Economy. September 29, 2015, Cisco.

These connected machines offer $1.9 trillion of added value

Gartner Research, 2016

Increased connectivity between devices and consumer products opens wide the opportunity to gain market share. The information that can help your company grow is out there, and it presents a tremendous business opportunity.

55% of businesses will see ROI from the Internet of Things in two years or less

PriceWaterhouseCoopers, 2016

Your slice of the pie is getting smaller. Businesses that put the Internet of Things (IoT) to work are already beginning to realize their return on investment. In other words, it's likely your competition is leveraging these new and emerging technologies and that your share of this new value is fading fast.

40% of manufacturers still don't have real-time visibility into their operations

Smart Manufacturing Technologies Survey, 2014

In today's fast moving global markets, manufacturers need to respond quickly to changing demands and maximize new market opportunities. Epicor gives you the agility you need to do this, with a system that fits you and your changing requirements. Built on a flexible architecture, with cloud and on-premises deployment options and with comprehensive mobile access, you have the freedom to shape your business fast.

90% of respondents believe convergence will drive fundamental changes in business

Convergence of Technologies Survey, 2014

From all indications, we are in an era of significant convergence, where information technology, operational technology, and global megatrends are on a collision course. This will drive fundamental and foundational changes in how we do business and how we interact with customers and suppliers.

Manufacturing megatrends

If you're surprised by these megatrends, you haven't been paying attention

Megatrends are global, sustained, macroeconomic forces of development that impact business, cultures, and personal lives. By their very nature, these trends define our future and the increasing pace of change. They aren't, however, anything new.

These manufacturing megatrends have been on the horizon for years, and as we face the next few years, they'll have an exponential impact on your operations.

Megatrend #1—Demographic shifts

By the year 2030, ours will be a world of 8.4 billion[1] people, most of whom live in massive urban centers. Developing countries will be growing, while populations will shrink in developed nations. How will this impact manufacturers?

- A growing middle class will open new opportunities for new markets and new customers.
- Consumer markets will shift from the West to the East, highlighting the need to be part of a global supply chain—or at least have access to far-away markets.
- More skilled workers will continue to retire, with fewer people entering the manufacturing field.

The world is getting larger and customers are getting farther away, but technology continues to make everyone easier to reach.

1 Sustainable Development Goals, "UN projects world population to reach 8.5 billion by 2030, driven by growth in developing countries," July 29, 2015

Megatrend #2—The globalization of future markets

As our population grows, companies will reach farther and farther around the globe, with worldwide exports expected to triple by 2030[2]. More notably, exports from emerging and developing countries will quadruple[2], and regional and bilateral trade agreements are likely to further open the world's borders.

> Developing countries will account for an estimated 57% of global GDP by 2030.
>
> *Source: Future State 2030: The global megatrends shaping governments. November 2013, KPMG*
>
> Developing countries will be home to 440 of the world's fastest growing cities, generating 47% of global GCP through 2025.
>
> *Source: Emerging cities to account for 47% of global growth by 2025. June 28, 2012, livemint*

As we dive deeper, the share of GDP generated specifically by Brazil, Russia, India, and China (BRIC countries) will grow from 27% in 2013 to 38% in 2030[3]. We'll also see a new cluster of countries on the horizon known as the Next 11 who will become a significant force. In particular, the sub-cluster countries comprising Mexico, Indonesia, Nigeria and Turkey (MINT) and Mexico, Indonesia, South Korea, Turkey (MIST) will start to outperform those of the advanced world.

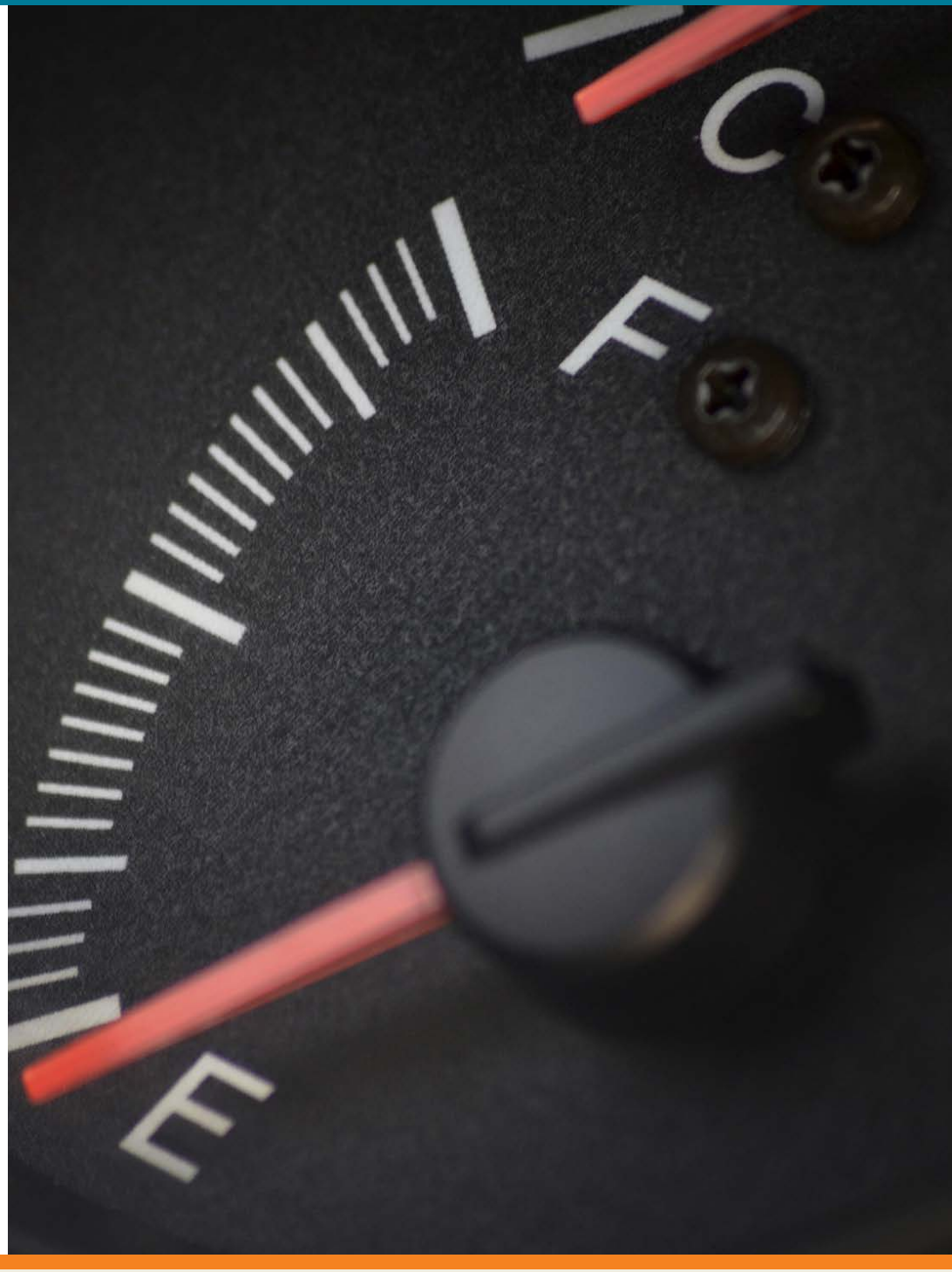
2 Sustainable Development Goals, "UN projects world population to reach 8.5 billion by 2030, driven by growth in developing countries," July 29, 2015
3 Economywatch, "The BRIC Countries: Brazil, Russia, India, China," June 29, 2010

Megatrend #3—Scarce resources

We're going to need more power. The combination of an ever-growing population and GDP growth centered in developing countries will be the main drivers for an increase in energy use as well. We will continue to be a world characterized by scarce resources, and despite the focus on climate change and sustainability, the majority of worldwide energy demand will continue to be met by fossil fuels. This demand means 17 gigatons of oil-equivalent energy each year by 2030[4].

- The need for energy will increase 23% by 2030[4]
- The majority of that energy will come from fossil fuels[4]
- The majority of critical raw materials will be supplied by China[4]

Additionally, the majority of raw materials critical for manufacturing and rare earth metals will be sourced outside of the traditionally stable economies of the United States and Europe. More recycling and innovative recycling technologies could potentially decrease the dependence on China, but this will take significant focus and effort.



4 BP, "BP Energy Outlook 2030," January 2013

Megatrend #4—Knowledge and gender gap

As we become a more educated world with greater percentages of the population earning post-secondary degrees, manufacturers will still continue to see the challenges of a decreasing talent pool. Simply put, there won't be enough skilled people to perform the jobs of the future.

- Enrollment in formal education will continue to rise
- The talent shortage will continue, and it will hit developed nations particularly hard
- The gender gap is unlikely to be resolved

What's even more alarming is the fact that the available talent pool of workers will likely not come from our own backyard, but from developing countries. Additionally, an ever-increasing mobile workforce will continue to present challenges to employers, and may lead to a global struggle for talent. Lastly, the social and demographic issue of women and gender inequality in terms of education, participation in the workforce, and disposable income, is likely to continue to be unresolved.

Future-proofing
Manufacturing is changing

The global megatrends discussed here, when combined with new and converging technologies, will require manufacturers to transform themselves and even consider new business models. The overarching takeaway is this—manufacturing as we know it is changing radically.

We are quickly entering an era of a new type of customer—one who is global, but who isn't in the geographic areas where we've traditionally focused. This new customer is more mobile, more aware, and more demanding. Customers demand more products and more services that are highly personalized. They want them delivered where and precisely when they desires.

In addition to the changing demographic of our consumers, new game-changing business models will cause continued disruption. Just take a look at what Uber® has done to the taxi and transportation industry, Airbnb® to the hotel and hospitality industry, and Amazon® to the retail and manufacturing sector. The frantic pace of change in every industry forces a new norm and demands business owners to adopt new ways of thinking and execution.

Embracing change

If you want to take advantage of the challenges and opportunities that come with manufacturing in today's global economy, you will need to be:

- Customer-centric
- Vertically specialized
- Collaborative
- Efficient
- Distinctive
- Innovative
- Agile
- Automated
- Data-driven
- Cloud-enabled

This is what it takes to be a future-proof manufacturer, and that is why technology and automation must be our critical focus.

The risk of waiting

There is a tremendous opportunity at hand for manufacturers, but it can be realized by using emerging informational technologies like social, mobile, analytics, and cloud alongside operational technologies like sensors, machine-to-machine communication, additive manufacturing, and robotics.

The future—and your global competitors—won't wait for you. Tomorrow's manufacturer needs to be a leader when it comes to adopting technology. Those who want to run the factory of the future will need to shed the old mindset of waiting for a new technology to become the norm before embracing it.

Trusting technology

Future-proof manufacturers who have adopted key disruptive technologies will provide the foundation for a new type of factory and a new type of end-to-end operation.

> The future-proof manufacturer will be able to provide highly personal, flexible products where and when the buyer needs them, versus large quantities of homogeneous products.

They'll do this through strong, external, customer-focused, and interconnected networks and organizations where they are more predictive rather than reactive to customer requirements. This will allow them to focus on service after the sale and the related value opportunity that provides, rather than simply being viewed as a parts supplier by their customers.

Build a plan for success

Many manufacturers are struggling to fully understand recent changes and make sense of where to start. The sheer number of technologies that are changing and converging—combined with the pace of that change—is confusing and quite challenging, even for those who work with it every day. Therefore, a key to success in this highly disruptive and ever-changing world is to take a step back and answer a few fundamental questions:

- Where am I today?
- Where do I want to be in 3–5 years?
- How can I take advantage of innovation and automation?

Manufacturers then need to develop a strategic methodology and roadmap to the future. By doing so, you can take advantage of the opportunities that lie ahead. In some cases, missing these opportunities means your business may become irrelevant.

Key elements of your success:

1. Understanding the over-arching strategy to transform into—and benefit from becoming—the factory of the future
2. Leveraging cross-functional teams
3. Engaging trusted technology providers
4. Identifying and deploying high-return, low-risk capabilities
5. Constantly evaluating and adjusting

Epicor—your future-proof partner

With more than 40 years of knowledge and experience in business technologies, Epicor has become the trusted advisor to tens of thousands of manufacturing operations like yours. Those manufacturers use Epicor technology to be more agile, to work smarter, and to improve their operational efficiency.

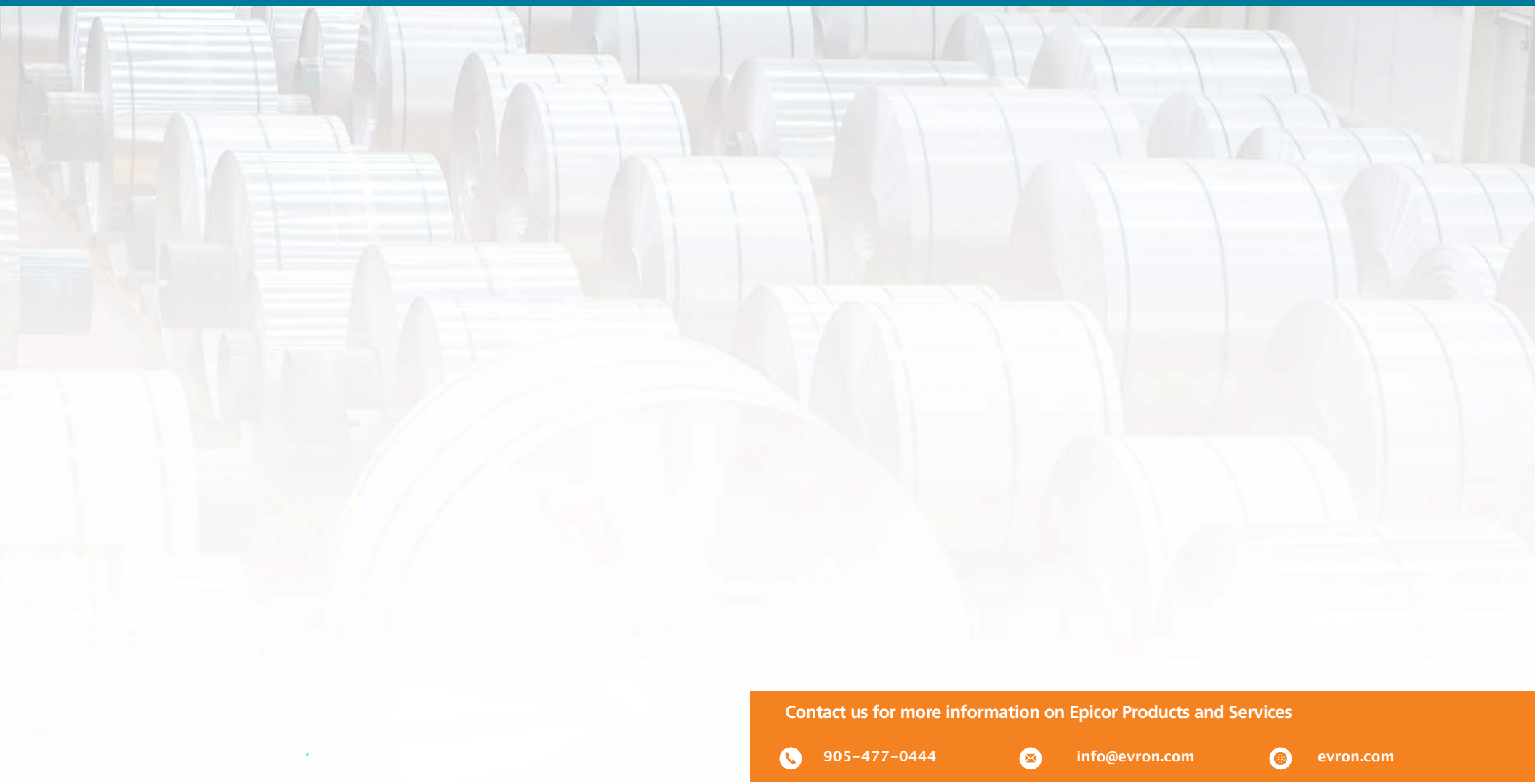
Epicor understand manufacturers want to grow their businesses, not software. Because of our commitment to the industries we serve, Epicor continues to be recognized by Gartner and other analysts[5]—and more importantly, our customers—as:

- Understanding what's next
- Having a passion for manufacturers, helping them make sense and take advantage of new norms and collaborative business models
- Following a cloud-first mentality, which enables customers to not only transition to and from the cloud, but fully leverage other emerging technologies

5 Gartner Inc. "Magic Quadrant for Single-Instance ERP for Product-Centric Midmarket Companies" by Michael Guay, Chris Pang, Christian Hestermann, and Nigel Montgomery, December 9, 2015.

Get ready for what's next

Learn more about future-proofing, the factory of the future, and a host of other topics covered in white papers, testimonials, and other industry presentations on epicor.com/manufacturing. Talk to an Epicor representative to schedule a one-on-one discussion focused on your key challenges.



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