# What you Need to Know to Thrive in Manufacturing

## REAP THE BENEFITS OF INDUSTRY 4.0 AND ERP IN THE CLOUD

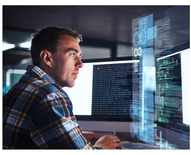
IndustryWeek | AMERICAN MACHINIST |

PRESENTED BY EPICOR

This is an exciting and challenging time to be in manufacturing. Innovations in technology are affecting how you do business from the shop floor to the supply chain to the customer – everything seems to move faster than ever. The challenge often comes when older technology meets new: adopting a new system, adjusting an old process or adding a new one. The good news is that those who overcome these challenges gain access to an array of business opportunities that result in positive outcomes such as: growing revenues, improving profitability, acquiring new customers and delighting current ones.

This e-book offers a series of thoughtful and practical articles grouped around two important industry themes: Industry 4.0 and Cloud-based ERP. Industry 4.0 defines a direction for business transformation. Cloud-based ERP provides a business model that relieves companies from the burden and expense of managing a significant part of their IT infrastructure while delivering affordable access to the latest and greatest value-added services and technologies. Both of these unlock the agility and innovation manufacturers need to thrive. Read on to learn what you need to know for your company to reap the benefits of these transformative business strategies.

# HOW TO DELIVER ON THE PROMISE OF INDUSTRY 4.0



Industry 4.0 is a vision for the manufacturing industry that is compelling and alluring because of its promise to improve life for all stakeholders. Customers get customized products faster, more reliably, and at the price of a standard product. Shareholders win from high growth and better margins. Suppliers and employees benefit from improved information and better relationships.

Of course, delivering on that promise has challenges. The challenges for IT revolve around the vast quantities of new and very diverse information, which in turn creates challenges around security and privacy as well as integration and speed-of-decision making.

IT can lay the foundation for delivering on the promise of Industry 4.0 in four major ways: cloud storage, cloud applications, integrated enterprise software, and machine learning based analytics. The key to it all is learning how to gather and use information reliably, instantly and with a view of the future.

## THE PROMISE OF INDUSTRY 4.0

Manufacturing is an old industry that is changing so fast you may not recognize it in 15 years. Just as retail, communication, and entertainment industries have changed radically, technology is fueling new business models for manufacturing all manner of products. Industry 4.0 is a common name for the strategy that allows manufacturing companies to keep pace with the expectations customers have today.

Industry 4.0 leverages automation and data exchange technologies to make a new promise to customers and stakeholders:

- The promise to customers is customized or personalized products delivered rapidly, with perfect quality at ever-decreasing prices.
- The promise to shareholders is the opportunity for greater revenues and higher margins.
- The promise to suppliers is for expanding volumes, with clear and immediate electronic information about orders, performance and upcoming design needs, and payments.
- The promise to employees is for more interesting and strategic work, and the assurance that the company is meeting customer demands so is likely to continue to employ them.

Companies that can deliver on these promises are likely to grow. In fact, 35% of companies adopting Industry 4.0 style digitization expect revenue gains over 20% in the next five years, according to PWC. **(Figure 1)** shows that an even larger portion of manufacturers expect this to pay off in lower costs and efficiency gains. Creating great and personalized experiences for customers can absolutely lead to strong financial results.

Sounds great, but how does Industry 4.0 deliver all of that? There are several main elements supporting this promise.

First is an increase in speed and reliability based on automation information everywhere. The Internet of Things (IoT) and inside the company, the Industrial Internet of Things (IIoT), are central to speed and reliability, but many forms of automation can provide that. Robots, sensor-driven equipment, and automation for information tasks all contribute.


**Figure 1:** Portion of manufacturers surveyed who expect 20% or more cumulative gains from Industry 4.0 digitization efforts over the next five years.

Second is agility for high mix at low cost and for quick response to new demands. To achieve that, the new automation must be flexible and be used in new ways. Industry 4.0 envisions that production and supply chain activities will be decentralized into a marketplace. When every element of a plant and supply chain is enabled with intelligence and internet connected with IIoT, it can adapt to the current situation and produce what is in demand in small quantities with little more effort than making large batch runs of the same thing.

Third is a greater revenue and margin increases. By moving beyond selling products to servicing products and creating complete solutions, manufacturers are already improving financial results. By connecting supply chain trading partners, products and customers in the field, and production plants and lines, manufacturers can confidently expand the trend of offering customers more value.

For example, El-Cab Sp. z o.o. in Poland pulled all of these elements together to service their own wire harnesses and other brands of equipment for heating, cooling, passenger information systems, audio-video and monitoring. By using a complete integrated digital information system, El-Cab website states: "We can offer full service for our clients. We also professionally support them through consultations, assembly, warranty service and post-sale service throughout Poland. This strategy makes El-Cab and its customers successful."

## THE IT CHALLENGES

The new ways of working for a manufacturing business all rest on new IT capabilities. Naturally, moving toward Industry 4.0 presents challenges for the information technology (IT) departments.

**Big Data:** The Industry 4.0 way of working creates massive quantities and varied formats of new data. One area of strength for Industry 4.0 is making personalized products. Many companies have already witnessed some of this as their product portfolio has grown. With Industry 4.0, this data explosion is compounded as data streams in from IoT and IIoT, intelligence from plant equipment or operational technology (OT), and expanded internal and partner data across disciplines and the supply chain. Already today, manufacturing companies upload more data to the cloud than any other industry. **(Figure 2)** shows that both in Terabytes uploaded per company per month (vertical scale) and number of cloud services in use (horizontal scale), manufacturing uses the cloud heavily for data storage and applications.


**Figure 2:** Manufacturers upload more data to the cloud on average than any other industry, and are second only to high tech in how many cloud services they use.

**Cyber-security:** With so many new data sources, Industry 4.0 poses additional challenges for IT security. Beyond traditional IT systems, this includes automation or operational technology OT and a variety of IoT and IIoT. Trading partners are also more likely to share data beyond traditional EDI transactions. Deciding where to put customer and company information becomes a key question to protect privacy and prevent data loss.

**Integration:** To achieve the speed and agility of the promise of Industry 4.0, companies need IT to reliably connect everything. To create smooth and consistent business processes with full digital support, El-Cab selected a comprehensive enterprise system and integrated MES. This involved selecting Epicor as its enterprise software supplier and using its standard integration approach to exchange data between systems. System integration has always been a challenge for manufacturers, with so much data from so many disciplines. Historically, the disparate systems different groups use made it challenging for IT to keep data consistent and processes synchronized. **(Figure 3)** shows that the top-rated challenge for adopting cloud is integration between cloud applications and existing infrastructure, according to KPMG's CIO Survey 2016. Security and governance are other common issues.


**Figure 3:** Many manufacturing CIOs recognize the challenges with the cloud, including integration, security, and governance. Leaders are overcoming these issues today.

**Timely Decision Support:** A foundation for achieving Industry 4.0 is ensuring that the people remaining in the operation have exactly the information they need when and where they need it to make sound decisions. Some point to the decentralization of decisions as a key differentiator of Industry 4.0 design, which the marketplace concept certainly requires. Supporting agile automated processes could even benefit from software that can make decisions and learn to make better decisions over time (commonly called machine learning).

## OVERCOMING THE CHALLENGES

So, what can IT leaders do to ensure their organization can overcome those challenges? Fortunately, much is now available to support effective, fast, reliable, secure and intelligent enterprise applications for Industry 4.0. Even before companies invest in all of the IIoT, smart devices, robots and in-plant technologies, they can provide a solid enterprise IT foundation on which to build out their Industry 4.0 smart plants, smart enterprises and smart supply chains. Many companies are doing this today.

**Cloud storage:** To manage enormous quantities of data from across an industrial supply chain, many companies are turning to the cloud for storage. One study showed that over half of manufacturers are already achieving stronger management of their global supply chain using cloud technologies. **(Figure 4)** shows that Inspirage found that more than four of five executives responding expect cloud to improve internal operations and reduce costs and inefficiencies. Storing data in the cloud allows for rapid expansion in how much data is stored at minimal additional cost. Cloud hosting services have also focused heavily on security and typically employ many more security experts than any one manufacturer could.

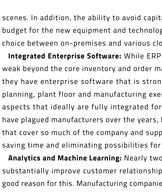



**Figure 4:** Most considering cloud supply chain applications hope to improve internal operations, costs and efficiencies.

**Cloud Applications:** The advantages of software as a service (SaaS) are increasingly clear, particularly for manufacturing enterprise applications. With the accelerated change in products and processes Industry 4.0 is designed to handle, cloud applications are perfect. They allow for easy, low cost implementation and upgrades and enhanced security. Upgrades are no longer a high-risk, time-consuming big event; rather applications are constantly updated and upgraded behind the scenes. In addition, the ability to avoid capital expense for software and IT infrastructure can free up budget for the new equipment and technologies of Industry 4.0. For many companies, having an easy choice between on-premises and various cloud options can be important.

**Integrated Enterprise Software:** While ERP that spans the enterprise is well established, many are weak beyond the core inventory and order management applications. For Industry 4.0, IT must ensure they have enterprise software that is strong across disciplines and levels. Financials, supply chain planning, plant floor and manufacturing execution (MES) capabilities are just a few of the important aspects that ideally are fully integrated for Industry 4.0 agility. Application integration challenges have plagued manufacturers over the years, but that is changing. Today there are enterprise solutions that cover so much of the company and supply chain that information can be shared, not transferred, saving time and eliminating possibilities for misinterpretation or human error.

**Analytics and Machine Learning:** Nearly two-thirds of manufacturers believe that data analytics will substantially improve customer relationships and intelligence along the customer life cycle. There's good reason for this. Manufacturing companies are already using big data analytics to prevent customer problems before they happen. Today's big data analytics technologies lead to smart software. With machine learning, these systems can take the knowledge of today's experts and expand it over time.

Companies are starting to deploy predictive and even prescriptive analytics to ensure reliable operations and delight customers in new ways. Many services and solutions are founded on analytics about products in the field. These analytics will prevent the need for some of the fire-fighting people do today. Whether it's improving customer service, preventing plant and production problems, alerting supply chain partners to trending challenges, or learning from early stages of Industry 4.0, analytics implementations will separate top performers from others.

## DELIVERING ON THE PROMISE

To an unprecedented degree, IT will be recognized as the hero if they can move companies into Industry 4.0 successfully. With so many new technologies pushing progress forward, it is clear no other discipline will be able to deliver on this promise without IT's support. Leadership in understanding what to move to the cloud, in integrating data flows across disciplines, and in delivering advanced analytics are essential.

Cloud storage, cloud applications, integrated enterprise software and advanced analytics that learn are four foundational technologies companies need now. Together, these four approaches to overcoming the IT challenges of industry 4.0 are powerful:

- Cloud-based storage means that more data carries minimal penalties, and can immediately feed analytics for competitive advantage.
- Cloud-based applications create agility and free up capital for new technologies such as IIoT, robotics, and augmented reality.
- Integrated enterprise applications that are strong not only in the core enterprise, but in the supply chain and plants creates the pool of data that enables immediate response to new requests and changes.
- Advanced analytics will drive customer experience, smooth decentralized plant operations, and supply chain excellence.

Today, IT is fraught with both challenges and opportunities. Leaders who succeed in these times will become heroes. Enabling a manufacturer to move from where they are into the fast and agile future is a major accomplishment. CIOs are already stepping up to improve their companies' position in the market. Will you deliver on the promise of Industry 4.0? ●

Sources:
Figure 1 ©2016 PwC Industry 4.0: Building the Digital Enterprise
Figure 2 ©2016 Skyhigh Research, Cloud Adoption & Risk Report Q4 2016
Figure 3 ©2016 KPMG, CIO Survey 2016
Figure 4 ©2016 Inspirage, The Future of Supply Chain in the Cloud

# HOW DO I PREPARE MY ORGANIZATION FOR INDUSTRY 4.0 TECHNOLOGIES AND INITIATIVES?

**Q: WHY DOES INDUSTRY 4.0 MATTER?**

**A:** The main focus of Industry 4.0 is automation and machine-to-machine data exchange, which can enable manufacturers to make customized or personalized one-off products at a cost, quality, and speed that is even better than today's mass production, which is what today's customers want and need. Industry 4.0 technologies can also increase efficiency and profitability inside a manufacturing company, which is what other stakeholders want. Driven by new technology, and specifically the Internet of Things (IoT), digitizing manufacturing enables enormous competitive benefits.

**Q: WHAT IS THE SCOPE OF INDUSTRY 4.0?**

**A:** Industry 4.0 spans the entire supply chain and product life cycle, from design, to sales, inventory, scheduling, quality, engineering, and customer and field service. Everyone shares informed, up-to-date, relevant views of production and business processes—and much richer and more timely analytics.

**Q: HOW CAN I MANAGE THE GROWING AMOUNT OF DATA FROM IOT?**

**A:** IoT devices generate a flood of new data that needs to be managed, stored, and analyzed along with existing data. Already, manufacturing companies upload an average of 24.5 terabytes of data per month to the cloud.[1] Cloud storage offers a scalable and low-cost data storage mechanism that relieves IT staff and resources from the burden and costs of directly managing the storage infrastructure.

**Q: HOW DO I PROTECT TRANSACTION AND CUSTOMER DATA?**

**A:** Media reports of data hacking and customer data losses point to a risk of putting sensitive company and customer data outside the company firewall. IoT devices in products and trading partners can add to these worries. Since an enterprise-level cloud storage vendor's reputation depends on protecting their clients' data, these vendors have deep security expertise and deploy stringent cyber security measures. IT can choose what to put in public cloud storage vs. private or dedicated cloud storage.

**Q: HOW CAN I HELP THE BUSINESS MAKE GOOD, FAST DECISIONS?**

**A:** Making sound decisions quickly requires data that is accurate, timely, and accessible—often from disparate data sources such as IoT in varied formats. This is also known as Big Data. IT must ensure data-analysis tools can deliver what decision-makers need throughout the organization. 72 percent of manufacturing companies predict that data analytics will improve customer satisfaction and customer intelligence over the life cycle of products.[2] Machine learning is a key application of artificial intelligence to allow computers to learn initially from human experts and then based on experience. This allows systems to change their behavior or tasks based on changing conditions and accumulated knowledge, which is a refinement to current automation. Machine learning can increase efficiency, enable predictive and prescriptive analytics, and allow people including operators, managers, and executives to more fully leverage their knowledge and intelligence.

**Q: HOW CAN I MANAGE ALL OF THAT INFORMATION RAPIDLY AND RELIABLY?**

**A:** Most manufacturers have a mixture of legacy business and production systems, many of which do not interoperate. An integrated enterprise resource planning (ERP) system that spans not only inventory and planning, but also financials, customer relationships, supply chain management and manufacturing execution is often used to integrate business and production systems. When properly designed and deployed, manufacturing-capable ERP systems can consolidate disparate data resources across the enterprise and provide a consistent and flexible view of production and business operations tailored to specific areas or users in the organization.

**Q: HOW CAN I MINIMIZE THE BURDEN ON MY SCARCE IT RESOURCES?**

**A:** ERP can integrate separate business and production systems and provide a unified view of enterprise operations to people throughout the organization. This alone minimizes IT hassles from integration and manual processes. To avoid the ongoing implementation and upgrade challenges ERP has historically presented, some companies are choosing cloud-based ERP or software as a service (SaaS). As with cloud storage, the cloud ERP provider assumes the costs otherwise borne by IT to build and maintain infrastructure. Because the ERP system is provided on a SaaS model, there is no additional IT cost to update users to the current software version—the user is always using the most recent version of the software. A cloud-based ERP system provides all of the benefits of ERP without requiring dedicated IT infrastructure or staff, and frees those resources to be used in other IT tasks.

1 "Cloud Adoption & Risk Report Q4 2016", © 2016 Skyhigh Research

2 "Industry 4.0: Building the Digital Enterprise", PWC, April 2016.

PRESENTED BY EPICOR

# THE CUSTOMER-DRIVEN CASE FOR AGILITY

## INDUSTRY 4.0 IS HERE

**Industrial Revolutions:**

**1st** — Mechanization, steam power

**2nd** — Mass production, assembly line

**3rd** — Computer, automation

**4th** — "Industry 4.0" — Cyber physical systems and platforms

## THE EVER-CHANGING MANUFACTURING LANDSCAPE

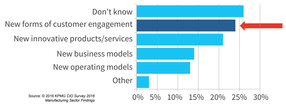
- Increased Manufacturing Complexity
- Global Market Pressures
- Higher Customer Experience Expectations
- Aging Workforce

## INDUSTRY 4.0 TECHNOLOGIES HANDLE AND CREATE COMPLEXITY

Cloud Extensibility, Microservices
Geolocation
Big Data and Analytics
Manufacturing Intelligence
Internet of Things (IoT)
Compliance and Traceability
Augmented Reality (AR)
Omnichannel Experience
Data Discovery and Algorithms
Mobility
Data Privacy (Encryption)
Multilevel Customer Interaction and Profiling
Additive Manufacturing (3D Printing)
Collaboration
Blockchain and Cryptocurrency

## HIGHER CUSTOMER EXPECTATIONS

**If you are experiencing digital disruption, what is the primary source of disruption?**




Source: © 2018 KPMG CIO Survey 2018 Manufacturing Sector Findings

## MANUFACTURERS MUST BE NIMBLE TO COMPETE IN THE GLOBAL MARKET

- Quick to handle demand
- Must understand and coordinate all resources
- Industry 4.0 Goal: Specials at the speed and price of stock products

| Volume | Mix | Specials |
|---|---|---|
| Ramp up or down to meet variations in demand | Handle many products and variants at once | Quickly make custom or personal versions |

## CURRENT AND ACCESSIBLE KNOWLEDGE IS ESSENTIAL

GROWTH

Companies with an aging workforce must replace retirees with software that's industry savvy, and that limits the learning curve for new hires

INDUSTRY

Ease of Everything

## TO BE NIMBLE, COMPANIES NEED THE RIGHT ENTERPRISE SOFTWARE

**What I need**

- Industry fit: Suits my style of manufacturing for quick start
- Comprehensive: end-to-end, top-to-bottom, MES, CRM, SCM, etc.
- Single source of truth: Complete data flows and workflows
- IT fit: Matches my IT standards
- Agile: Easy to configure, change, upgrade, improve

**Questions to Ask**

- Do they really understand my business?
- Will every discipline use this and get what they need?
- Is it fully integrated with shared data tables?
- Do I have deployment options?
- Is it the same modern software on-premises and on all cloud options?

## CLOUD ENHANCES BUSINESS' SUCCESS: TOP 3 CLOUD BENEFITS


Source: © 2018 KPMG CIO Survey 2018 Manufacturing Sector Findings

## INDUSTRY FIT: SUITS MY STYLE OF MANUFACTURING FOR QUICK START

**Epicor ERP Next-Generation Solutions…Today**

- Industry-specific, vertically focused, highly intuitive
- End-to-end functionality for better business management
- Industry leading 100% SOA based on Microsoft .NET
- Support for the virtual enterprise, multisite, multiplant, multicompany
- Personalization by user including social ERP for effective collaboration
- Integral business insights for stronger business performance
- Global footprint

## IT FIT: MATCHES MY IT STANDARDS


**Epicor ERP Product Architecture**

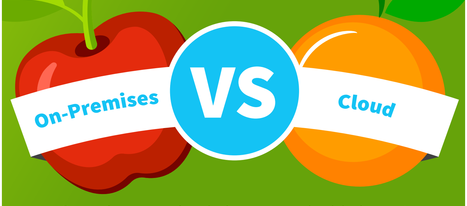
- Pure Services Architecture
- All access to ERP is via services and REST APIs
- Scales up and out
- Concurrent user licensing
- Leverages Readily Available IT Skills
- System management: Windows, SQL Server
- Advanced customization: C#, T-SQL

## ERP THAT'S EASY TO CONFIGURE, CHANGE, UPGRADE, IMPROVE

**Epicor True SOA**

- Designed for the Cloud
- 1600+ addressable Services drive the product
- BPM controls service behavior
- Manage data across multiple locations provides ERP data synch
- Data services for access to entities and views
- Orchestration controls long-running conversations

# BUSINESS APPLICATIONS



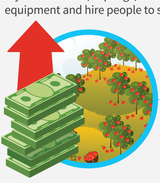

Comparing on-premises deployment vs a cloud deployment for ERP isn't an apples to apples comparison.

There are other factors to consider.

## CUSTOMER RESPONSIBLE

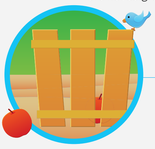
**Familiar**
Old school.

**Large capital expenditure**
Buy acres of land, saplings, fertilizer, equipment and hire people to start.



**Perpetual use**
Own the farm.

**Availability & continuity**
Unpredictable yield – some crops are not so great.



**Long time to value**
Wait to get to the right season for harvest and use for every new item.

**Needs staff skills**
Need crew to plant and tend to apple trees.

**Known security risks**
Farmer and family guarding.

**Challenge scaling up or down**
Must buy/sell land, equipment, hire or fire people.

## SOLUTION PROVIDER RESPONSIBLE

**Current**
Consumer model.

**Small operational expenditure**
Buy what you need every month, as you need oranges.

**Subscription with renewal**
Eat slice at a time when you need it or are hungry.

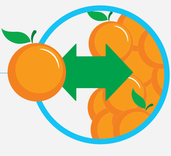
**Predictable availability**
Grocer and grower responsible to keep produce in the store.

**Short time to value**
Quick setup, so new items are immediately available for use.


**Requires fewer IT staff skills**
Buying an orange in the store.

**Security safeguarded by vendor**
Specialized hired security team.


**Easy to scale up or down**
Simply buy more or buy less to fit your appetite.



## On-Premises Challenges Innovation

Manufacturer needs to work hard figure out how to upgrade the processes and all the technology and people to support them.

## Cloud Enables Innovation

Business application provider is constantly innovating and makes those innovations available for customers to easily digest.

# THE INNOVATION APPROACH TO GROWTH:

## HOW CLOUD-BASED SOFTWARE BOOSTS MANUFACTURERS' SUCCESS

### WHY INNOVATION IS IMPERATIVE NOW

To be the authors of change rather than victims of it, manufacturers must innovate. The notion that the only constant in life is change dates back to ancient Greece, but in the 21st century change seems to have accelerated. Business changes range from a global recession and the promise of global markets, changing political and social climates, and continuing advances in technology that affect traditional relationships between manufacturers, suppliers and customers.

With always-on access to global data and information, expectations have also changed. It feels like volatility, uncertainty, complexity and ambiguity (VUCA) is the order of the day – every day. Business as usual will no longer suffice.

What may seem like a disruptive, even fragmented business climate offers companies new opportunities to achieve market leadership in traditional and new markets. It also provides an opportunity to serve customers' changing needs and expectations. Innovations in IT such as cloud computing and business analytics fully enable and even encourage businesses to innovate.

The traditional view of manufacturing companies as slow to adopt technology couldn't be more wrong when it comes to Software-as-a-Service (SaaS) business software. Nearly two-thirds (73%) of US SMBs were using SaaS in 2016, and over 90% will be using SaaS by the end of 2017.[1] Manufacturers understand that innovation is not only a key to future success, it is imperative to support future growth.

### ASPECTS OF INNOVATION

Innovation is one of the primary ways that companies achieve competitive advantage. Invention can be accidental, but innovation is purposeful: a key element of a company's business strategy or expressed as part of a company's vision or mission. New products or product improvements often result from innovative thinking or design. It can also take forms such as entering new markets, attracting new customers, delivering added value to current customers, streamlining outside relationships, or improving internal processes and lowering business costs.

Today's connected customers not only expect quality products, they have become used to excellent service. Social media has provided the ideal platform for customers to share their opinions, whether they are favorable or unfavorable. More than ever, companies need to be perceived as being easy to do business with, and that same perception needs to apply to suppliers, distributors, and even employees. An increasing tendency for people to treat opinions as facts means that companies must emphasize service and provide accurate and quick responses to customers' issues.

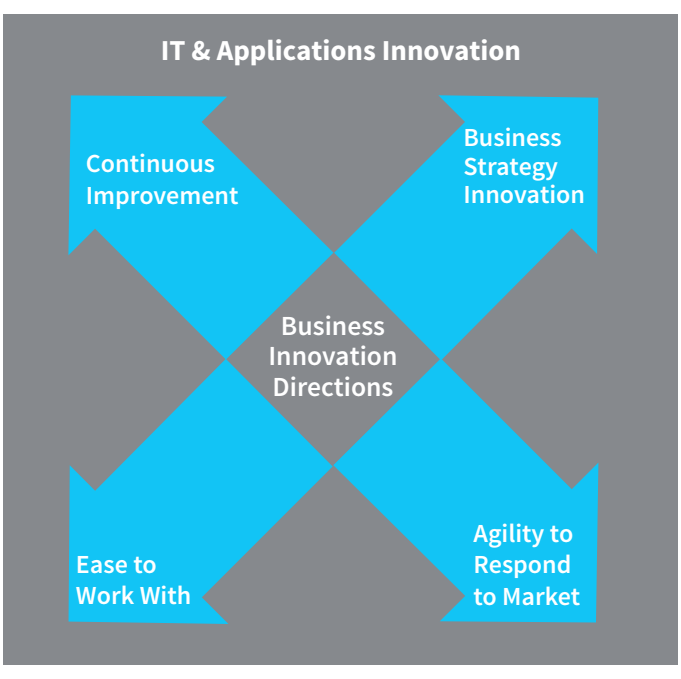



**Figure 1:** Innovation can drive in many directions, and innovation in IT and business systems enables and can accelerate all of those.

Companies need to become agile enough to respond to economic changes or new opportunities in the marketplace. Manufacturers who are committed to the goal of continuous improvement understand the value of using technology to support the overall goals of improving quality and lowering costs. Supporting and underlying all of that is innovation in IT and business systems. Without modern and agile systems, companies may not be able to gain full benefits from their innovations. This concept is shown in **Figure 1,** with IT innovation as a backdrop supporting other forms of innovation.

### CLOUD ERP SUPPORTS INNOVATION

With today's VUCA business environment, companies' processes and systems must move with frequent changes in markets and customer behavior. This requires companies to be agile in decision-making and business tactics. Specifically, enterprise resource planning (ERP) can either hinder or enable innovation to address rapid changes.

Cloud ERP solutions fit this new business model for many reasons. They are easy to deploy and use anywhere there is an internet browser. This makes it possible to deploy ERP capabilities to grow a remote team, or collaborate with partners or suppliers without needing a "heavy" computing infrastructure.

**Figure 2** shows that Market Research Future predicts that sales of Cloud-based ERP will grow to $28B by 2022, a compounded average growth rate of 8%.

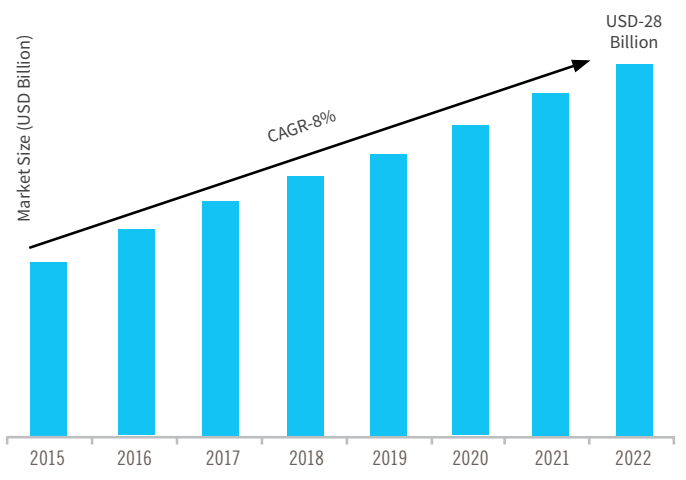



**Figure 2:** Cloud ERP market is expected to grow to $28B by 2022, according to *Cloud ERP Market*, a 2017 report from Market Research Future (MRFR). https://www.marketresearchfuture.com/reports/cloud-erp-market-2756

Cloud-based ERP solutions present a real alternative to traditional on-premises ERP systems. From a business perspective, cloud ERP allows businesses to select only the modules the company needs, which makes sense from a business perspective, as well as from an IT perspective. As a manufacturing company grows, controlling resources becomes even more important. Beyond internal resources, companies must also learn to collaborate effectively with suppliers and business partners. These partners are not in your direct control and are often are dispersed around the globe. Using the cloud to enhance managing the supply chain is already yielding positive results: 55% of manufacturing companies are achieving stronger management of their supply chain using the cloud.[2]

By way of comparison, on-premises ERP systems represent a significant investment in software, customization and IT infrastructure and staff. After the initial implementation, costs for operating the system continue in the form of hardware improvements and software upgrades, additional storage for increasing amounts of data generated by the system, and the IT staff required to maintain it all. When the business changes, IT staff often cannot change the system as quickly as the company would like.

Cloud ERP shifts the responsibility for maintaining the infrastructure and operational costs to the software supplier. The solution provider delivers additional software capabilities or upgrades. Thus, they can be deployed with minimal disruption to the end users. Service-level agreements ensure that the system is available and performs according to the company's requirements. The economics of the cloud computing model are compelling. According to research by Forbes, 81% of leaders (vs. others) look to the cloud to reduce internal costs and inefficiencies.[3]

Companies that haven't invested in an ERP system often find Cloud ERP immediately appealing. They can get started and gain benefits almost immediately, because there is no large infrastructure investment required. Companies who have an existing system might be reluctant to move away from their investment, but using cloud applications doesn't need to be a binary choice. Many companies operate a "hybrid" ERP system, in which new applications are supplied by the cloud, while other ERP functions are supplied by the existing on-premises system. In this mode of operation, the company gains the benefits of cloud without making the current IT infrastructure obsolete.

Hybrid cloud ERP approaches can be either a short term way to migrate to the cloud, or a long-term approach. One area that many companies that have on-premises ERP have put into the cloud is business intelligence and advanced analytics.

### CLOUD ANALYTICS ACCELERATE INNOVATION

To innovate effectively, companies are using data analytics to understand their customers and serve them better. A recent industry study found that nearly two-thirds of companies surveyed predicted that the use of data analytics will substantially improve customer relationships and increase customer intelligence throughout product lifecycles.[4]

The cloud provides a fast, scalable platform for business analytics. The company can scale enterprise analytics up or down using cloud's on-demand computing model. In contrast, an on-premises infrastructure's resources are usually committed to typical workloads and don't have available excess capacity. Companies that can leverage data effectively can improve responsiveness. This can be critical in resolving product or customer issues quickly.

Adoption of cloud-based business intelligence applications grew by 50% over the past few years, from 29% to 43% according to recent research.[5] The most used feature is dashboards to make it easier to access and interpret data. Using cloud-based analytics delivers not just data, but useful insights to anyone the company chooses. Employees and business partners around the globe can gain a view of what's important in their domain from these self-serve dashboards.

Manufacturers also have the highest volume of data uploaded to the cloud of any industry. The complex raw data is the fuel that enables companies to set up analytics applications to comb through it for patterns, correlations, and insights. With the complex and ever-changing customer and supply chain landscape – not to mention innovative new products and services – instant analytics of new data that provide timely and actionable insights, and widely accessible visibility is crucial.

### CONCLUSION: INNOVATORS LEAD THE WAY

Today's manufacturers operate in a rapidly changing business climate, characterized by new and challenging customer behaviors, a fragile global economy, and the specter of terrorism with the potential to disrupt normal business and supply lines. But these challenges are being met by innovation. Cloud computing is a key enabler of initiatives like Industry 4.0 and the Internet of Things (IoT).

Cloud-based ERP it is also a platform for unlimited growth, freeing companies from the need to spend valuable corporate resources maintaining a datacenter, an infrastructure that is slowly growing obsolete. Companies that seize innovation and make it part of their business strategy, operations and business systems are the ones who will grow and prosper in the future.

1 "Within SBMs the larger cloud trend is toward Saas", Techaisle, January 2017. Click here to read more >>

2 "The Future of Supply Chain in the Cloud: Exclusive Market Research Study Results," Inspirage, 2016. Click here to read more >>

3 "BI and Data Management in the Cloud: Issues and Trends, BARC Research and Eckerson Group study, January 2017. Click here to read more >>

4 "Industry 4.0 Is Enabling A New Era Of Manufacturing Intelligence And Analytics," Forbes, 2016. Click here to read more >>

5 "Business Intelligence and Analytics in the Cloud, 2017", BARC Research and Eckerson Group Study. Click here to read more >>

# IS ERP IN THE CLOUD RIGHT FOR YOUR COMPANY?

Major issues to consider in evaluating ERP deployment choices (cloud vs. hybrid vs. on-premise)

## CULTURAL

### Values and objectives

- Cloud provides easier faster scalability to support rapid growth.
- Cloud can respond more quickly than on-premise to changes in strategic direction such as spin-offs, divestitures, acquisitions.

### Mindset and buy-in

- Take an inventory of what key stakeholders' feelings are about on-premise vs. cloud.
  - Love the idea of no IT infrastructure.
  - Want to be able to physically touch and firewall a system.
  - Not attached to either.
- It's critical that these people will support the approach to fully enable the system.

## FINANCIAL

### OpEx vs. CapEx

- Cloud is a subscription model with ongoing payments for use of the software.
- On-Premise typically involves buying the license to own the software and then paying a maintenance fee annually.
- Hybrid will have add-on OpEx for the cloud additions.

## TIME TO BENEFIT

- On-premise build out typically has more delays in the project start before gaining value from the system.
  - Infrastructure challenges.
  - Other issues the IT team does not identify.
- Cloud often can be up and working immediately – for configuration and post-design for use.
  - Vendor's team responsible for evaluating any possible obstacles and removing them.
- Hybrid may be able to add cloud to get a JV, buy-out, acquisition up to speed quickly – even if it's only temporary – while integrating into an existing on-premise system.

## TECHNICAL

- Cloud vendors typically do a technical assessment across all locations to ensure conditions are right for success with a cloud implementation.
- Integration to existing/other systems required for any approach, but it's a little different.
  - Most companies do have other systems, even with a comprehensive ERP suite.
- Shifts a bit from traditional when on-premise to cloud or cloud-to-cloud.
  - Any of these combinations may be easy or difficult – requires evaluation.

## BCDR (Backup Continuity and Disaster Recovery)

- On-premise BCDR requires continuous spending on storage infrastructure and often requires multiple sites to ensure continuity.
  - Even mid-sized companies overlook the importance of this.
- Cloud vendor assumes expense and responsibility for backup.
  - Disaster recovery virtually invisible to end user.
  - No costly interruption in business operations – in case of disaster, business can be moved to anywhere there is an Internet connection.

## SECURITY

### Security responsibility

- On-premise can keep things behind the corporate firewall.
- Cloud may provide better security than on-premise systems.
  - Cloud software provider responsible for security and only provider personnel have access.

### Cybersecurity confidence

- On-Premise means IT staff must install security patches themselves, and keep up with them.
- Cloud means the latest security patches are always immediately applied in a consistent way across the whole organization and for all users.

## STAFFING

- On-premise requires educated technical people on staff for infrastructure, integration, maintenance.
- Cloud implementations typically require little to no internal staff, as the vendor provides those services.

## UPGRADES AND ONGOING MAINTENANCE

- Upgrades and system maintenance can be automatic and pain-free to users in the cloud.
- Rolling out new functions can be instantaneous in the cloud.

## CONSUMPTION OF INNOVATION

- On-premise, solution provider offers upgrades and there is considerable work to use those upgrades, and often an entire package may include things not of interest.
- Cloud delivers immediate access to innovative capabilities as business objectives change.
- With cloud software you choose whether to deploy each innovation.

PRESENTED BY EPICOR

# THE TIPPING POINT

For Cloud-Based Software

## WHAT'S HOLDING MANUFACTURERS BACK?

- Slow command & control
- Locked-in processes
- Static reports
- Disconnected info flows
- Old ERP version
- Data, not insights

## CLOUD CAN ENABLE TRANSFORMATION & AGILITY

**BUSINESS NEEDS TO BE**

- Agile to spot & capture new market opportunity
- Responsive to customer needs
- Easy to work with
- Continuously improving
- Quick & confident in decisions
- Innovative
- Profitable

**CLOUD ENABLES**

- Quick implementation of new features & big data analytics
- Quick configuration & ramp-up
- Change with less disruption
- Instant analytics even at peak times
- No IT infrastructure constraints
- Pay for what you need as you go

## SOLUTION PROVIDER TAKES THE BURDEN


- Infrastructure investment
- Continuity & availability
- IT maintenance
- Security
- Scalability up or down
- Constant innovation

**IT Infrustructure Investment**

## CLOUD'S TIPPING POINT

**In 2018, we'll cross the 50% adoption milestone for public cloud.**

Forrester
*Predictions 2018: Cloud Computing Accelerates Enterprise Transformation Everywhere*

**Worldwide public cloud services revenues are expected to grow 18.5%.**

**SaaS revenue is expected to grow 21% in 2017 to reach $58.6bn.**

Gartner
*Forecast Analysis: Public Cloud Services Worldwide, 2Q17*

## FACTORS FOR ERP AND ANALYTICS IN THE CLOUD

**ERP**

- Low IT investment
- Minimal disruption for upgrades
- Support business & process change quickly
- Easy multi-site support

**ANALYTICS**

- Use with data from all applications
- Scales with changing needs
- Use compute power when needed
- Multi-site data equally accessible

## THREE POSITIONS

On-Premises | Hybrid | Cloud

## TIPPING POINT CHECKLIST FOR CLOUD ERP

- ❑ **Mindset** - we trust cloud, we want to be modern
- ❑ **Strategy** - we are growing, acquiring, changing fast
- ❑ **Infrastructure** - we don't need all of that in-house
- ❑ **Geography** - we have good Internet in all locations
- ❑ **Team Skills** - we want IT business consultants, not tech janitors
- ❑ **Speed** - we want benefits immediately
- ❑ **Always Current** - we want the latest version at all times
- ❑ **Innovation** - we want to be ready to turn on a dime

# RESOURCES

Leading Companies Choose Cloud to Focus on Core Business Growth

Building a Better Tomorrow With ERP

Epicor ERP - Visionary ERP software which delivers choice, flexibility, and agility needed to support strategic initiatives

EPICOR®

## GROW YOUR BUSINESS WITH EPICOR

Epicor Software Corporation provides industry-specific business software designed around the needs of manufacturing, distribution, retail, and services organizations. More than 40 years of experience with our customers' unique business processes and operational requirements is built into every solution in the cloud or on premises.

Today, over 20,000 customers in 150 countries around the world rely on our expertise and solutions to improve performance and profitability. Epicor is driving growth for companies globally with solutions including:

- Epicor Enterprise Resource Planning (ERP)
- Human Capital Management (HCM)
- Financial Management
- Manufacturing Execution Systems (MES)
- Supply Chain Management (SCM)
- Retail Software
- Distribution Software
- Lumber and Build Materials Software
- Automotive Aftermarket Software

Epicor products are working today on a global scale, delivering impressive benefits to companies just like yours. With a deep understanding of your industry, Epicor solutions promote growth while managing complexity and increasing efficiency. The result is powerful solutions that free your resources so you can grow your business. For more information, connect with Epicor or contact us.

Explore the full solutions and products that can help grow your business.