

The logo for Tech-Clarity, featuring the text "Tech-Clarity" in a bold, sans-serif font. "Tech" is in white and "Clarity" is in yellow, both set against a dark blue rounded rectangular background.

Tech-Clarity

**Tech-Clarity Insight:
Modernizing Manufacturing
Systems with the Cloud**

***Leveraging Cloud ERP to
Improve Systems and
Business Performance***



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Executive Overview

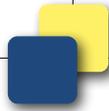
Tech-Clarity recently evaluated the benefits, requirements, and considerations of cloud-based enterprise software for manufacturers. Two recent reports, [Assessing the Cloud PLM Opportunity](#) and [Integrating Cloud PLM](#), discussed the potential value of transitioning to cloud solutions. They also addressed a number of important factors manufacturers should examine before making the transition. This report extends those findings to help manufacturers determine if cloud ERP can help solve a far-too-common problem, companies stuck running insufficient, outdated manufacturing systems.

Manufactures will simply not be able to take full advantage of the economic revival without improving their ability to rapidly identify opportunities and adapt their business.

Manufacturing appears to be on the verge of a rebirth and a period of opportunity not seen in our industry for many years. Unfortunately, most companies will not be able to take full advantage of this macroeconomic trend because they are stuck in one of two dead-end situations - the “*Old ERP Trap*” or the “*No ERP Trap*.” In these scenarios companies are bound to either legacy ERP applications running on outdated infrastructure or a hodgepodge of homegrown and/or informal systems. There are multiple disadvantages to running these antiquated systems. The primary reason identified by this research was not technical in nature. Manufactures will simply not be able to take full advantage of the economic revival without improving their ability to rapidly identify opportunities and adapt their business.

Cloud ERP offers a potential new path to modernize manufacturing systems and helps companies overcome financial and resource barriers to change.

Cloud ERP offers a potential new path to modernize manufacturing systems and helps companies overcome financial and resource barriers to change. But many manufacturers are concerned about the potential pitfalls of cloud-based solutions. Most of the concerns, as the previous reports discuss, are unfounded and easily mitigated. In fact, interviews for this report indicate that despite concerns, cloud ERP results in a *better, lower risk* implementation than most companies could support inhouse, offering web class performance and reliability. “*People think they have better control and security with onsite software, but based on what I’ve seen that’s not the case,*” observes Randy Copperman, VP Support Services for piezoelectric ceramics manufacturer Channeltech. “*It’s not our business to build big data centers and protect information, someone else will do that better than I ever will. That’s the whole concept of outsourcing, that’s what the cloud vendors do.*”



Clearly there are some important factors to keep in mind. Not all cloud vendors are created equal. It's important to evaluate the cloud ERP vendors' capabilities for backup, recovery, support, performance, reliability, and security. Industry certifications such as SSAE 16 Type 2 are a good place to start. Most companies will find that their concerns are quickly alleviated and that cloud providers offer a higher level of service than they could provide internally. Once the misunderstandings about "going to the cloud" are clarified, cloud ERP offers a new path to modernizing systems that is worth serious consideration.

Understanding the Old ERP Trap

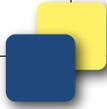
Many companies are still using old, antiquated systems to manage their manufacturing operations. They run ERP systems they implemented more than a decade ago, homegrown patchworks, and/or a collection of spreadsheets to manage their business. Unfortunately, companies have a hard time switching away from these solutions. Why do companies suffer with old systems? Surprisingly to some, it's not the cost of the new ERP application. The cost of purchasing a new system, for the most, is only a small part of the switching cost associated with ERP systems. There are significant financial and resource constraints inherent to ERP that make it hard to get out of the Old ERP Trap.

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Part of the problem is that the system works, at least to some level. Too often people are frustrated with the old system but don't have the wherewithal to change anything because "it's not broken." This leaves them suffering with outdated technology that costs a lot to maintain, is very difficult to customize as business needs change, and is hard to integrate with other systems. Their applications often run on outdated infrastructure such as old midrange computers and out of date operating systems. These are difficult to keep running and make it hard to find (and keep) resources to support them. While there may be more updated versions of the solution, upgrades are cost prohibitive and risk due to customization so most companies are not even able to take advantage of their vendors' improvements without re-implementing the software.

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Why are companies trapped? For one thing, most of today's IT budgets are spent just maintaining existing infrastructure and solutions. Internal IT resources, for organizations that are big enough to have them, are likely tied up keeping the ERP system running and trying to get reports out of it. This constrains budget and resources that would be better used to modernize systems. Companies are trapped making do with what they have



because they don't have the will to make a change, the finances to upgrade the necessary infrastructure, and the resources to dedicate.

Living with the Implications of the Old ERP Trap

Living with old technology makes support difficult and expensive. But the Old ERP Trap is not just a technology problem. Today's IT leaders have a seat at the executive table and are responsible for helping improve business results. No longer is IT just as necessary cost center. But the Old ERP Trap keeps them from fulfilling this role. The *business* implications of the ERP trap are the real reason to justify transitioning to a new system.

Yesterday's ERP were not designed with information availability and transparency in mind.

Yesterday's ERP were not designed with information availability and transparency in mind. They were designed to capture and process transactions, analyze supply versus demand, and create accounting data. Early ERP architectures inherently limit visibility to information and make it hard to make informed decisions, leaving manufacturers to look in the rear view mirror versus making real-time, data-driven decisions. "*I worked with ERP from <a leading provider>,"* explains Kent Greenwald of custom manufacturer Wickeder Steel. "*We would come to a point to make a decision and have to stop, have people run away to write reports, and then they brought back old, static data,"* Randy Copperman of Channeltech struggled with the same issues, "*It would take days – if not weeks – to get reports that gave us the visibility we needed to make intelligent business decisions. Crunching numbers and pulling information together was almost impossible, we didn't even try to do it."*

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Today, manufacturers are faced with a recovering economy and a manufacturing renaissance that offers growth opportunities manufacturers haven't seen in over a decade. Unfortunately, their systems are not up to par and put them at a competitive disadvantage. "*We realized we were outgrowing our accounting system and wanted a full, end-to-end solution,"* says Charly Bauer, Director of Special Projects for Jeni's Splendid Ice Cream. "*We wanted the same advantages as the big companies we compete with and to know we had the right solution to grow with."*

Cloud ERP offerings are now available, offering technology and business models that can help manufacturers get out of the Old ERP Trap.

Most manufacturers are aware that there are better systems available to help them monitor and manage their business more proactively, but they can't figure out how to get there. Unfortunately, many ERP modernization projects end up with a decision to "do nothing" because companies are financially and resource bound to their current systems. Something drastic needed to change in order for manufacturers to escape their legacy systems. Things have changed. Cloud ERP offerings are now available, offering technology and business models that can help manufacturers get out of the Old ERP Trap. These solutions are now mature and don't require a painful tradeoff between functionality and deployment model. As Jeni's Splendid Ice Cream's Charly Bauer expressed, *"We were surprised at how much ERP capability is available on the cloud and is within our reach."*

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Cloud Overcomes the Financial Obstacles to Better Systems

One of the largest barriers to changing ERP systems is cost. Cloud-based solutions help soften the blow. As Tech-Clarity's [Assessing the Cloud PLM Opportunity](#) explains, *"Cloud solutions are easier to embark on and offer lower business risk because they require no capital expenditures, no depreciation, and lower 'sunk' costs."* Cloud systems don't require the large capital investment of on-premise solutions. The most obvious savings is on the application itself, because the software is paid for as it is used instead of buying it up front. But costs are also lower because there is no new server hardware to buy and no database, operating system, or other infrastructure software to purchase. The cloud model is compelling, as Channeltech's Randy Copperman explains his strategy *"I don't want to buy a bunch of servers, I want to outsource everything I can and look to the cloud first for everything before deciding to do it ourselves."*

Cloud systems don't require the large capital investment of on-premise solutions.

Replacing legacy systems with cloud solutions also frees up budget as older systems and hardware can be retired. As Tech-Clarity Issue in Focus says, *"Cloud offerings and business models reduce time and cost dramatically by eliminating waste and redundancy."* Most companies could probably justify their cloud conversion project based on these cost savings alone. The key to cloud savings is that costs are not shifted, as in a leased or hosted solution. Cloud offerings, by their nature, eliminate the total cost of ownership because they operate on a shared services model and leverage economies of scale. *"We didn't want to rent a big server farm somewhere where we were administering*

on someone else's hardware," recalls Charly Bauer of Jeni's Splendid Ice Cream. "I don't want to look at an operating system, I don't care about that. I want to look at things like orders and inventory."

Embarking on the cloud journey doesn't require the long-term commitment that on-premise or leased systems demand, reducing risk to the business.

In addition to lower cost cloud solutions offer lower risk. Embarking on the cloud journey doesn't require the long-term commitment that on-premise or leased systems demand, reducing risk to the business (and the project sponsor). In other words, nobody has to risk getting fired for spending ten years worth of the IT budget. If it doesn't work, turn it off and stop paying for it. Kent Greenwald of Wickeder Steel comments on the difference between hosted and cloud solutions, "*We looked at a hosted solution, but we would still be liable for upgrades and exposure to crashes.*" In a cloud model, these functions are performed by the vendor centrally for all of their customers, reducing risk and offering the ability to share top-notch IT resources across companies. "*What other choice than cloud could I afford without spending a fortune?*" asks Randy Copperman, Channeltech. "*And even then I would still have outages, failures, and much higher costs.*"

Cloud Breaks the IT Resource Barriers

The other main barrier manufacturers face when upgrading from old ERP systems is lack of resources. New systems used to mean new IT resources as existing resources continued to maintain the legacy solutions. People needed to install and learn how to run the new servers and operating systems, while others needed to install the application software, and likely others had to learn a new database management system and tune it for performance. This is radically changed in the cloud model. "*We have no onsite IT resources because we want to make sure everyone is adding value and we don't have enough demand for someone onsite,*" describes Wickeder Steel's Kent Greenwald.

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New systems traditionally add up to a lot of new training and likely new resources. With cloud offerings, the vendor takes responsibility for almost all of the IT tasks because they are simply part of the service provided. That means that implementing cloud solutions doesn't require extra IT resources that (in many cases) are simply not feasible. "*We only have two IT people, and I don't want to change headcount,*" says Channeltech's Randy Copperman. And, as mentioned earlier, they can often do it once for multiple companies so it reduces the number of resources required. "*We don't want to partition drives or hire*

someone to do backups or run a server. We don't have the IT expertise and I don't want to pay for it," offers Charly Bauer of Jeni's Splendid Ice Cream. *"I believe that heavy-duty, bulletproof cloud companies will always be better than us in that space."*

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Charly Bauer, Director of Special Projects, Jeni's Splendid Ice Cream

Cloud Keeps you Out of the Old ERP Trap

Another benefit of getting out of the Old ERP Trap is that cloud ERP doesn't just offer a way to get out of one trap and into another. Switching cloud providers in the future is easier than switching traditional systems. It also prevents the problem of falling behind in releases because cloud systems are continuously improved and cloud vendors add new capabilities to the system on an ongoing basis. There are no big "upgrade" projects to plan and budget for because new features and capabilities are rolled out incrementally to everyone instead of packaged up for periodic (and painful) releases. In this way, there is no trap of getting behind a couple of releases and losing support for your hardware or operating system. In fact, the hardware and operating system behind the scenes of cloud solutions are being refreshed continuously without companies having to worry.

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Scaling the system to new users is also much easier. If you choose to add new people to the system, you simply extend your subscription. There is no need to worry about adding new hardware capacity or checking on infrastructure software licenses. Cloud systems make it easier to collaborate with other companies or remote sites. For example, if you want to add suppliers, simply add them as users. There is no need to work out firewall issues or add special software, they just need a browser, access to the Internet, and authorization to access your information. *"We wanted expanding functionality and a platform for continuous improvement without having to fight with upgrades. With cloud, you can implement simply to start and then build on it,"* offers Kent Greenwald of Wickeder Steel. Scaling up to new "modules" is also easy. With many cloud licensing models you can typically add capabilities without buying new modules as long as you have enough user licenses.

"With an onsite or hosted ERP system you are stuck, but cloud-based systems are evolving and have more functionality than you can ever access."
C. Kent Greenwald, COO, Wickeder Steel Company

Cloud systems also offer more flexibility and agility. For example, cloud systems are designed to be accessed from anywhere on a variety of hardware, frequently including mobile devices. *“The advantage of cloud is that we can get to our system from around the world, probably more securely than I can provide on premise,”* offers Randy Copperman of Channeltech. Mobility of information is inherent to the cloud. Gaining new capabilities like mobile computing from cloud vendors doesn’t require extra effort or a new implementation, it is inherent to the way they work. As Kent Greenwald of Wickeder Steel offers, *“With an onsite or hosted ERP system you are stuck, but cloud-based systems are evolving and have more functionality than you can ever access.”*

Understand Myths and Realities of Cloud

Manufacturers have certainly had concerns about the cloud. The prior reports identified a number of areas that companies should understand about cloud before embarking on it. Although most manufacturers are likely using cloud somewhere else in their business, such as CRM or e-mail, companies worry about what they will lose by going to the cloud. They are concerned about giving up control of their environment and not having people on their staff that manage the system. For most companies, particularly small to midsize companies, their IT capabilities are significantly improved by leveraging world-class resources at the cloud software provider. As the Tech-Clarity Cloud Opportunity report concludes, *“The cloud model allows companies to achieve a higher level of computing capability than they could on their own.”*

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Randy Copperman, VP Support Services, Channeltech

There are, however, concerns that should be addressed. The three most common concerns manufacturers express about cloud applications are security, performance, and reliability. Counterintuitively to some people, these are often improved by going to the cloud because the cloud vendor has the opportunity to hire and retain more specialized resources in the shared service model. *“When people are surprised that I trust the security of a cloud company I always say ‘put the mirror up first’ and tell them I would trust the cloud vendors’ organization more than theirs,”* laughs Charly Bauer of Jeni’s Splendid Ice Cream. Cloud vendors can devote dedicated resources for security and reliability because they are leveraged across multiple companies, where typically that is just one of many job responsibilities for internal IT resources. *“Some of the biggest naysayers were concerned with security,”* recalls Channeltech’s Randy Copperman. *“I explained to them that our cloud vendor is providing 500 times what I could do myself, and doing it at a lower cost.”*

The point that companies often miss is that performance, reliability, and security are critical to the cloud vendor's business therefore it becomes a part of their business strategy and core competency. *"We expect uptime and quality, and if we don't get it we will yell – and their business depends on it,"* says Charly Bauer of Jeni's Splendid Ice Cream. *"I can't imagine an environment internally that would be better. If something goes down, I would rather have them on it than someone I could hire."* Reliability and performance are also core competencies of the cloud vendor. They benefit from both the economies of scale to hire specialists, provide redundant systems, and the luxury of accessing extra capacity on demand as needed. *"The ability for a cloud company to do backups and offer protections against hardware failures is nothing a business my size can possibly come close to,"* says Wickeder Steel's Kent Greenwald. There are some distinct advantages to shared resources, such as the ability to use greater server capacity for peak needs. *"Our MRP used to run overnight, now it runs in 30 seconds in the cloud. We run it three times per day!"* Mr. Greenwald adds.

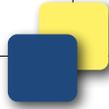
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There are legitimate concerns about cloud vendors. For example, it's important to make sure your cloud providers are doing things right. Just because it's critical to their business doesn't mean they are good at it. You should check for industry certifications and ask questions. *"We went to kick the tires. We looked for SSAE 16 certification, made sure they were following the right protocols for the database and the server room, and we actually looked at the warm backup site,"* recalls Randy Copperman of Channeltech. While most companies won't go that far, it's important to ask about things like backup and failover strategies. *"We have had crashes on our inhouse installation and had to fight through it, and we failed completely. Now we know that the data is backed up different ways and mirrored, I don't have to worry about it anymore,"* says Kent Greenwald of Wickeder Steel. Of course you should also ask questions to make sure you are contractually protected, for example understanding the vendors' service level agreements for performance and reliability. One special consideration for cloud solutions is to make sure you can get your data out when you want it, and in a format you can use.

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Take Advantage of Better Information and Decision-Making

Most importantly, and perhaps we should have started with this, is that the system needs to offer the functionality you need. Just because it's cloud doesn't mean it's good. It's not just about the cloud, it's about using better systems. *"We wanted something industrial strength with more capabilities for manufacturers,"* remembers Charly Bauer of Jeni's Splendid Ice Cream. *"We wanted traceability of our products and the ability to manage our materials and processes. Our cloud ERP offered that."* It's important to make sure to evaluate features and functions to make sure the software fits your business, and speak to references from companies similar to yours in industry and size.

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With a modern, cloud-based ERP system manufacturers are poised to capitalize on the upcoming rebirth of the manufacturing industry. Manufacturers can gain the insight they need to make better decisions. *"When data is in one system you can tie it all together from the time you develop a quote through production, it makes running the business less painful,"* offers Randy Copperman of Channeltech, *"For example, our Controller came in and ran a report for the CFO that took five minutes that before would probably have taken a whole day."* Kent Greenwald of Wickeder Steel also gained better information through cloud ERP. *"We can now manage performance proactively instead of figuring out 'what happened to me?' because we moved into real-time versus static information with our new ERP."* These advantages are only available after overcoming the Old ERP Trap.

Conclusion

Manufacturers must overcome the OLD ERP Trap or the No ERP Trap in order to take advantage of the upcoming opportunities in our industry. They can no longer afford to fly blind and review performance weeks after the month (or quarter) ends. *"We can now make corrections more proactively,"* according to Randy Copperman of Channeltech. *"We can ask 'why did margins go down?' and find out what caused it right away instead of waiting two months to find out it even happened."* Our goal is to get to data-driven decision-making" Today's companies must modernize their manufacturing systems in order to make proactive, fact-based decisions. *"With our new ERP we don't have to beg for data for a specific report, it's all here,"* Kent Greenwald of Wickeder Steel says.

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Cloud ERP systems now offer manufacturers the ability to overcome the financial and resource constraints binding them to outdated systems and infrastructure. They can now leverage the cloud to implement new systems without the huge cash outlay required for traditional solutions and their required hardware and operating infrastructure. In fact, by retiring old systems and hardware manufacturers can free up budget to tackle new, more strategic initiatives instead of spending all of their time and money maintaining legacy solutions. In addition, they can leverage the IT resources provided by the cloud vendor as part of a shared service, eliminating the need to increase IT headcount and expense.

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Despite concerns about cloud systems, implementing a cloud ERP solution can actually reduce business and technical risk. Cloud vendors employ specialized resources to ensure reliability, scalability, performance, and security. Due to a shared services model, they can offer Internet-class performance for even the smallest of companies. The time has come for manufacturers to understand and leverage the cloud to get better data out of their systems, at lower cost, without adding new IT resources.

Recommendations

Based on industry experience and research for this report, Tech-Clarity offers the following recommendations:

- Recognize business impact of relying on outdated systems
- Modernize manufacturing systems to improve decision-making
- Evaluate cloud vendor capabilities for reliability, performance, and security to demystify and alleviate cloud concerns
- Leverage cloud ERP to overcome financial and resources barriers that prevent systems modernization
- Reduce capital outlay and business risk by paying for software as you use it instead of up front
- Leverage shared services and economies of scale provided by cloud vendors to achieve Internet-class performance
- Redirect IT spend from maintenance of outdated hardware and software to more strategic initiatives
- Increase business agility by leveraging the interconnectivity and scalability of the Internet and the cloud

About the Author

Jim Brown is the President of Tech-Clarity, an independent research and consulting firm that specializes in analyzing the business value of software technology and services. Jim has over 20 years of experience in software for the manufacturing industries. He has a broad background including roles in industry, management consulting, the software industry, and research. His experience spans enterprise applications including ERP, PLM, supply chain management, quality management, service lifecycle management, manufacturing, and more. Jim is passionate about improving product innovation, product development, and engineering performance through the use of software technology.

Jim is an experienced researcher, author, and public speaker and enjoys the opportunity to speak at conferences or anywhere that he can engage with people with a passion to improve business performance through software technology.

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