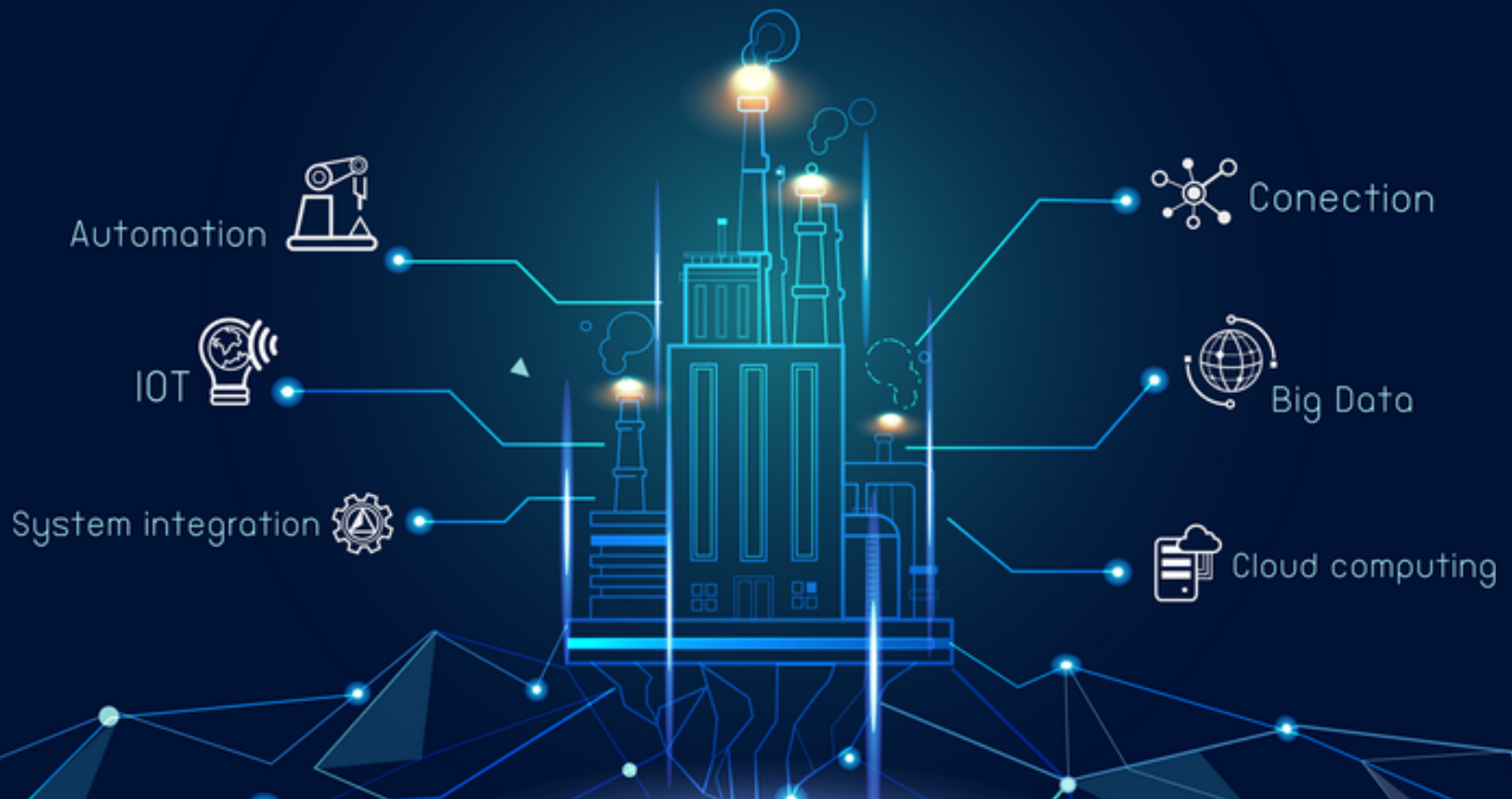


INDUSTRY 4.0 & THE CUSTOMER EXPERIENCE

Jolt Consulting Group White Paper



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Contributed on behalf of Jolt Consulting Group by Christina Galente

The 4th Industrial Revolution is upon us and it's a game-changer for you and your customers. Industry 4.0 is comprised of transformative technologies that will impact all aspects of manufacturing and, in turn, the field service industry. From remote monitoring of equipment to the automatic ordering of a needed part for a repair, field service companies, their employees and, most importantly, their customers are in for an exciting, new experience. With the digitization of factories and the interconnectivity of IoT, your customers will experience a plethora of changes and improvements that will 'revolutionize' how they interact with your business. These changes are sure to challenge most service organizations.

Not so long ago, the field service industry was dominated by the age-old routine of 1 - sell a product, 2 - request a repair (if said product is broken) and 3 - send a technician out to fix it. This 'break-fix,' reactive, concept is outdated and a far cry from the concierge service customers are now used to receiving across all industry verticals. Uber, Lyft, Safelite and other progressive business-to-consumer organizations are setting the standards that all customers, including those in a business-to-business world, expect proactive visibility into the state of their request. In today's high-customer expectation world, businesses need to keep customers happy and loyal or they will take their money elsewhere. For the field service industry, adopting this new mentality is especially important because a company is only as good as its customers' satisfaction level.



Much has been made within the service world of connected devices and their impact on servicing customers. Monitoring equipment in real-time and using readings to drive downstream service activities has long been the vision of "connected service." Adoption within service, however, has been slow, largely due to a lack of perceived value, as well as, immature technology infrastructures across most service organizations.

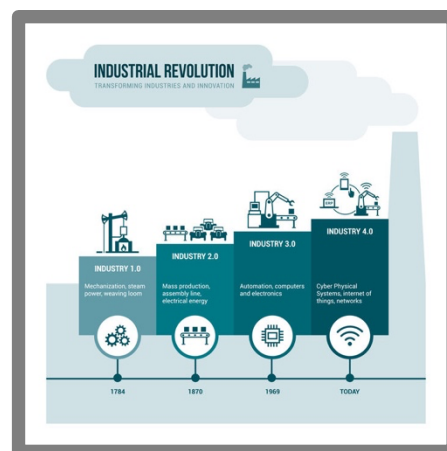
HOW DID WE GET HERE?

But what does it mean, this fourth revolution in manufacturing? Let's start at the beginning with Industry 1.0, or simply 'The Industrial Revolution.' This was the first of four phases of major innovation, occurring from approximately 1760 to 1830. With the onset of steam-powered machines, production shifted from an agrarian society in rural areas with animal-powered equipment to large scale manufacturing occurring in factories located in cities and urban areas across Europe and the United States.

At the beginning of the twentieth century, the second phase of the Industrial Revolution occurred. This phase introduced the use of steel and involved factories converting from steam to electrically powered equipment. A new concept of 'mass production' came about during this phase, with the use of the assembly line. (Think Henry Ford and the groundbreaking piecemeal manufacturing of the Ford Model T.)

Beginning in the 1960s, the third industrial revolution brought another major upheaval with nuclear power and other scientific advancements, such as semiconductors, mainframe computing, personal computing, and the Internet. This era brought on the first automaton of production using electronics and IT and the dawn of robots.

All of the three previous industrial revolutions have dramatically impacted the way people live, work and communicate – this 4th revolution is no different. Unlike the three previous revolutions which came about through the development of new energy, this fourth revolution is the culmination of a complete digitalization leading to the emergence of the virtual world. As a result, “smart factories” have been created that are now able to self-monitor for disruptions and predict malfunctions before they occur, allowing for proper planning throughout the supply chain and workarounds that will save on cost and increase satisfaction with the end users. Taking a step back, this revolution is ultimately about visibility and predictability that, in turn, allow an organization to be nimbler and better differentiate itself from competitors by offering more flexible, customer-centric terms. This same concept that is true with manufacturing is also being applied to the field service industry.



SOLUTION

The solution is upon us, whether we’re equipped for it or not! Industry 4.0 is the current trend that is driving us toward automation and data exchange in manufacturing technologies and processes, including cyber physical systems (CPS), the internet of things (IoT), industrial internet of things (IIoT), cloud computing, cognitive computing and artificial intelligence (AI). All of this interconnectivity is allowing computers to communicate with one another to ultimately make decisions without human involvement. As we mine more and more data from the computers, our smart factories will continue to get more and more knowledgeable with the increase in data and will become more efficient and productive, with less waste as an end result.

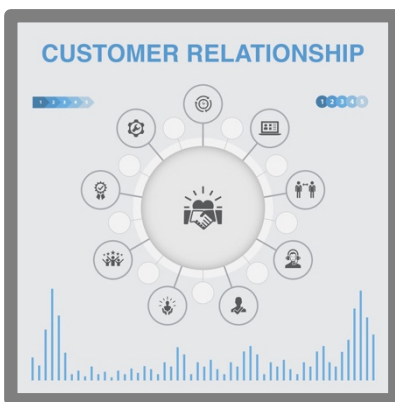
Companies across all verticals are constantly looking for ways to cut costs while increasing revenue and improving their customer relationships. This can be hard for organizations in any industry - oftentimes, as reducing costs tends to hurt customer relationships. IoT provides a way for field service organizations to achieve this goal by switching from a reactive state to a proactive one which can *predict* customer needs instead of hurrying to fix them, *ex post facto*. By mining and analyzing this abundance of data, service organizations will be able to optimize many areas of their business, including automation and inventory. Further, these advancements allow a service organization to realize the new frontier of service for the commercial customer – *uptime-based service*.

AUTOMATION:

The field service industry has seen first-hand the impact technology can yield in the field. Yet, many still use an old-school approach to customer service, with a handful of staff members answering

phone calls on a landline. But online communities, self-service portals, text messaging systems, social media platforms and chat bots---all enhanced with AI--are now fundamental tools. Automation through IoT provides a huge breakthrough in service, enabling organization to create lasting relationships with their customers.

Prior to IoT, a company would not usually be made aware of a malfunctioning piece of equipment until the customer called in for assistance. A call center would (hopefully) take all the information necessary and relay it to a tech-driven department, whether internally or by contacting a technician out in the field. (Not only does this process take time, but there is good chance that information will be omitted or misconstrued in this arduous process.) From there, a technical service representative will diagnose the issue remotely or decide that a field service engineer ("FSE") will need to make a service call. If the latter option is chosen, the service organization will schedule a service call that is convenient for both the customer and the FSE. Upon arrival the technician will either resolve the issue and return home or identify a part that needs to be ordered and schedule a second trip. Not only is this process time consuming and laborious, but it is a far cry from what we would label "exceptional" customer service. Throughout the process, the customer has had to spend what amounts to hours on the phone helping to relay information and schedule appointments, only to find out that the fix will not come until a part is ordered and received, which could be days or weeks down the road. A post-IoT process has a more immediate and effective system. With sensors and connectivity in place, a device can alert a field service team of an issue and provide a wealth of data for the FSE to help identify the problem and hopefully provide an ability to resolve it remotely, thus eliminating a costly truck roll for the service organization and a faster return to uptime for the customer. If required, upon the arrival on site, the FSE will not only have a clear understanding of the complete picture, but will have come prepared with the necessary tools and parts to alleviate the issue during a one-time visit, which was accomplished with very little involvement from the customer and has also resulted in effective time usage by the FSE, ultimately saving the company on time and resources.



Another way that automation with IoT has been useful in this new age is with the implementation of fully encompassing, 360-degree customer relation systems or CRM. Many companies have switched to strong and robust CRM systems which serve as the centralized hub unifying all channels of the business and allowing for quick and consistent responses. Keeping track and monitoring data will allow companies to analyze and keep tabs on their products and end-users. For example, if a company sees a sudden uptick of IoT alerts for a particular product, management can streamline the responses and proactively address the issue with their accounts. This sort of trend analysis

allows leadership teams to prioritize their work and move quickly to ensure the satisfaction among all clients.

INVENTORY MANAGEMENT:

The connectivity of it all is beneficial behind the scenes of the business, as well. IoT-connected devices are now able to signal operations teams and warehouses when a particular part is running low or out of stock. Additionally, with the connected technology, FSEs can interact with the warehouse crew in real-time to get an accurate inventory and plan accordingly. This same set of principles can also be used with tracking individual FSE truck inventory and relaying to the back-office team. With all the devices speaking to each other, there have been great improvements in the mobile field usage, resulting in improved customer service and a faster response to unexpected events.

In this way, companies can add significant value for their customers in a relatively cost-effective way. With more efficient resource usage and a hearty digital platform connecting physical systems to planning interfaces, companies can leverage their knowledge to deliver more customized products throughout their operations, especially where long lead times are often the norm.

DATA & ANALYSIS:

A vastly underused and enormous benefit of Industry 4.0 is the types and amounts of data that can be retrieved from the interconnected devices. With this knowledge and analytics, companies can revolutionize the way their entire business operates and grows. Commonly referred to as “big data,” these large sets of structured or unstructured data can be compiled, stored, organized and analyzed to reveal patterns, trends, associations and opportunities.

Understanding that such massive amounts of customer data are not just for producing and delivering a sale but for providing better customer service after the sale and creating a longer lifetime customer value, is just the beginning. In the future (and now), this data mining will be the driving force of how companies create and maintain loyal customers, in turn, helping to build referrals and drive repeat business. It is the foundation for uptime-based service, the new frontier rapidly becoming a reality. Too often, companies become overburdened with their big data, but it will do businesses well to remember the various benefits of such data: predicting demand and supply cycles, better customer service and support, and the ability to cater to each customer on a more personal basis during each successive journey of their lifecycle.



CASE STUDY:

The *Stanley Black & Decker* case study is a perfect example of how Industry 4.0 is improving internal functionality and positively impacting the customer experience:

Benefits of Data Mining - *Stanley Black & Decker*

Stanley Black & Decker operates one of its largest tool manufacturing plants in Reynosa, Mexico, which serves the North American market. With 40 multiproduct manufacturing lines and thousands of employees, the plant produces millions of power tools each year. At this plant, metrics drive business, keeping track of activities/output on an hourly basis. They aim to produce high quality products and keep as little inventory as possible, while servicing the requirements of their customers.



Challenges:

The two main challenges that the plant has faced, include: 1) Marrying technology with people, making it as seamless and integrated, as possible; 2) improve the efficiency of the lines and deploying their assets (both people and material) across those lines.

Solution:

The Reynoso plant implemented *Cisco Wireless Infrastructure + AeroScout Real Time Location Solution* – a WiFi router line that connects the entire plant and enables management to determine labor quality problems as they occur. This technology creates a fully connected factory – or IoT – allowing for a ‘virtual warehouses’ that is fully connected amid its products, devices, tools, people.

Results:

This IoT connectivity has resulted in some major gains for the company, including:

- 1) Speedy Response Times – management is alerted of a problem on the line, whether an employee initiates the alert or the line falls below a certain rate, management is notified...all in real time;
- 2) Improve Enterprise Visibility – real-time insight into trends, material flow, people flow and find ways to improve these processes;
- 3) Measurable Business Outcomes – increasing efficiency of labor force; quality of products→warranty returns improved;

The solution is very efficient, resulting in high productivity, low cost and easy to implement. The connected Reynoso plant is so successful that the company plans to expand the solution to the rest of the factory in Reynosa, Mexico, followed by a global rollout.

CONCLUSION

Industry 4.0 empowers businesses to better control and understand every aspect of their operation, leverage instant data to boost productivity, improve processes and drive growth, all in the name of delivering a superior customer experience. Although some executives may be skeptical about this next industrial coming of age, Industry 4.0 is gathering force.

Companies that invest in Industry 4.0 solutions can increase efficiency, boost collaboration between departments, enable predictive and prescriptive analytics, and allow people in all facets of the company to more fully leverage real-time data and intelligence to make better decisions within their business and to provide a superior customer experience. This, in turn, will enable a service organization to offer uptime-based services, providing a significant differentiator in their respective marketplaces. Leaders have the opportunity to be a



part of this revolution and digital transformation by investing in digitally-ready technology infrastructures and developing strategies to upgrade their processes to support the coming change.

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