



# Manufacturers turn to Internet of Things to boost customer engagement

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## Drive customer engagement with CRM in a digital world

A world of total interconnectedness where people, objects, companies, and devices stream information constantly across the Internet sounds like something out of science fiction. But the Internet of Things (IoT) is here, and it's gaining momentum. Manufacturing firms are among the early adopters of the IoT, with low-cost sensors routinely being used to provide real-time information about equipment status, location, and performance.

Increasingly, manufacturers are also making products that connect to the IoT. According to a recent survey conducted by Edelman Berland, "Business leaders surveyed estimate 42% of the products their respective companies produce contain IoT embedded technology. In just two years, these leaders predict that half (50%) of all their products will contain IoT technology. And, in five years, they expect even larger growth—with an average estimate of 66% of their company's products containing IoT technology."<sup>1</sup>

As manufacturers become more familiar with the benefits of the IoT, and seek more advanced applications, they are learning how to connect modern CRM solutions to their overall IoT strategy to further engage with customers and harness valuable customer insights.

This white paper explores how investing in the right CRM solution can help manufacturers further enhance their IoT strategies, as well as support their customer-centric initiatives.

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## What is the Internet of Things?

The Internet of Things is a world that connects people, data, processes, and physical things.

Today, we see that the majority of people around the world are connecting with the Internet using smartphones or tablets. This proliferation supports consumer-based connectivity of products and people. For manufacturers, this means more chances to collect data and communicate with customers. This continues to expand as more types of products begin to include sensors and the ability to automatically send messages to a designated resource, such as retailers tracking a warranty, or manufacturers collecting data about a product's lifecycle.

This is just the beginning. Enter the futuristic world where caravans of driverless trucks deliver products, hotels are staffed entirely by robots, and your toothbrush might report you to your dentist for inadequate technique.<sup>2,3,4</sup>

Goldman, Sachs & Co. expects the IoT to connect 28 billion things to the Internet by 2020.<sup>5</sup> IDC predicts the market for technology that powers the IoT (sensors, services, platforms, and analytics) will exceed \$3 trillion by 2020.<sup>6</sup> Smart cars will connect us on the road, smart appliances will run our homes, and smart meters will help conserve water and electricity.

Beyond the consumer realm, the IoT is creating a new paradigm in the business world. Employees can connect to business applications in the cloud, enabling remote collaboration and telecommuting on a scale never seen before. They're using mobile devices in the office, in the field, and in the warehouse to automate formerly paper-based processes and achieve greater operational efficiencies. In addition to WiFi-enabled laptops, phones, and tablets, the IoT will offer robots that stand in for remote employees, trashcans that alert when they need emptying, and plants and warehouses full of highly efficient automation.<sup>7,8</sup>

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## How will the IoT impact manufacturing?

Manufacturers already use connected technology more than most industries by employing precision robotics, process automation, logic controllers, and sensors that can detect equipment performance variables, such as heat, speed, volume, vibration, and more. These conditions are carefully monitored as signals that a machine may need service or calibration. Sensors are also being used to track the location of raw materials and finished goods throughout the value chain.

With the falling cost of semiconductors, manufacturers will be able to produce new, connected products for customers, as well as incorporate more types of IoT-driven automation in the plant.

More than 40 percent of organizations expect the Internet of Things (IoT) to transform their business or offer significant new revenue or cost-savings opportunities in the short term (over the next three years), rising to 60 percent in the long term (more than five years), according to a recent survey by Gartner, Inc. However, those surveyed said that many of their organizations have not established clear business or technical leadership for their IoT efforts.<sup>9</sup>

"The survey confirmed that the IoT is very immature, and many organizations have only just started experimenting with it," said Nick Jones, vice president and distinguished analyst at Gartner. "Only a small minority have deployed solutions in a production environment. However, the falling costs of networking and processing mean that there are few economic inhibitors to adding sensing and communications to products costing as little as a few tens of dollars.

The real challenge of the IoT is less in making products 'smart' and more in understanding the business opportunities enabled by smart products and new ecosystems.<sup>10</sup>

The IoT will connect more people and manufacturing processes, further enabling globalized manufacturing and lowering human capital costs. Many manufacturers may still be searching for their best IoT strategy, but there's no time to waste. Writing for *Forbes*, senior executive advisor Frank Burkitt, of Strategy& (part of the PWC network), cautions that, "The more IoT activity that already exists in your industry, as it does in healthcare, automotive, manufacturing, and home-related sectors, the more rapidly you will have to move."<sup>11</sup>

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## Manufacturing smart products

More of the products that manufacturers produce are being designed for the IoT. One high-visibility example is the smart car. Already, major auto manufacturers, including Ford®, General Motors®, Toyota®, and Volkswagen®, are producing connected vehicles with WiFi capabilities throughout the passenger cabin. Some models combine cameras and sensors to help drivers avoid collisions and parallel park automatically.

“By 2020, there will be a quarter billion connected vehicles on the road, enabling new in-vehicle services and automated driving capabilities, according to Gartner, Inc. During the next five years, the proportion of new vehicles equipped with this capability will increase dramatically, making connected cars a major element of the Internet of Things (IoT).”<sup>12</sup>

Future customers will demand products and services that are more customized to their specific needs and preferences. The IoT provides a new way of thinking about design that will revolutionize traditional products and create new product categories. The ubiquity of WiFi, coupled with the falling cost of semiconductors, sensors, and other hardware, enable manufacturers to develop cost-effective, smart products for more types of use cases.

## Implementing smarter manufacturing

In manufacturing environments, “mobile-ready software will allow plant managers to have access to data such as equipment efficiency, line efficiency, data visualization tools and alerts from any location,” enabling facilities and production managers to get out of the control room and have greater visibility into operations.<sup>13</sup>

A 2013 survey by the American Society for Quality (ASQ) found that 82% of manufacturers who have implemented smart manufacturing experienced better efficiency; 49% enjoyed fewer product defects; and 45% noted increased customer satisfaction.<sup>14</sup>

Smart manufacturing in a connected environment can contribute to fewer product defects by providing faster identification of equipment malfunctions and failures. Real-time monitoring of equipment and manufacturing lines can find even slight variations in production levels, equipment operation, and product quality. Sensors can identify fluid leaks, pressure change, and much more, leading to better asset utilization and more proactive maintenance of critical equipment.

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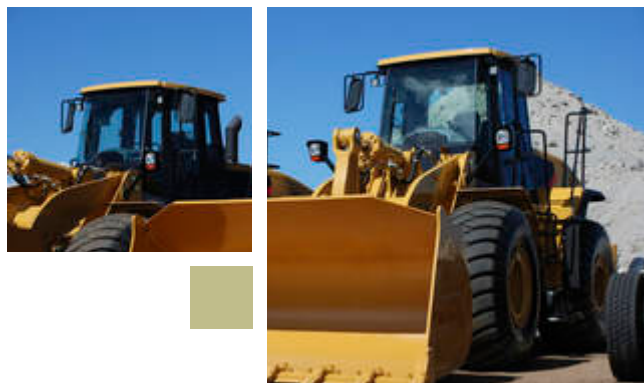
Beyond identifying problems, a connected manufacturing environment can enable machine to machine (M2M) interaction. In M2M interaction, not only does a sensor detect a fluid leak and alert the maintenance department, but it also alerts the other connected machines that the process workflow needs to be adjusted. Customer orders may need to be rerouted and delivery schedules adjusted. Escalation alerts and event triggers keep small incidents from escalating into massive ones, allowing personnel to respond quickly to potential emergencies—before lines need to be shut down or jobs delayed. This prevents materials and/or finished goods from going to waste and protects important equipment from more serious damage. Sensor data feeds into the integrated ERP solution, giving managers machine-level visibility into operations and processes on the production floor.<sup>15</sup>

The IoT also can help promote sustainability. Using sensors to regulate temperature and energy usage in different areas of the plant can help manufacturers reduce energy costs and lower their environmental footprint. Writing for *TechTarget*, Tony Kontzer noted, “Using sensors to monitor manufacturing equipment and environments is nothing new. But using those sensors to talk to other equipment and automatically feed data into plant and energy management applications is one of manufacturing's newest frontiers.”

## Creating new business models

The continuous stream of data that “things” can deliver back is creating new business models for manufacturers. For example, large equipment manufacturers now can charge customers a pay-per-use fee, rather than enter into simple rental agreements. This model might include charging customers based on how much they use a product, rather than charging a single upfront price.

In the support arena, smart products can send an alert when service is needed based on operating performance, rather than chronological milestones, saving customers time and improving service profitability. Connected products can provide technicians with valuable insights about specific components, parts and performance issues, allowing the technician to be well prepared for the service call, with the appropriate replacement parts and recommendations for repair or replacement. Other business models using smart sensor data wait to be discovered and may offer significant competitive advantage to first movers.



## How can IoT technologies and CRM software help manufacturers connect with customers?

In the past, manufacturers often had to rely on the extended supply chain to provide information about customers and end users. But connected products, using IoT capabilities, now offer manufacturers valuable data streams about product performance, customer reaction, and product lifecycle trends. This information can help guide future product development, as well as sales and marketing strategies.

Additionally, the IoT makes it very easy for manufacturers to connect and communicate directly with customers, providing upsell, cross sell, and add-on sales opportunities. In order to fully integrate and manage this customer engagement, manufacturers need a centralized CRM solution that can track customer history, as well as identify new opportunities and analyze trends.

A CRM solution can help manufacturers use product, customer, and sales data for better business insight. The information within the CRM solution can be used to drive a better customer experience and design more effective sales and marketing campaigns.

For example, manufacturers can use data collected from the units in the marketplace to predict future buying cycles. Data can show the typical lifespan of a product and warning signs of performance deterioration. Customers can be notified when their product is showing signs of wear and service or replacement is recommended. Data collected around performance characteristics can be used to provide customers with facts about benefits of upgrading to a new model or a larger capacity model, influencing the repair/replace decision. This type of fact-based selling is highly effective—especially when the data comes straight from the unit.

Use-case data can also contribute to highly targeted customer messages and campaigns, allowing manufacturers to make offers based on data trends and predictions for future preferences. Manufacturers are starting to adopt real-time offer and campaign management, a common strategy to help create a consistent customer experience across all platforms, ensuring greater customer and brand loyalty.

Perhaps most importantly, customer data can be used by manufacturers to refine product design, improve performance features, and predict future inventory needs. Understanding the product's lifespan helps manufacturers plan for new releases and target replacement campaigns to customers.

The CRM system can also be used to manage interactions with partners, suppliers, and distributors, keeping the extended supply chain up to date about these important relationships. According to Lopez Research, "IoT in manufacturing will improve business by connecting people to the right information, over the right device at the point of need and cross company boundaries to include suppliers, maintenance partners, and distribution chains."<sup>16</sup>



## What are the CRM technology drivers in the Internet of Things?

As manufacturers plan for customer engagement in the IoT, what are the most important capabilities they need in a CRM solution? Some of the key technology drivers are the same ones driving the IoT itself—mobile, cloud, big data, and social media. But there are also other important considerations for manufacturers, including data analysis, integration to key business systems, industry-specific design, and ease of customization. Let's review these important CRM technology drivers one by one.

### Mobile CRM

The IoT is powered by mobile connectivity, so the need to equip employees with mobile CRM is self-evident. The information within the CRM solution should be available to customer-facing employees anytime and anywhere, using secure mobile devices. It's important that the mobile CRM solution be well designed—intelligent design has a big influence on user adoption of mobile CRM. Rather than adapting some desktop CRM functions to fit a smaller screen, the entire mobile CRM user experience should be designed for smartphones and tablets. Look for a solution with rich functionality that allows mobile employees to perform key actions quickly, both online and offline.

### CRM in the cloud

A cloud-based CRM solution can offer manufacturers scalability and a rapid time to value. Implementation is usually faster than with traditional on-premise installations of CRM. In addition, deploying a CRM solution in the cloud reduces a company's hardware investment and allows the company to spread payments for the CRM solution out over time. It also offers secure CRM from any computer with Internet access. Because CRM is integral to sales, marketing, and customer service, look for CRM vendors that also offer the same solution in on-premise and hybrid (mix of cloud and on-premise) deployments, to achieve maximum flexibility and security.

### CRM inside the inbox

Most sales and marketing professionals use email all day long, and email can sometimes be an impediment to adoption of the CRM solution by end users. How a CRM solution interacts with popular email tools such as Microsoft® Outlook and Gmail will have a big impact on the user experience. Choose a solution that brings CRM functionality inside the email inbox, rather than forcing employees to toggle back and forth between applications. This allows employees to work the way they want and avoid time-consuming double data entry or manual updates.



## Social media capabilities

In a mobile device-driven world, it's important to engage with existing and prospective customers through social media during the sales and marketing cycle, and also for customer service and support. Look for a well-designed CRM solution that brings social information into the customer record. Having timely information from customers' social profiles and posts can help sales professionals engage on a more personal level. In fact, Nucleus Research revealed that social CRM increases sales productivity by nearly 12%.<sup>17</sup>

## Analytics

A CRM solution contains essential information about customers and buying trends, as well as the performance of sales, marketing, and customer support. It's essential that this information can be used to make informed business decisions and shape strategic priorities. Good analytics and reporting capabilities can bring CRM data to life, delivering a deeper understanding of business performance and customer preferences.

## Integration with key business systems

There's no good place for data silos in a connected, global business environment. Operating at the speed of the IoT means you need to make sure your CRM solution integrates with key business systems, especially your ERP system. You want seamless data sharing between departments and employees to help ensure a consistent customer experience. You also want a CRM system that offers integration with your desktop productivity tools, marketing automation software, and business intelligence tools.

## Ease of customization

In the overall IoT infrastructure, technology evolves quickly. Your CRM solution needs to be able to scale up without complication and adapt to changing business processes. Most enterprise CRM solutions allow for customization, but you'll get the most value from a system that can be customized without coding. A system that can be customized without coding will require little, if any, involvement from IT, and allow customer-facing departments to tailor CRM to reflect business workflows and unique user, team, company, and industry requirements.

## Designed for manufacturers

In an increasingly digital world, manufacturers are turning to business systems designed to meet specific industry challenges to help them differentiate themselves from their competitors. Developing customer-centric business models is one of the most important ways manufacturers are avoiding commoditization of their products. Highly personalized products are becoming the new normal in manufacturing, with engineer-to-order (ETO) and make-to-order (MTO) processes put in place. In today's customer-driven market, purchasing decisions are often driven by the customer experience. The customer experience is not identical in different industries, and the software helping to drive it should reflect industry differences.

# How can manufacturers take advantage of modern capabilities?

The Internet of Things offers growth opportunities for manufacturers recovering from the recent economic setbacks. The IoT provides valuable insights in both the consumer world and the business world. Connected machines and systems can help improve the manufacturing process itself, and connected products can help manufacturers to engage with their customers, suppliers, partners, and distributors like never before.

To find the right CRM solution, manufacturers will want to consider the technology drivers of the IoT—cloud, mobile, and social media. They should also look for functionality, such as email integration and ease of customization, which can drive user adoption. Finally, manufacturers should seek a CRM solution designed for their industry and integrated with major business solutions such as ERP, business intelligence, and marketing automation to help them operate more efficiently and deliver an exceptional, consistent customer experience.

For more information on how Infor CRM is helping manufacturers drive customer engagement in a digital world, visit [crm.infor.com](http://crm.infor.com).

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