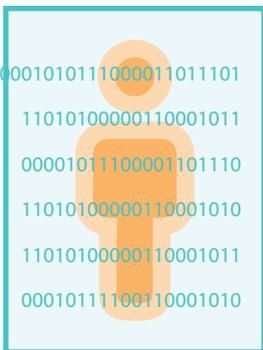


How Intelligent Automation is Rewriting the Rules of Customer Service



Customer support has become a key differentiator in almost every industry. It's especially important for companies that provide costly, complex, and critical equipment and other products, from industrial manufacturers of power equipment, heavy vehicles, HVAC systems, and medical devices to makers of home computers, appliances, and cars.

Competition in these sectors has intensified—not simply on the basis of who has the better product but which company can provide the best experience after customer's purchase. Indeed, as many products and services have become commoditized, customer support can be the only factor that sets a company apart. In a recent Salesforce.com survey of customer service leaders in nearly 300 manufacturing companies, 86% said the customer experience they provided was a key differentiator.¹

Investing in ongoing customer support is no longer an option, in large part because it's easier than ever for dissatisfied customers to find another source. Seven out of 10 consumers and 82% of business buyers said technology makes it easy to find alternatives for their purchases if they are unhappy with customer service, according to the Salesforce.com report. What's more, 78% of business buyers said they would likely switch to another brand if their experience with a manufacturer was inconsistent across that manufacturer's departments.

¹ Revolutionizing Customer Service in Manufacturing," Salesforce.com report accessed at <https://a.sfdcstatic.com/content/dam/www/ocms/assets/pdf/industries/state-of-service-manufacturing.pdf>.

Customer service and technology leaders, along with their executive committees and business unit leaders, must relinquish their traditional notions of customer support and reimagine their processes for the digital age.

However, providing highly effective customer support is difficult to do and can raise a manufacturer's costs significantly. As a result, both B2B and B2C manufacturers have been increasing their investment in post-sales customer support. Those companies who rated their service performance as excellent in the Salesforce.com survey were 1.6 times more likely to have increased their service budgets over the previous two years than the underperformers. And they were 1.8 times more likely to plan to increase their budget over the following two years.

Adding the contact centers, customer service staff, field repair forces, and other resources required to provide high-quality service is not always cost effective. The mounting costs of long-term customer support is quickly becoming economically untenable for many companies. The automotive industry is a prime example of an industry of the mounting costs of customer service—in this case, the cost of managing product recalls. In 2014, 2015 and 2016, more than 50 million vehicles were recalled annually in the U.S.—more than twice the recall rate two decades earlier—likely a result of the increase in electronic parts and software in vehicles. As a result, U.S.-based automakers and their suppliers paid \$11.8 billion in claims in 2016 for defective products, according to AlixPartners.²

There is a way forward, though, that can make it possible for companies to provide significantly better customer support at dramatically lower costs. They can take advantage of rapidly advancing intelligent automation systems—a combination of sensors, cognitive capabilities, and robotics—to transform customer support. But doing so requires vision and leadership. Customer service and technology leaders, along with their executive committees and business unit leaders, must relinquish their traditional notions of customer support and reimagine those processes for the digital age.

Those that seize the opportunity to incorporate intelligent automation into their customer support operations can not only cut their support costs, they can provide proactive and even predictive customer service, boost loyalty and revenues, and gather intelligence to improve future product designs.

² AlixPartners, "The auto industry's growing recall problem – and how to fix it," January 2018, accessed at https://emarketing.alixpartners.com/rs/emsimages/2018/pubs/EI/AP_Auto_Industry_Recall_Problem_Jan_2018.pdf.



The Big Picture

Some companies have begun to invest in the automation technologies that could reduce the cost and improve the nature of post-sale customer service, but the majority have only scratched the surface of the transformation these tools could enable.

Many have begun with the most obvious application of cognitive capabilities—complementing or replacing contact center labor. In 2006, there were no web chat offerings, smart phone apps, or social media interactions for customer service. Email was rarely used for customer issues. By 2013, digital interactions such as email, web chat, social media, texts and instant messaging accounted for 35 percent of customer interactions.³

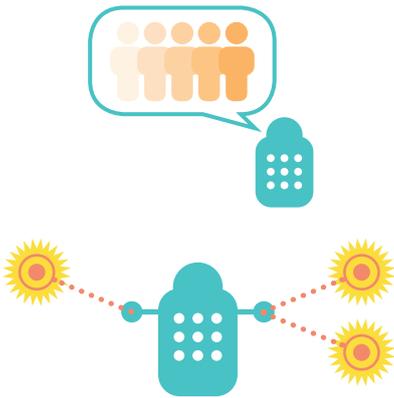
Just 2% of customer service and support operations have integrated their virtual customer assistant or chatbot technology across their engagement channels—a proportion set to rise to 25% by 2020.⁴ While implementing software that sounds like a human customer support agent is an interesting application, it doesn't go far enough to differentiate a company's customer support function. In fact, it may not even be the highest-value use case for automation. Companies may see greater returns but keeping their human customer service force in place and applying their automation investments in other areas that offer more significant improvements in customer care and costs, such as deploying automated systems that can make human agents more effective.

As Siemens, GE, Tetra Pak, HP, Otis Elevator, Cargill, Medivators and other companies are finding, those that use intelligent automation technology in customer support are fundamentally rethinking what customer support could become in an era of powerful automation technologies.

They realize that automation technologies provide them and their customers with customer support capabilities that weren't technically or economically possible in the past.

³"2015 global contact centre benchmarking report," Dimension Data, accessed at, <http://www.aprocs.pt/activeapp/wp-content/uploads/2015/12/2015-Global-Contact-Centre-Benchmarking-Report.pdf>.

⁴"Gartner Says 25 Percent Of Customer Service Operations Will Use Virtual Customer Assistants by 2020," February 19, 2018, accessed at <https://www.gartner.com/newsroom/id/3858564>.



How Intelligent Automation Transforms Customer Support

The new customer support capabilities that intelligent automation technologies make possible can be organized into six categories:

1. Preventing product breakdowns from happening in the first place.

Predictive maintenance is one of the killer applications of intelligent automation. Companies can monitor products for signs of potential failure and address the problem before it happens. Spending on predictive maintenance applications, enabled by Internet of Things (IoT) technologies, is on the rise. IoT Analytics predicts such spending will grow 39% annually, from \$2.2 billion in 2017 to \$10.9 billion by 2022.⁵ Salesforce.com found 54% of manufacturers were using IoT in customer service and more than 70% of them were already using the technology to diagnose products, how customers are using them, and identify product and component failures.⁶

Otis Elevator, which has been remotely monitoring its products for more than 30 years, launched an IoT-enabled service called Otis ONE this May. Smart sensors gather information from more than 300,000 elevators and escalators in service, sending that data to the cloud for analysis. The system alerts building owners and the firm's 33,000 service technicians of elevators and escalators that are likely to break down.⁷ Through a two-way video connection, the new service also notifies passengers in malfunctioning elevators that help is on the way.⁸

Schneider Electric SE is outfitting its oil pumps with IoT to predict mechanical problems in remote locations for its oil field drilling customers.⁹ Schneider Electric gathers that information in the cloud, where machine-learning applications detect patterns in rod pump mechanisms that point to impending failures. The technology can also change the way a pump operates to avoid shutdowns and notify the customer that a repair must be done.¹⁰

⁵ "The Top 20 Companies Enabling Predictive Maintenance," IoT Analytics, April 6, 2017, accessed at <https://iot-analytics.com/top-20-companies-enabling-predictive-maintenance/>.

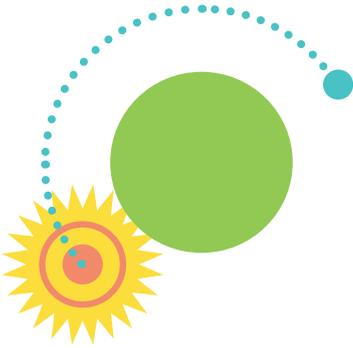
⁶ Salesforce, "Second Annual State of Service: Insights and trends from 2,636 global service trailblazers," research paper based on September 2016 survey of 2,636 service professionals from U.S., Canada, UK, Ireland, France, Germany, Netherlands, Japan, Australia and New Zealand.

⁷ Otis press release, May 8, 2018. http://www.otis.com/en/us/about/news-and-media/press-releases/otis_launches_otis_one_iiot_service_solution_worlds_largest_elevator_service_network.aspx.

⁸ CIO Review interview with Otis President Tony Black, "Otis Elevator: 165-Year-Old Start-Up Company Redefines Customer Experience," April 2018, accessed at <https://field-service.cioreview.com/cxoinsight/otis-elevator-165yearold-startup-company-redefines-customer-experience-nid-26023-cid-93.html>.

⁹ "Industrial Giant Schneider Electric Brings Oil Pumps into Digital Era," Wall Street Journal, January 3, 2018, accessed at: <https://blogs.wsj.com/cio/2018/01/03/industrial-giant-schneider-electric-brings-oil-pumps-into-digital-era/>.

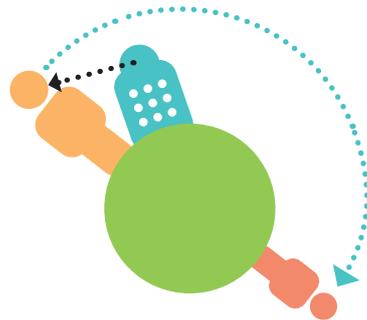
¹⁰ Microsoft web page. <https://customers.microsoft.com/en-us/story/schneider-electric-process-mfg-resources-azure-machine-learning>



2. Fixing problems remotely. In some cases, companies can take intelligent maintenance a step further, automatically fixing products remotely or after a customer notifies them of a problem. Software vendors have been able to provide remote fixes for years, and the mobile app industry has since followed suit. Such capabilities are now spreading to other industries.

The newest models from car manufacturers like Cadillac and Ford can receive “over the air” updates to the software they have on board. These updates could save automakers billions of dollars a year, according to one industry analyst.¹¹ In 2012, electric car maker Tesla enabled its car owners to download software to fix problematic keyless entry systems and add new features such as automatic lane changing and windshield wipers that adjust their speed based on the amount of rain.¹²

Minneapolis-based medical device maker Medivators recently implemented a new field service system from GE and software company PTC to enable remote diagnostics and service. More than three-quarter of the company’s service calls are now resolved from afar.¹³



3. Elevating contact center and field repair capabilities. Intelligent automation can complement the capabilities of human contact center agents and field repair personnel with automated advisers that walk them through the best solutions to customers’ problems. Some companies have reduced the costs of responding to customer inquiries by as much as 70% and boosted customer satisfaction by implementing virtual customer assistants, according to Gartner.¹⁴

Siemens uses intelligent automation to repair its recently unveiled eHighway, an electric road freight transport system that reduces pollutant and carbon dioxide emissions on heavily used truck routes. Technicians servicing the trucks can provide service with their hands free of manuals, using Microsoft’s HoloLens to view a service checklist and repair diagrams, and remotely consult with experts at headquarters.¹⁵

¹¹ Consumer Reports, “Automakers Embrace Over-the-Air Updates, but Can We Trust Digital Car Repair?” April 20, 2018, accessed at <https://www.consumerreports.org/automotive-technology/automakers-embrace-over-the-air-updates-can-we-trust-digital-car-repair/>.

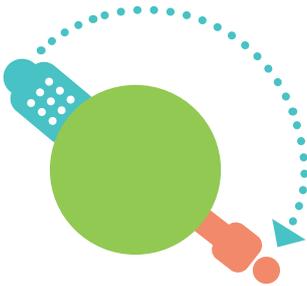
¹² Consumer Reports, “Automakers Embrace Over-the-Air Updates, but Can We Trust Digital Car Repair?” April 20, 2018, accessed at <https://www.consumerreports.org/automotive-technology/automakers-embrace-over-the-air-updates-can-we-trust-digital-car-repair/>.

¹³ GE web page, <http://lp.servicemax.com/rs/020-PCR-876/images/ServiceMax-CaseStudy-Medivators.pdf>

¹⁴ Gartner press release, Feb. 19, 2018. <https://www.gartner.com/newsroom/id/3858564>

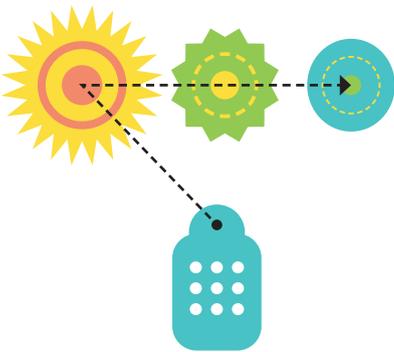
¹⁵ <https://customers.microsoft.com/en-us/story/siemens-manufacturing-dynamics365fieldservice-hololens-en>

Likewise, Tetra Pak, a manufacturer of food processing and packaging machines and systems, also delivers work instructions via mobile app and augmented reality. Its service technicians carry smartphones loaded with apps to tap into service manuals, checklists, problem-solving methodologies and a global issue database. Technicians or machine operators who need help with a machine can don augmented reality goggles that let remote Tetra Pak specialists view problems live and from the field, and offer step-by-step advice to repair equipment.¹⁶



4. Enabling customers to solve problems. Using remote diagnosis, AI, and other technologies, companies can provide advice and tools to customers so they can solve product problems themselves.

HP has been using automated technologies to help customers fix their HP computers and printers. In 2017, HP handled more than 600 million requests for technical support. It developed a virtual intelligent agent that engages customers in a conversation and helps them diagnose and solve problems, identifying the most pertinent information from HP's 50,000 pages of product information. If HP's virtual agent can't fix the issue, the customer is transferred to a customer support agent, who has all the information that the virtual agent has collected on the issue, including remote diagnostic results, the customer's system state, and its serial number.¹⁷



5. Eliminating recurring product issues. Intelligent automation can also help companies pinpoint continual problems with current products in the field and fix product design flaws in future updates or product generations.

This is a newer application of IoT and AI, but one likely to provide significant value in the near future. "There aren't a lot of line engineers adopting IoT to make products better," says Bryan Kester, director of IoT for product design software and engineering company Autodesk. But he expects that to change quickly once product designers and engineers see the benefit of product performance data and analytics in their work. "We're finally at a point where design engineers seem to have valid reasons for experimenting with IoT," he says.¹⁸

¹⁶ Automation World, "Putting IIoT to Work for Remote Services," April 20, 2017, accessed at: <https://www.automationworld.com/article/industries/food-and-beverage/putting-iiot-work-remote-services>.

¹⁷ Microsoft web page. <https://customers.microsoft.com/en-us/story/hp-manufacturing-microsoft-ai>

¹⁸ Digital Engineering News, "IoT Analytics: More Hype Than Reality?" December 1, 2017, accessed at: <http://www.digitaleng.news/de/iot-analytics-hype-reality/>.

Sensor analytics solution provider KONUX's cloud-based AI system continuously learns from the sensor alerts it receives to continually improve the overall performance of the system and give recommendations for extending asset life cycles.¹⁹

Companies could even take this to the point of products that make themselves better. "You can start to figure out those [product design problems] quickly and understand the sources of error and failure on a fleet of manufacturing assets," says Chris Larkin, GE vice president of products, analytics, and machine learning. "We believe the intelligent asset of the future is self-healing and self-adjusting."²⁰



6. Helping customers use products more effectively. Intelligent automation can be applied not just to fix product problems, but also help customers get greater value from those products. Sensors can monitor how customers are using a product and provide automated advice about how to improve what they're doing with it.

Agribusiness giant Cargill has partnered with Consumer Physics to develop a spectrometer to help dairy farmers analyze the forage their cows eat. By making the device small enough to fit in a farmer's pocket and connecting it to a smartphone application and the cloud, this IoT-enabled system analyzes the cows' diet at the site, enabling farmers to do make better nutritional choices for their cows right there and then.²¹

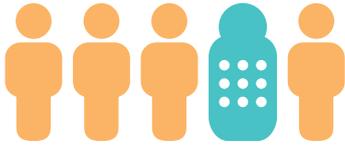
In 2016, fitness wearable maker Fitbit collaborated with Northwestern Medicine and the University of California San Francisco to study the impact of physical activity of patients who underwent spinal surgery. In this case, the "product" being monitored is the patient's back. The researchers can track patients' physical activity four weeks before surgery and six months afterwards, not simply to predict which ones are at risk of being readmitted to the hospital but also to suggest ongoing physical regiments to reduce that possibility.²²

¹⁹ McKinsey, "Smartening up with Artificial Intelligence – What's in it for Germany and its Industrial Sector?," April 2017, accessed at: <https://www.mckinsey.com/~/media/McKinsey/Industries/Semiconductors/Our%20Insights/Smartening%20up%20with%20artificial%20intelligence/Smartening-up-with-artificial-intelligence.ashx>.

²⁰ Digital Engineering News, "IoT Analytics: More Hype Than Reality?" Dec. 1, 2017, accessed at: <http://www.digitaleng.news/de/iot-analytics-hype-reality/>.

²¹ "The Internet Of (Living) Things: Tracking Dairy Cow Eating Habits," Network World, July 3, 2017, accessed at <https://www.networkworld.com/article/3201120/internet-of-things/the-internet-of-living-things-tracking-dairy-cow-eating-habits.html>.

²² Fitbit press release, July 28, 2016, accessed at: <https://investor.fitbit.com/press/press-releases/press-release-details/2016/Fitbit-and-Fitabase-Innovate-Health-Research-Practices-to-Enable-Real-Time-Continuous-Measurement-Better-Participant-Engagement-and-Innovative-Study-Design/default.aspx>.



Employing Intelligent Automation in Your CX Transformation

To reap these significant and wide-ranging benefits, companies must move beyond the short-sighted view that the sole value of AI and other automation technologies is in replacing customer support personnel. The technologies may indeed reduce the human workload over time, but that's not the right starting point for transforming post-sales customer support.

Instead, companies should start by first determining how they might use intelligent automation within the product they manufacture, while they're in customer's possession, or to reduce the need for customer support altogether. They should also think about how to combine and leverage product usage, maintenance, and customer inquiry information with other data and to improve the customer experience over the product lifecycle.

They should also explore integrating data from their CRM systems to get a deeper understanding of the types of support and product problems that are occurring, the supply chain system to identify where flawed products are in the system, and product lifecycle management systems to correct design flaws that are showing up in the field.

The following actions can help companies use intelligent automation to lower costs and improve the quality of post-sales customer support:

- Explore which service improvements would have the most value for customers—and which they might actually pay for.
- Determine which processes to automate to deliver that value, including the data collection and analysis required to understand changing customer behavior. (Design thinking can be used to simulate, test, and refine new customer service options).
- Select the appropriate intelligent automation technologies for those high-value use cases.

Start by determining how to use intelligent automation within the product while they're in customer's possession, or to reduce the need for customer support.

- Making the financial case for the intelligent automation investment, calculating the initial and ongoing automation costs against the customer revenue, loyalty and other improvements.
- Begin with one pilot project and gather intelligence on what works and what doesn't to enable broader applications.
- Invest in IT systems that can support the experimental design and testing approach required for iterative transformation: a combination of agile, DevOps, and provisioning automation.
- Study emerging trends in how customers are reacting to automation technologies (such as voice-activated assistants), add the most valuable ones to the intelligent customer support platform.

A Cost-Effective Means to Provide Long-Term Customer Care

As the commoditization of products and services across B2B and B2C industries increases, customer experience has become the key differentiator for manufacturers—not just leading up to a sale, but in the area of long-term customer support. Intelligent automation offers a way forward for leading companies to elevate that experience in six significant ways, while controlling the costs required to do so.

Author

P.R. Krishnan

Executive Vice President
& Global Head
Enterprise Intelligent
Automation, TCS

Experience certainty.

IT Services
Business Solutions
Consulting

Contact

Visit the unit page for more information: <https://sites.tcs.com/bts/automation-ai/>

Email: BusinessAndTechnologyServices.Marketing@tcs.com

About Tata Consultancy Services (TCS)

Tata Consultancy Services is an IT services, consulting and business solutions organization that partners with many of the world's largest businesses in their transformation journeys. TCS offers a consulting-led, Cognitive powered, integrated portfolio of IT, Business & Technology Services, and engineering. This is delivered through its unique Location Independent Agile delivery model, recognized as a benchmark of excellence in software development.

For more information, visit us at www.tcs.com