



Digital Operations

The 2020 Customer Experience

By proactively addressing three megatrends reverberating across the digital terrain, consumer-facing organizations can deliver more gratifying customer experiences while maximizing the value of service and support personnel.

Executive Summary

The ongoing digital revolution and the remarkable rise of the commercial Internet over the last decade have transformed traditional business models and empowered customers to engage at their convenience with organizations with whom they interact and transact across multiple channels. Today, they can browse product and service options on the go (mobile search), engage with a live agent (chat/video), resolve issues through self-service (i.e., chatbots), collaborate with peers to review options (social), negotiate and make purchases (e-commerce/m-commerce), and have items delivered directly to their doorstep.

While enterprises have enthusiastically adopted Digital 1.0 (online, mobile, and social) and asset-light (cloud-

enabled) services, the next frontier is Digital 2.0. This is where contextual, intuitive, and experiential engagement occurs across various customer touchpoints. Following suit, contact centers have evolved from the telephony-centric and reactive (Contact Center 1.0) processes of the 1990s, to multichannel engagement centers (Contact Center 2.0) of the new millennium, to today's archetype. Contact centers are no longer a post-sales service function; they are at the heart of an organization's ability to define and deliver a consistent customer experience. They have transformed into proactive, agent-less, self-enabling engagement hubs spanning the customer lifecycle – from marketing, to sales, and service – what we define as Contact Center 3.0.

According to data from the International Data Corporation (IDC), worldwide spending on digital transformation (DX) technologies will grow to more than \$2.1 trillion in 2019, with a compound annual growth rate (CAGR) of 16.8% over the 2014 to 2019 forecast period. Spending on DX technologies in the U.S. will follow a similar trajectory, reaching nearly \$732 billion in 2019.¹

We predict that by 2020, Digital 2.0 technologies, including machine learning, artificial intelligence, biometrics, and robotic automation will further augment Contact Center 3.0 with innovative, personalized solutions. Enterprises that are flexible and that openly embrace this model will emerge as masters of the customer experience (CX). But to get there, consumer-facing companies must become well versed in the three megatrends of Digital transformation 2.0.

I System convergence for digital efficiencies:

The four pillars of digital technologies – systems of things, systems of intelligence, systems of engagement, and systems of records – will converge to enable end-to-end digital transformation across customer lifecycles to provide highly personalized customer experiences.

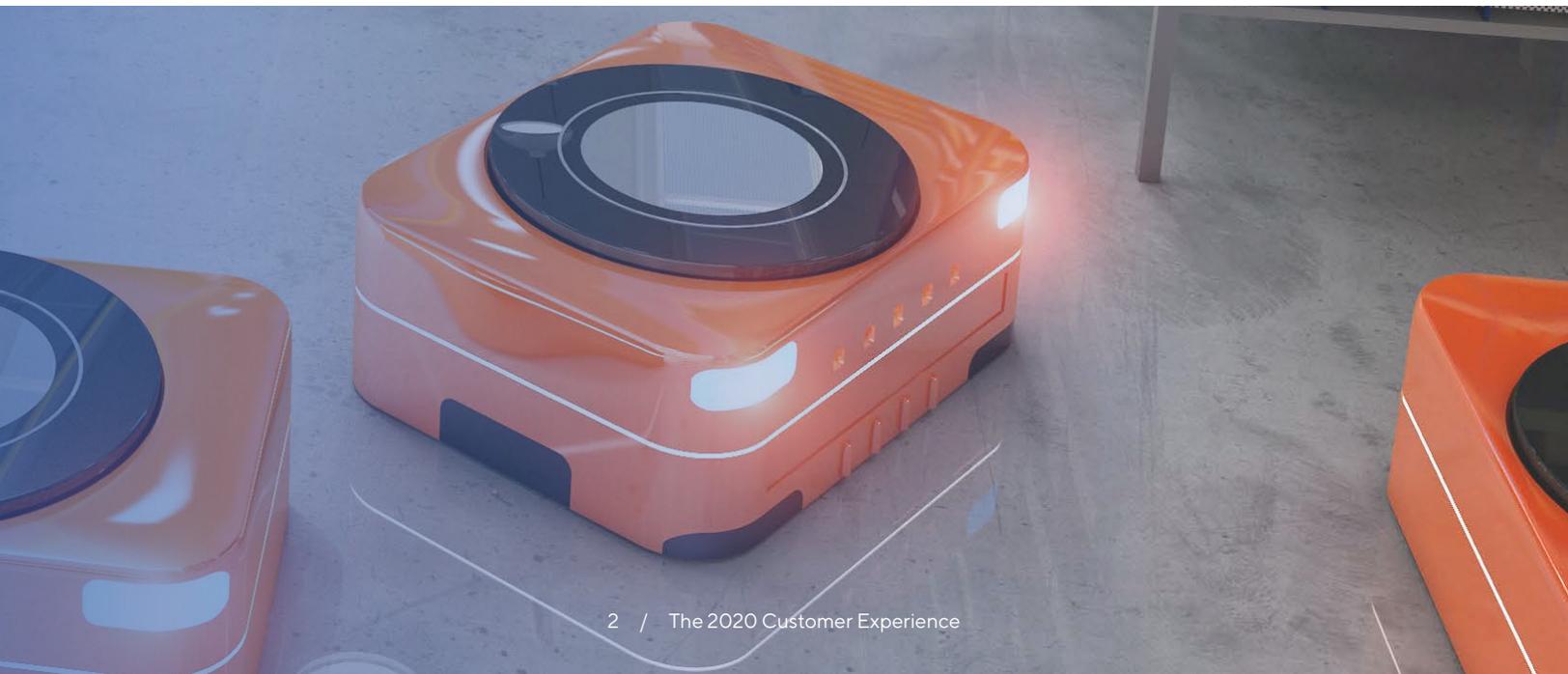
I Self-service, the new battlefield of CX:

Customers are getting savvier and expect

service on-the-go. In response, enterprises are rapidly investing in self-serve solutions with advanced automation capabilities that provide seamless service and do not compromise the experience. Innovative and disruptive technologies such as machine learning, biometrics, artificial intelligence, and robotic process automation are taking center stage to re-define traditional engagements.

I Zero-UI: Applying design thinking and experience-driven Zero-UI will shape the way businesses handle new-age customers across touchpoints – affording hassle-free, real-time experiences that maximize the CX “wow” factor. Technologies such as virtual and augmented reality will re-define customer engagements with a simplistic, experiential interface (UI). (For more on design thinking, read our *Cognizant* article [Human-Centric Design: Thinking Can Power Creative Problem Solving, Drive Change, Deliver Value](#).)

This white paper explores each of these megatrends in detail, with recommendations on how consumer-facing enterprises can create and enact strategies that will differentiate them today and in the years to come.



Megatrend 1: System convergence for digital efficiencies

CX and enhanced user engagement are today's inescapable business buzzwords. Virtually every enterprise is examining CX as a critical criterion for business transformation. One of the key investment areas under CX for all industries is technology that provides a holistic digital solution that cuts across the customer lifecycle. While many CXOs are investing heavily in digital enablement projects, many are not. Interestingly, research finds that:²

- A full 78% of IT projects fail due to lack of alignment with business goals and requirements.
- Of these projects, 45% are not based on business objectives.

This tells us that there is little integration among various operational and strategic components within the organization. Each runs independently – resulting in technology silos. As enterprises become more customer-centric and strive to stay close to their consumers, technology convergence (bringing together systems that engage, record, and intelligently analyze data from various sources) grows increasingly important. We believe that making systems and related processes more collaborative (as with any IT-related initiative) requires eliminating organizational and technology silos and investing in systems that prepare the organization for seamless CX. We have grouped these key systems under four pillars (see Figure 1).

Synchronizing systems around the customer

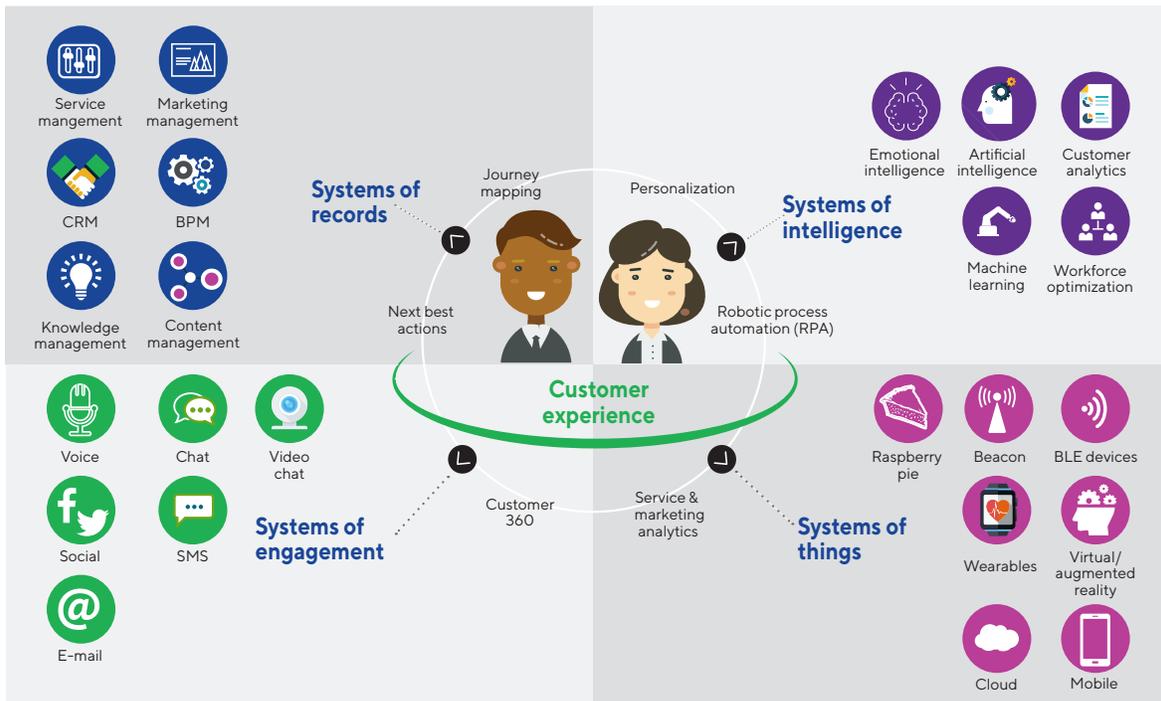


Figure 1

Systems of engagement

Data is rapidly becoming the most valuable resource in any organization. But operational data today is often closed and static, locked inside various separate systems. As a decision center, the lab is a prime candidate to take advantage of technologies such as advanced forms of artificial intelligence (AI) in the form of machine learning (ML), which depends on data.

Systems of engagement span traditional channels, such as voice, e-mail, SMS, and fax, along with “new age” digital touchpoints – chat, video chat, social, co-browsing, as well as messaging apps such as WhatsApp – with the purpose of providing a consistent, satisfying, unified experience to end customers.

Each customer interaction is automatically routed to and handled by the appropriate channel/agent. This involves analyzing complex data, such as persona traits, demographic information, psychographic details, interaction history, and other transactional data.

Customer interactions are mapped across channels to optimize the communications flow and assure that customers’ experiences align with the company’s strategies, and at every encounter. This further serves to personalize the customer journey.

Systems of records

Systems of records (SoR) represent an organization’s customer data mart, serving as the backbone for sales, service, and marketing initiatives (customer profiles, purchase transactions,

campaigns, product preferences, service issues, etc.). SoR form the core data management layer of an enterprise – providing a complete view of customer personas, product details, sales and service history records, purchase preferences, and order and supply chain data.

Consolidating vital information across the SoR facilitates a 360-degree view of the enterprise – helping to create a pool of re-usable data assets around people, infrastructure, hardware, and software. This drives synergies throughout business units and standardizes IT operations.

Systems of things

The Internet of Things (IoT) is growing exponentially. By 2020, analysts expect there to be 50 billion connected devices globally. Device manufacturers, OEMs, high-tech companies, and system integrators are working together to create unique solutions, products, and services that enable machine-to-machine (M2M) and machine-to-human (M2H) communications to seamlessly share data across industry ecosystems, triggered by real-time alerts. Key IoT concepts include:

- More devices, systems and things are becoming smarter, embedded with the ability to engage users. Systems of things (SoT) leverage technology enhanced by data assimilation and analysis at all levels.
- Man and machine convergence, enabled via SoT, is known as “connected life,” and is rapidly disrupting all industries, with new use cases emerging daily.

In the age of digital, omnichannel engagement and contextual conversations are critical for building and retaining customer loyalty.

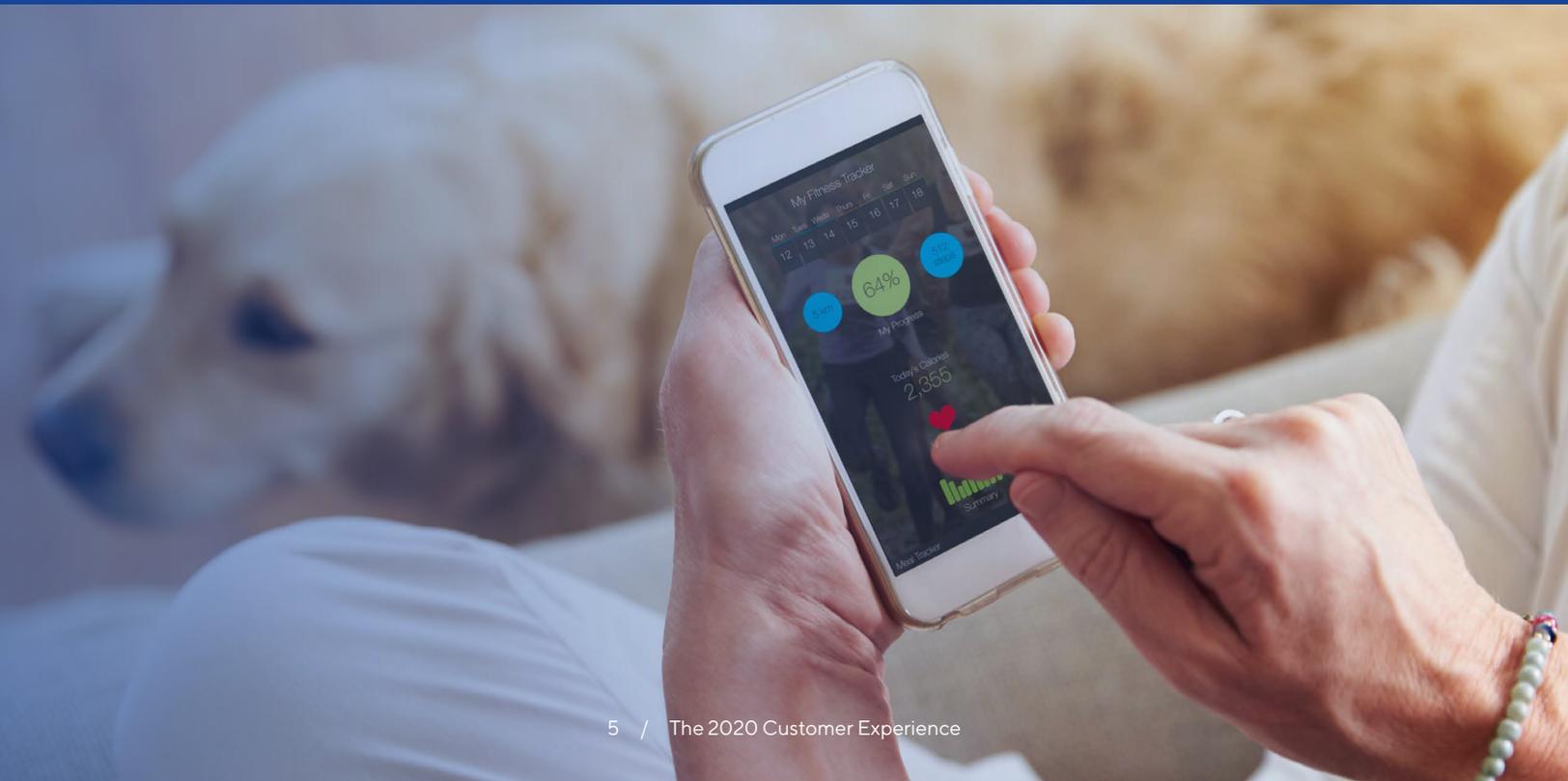
Quick Take

Improving wellness with the IoT

Patient monitoring and real-time diagnosis is crucial in the healthcare industry. One of our clients – a leading healthcare provider in the U.S. – wanted to leverage the power of the Internet of Things to provide proactive patient care and remote diagnostics.

We prototyped a solution for the “mother care” segment by embedding sensors in devices – enabling them to collect patient vitals such as blood pressure, temperature, and glucose levels in real time.

Our PaaS solution, built on Microsoft Azure, assimilates processes and transmits information to doctors immediately and seamlessly – helping to reduce emergency care rates by 32%, and improving patient care satisfaction by over 70%.



Quick Take

Applying machine learning to personalize campaigns for a U.S. insurer

A large U.S.-based insurance company was facing challenges in customer acquisition; the digital campaigns executed over e-mail and SMS were not delivering the expected outcomes. We reviewed the company's lead-management process and found that the customer segments were too fragmented, and driven by a "one-size-fits-all" approach for CRM campaigns.

We integrated the insurer's campaign execution engine with the IBM Watson machine learning platform's self-evolving decision tree algorithms to perform real-time customer profiling, micro segmentation, and real-time multichannel campaign delivery. The result was a 20% improvement in lead conversion rates, and a 32% upturn in campaign click rates.

Systems of intelligence

As SoE, SoR and SoT come together, systems of intelligence (Sol) process and derive insights from data across these interconnected systems. As such, Sol serves as the brain behind the converged systems ecosystem. Sol encompasses advanced analytics and learning platforms for processing the various intelligence inputs that are active across the customer lifecycle. Systems of intelligence consist of:

- Artificial intelligent platforms with “built-in” capabilities for personalizing self-service,

such as natural language processing, speech recognition, and virtual assistance.

- Machine learning technologies with advanced self-learning capabilities help enterprises execute next-best actions, such as interactive routing, channel orchestration, and dynamic, real-time campaigns/offers.
- Emotionally intelligent cognitive systems that can capture real-time customer emotions across channels (voice, chat, e-mail, video) enable companies to have informed, empathetic conversations with customers.

Megatrend 2: Self-service is the new battlefield of CX

Today’s consumers are time-challenged. They are experts in multitasking, and want superior customer service on the go, at the place and time of their choosing. For them, experience matters more than cost. Customers no longer want to remember passwords and PINs or wait on long calls for agents to answer their queries.

Similarly, enterprises don’t want their agents’ time consumed by mundane inquiries. They want them to handle priority calls from loyal customers, and route routine calls to other channels or automated responders. Basically, intelligent machines are becoming “super agents” that can take care of simple inquiries so human talent can focus on more complex and constructive tasks.

Introducing self-service capabilities in contact centers can empower customers to “do it yourself” – saving time and money in training and supporting agents. Self-service is gaining traction. We believe the future is all about managed self-services – integrating traditional and self-serve technologies across channels to afford seamless customer interactions and a consistently satisfying customer experience at every touch point.

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Self-serve technologies that move businesses in this direction include:

I Biometrics: An enhanced security and fraud prevention technology that uses biometrics has been adopted across industries, including banking and financial services, insurance, and telecom. It enables customers to authenticate/validate their identities using non-imitable biometric characteristics, such as voice, iris (eye retina), vein patterns, and brain waves. This not only helps reduce fraud; it also relieves customers from having to remember conventional passwords and PINs.

Biometrics has been shown to:³

- > Generate \$15M+ savings over a three-year period.
- > Achieve 95% first-time authentication rates.
- > Reduce contact center fraud up to 10 times.
- > Attain 80% faster authentication – just five seconds.

For example, imagine banking customers withdrawing money from ATMs simply by looking at a camera that detects their unique retinal patterns to determine their credentials and accounts. This would eliminate millions of calls that would otherwise require customer agents to assist in PIN resets or “Forgot Password” queries.

I Chatbots/virtual agents: Chatbots and virtual assistants (VAs) are intuitive, automated, intelligent self-learning platforms that are compatible across devices and can be personified as customized avatars for automated and contextual engagement with customers. Benefits of virtual assistants include time saved communicating with customers, agent productivity improvements, increased channel containment rates, and elevated user engagement.

Consider a major global insurer that deflects millions of calls received each year – for plan extensions, policy renewals, and new enrollments – to a chatbot. Not only are customers highly

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satisfied with the increased speed and accuracy per transaction; agents are relieved of rote, repetitive work and are free to focus on higher-value interactions and transactions.

- I Emotionally intelligent bots (EmoBots):** These are the next big thing in this space. EmoBots will be able to understand a customer's emotional state in real time and bring in appropriate support – all while maintaining the context of conversations.
- I Actionable insights via voice UI-enabled personal assistants:** Voice is the new interface. Conversationally intuitive devices and applications are transforming H2M (humans to machine) engagements. Devices such as Amazon's Alexa (Echo), Apple's Siri, and Google Speech are taking the user experience to new levels. They are instinctive, interactive, and can take questions from users to activate orders and simplify daily interactions within enterprises and

across business units. They can integrate with external applications using APIs to build a two-way communication channel to accomplish any complex task in the digital and physical world through natural dialog. Now, users can book a cab, check in for their flight, receive reminders of their favorite TV shows – even check operational and business KPIs in real time by asking Alexa. It couldn't be easier.

Consider a diabetic patient who worries about running out of her prescribed medications. Manually watching re-stocking levels and orders using the Web or mobile devices is inconvenient, and she wishes she had a simpler solution. Alexa is a perfect alternative – able to execute orders, send re-order reminders, make payments, and receive confirmations using SMS/voice commands spoken directly into a mobile device.



Quick Take

Biometrics at a UK bank

One of our leading financial services clients in the UK was experiencing customer churn and high attrition rates in its contact center. The company was using a legacy interactive voice response (IVR) system with long call flows, redundant nodes, and branches. The average time to authenticate using DTMF-based PINs followed by manual agent verification was running at a high 74 seconds – taxing customers' patience.

We helped the company transform its customers' experience and modernize its contact center. One aspect involved updating the authentication process with a voice biometric solution that only required customers to speak (free flow) to authenticate. The system uses an individual's pitch, tone, accent, and speech rhythm to authenticate – a capability that has helped reduce fraud and improve the overall customer experience. The company saved more than \$5 million a year in IVR infrastructure costs, improved customer satisfaction scores (CSAT) by 74%, and reduced the time to authenticate to nine seconds.



Megatrend 3: Zero-UI design thinking

It is now critical for enterprises to understand end-user experiences in order to deliver hyper-personalized solutions. Design thinking refers to an organization's ability to develop and deliver services with an "outside-in" view of their customers' challenges. With their invisible user interface and interactions triggered through natural gestures, Zero-UI solutions are accelerating the next generation of CX.

How many times have you stood on a roadside wondering what went wrong when your car broke down midway to your destination? How many times have you wished you could try out an item in the new apparel line on display in an e-store before actually buying it? And how many times have you wished you could have the experience of attending a class in an actual lecture hall while taking an online course? Organizations need to instill design thinking and begin to provide proactive, experience-led, zero-UI-driven solutions to keep pace with the digitally-charged world. Technologies that enable these capabilities include:

I Augmented reality: AR works by augmenting real-world objects and scenarios with computer animations and algorithms using sound, video, and graphics. It renders real-world information and presents it in an interactive way so that virtual elements become part of the real world. Users can touch, examine, and experience things by wearing specially equipped glasses before actually handling the object.

> For example, a real-estate project manager monitoring construction work on a building can use augmented reality to check completion status, review layout designs, and spot irregularities. All he needs to do is point his mobile phone camera – equipped with pre-set AR markers – at the site, thus reducing paperwork and manual supervision.

I Virtual reality: VR works by creating an "anytime/anywhere" audio-video representation of an alternate "world" in front of the user's eyes through a combination of technologies, such as M2M, IoT, sensors, mobile devices, or VR headsets. Users can thus experience "other-world" scenarios while sitting on their couches.

> For instance, travelers can enjoy a 3-D holistic view of locations, experience the scenic beauty, touch the real-life flora and fauna, and decide where to vacation using a combination of Internet-enabled objects, VR devices, motion sensors, and cameras in the local shop of a boutique travel planner.

As time progresses, human touch, as well as hand and body movements, are going to re-define the zero-UI concept. Soon, our homes, vehicles, medical devices, and ATM kiosks will become more user-friendly – able to understand and react to any form of human interface – making our lives simpler, and elevating CX to the next level.



Quick Take

Customer self-service via a chatbot for a leading U.S. bank

A leading U.S. bank was experiencing unusually high call volumes in its contact centers – frustrating agents, and taking them away from more critical tasks to handle routine queries, such as checking a customer’s bank balance, payment due dates, and transaction summaries.

To rectify the situation, the bank wanted to reduce call volumes, enable channel deflection to web/mobile, and make agents’ jobs easier.

As a preferred digital transformation partner, Cognizant was brought in to consult with the bank to identify a solution. In late 2016, after assessing the bank’s IT and business environments, we developed a custom-built Chatbot (for web & mobile) on the MS stack using the Microsoft Bot framework and Microsoft Cognitive Services for the retail banking unit. Within three months, the bank reduced phone and e-mail support requests by 28%, and achieved adoption rates of 36% with an 84% FCR (first contact resolution).





Looking forward

We suggest that forward-thinking companies take into account the following CX planning assumptions to stay in step with and ahead of the competition:

- I A unified CX strategy is essential.** It is time for consumer-facing businesses to apply digital thinking and technologies to their sales, service, and marketing strategies rather than treating them as independent aspects. Although these activities are converging in customers' eyes, technology and business processes must adapt faster to stay afloat.
- I Identify user narratives across the customer lifecycle.** Putting on their hat and investing in the right solutions to provide a seamless,

simplified experience is crucial. This is the single CX mantra, which can help enterprises strengthen customer relationships, drive loyalty, enrich brand equity, and improve the top line. Our advice: Invest and reap the benefits.

The stage is set for transformation. All the solutions discussed in this white paper are well into the mainstream, and adoption is accelerating at a rapid pace. But the revolution has just begun. Technologies that truly belong to the next generation, such as video analytics, 4-D printing, gesture controls, persona-based interactions, and motion recognition are moving forward as proofs of concept and are emerging across industries. We believe the transformation has just begun.

As time progresses, human touch, as well as hand and body movements, are going to re-define the zero-UI concept.

Endnotes

- ¹ www.wired.com/2016/08/google-wireless-faster-route-home/
- ² www.wired.com/2016/01/facebook-zuckerberg-internet-org/
- ³ The percentage of customers who reported switching providers at least twice a year was 10% in 2013, 13% in 2014, and 17% in 2015. www.cognizant.com/whitepapers/quality-of-experience-in-a-digital-world-a-csp-action-plan-for-millennials-and-beyond-codex2072.pdf

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About Cognizant's Contact Center Practice

Cognizant's Customer Interaction Management (CIM) practice is a dedicated multichannel contact center practice that offers end-to-end technology consulting, consolidation and optimization, design and implementation, maintenance, and platform support across interactive voice response (IVR), computer telephony integration (CTI), and multi/omnichannel and recording/WFM solutions, including a wide array of industry-leading technologies from Cisco, Avaya, Genesys, Interactive Intelligence and other widely adopted CTI/CIM products. Some of Key digital offerings include AI/ML enabled Contact Centers, Customer Journeys, Chatbots, NLP, Conversational Interfaces, Video chat services and emotional intelligence. The Practice also focuses on integrating CTI/CIM products with various CRM/BPM solutions.

About Cognizant

Cognizant (Nasdaq-100: CTSH) is one of the world's leading professional services companies, transforming clients' business, operating and technology models for the digital era. Our unique industry-based, consultative approach helps clients envision, build and run more innovative and efficient businesses. Headquartered in the U.S., Cognizant is ranked 193 on the Fortune 500 and is consistently listed among the most admired companies in the world. Learn how Cognizant helps clients lead with digital at www.cognizant.com or follow us [@Cognizant](https://www.facebook.com/cognizant).



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