ABOUT THE AUTHOR

Zeus Kerravala is the founder and principal analyst with ZK Research. Kerravala provides tactical advice and strategic guidance to help his clients in both the current business climate and the long term. He delivers research and insight to the following constituents: end-user IT and network managers; vendors of IT hardware, software and services; and members of the financial community looking to invest in the companies that he covers.

## INTRODUCTION: DIGITIZATION REDEFINES THE CUSTOMER EXPERIENCE

Digital transformation is the application of technology to build new business models or processes by leveraging the convergence of people, business and things. Digital advancements are creating new product and service opportunities as well as transforming business operations, which enables companies to improve customer service, generate more revenue, lower costs and achieve higher levels of efficiency to gain an advantage over their competitors.

Historically, sustaining market leadership was based on having superior products, the lowest prices or the best people. However, this is no longer the case. Although these factors are still important, in the digital business era, keeping the lead over competition is more closely tied to an organization's ability to recognize shifts in the market landscape and its capacity to respond by adapting quickly.

In fact, this has always been true, but changes in market leadership used to take decades. For example, in the 1970s and 1980s, Walmart completely transformed the retail vertical by redefining supply chain and inventory management, and it's now one of the largest companies in the world. However, today Amazon is disrupting Walmart by reinventing how customers purchase and receive goods as well as the way retailers interact with buyers. As a response to Amazon, Walmart recently acquired Jet.com to better compete for online business, using Jet.com's inherent digital methods to augment its own online shopping experience.

Exhibit 1 displays a seven-year rolling average of the S&P 500 Index tracked since the late 1950s. The S&P 500 Index is composed of 500 market-leading companies across a number of

Exhibit 1: Digital Transformation Will Redefine the Business Landscape
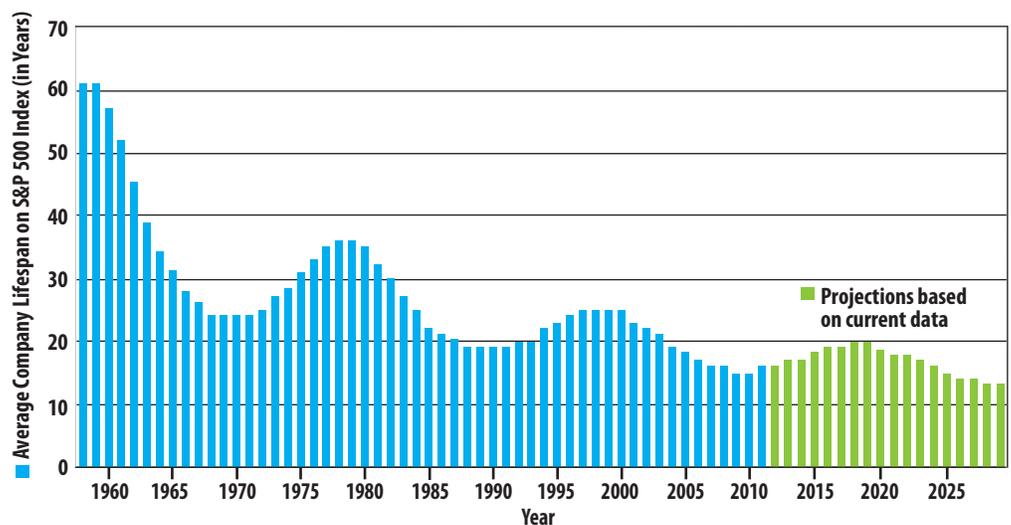
Note: Each data point represents a rolling 7-year average of the average lifespan.

Innosight, Richard N. Foster, Standard & Poor's

In the digital era, the customer experience will become the new battleground for differentiation.

verticals and is a good measure of the health of the U.S. economy. As new market leaders emerge, they replace companies that are less relevant. The chart shows that in 1960, businesses remained on the index for 50 to 60 years. By the 1980s, the speed of churn had doubled. Based on these trends, by 2025, businesses are forecast to stay on the index for only 12 years. ZK Research predicts that 75% of the S&P 500 Index will turn over in the next 10 years as digital transformation takes hold.

Another data point of interest comes from Mark Hurd, CEO of Oracle. At the company's 2016 Modern Customer Experience conference in Las Vegas, he stated that 70% of the Fortune 500 has either gone bankrupt, merged or been acquired. He continued and stated that since 2000, more than 50% of all companies have gone down the same road. According to Hurd, customer expectations have changed drastically and quickly. In today's marketplace, customers are willing to pay more for better service and care more about the overall experience than they do about the price.

In the digital era, the customer experience will become the new battleground for differentiation. A recent Walker study found that by 2020, the customer experience will overtake price as the top brand differentiator.

The impact of superior customer service in the digital era can already be felt. Consider how these brands, which are well known for their non-traditional and effective customer service models, ascended to market-leading positions at an unprecedented rate:

JetBlue – Airline

Airbnb – Hospitality

Zappos – Online shoe sales

Uber – Transportation

Quicken Loans – Mortgages

Esurance – Insurance

In an effort to make workers more productive and to improve the customer experience, businesses have adopted a wide range of communication and collaboration tools. This allows users to find relevant information, respond faster than ever before and interact with customers in new, more meaningful ways. Most traditional communications tools are built for general employee and customer engagement, and they offer the ability to personalize the interaction.

Over the past few years, businesses have adopted even more communications technologies, such as messaging, video and chat. However, these technologies can make interactions even less personal, which works against the goals of digital initiatives. The key to enabling digital transformation is to

make these communications contextual in nature. Doing so will add personalization and greater relevance to every conversation, whether among employees or with customers.

SECTION II: IMPROVING CUSTOMER SERVICE WITH CONTEXTUAL COMMUNICATIONS

Historically, communication and collaboration tools have been deployed in silos. This means that no information is shared between each session, so all information is lost as a conversation switches from one medium to another. For example, a customer might be interacting with a business via text messaging and then decide it may be faster to call the company instead. When that person dials the business's phone number, he/she will need to repeat all information that was shared during the text messaging session.

This can often happen even when modes of communication do not change. It's common today for customers to provide information to a company representative, such as a call center agent, over the phone and then have to repeat the exact same information after the call is transferred.

Contextual information greatly enhances communications by adding relevant information to the conversation so the business has a better understanding of what the customer wants without having to ask him/her. Contextual information is any data that is pertinent to the particular individual and includes such things as the person's name, location, loyalty program number, historical purchases and preferences.

Using contextual information can streamline the customer service process and make the customer service representative more knowledgeable about the specifics of what the customer is trying to do at that particular moment. Also, the contextual data can be used to better push relevant information to the customer.

Consider the following theoretical example to better understand how contextual communications should work.

Contextual Communications in Hospitality

Digital trends have had a profound impact on the hospitality industry. For example, Airbnb seemingly came out of nowhere and has become the preferred booking service for many travelers looking for a place to stay while away from home. The platform connects people that have properties to rent with those looking to rent them, which offers tremendous value. Although Airbnb doesn't own any properties, its current valuation is about $30 billion, which is approximately the same as the combined market cap of Hilton and Hyatt.

However, digital transformation isn't only for organizations like Airbnb. Traditional hotel chains need to rethink the way they interact with their guests. The process of checking into a hotel is filled with disjointed, individual steps and can be frustrating for frequent travelers. The current process involves an individual going to a central desk, waiting in line and then being asked for a credit card and picture identification. A room is assigned, keys are given and the traveler can then make his/her

Contextual information greatly enhances communications by adding relevant information to the conversation.

way to the room. Anything the hotel does after check-in is a discrete action from the check-in process initiated by the customer.

Consider the contextual information the hotel should have on the traveler:

Identity of person from loyalty program number

Arrival time based on flight information, reservation, calendar or other source

Preferred type of room from historical stays

Personal schedule from calendar

Food preferences/restrictions

Typical activities when in hotel

Mobile number

Other information to personalize stay

All of the contextual information can be used to create a seamless, highly personalized stay for the traveler and would operate as follows:

1. When the hotel guest's location is within 10 miles of the hotel, the mobile application pushes a message to the guest saying, "Would you like to check into your room now?"

2. A response of "Yes" displays a form in the application requesting some simple information about the guest's preferences to personalize the stay, such as the following:
    • High floor or low floor
    • Environmental settings (lighting, temperature)
    • Personal entertainment options such as a music playlist streaming in the room upon arrival
    • Food or beverage items

3. The guest is informed that the mobile device will function as a room key and is given his/her room number.

UCaaS shifts the call control and other communications and collaboration functions into the cloud.

4. The guest enters the hotel, bypasses the check-in desk and heads straight to his/her assigned room. Upon entering, he/she is pushed a WiFi code to connect devices.

5. A mobile application prompts the guest and asks, "During your last stay, you dined at our restaurant. Would you like to book a reservation there tonight?"

6. Based on the guest's calendar, which contains a meeting across town at 10 a.m., the application then asks, "Would you like an Uber to pick you up at 9 a.m.?"

7. Optionally, the hotel property could push other information relevant to the stay, such as specials at the golf course, spa or other entertainment venues.

The integration of contextual information with communications enables the hotel to understand the state of all interactions with its customer without the guest having to enter any information.

Digital organizations will compete on the basis of the customer experience—meaning businesses can't compete effectively in the digital era without contextual communications.

SECTION III: STEP 1 OF THE JOURNEY TO CONTEXTUAL COMMUNICATIONS—LEVERAGE UCAAS

The path to contextual communications is not composed of a single leap. Rather, it's a multi-step journey that involves infrastructure, applications and processes—with the first step being embracing the cloud for corporate collaboration.
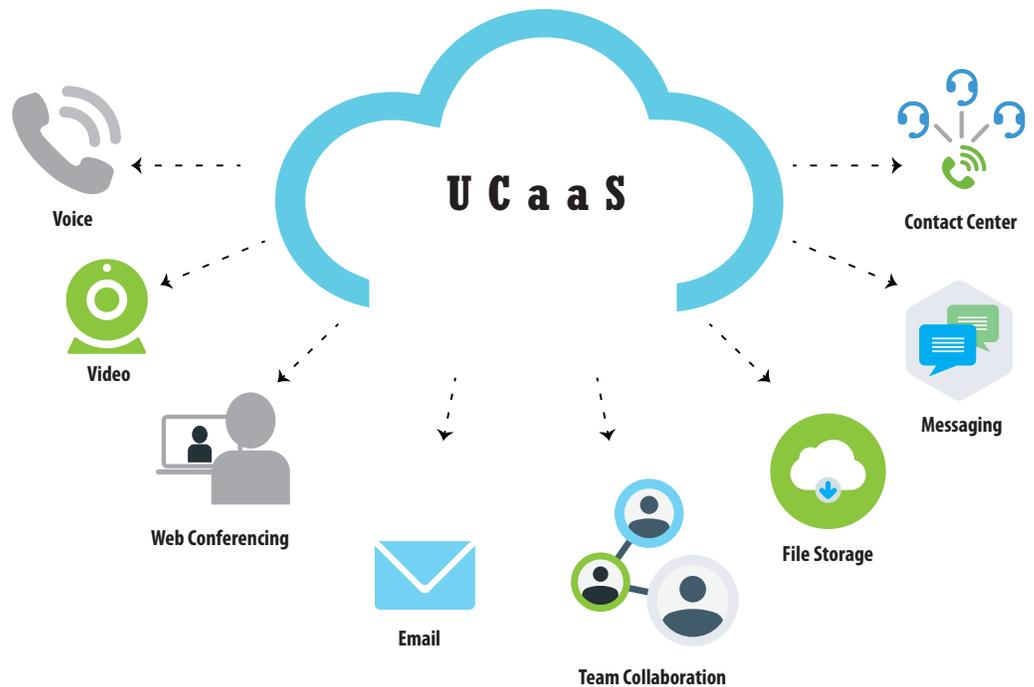
Premises-based unified communications (UC) has been the dominant deployment model for decades. However, as more applications—such as video, chat and conferencing—have become a standard component of UC, the complexity of deployment has increased dramatically.

Unified communications as a service (UCaaS) shifts the call control and other communications and collaboration functions into the cloud. Managing the network, several application servers, software releases, hardware and other infrastructure for a full UC solution can often overwhelm the IT department because of the increased complexity of a market that is constantly expanding and evolving.

With UCaaS, most of the infrastructure and its related complexity are pushed into the cloud. It's the service provider's responsibility to upgrade and maintain the technology platform. Historically, UCaaS services have lagged in features compared to on-premises solutions, but today the range of features and services available from the cloud is on par with—or even superior to—that of on-premises solutions (Exhibit 2).

Other historical inhibitors to using the cloud for communications included concerns over security and control. Today, every UCaaS provider offers a rich portal with a significantly simpler interface into the UC infrastructure when compared to on-premises solutions for better user control. Also,

Exhibit 2: Businesses Can Leverage the Cloud for All Their Collaboration Needs

Voice

UCaaS

Contact Center

Video

Messaging

Web Conferencing

File Storage

Email

Team Collaboration

ZK Research, 2017

almost all cloud communications providers have the best and most security protecting themselves and their customers.

Now that the historical barriers have fallen, adoption of UCaaS has outpaced that of premises-based deployments. The ZK Research 2017 Global Unified Communications Forecast shows that from 2014 to 2020, UCaaS will grow at a 12% compound annual growth rate (CAGR) compared to on-premises solutions, which will grow at a rate of 3% (Exhibit 3).

Businesses that make the shift to UCaaS will realize benefits that will help their companies become more mobile, more flexible, more productive and better able to communicate with their customers. Some specific benefits are discussed below.

Rapid Deployment of Services and Faster Speed to Market

The legacy distributed deployment model meant organizations could spend months rolling out new applications or feature upgrades to their user population. IT needed to load the new feature set to each location and then test it independently.

With a cloud solution, a new feature or application can be made available to the company as soon as the service provider makes it available, so the organization can roll it out on its own schedule. Ultimately, the organization can be as aggressive as it wants, which gives it the ability to respond to competitive pressures almost overnight.

Exhibit 3: Cloud UC Outpaces Premises UC
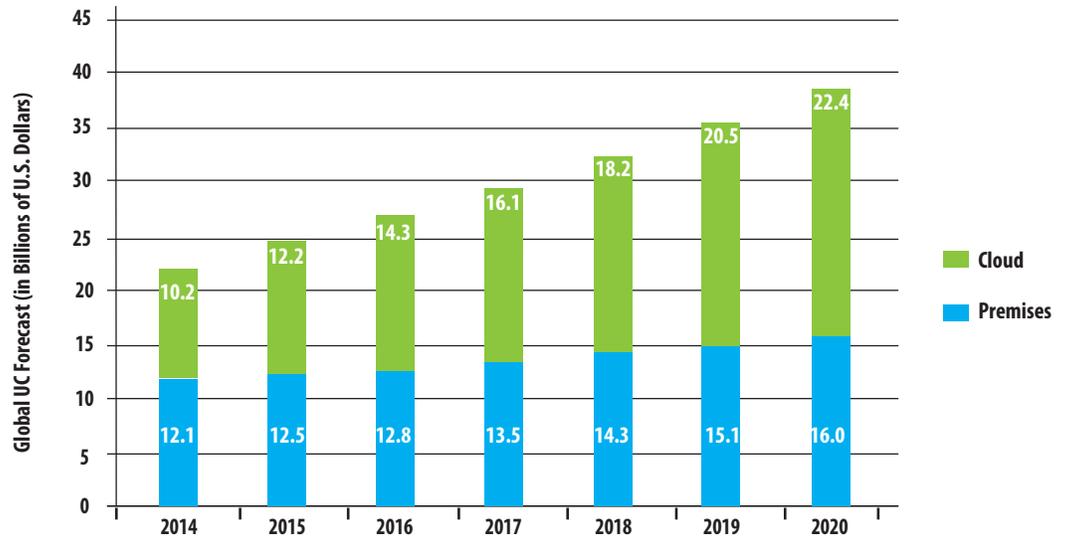
ZK Research 2017 Global Unified Communications Forecast

Easily Extend Deployment Quickly to Home Office Workers, Remote Workers, Branches and Business Partners

To say today's workforce is highly distributed is a huge understatement. ZK Research estimates that more than 75% of workers today reside outside of corporate headquarters. In addition, workers are increasingly collaborating with partners and customers outside of the organization.

Effective collaboration capabilities must be available to individuals whether they are at home, in an airport, in a branch office or at another company. With legacy communications, this required remote access tools, virtual private networks (VPNs), specialty software and an administrator. But UCaaS can reach any individual, anywhere, and provide a consistent experience without the need for many of those legacy support tools.

Companies with a hosted application can deploy collaborative applications to any user immediately, scaling the service or seats up or down, as needed—even those outside traditional corporate boundaries. In an increasingly mobile world, this enables remote employees and mobile workers, such as sales professionals that need to connect while on the go, to engage with customers wherever and however they choose to work—all while maintaining a consistent business presence and access to all the customer information they would have in the office.

Budget Efficiency

A cloud solution provides many budgetary advantages over customer-premises equipment (CPE)–based solutions, including the following:

By shifting the collaboration infrastructure to the cloud, IT can offload many repetitive maintenance tasks.

Lower-budget barrier to entry: There is no up-front capital outlay for a cloud solution. This means an organization can begin deployment immediately instead of having to find a large budget to purchase new call servers and application servers.

Budget planning: UCaaS enables the company to plan its budget for the collaboration solution more accurately than with a CPE-based solution, since the subscription model features spending that is predictable and easy to calculate. There are many ongoing advantages to a consistent monthly spend. For example, organizations can use the pay-per-use model to shift to a pure OpEx model.

Lower overall TCO than traditional deployments: Without the up-front capital investment, a cloud solution costs less to run. The ZK Research 2016 Cloud Computing Survey found that the migration of a business application to a software as a service (SaaS)–based solution typically results in a 30% to 40% lower total cost of ownership (TCO) over a five-year period.

IT resources and staffing efficiencies: By shifting the collaboration infrastructure to the cloud, IT can offload many repetitive maintenance tasks. This allows IT to focus on more strategic initiatives, maximizing efficiency.

Improved Business Continuity

Disasters can strike at any moment. Natural disasters, power outages or even man-made problems can hit without a moment's notice, making any particular location, resources or employees unavailable.

Ensuring collaborative applications are continuously available to workers wherever they are, using whatever equipment they have, over any network connection needs to be of the utmost importance. Often, collaboration tools are used to communicate with customers and business partners, meaning any lack of availability could lead to lost revenue and brand damage.

Because cloud solutions are not tied to any particular location, individuals can access them over any infrastructure using any device, whether the physical location is available or not. This can greatly simplify an organization's business continuity plan. The alternative would mean having to build a redundant data center with infrastructure that must be continually maintained and tested. Additionally, a UCaaS collaboration solution obviates the need for a dedicated, physical disaster recovery location so that in a disaster, workers can function anywhere—including from a home office, a coffee shop or a hotel, for example.

SECTION IV: STEP 2 OF THE JOURNEY TO CONTEXTUAL COMMUNICATIONS—INTEGRATE UC WITH WORKFLOW AND PRODUCTIVITY TOOLS

Contextual, relevant communications is significantly better than human interaction—if it's done correctly.

Once communications has been moved to the cloud, businesses will have an agile, dynamic foundation on which to deliver communications tools to any user, anywhere. The next phase is integrating communications with business applications—for example, a customer relationship management (CRM) tool such as Salesforce.com, or a productivity suite such as G Suite—to streamline business processes that are dependent on communications. Often, these processes have high amounts of "human latency" built into them, as the process consists of several disjointed steps that are required to complete it.

For example, consider a law firm where calls need to be logged and then billed to a client. The typical process begins with a lawyer speaking with a client and then manually recording the start and stop time. The information is then passed along to another administrator, and the client is billed. The numerous manual processes result in delays to the client being billed and the law firm being paid. Also, each time a step is done manually, it introduces the possibility of error.

The integration into business applications also introduces contextual information into the conversation. This includes information such as a person's identity, loyalty status, location information, historical data, personal preferences and anything else that can personalize a conversation. For example, if a customer calls a retail store, the employee who answers should see on his/her computer screen a list of the last few purchases made by that customer. Or if a customer calls an airline, the call center agent should automatically see the person's frequent flier number, status and any flights that are currently booked for that customer.

Contextual information can also be extended to both real-time and historical information. For example, if a person is logged into his/her insurance company's website and calls the customer service number, the agent who answers should be notified about what the customer was trying to do. The agent could then mention the customer by name and confirm the customer's information instead of asking him/her to reiterate it.

Contextual, relevant communications is significantly better than human interaction—if it's done correctly. It can reduce the burden on customers to manually enter information or repeat it orally; shorten the overall interaction time with customers, which saves money and improves the quality of customer service; and automate processes that are often encumbered by human delay.

SECTION V: STEP 3 OF THE JOURNEY TO CONTEXTUAL COMMUNICATIONS—BUILD APPLICATIONS WITH CPAAS

The final step in the march to contextual communications is to embrace communications platform as a service (CPaaS) to bring communications functions into customer-facing applications.

UCaaS services offer customers full PBX functionality from the cloud, making it difficult to integrate functions like click to call or click to chat into mobile or web applications via application

program interfaces (APIs). CPaaS modularizes the PBX and makes specific functions available to application developers. CPaaS also brings a wealth of new functions previously not available in PBXs such as chat, text to speech and interactive voice response (IVR).

For example, if the maker of an online transportation service wants to enable a passenger to contact the driver, the call would normally go to the mobile phone dialer, and the call is placed. Although this does indeed connect the two parties, the passenger is kicked out of the application. With a CPaaS-enabled application, the calling functionality comes from the cloud and is managed within the application, so the state of the application is maintained. Therefore, the passenger could be watching a map showing the driver's location while speaking to the driver on the phone.

Another issue with using the native dialer is that either party or both parties may not want the other to have their phone number. This could be the case with call centers, dating applications, transportation for hire and many other situations. The CPaaS solution can anonymize the call so the caller ID appears as anything the application developer desires.

In addition to voice calling, CPaaS enables a wide range of other functions such as short message service (SMS)/text messaging, chat and video calling. Exhibit 4 highlights some of the key communications functions available via CPaaS. Now, users can enjoy the benefits of true om-

Exhibit 4: CPaaS Enables Communications-Rich Applications
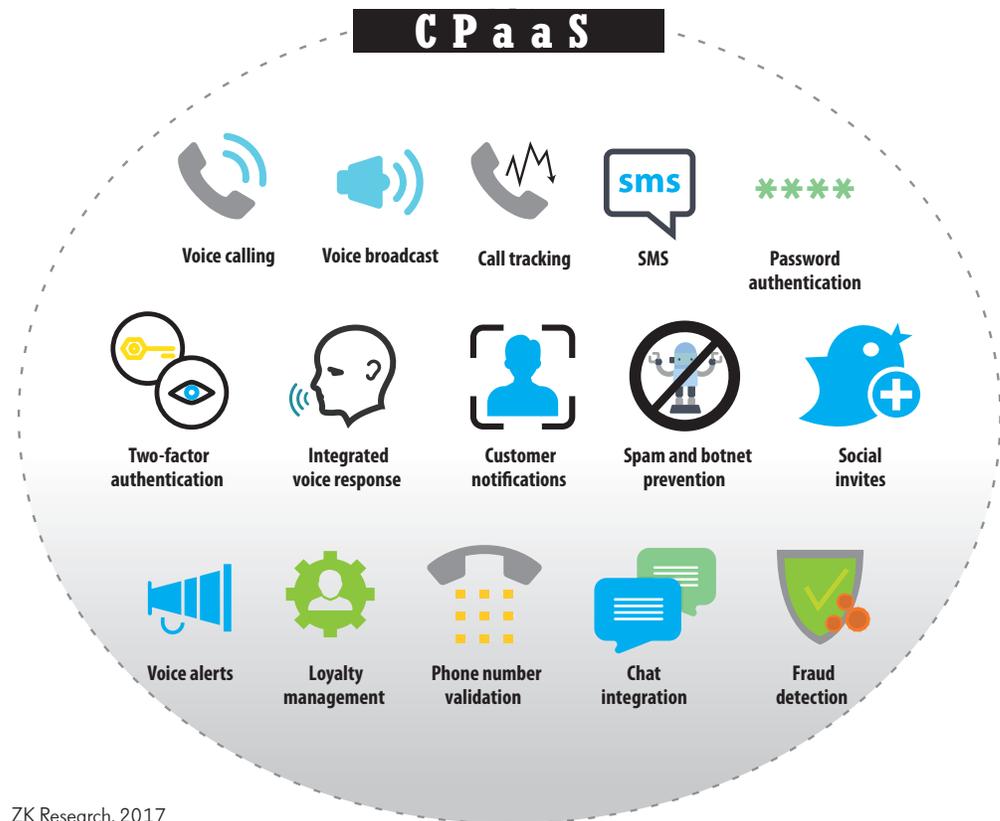
ZK Research, 2017

nichannel communications, where a company could place a customer on hold but still send a text message updating the individual on the current length of the call queue.

Historically, business applications, communications and customer-facing applications have been distinct entities. The combination of UCaaS, productivity tool integration and CPaaS can bring these three environments together and create seamless contextual information (Exhibit 5).

SECTION VI: ENABLING CONTEXTUAL COMMUNICATIONS ACROSS THE CUSTOMER VALUE CHAIN

New-economy companies, as well as established enterprises, are increasingly looking to improve the user experience when it comes to communication—particularly via mobile devices. Customers don't just want more apps on their smartphones; they want better, more intuitive apps that make communication simple, personal, relevant and seamless.

Exhibit 5: Digital Transformation Requires Contextual Communications

ZK Research, 2017

What's important is to integrate UC services into the applications that workers already use.

Among the many business communications providers, Vonage was one of the early companies to recognize this thesis. In addition, Vonage moved ahead of its competitors in embracing the power of contextual communication and the value it would deliver to its customers by acquiring CPaaS company Nexmo in 2016.

Nexmo, the Vonage API Platform, provides cloud-based APIs and software development kits (SDKs) to allow organizations of any size to easily integrate voice, messaging, phone verification and more into their applications. Nexmo's CPaaS technology provides developers with programmable communications tools to create unique and robust app-based and mobile customer experiences, helping businesses to reach their customers where they want to be reached, creating a stronger and more personal level of engagement than would be possible without this technology.

Nexmo enhances Vonage's UCaaS offering by incorporating messaging and web/app-based voice to address businesses' rapidly increasing mobile, social media and contextual communications needs. A great example is Vonage's partnership with MedXM, a leading provider of preventive healthcare technology and health risk assessments.

With 5,000 medical staff personnel, MedXM uses advanced technology to improve patients' outcomes. MedXM is deploying Vonage Premier integrated with G Suite, which is its productivity suite, as well as Vonage's advanced contact center powered by inContact.

MedXM also utilizes the Nexmo API platform to better engage with its medical staff and patients by automatically sending appointment reminders, connecting a MedXM member seeking urgent care with a nearby physician in real time or with other solutions that connect doctors and patients—helping to drive better outcomes for its business and better health for its members.

SECTION VII: CONCLUSION AND RECOMMENDATIONS

The ability to respond to change is key to survival in the business world. Indeed, sustainable leadership in the digital era is based on an organization's capability to be agile and adapt to market transitions. Those that can accomplish this will lead their industries, while those that cannot will fall behind quickly and struggle to survive.

UC is a vital technology in a digital organization, as it enables workers to collaborate with other individuals more easily, allowing organizations to make better decisions, faster. Also, in the digital era, interactions with customers must be omnichannel in nature, enabling customers to communicate with the organization using the mode of their choice or multiple modes simultaneously. UC is a critical enabler of both workforce and customer service transformation.

However, UC alone is not enough. Companies have struggled to maximize the value of UC for decades. This is because more siloed tools do not make workers more productive, nor do they improve the quality of customer service. What's important is to integrate UC services into the applications that workers already use. This is what's known as contextual communications.

The journey to contextual communications starts with shifting UC to the cloud, but it also requires tight application integration and building communications-enabled applications with CPaaS. It's the combination of the three that can enable contextual communications across the customer interaction value chain—and doing so needs to be a top priority for business and IT leaders. However, the road map to accomplishing this goal may not be obvious. To help businesses get started, ZK Research makes the following recommendations:

Start with a small pilot group. The process of making a technology shift—such as to contextual communications—company wide is difficult to manage, as businesses encompass a large range of work styles and collaboration preferences in addition to multiple locations. By starting with a small pilot group, the IT organization can study how processes change, collect best practices and then apply them as the deployment grows.

Leverage the power of the cloud. Historically, the on-premises deployment model for collaboration has been the most dominant. However, this model can no longer meet the needs of an organization that is becoming more dynamic and distributed. The cloud offers massive reach, easier application integration and limitless scale, which are keys to success in the digital era.

Choose your service provider based on today's needs. When choosing a technology partner, the simple decision is to use either the incumbent provider or the market share leader. However, during market transitions, this can often lead to the wrong choice, as the dominant solution providers are often slow to adapt because doing so can have a negative impact on their revenue stream. With contextual communications, organizations should look for a service provider that can enable the entire value chain—from internal communications to omnichannel customer interactions. This requires a robust UCaaS platform, a CPaaS solution and integration with many of the leading SaaS vendors.

Digital transformation will continue to be driven by consumers who come to expect contextual interactions with the companies they choose to do business with. Continued digitization is inevitable, and the companies that embrace this fact and move to the future state of doing business will thrive.

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