Driving consumer goods innovation in the cloud

A C-suite perspective

About the Consumer Goods Forum

The Consumer Goods Forum (www.theconsumergoodsforum.com) is a global, parity-based industry network, driven by its members. It brings together the CEOs and senior management of over 400 retailers, manufacturers, service providers and other stakeholders across 70 countries and reflects the diversity of the industry in geography, size, product category and format. Forum member companies have combined sales of EUR 2.5 trillion. Their retailer and manufacturer members directly employ nearly 10 million people with a further 90 million related jobs.

About IBM

At IBM, we collaborate with our clients, bringing together business insight, advanced research and technology to give them a distinct advantage in today's rapidly changing environment. Through our integrated approach to business design and execution, we help turn strategies into actions. And with expertise in 17 industries and global capabilities that span 170 countries, we can help clients anticipate change and profit from new opportunities.

Cloud computing is not the next big thing.

Strictly speaking, it's not even a new thing. The central idea of cloud – using a network connection to access remote services on demand – has been around in various forms since the mainframe era dawned. What's new for consumer products manufacturers and retailers: a widespread consensus among business executives that cloud is ready to deliver on its promise as a game-changing and disruptive enabler of business value.

Executive summary

As new cloud offerings continue to emerge, industry leaders increasingly view cloud as a business enabler outside of IT. Cloud conversations among executives have shifted emphasis from IT efficiency and cost flexibility to consumer/shopper engagement, collaboration and new business models. This is because cloud supports rapid experimentation and innovation by allowing companies to quickly try and even implement new solutions without significant up-front costs. It supports seamless connectivity among business partners and customers, allowing them to collaborate, share ideas and data, and execute transactions. And cloud can also reduce complexity in the delivery of advanced analytics and fundamental back-office processing capabilities.

This paper, "Driving Consumer Goods Innovation in the Cloud," is a collaboration between the Consumer Goods Forum and IBM. Based on over two dozen interviews with global retail and consumer products industry leaders, and extensive supporting research, it illuminates cloud's potential as a driver of business value. Included in our analysis are the findings of a 2011 IBM/Economist Intelligence Unit survey of 572 business and technology executives around the globe on the use of cloud.[1]

Our research reveals consumer products and retail companies at a crossroads: Most leaders recognize cloud's potential, but are only beginning to execute strategies that leverage cloud to enable core business objectives. In our survey, just 13 percent of large enterprises had substantially implemented cloud (see Figure 1).[2] Yet companies are ready to move off the sidelines and embrace cloud's potential; 41 percent of those surveyed were aiming to substantially implement cloud capabilities in three years while 90 percent report implementing, adopting and piloting cloud.

What is your organization's level of cloud adoption?
Percent of respondents
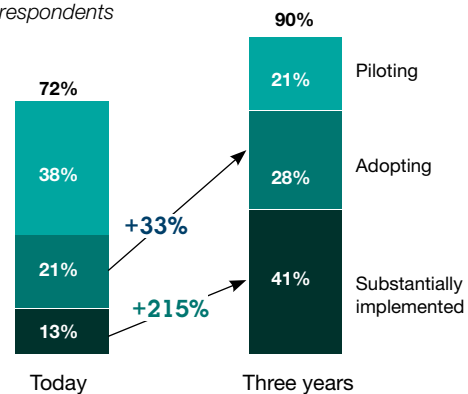
Source: 2011 IBM Institute for Business Value/Economist Intelligence Unit Cloud-Enabled Business Model Survey.

Figure 1: **A large majority of survey participants have implemented cloud at some level – and adoption is expected to accelerate in coming years.**

The pace of change in the consumer goods arena continues to accelerate. Interestingly, cloud is a central feature of both the industry's response to those changes, and a driver of the changes itself. Rapid adoption of mobile technology, the explosion of social media, growth in "big data" and advanced analytics, globalization of value chains, and a steady stream of new entrants seeking to unseat established players – these trends are directly enabled by cloud.

At the same time, these trends are influencing consumer goods companies to leverage cloud capabilities to radically transform how business value is created. We see nimble new entrants leveraging cloud to enter and disrupt markets, and established firms rising to meet the challenge though new, cloud-enabled offerings, capabilities and business partnerships.

At the center of these changes is an increasingly empowered consumer, who can decide when, where and how to shop. Consumers are *instrumented*, with instantaneous access to information about companies, products, and others' experiences through technology. They are *interconnected,* using multiple technologies to interact with each other, and manufacturers and retailers. And they are *intelligent*, with clearly defined expectations of what they want from their suppliers. With more shopping and product options than ever, and with purchasing no longer constrained by proximity to physical stores, the consumer is in the driver's seat like never before.

In light of these industry dynamics, this paper explores three capability areas where cloud will play a profound role for consumer goods companies: **consumer centricity, collaboration,** and **business and operating model innovation.**

While cloud itself is not a business strategy, its unique features can help consumer goods companies turn the most ambitious business objectives into reality. To begin, we recommend that industry executives consider the following actions:

- Establish a joint partnership for cloud strategy across business and IT to understand how cloud can enable your business objectives
- Look within and beyond your organization's borders to derive the greatest possible value from cloud adoption.
- Determine whether your organization seeks to be an optimizer, innovator or disruptor, and use cloud to innovate your business model to realize that objective.

We invite you to read the following pages to gain a better understanding of cloud's unique set of enablers and how it will drive transformation in the consumer goods industry around consumer centricity, collaboration, and business and operating model innovation.

Understanding cloud

Major advancements in technology have given rise to "cloud computing," a game-changing business enabler that is driving innovation across value chains and customer value propositions across industries. The combination of technology advancements like virtualization, utility computing and Internet connectivity has created an environment where cloud computing can enable both productivity and business model innovations. Companies are motivated to begin establishing "cloud strategies" in hopes of achieving business agility, scalability and connectivity with business partners and consumers in new ways.
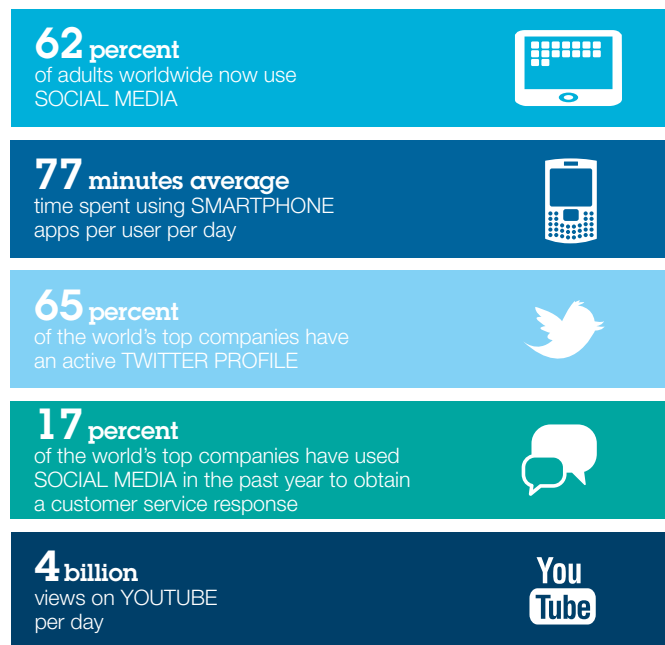
Cloud's roots can be traced back to the advancement of mainframe computing in the 1950s. In the mainframe era, users connected simple terminals to big remote computers, where advanced processing took place. Sound familiar? A computer user of the 1960s and '70s might be amused to hear that well into the twenty-first century, a similar computing model known as "cloud" is described by some as the "next big thing."

But for all of its benefits, the mainframe era was characterized by expensive technologies, proprietary standards, narrow access and little-to-no mobility – features antithetical to what we now call cloud. No surprise then that the networked personal computer (PC) with its lower cost, portability and simpler user interface quickly came to dominate the landscape, and usher in an entirely new era of computing. With the mass adoption of the PC came a parallel explosion in technologies including email, packaged software, e-commerce and the Internet. By the 1990s, the personal computer was no longer optional equipment for business professionals in developed economies.

For all its blessings, the PC era also stymied business agility in its own way. Businesses faced greater complexity in managing thousands of devices with locally installed software and greater reliance on their own internal computing power. Implementing changes across a network of computers could take years for large enterprises, thus making innovation difficult.

Today, "pay-per-use" and "software-as-a-service" computing models, and ubiquitous Internet and mobile connectivity seem poised to dominate the landscape. Cloud models offer simplified, on demand access to advanced technology. Using technology as simple as a web browser on a low-cost mobile phone, today's users have instant access to new solutions and capabilities.

With lower barriers to adoption, cloud offers the promise of agility, speed and innovation. Though cloud is sometimes described as an advancement on the horizon, cloud technology is in fact already mainstream for many consumers today (see Figure 2). Professionals around the world are familiar with LinkedIn, Google Mail, SurveyMonkey and Apple's iCloud – all of which are simple and powerful, cloud-based offerings.

62 percent
of adults worldwide now use
SOCIAL MEDIA

77 minutes average
time spent using SMARTPHONE
apps per user per day

65 percent
of the world's top companies have
an active TWITTER PROFILE

17 percent
of the world's top companies have used
SOCIAL MEDIA in the past year to obtain
a customer service response

4 billion
views on YOUTUBE
per day

Source: IBM analysis.

Figure 2: **Cloud technologies already have achieved widespread adoption by consumers.**[3]

Cloud as a business enabler

Conventional definitions of cloud typically focus on its characteristics as a computing model. And of course those definitions are correct – cloud fundamentally is about on-demand access to shared, configurable computing resources such as servers, storage and applications.

However, we believe these IT-centric definitions of cloud fail to capture its transformative potential as an enabler of innovation and business value. We propose a "value-centric" definition of cloud that extends beyond the provisioning of IT services and broadly incorporates consumer interaction with the Internet (see Figure 3).

In addition to its value focus, the value-centric definition recognizes the overlap between the concepts of "cloud" and "the Internet." In the minds of many, the Internet essentially operates as one giant cloud – a collection of servers and routers interconnected via standardized protocols referred to as the World Wide Web. Cloud computing brings additional capabilities – such as software applications, computing power and infrastructure – which are often delivered as services and solutions via the Internet. The distinction between cloud and the Internet is blurring as many consumer goods companies continue to outsource or cloud-enable their IT applications and Internet presence. This broader definition of cloud more fully illustrates its disruptive potential.

Cloud's unique set of business enablers

Our research has illuminated six cloud characteristics that we have dubbed "business enablers." These enablers can be used to generate new business value: Cost flexibility, business scalability, speed and agility, masked complexity, context-driven variability and ecosystem connectivity (see Figure 4).

1. Cost flexibility

Cost flexibility is a key reason many companies consider cloud adoption in the first place. More than 31 percent of executives surveyed cited cloud's ability to reduce fixed IT costs and shift to a more variable "pay as you go" cost structure as a top benefit.

IT-centric definition of cloud	Value-centric definition of cloud
Enables ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (for example, networks, servers, storage, applications and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.	Provides simple, on-demand access for consumers and users to new business capabilities, product and service offerings, and distribution channels – typically utilizing nothing more than a web browser. By fundamentally changing the way people interact with technology, cloud enables new forms of consumer engagement, expanded collaboration across the value chain and innovation to companies' core business models.

Source: IBM analysis.

Figure 3: **IT- and Value-centric definitions of cloud.**

IT capital expenses – which typically include enterprise software licenses, servers and networking equipment – tend to be expensive and harder to forecast than operating expenses. With cloud applications, there is no longer a need to buy hardware, install and customize software or pay dedicated software license fees; organizations can shift costs from capital to operational, or from fixed to variable, paying for what they need only when they need it.

While some leaders in large enterprises have challenged the total cost of ownership for cloud solutions in the long term, leaders at smaller enterprises with less access to capital view cloud's cost model as its most appealing attribute.
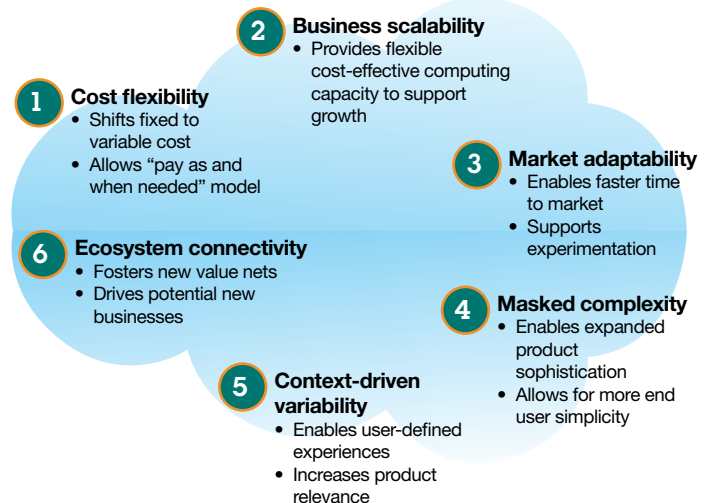
Consider Etsy, a growing online marketplace for handmade goods. In addition to bringing buyers and sellers together, Etsy adds value by generating personalized product recommendations for buyers. Using cloud-enabled analytics, the company is able to cost-effectively analyze data from the approximately one billion monthly views of its website, and use the information to tailor recommendations to individual customers.[4] The cost flexibility afforded through cloud provides Etsy on-demand access to tools and computing power that might typically be affordable only for larger retailers.

2. Business scalability
IT scalability is recognized by many as a major benefit of cloud adoption. However, cloud offers more than just IT scalability – it allows an organization to easily scale its business operations to support organic and M&A-driven growth. By allowing for rapid provisioning of resources with fewer limitations, cloud enables a company to benefit from economies of scale without achieving large volumes on its own.

For this concept in action, consider Netflix, an Internet subscription service for movies and TV shows. Because it streams movies and shows on demand, the company faces large surges of capacity at peak times. As Netflix began to outgrow its data center capabilities, the company made a decision to migrate its website and streaming service from a traditional data center implementation to a cloud environment. This move allowed the company to grow and expand its customer base without having to build and support a data center footprint to meet its growth requirements. It also allowed the company to focus on growing the business, not managing the IT environment.[5]

Cloud's business enablers

1 **Cost flexibility**
• Shifts fixed to variable cost
• Allows "pay as and when needed" model

2 **Business scalability**
• Provides flexible cost-effective computing capacity to support growth

3 **Market adaptability**
• Enables faster time to market
• Supports experimentation

4 **Masked complexity**
• Enables expanded product sophistication
• Allows for more end user simplicity

5 **Context-driven variability**
• Enables user-defined experiences
• Increases product relevance

6 **Ecosystem connectivity**
• Fosters new value nets
• Drives potential new businesses

Source: IBM Institute for Business Value analysis, 2012.

Figure 4: **Cloud empowers six potentially "game-changing" business enablers.**

3. Speed and agility

In today's economic environment, the ability to respond to rapidly changing customer needs is a competitive differentiator. As such, companies continuously seek ways to improve their speed and agility to adjust to market demands. By enabling businesses to rapidly adjust processes, products and services, cloud provides the speed and agility for rapid prototyping and innovation.

For example, a leading retailer that sought to improve its inventory performance wondered if leveraging a cloud-based supply and demand forecasting solution might improve performance. Rather than undertake a long and costly analysis to estimate the solution's benefits, the retailer was able to quickly establish pilots in the cloud with multiple vendors. This allowed the retailer to "test" each vendor's forecast with real data and results. What once would have been a complex pilot and implementation became as simple as uploading data to cloud partners.

4. Masked complexity

Cloud offers the advantages of masking complexity - a way to "hide" the intricacies of operations from end users, which can help simplify adoption. Because complexity is veiled from the end user, a company can expand its product and service sophistication without having to increase the level of knowledge or involvement necessary to utilize or maintain the product or service. For example, upgrades and maintenance can be done "in the background" without the end user having to participate.

Masked complexity is perhaps less recognized than some of the other enablers. However, it is important to be able to hide the details of where and how data is being stored and how a seamless experience across the various mediums and devices can be realized.

For example, in a traditional computing environment, upgrading PC operating systems was among the most complex computing tasks for consumers and enterprises alike. For consumers, upgrading an operating system meant complicated backup procedures and searches for long-lost CD-ROMs. For enterprises, an upgrade meant long cycles of testing for compatibility with hardware and locally installed applications. However, with cloud-delivered operating systems like Google Android and Apple iOS, the complexity of installation is masked to users. Google and Android manage hardware and software compatibility in the cloud, and users install entirely new operating systems with the touch of a few buttons.

5. Context-driven variability

Because of its expanded computing power and capacity, cloud can store information about user preferences and its location to enable product or service customization. User preferences can be openly solicited or inferred from buying behavior and usage patterns, and used to customize advertisements, offers and suggestions. Amazon's online contextual product recommendation engine is a prime example.

Similarly, Siri, the Apple iPhone 4S cloud-based natural language "intelligent assistant," is all about context-driven variability. It allows users to send messages, schedule meetings, place phone calls, find restaurants and more. And while other phones have voice recognition features, Siri "learns your voice," as Wall Street Journal columnist Walt Mossberg put it.[6] Siri uses artificial intelligence and a growing base of knowledge about the user, including his or her location and frequent contacts, to understand not only what is said, but what is meant. It leverages the computing capabilities of cloud to enable individualized, context-relevant customer experiences.

6. Ecosystem connectivity

The final major business enabler powered by cloud is ecosystem connectivity. Cloud facilitates collaboration with value chain partners and customers, which can lead to improvements in productivity and increased innovation. Cloud-based platforms can bring together disparate groups of people who can collaborate and share resources, information and processes. The recent trend of "open innovation" is powered in part via cloud-based software solutions that connect parties and facilitate the sharing of ideas.

In the face of mounting pressure to become even more efficient, many retailers have re-examined the traditional, paper-based approach to trade promotion management. Safeway and its vendor partners, such as Kraft, use a collaborative, cloud-based deal management platform called eDeals.[7] The solution enables Safeway and other retailers to streamline the presentation, negotiation, invoicing, and reconciliation of trade promotions received from their vendors in a secure, cloud environment.[8]

Already, 16,000 retailer and manufacturer end-users have collaborated on more than five million trade promotion deals. With an average of 3.5 "touches" per deal, retailers such as Safeway are actively collaborating with their vendors, and many have been able to reduce their cost per deal by up to 80 percent.[9] eDeals and other cloud-based solutions put an end to the numerous emails, faxes and spreadsheets that are typically exchanged, reducing errors that are often associated with this kind of communication.

Opportunities for manufacturers and retailers

With an understanding of cloud's business enablers, consumer goods leaders can ask themselves the following questions to consider the potential benefits. What if you could:

- Access unlimited, on-demand computing resources to scale your business?
- Reach unaddressed consumers or markets and target them based on their individual preferences?
- Provide access to any of your products and services anytime, anywhere, on any mobile device?
- Inexpensively and rapidly develop and launch new product and service offerings?
- Easily connect and collaborate with business partners and customers?
- Redefine your role in the industry and change your competitive positioning?

Given the questions provoked by cloud's potential, the potential of cloud seems almost limitless. Still, we identified three, broadly-defined capability areas where cloud will be a key business enabler – and potentially a disruptive force – in the consumer goods industry:

- **Consumer centricity.** Finding new ways to personalize engagement with consumers in the context of their specific situations, locations, habits and preferences
- **Collaboration.** Uncovering new sources of value through collaboration and data sharing among customers, suppliers and third parties
- **Business and operating model innovation.** Leveraging the speed, agility, and cost advantages of cloud to deliver innovative IT capabilities, new consumer value propositions and new businesses altogether.

Cloud as a driver of consumer centricity

Cloud already plays a dual role in companies' efforts regarding consumer centricity – as a tool for companies to get closer to their customers and as a fundamental driver of the need to do so.

As consumers increasingly connect with both one another and favored companies in the cloud, their expectations of suppliers rise. More than ever, consumers expect companies to engage with them and understand their needs. And companies' efforts to do this are no longer measured against a handful of competitors in a single industry or local geography, as they once were; today's consumer is just as likely to compare her local grocer's loyalty program to that of a favored bank, airline or online retailer.

In fact, today's shoppers – no longer constrained by geographic proximity – have higher expectations and more options than ever before. This demands a level of consumer centricity that goes well beyond what was asked of retailers and manufacturers even a few years ago. In getting closer to consumers, cloud will be a key enabler across three key dimensions: engaging consumers in new ways; creating and delivering highly personalized, contextual offers; and uncovering advanced customer insights via advanced analytics and cloud–based solutions (see Figure 5).

Customer centricity in consumer goods: Cloud can help find new ways to personalize consumer engagement in the context of specific situations, locations, habits and preferences.
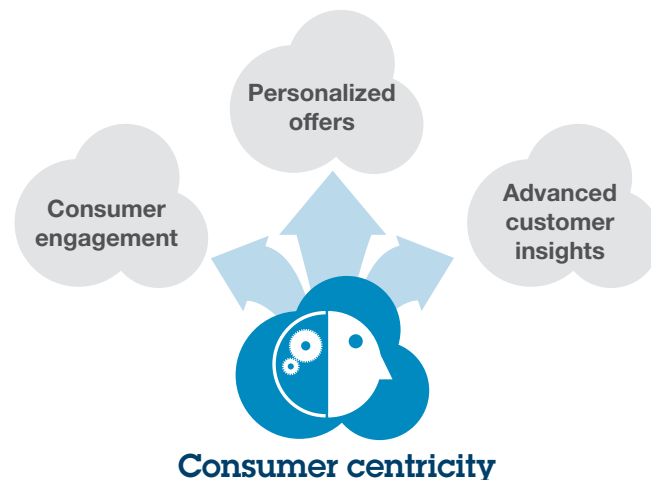

Figure 5: **The cloud provides an unprecedented opportunity for retailers and manufacturers to make a personalized connection with nearly any consumer, anywhere, at any time.**

Consumer engagement

The cloud provides an unprecedented opportunity to engage consumers in any context. The savviest companies will use this opportunity to move the conversation from a transactional dialogue involving coupons and products, to an authentic and continuous dialogue in which consumers engage with brands in the context of their lives. Compared to traditional methods, the greater immediacy and lower cost of cloud-based engagement enables companies to connect consumers more broadly with their brands, and in ways that extend beyond the traditional path of one-way push marketing.

For example, Yoplait, in a desire to develop an authentic conversation with consumers, created "Yoplait Sara" to serve as the face of its brand in social media.[10] Sara is a relatable, real-life person who chronicles her life on Yoplait's Facebook page, with stories and pictures of her family's daily life in

Minnesota. Yoplait references are usually, but not always, interwoven. With comments, likes, and sharing of Sara's stories, Sara and her Facebook fans create an authentic, ongoing dialogue about the Yoplait brand in social media.

For Yoplait, these efforts have translated into dramatically increased engagement beyond prior efforts. The company quadrupled its Facebook likes in the course of a year, and hit the 1,000,000 Facebook fan mark in only its second year on the site. Over time, Yoplait refined the strategy to be less about "product attributes and launches" and more focused on the harder goal of driving "organic growth by becoming more relevant and authentically engaging."[11]

Personalized offers

Today's consumers encounter an endless barrage of product offers, and the challenge for retailers and manufacturers is to stand out amidst the noise. Those that are successful will likely leverage cloud's potential to deliver offers that are highly relevant to consumers.

How does cloud help increase relevance? Cloud is a critical enabler of *situational awareness* – the idea that by understanding the context of a consumer's situation (including such factors as geographic location, recent activities, preferences and attitudes), companies can make offers that are more directly and immediately applicable to *individual* consumer needs.

For example, with geo-location services, companies can target consumers when they are in close proximity to visit a store, or even at a specific location within a store. With advanced purchase pattern analysis, companies can understand when the customer is deviating from typical shopping behavior (such as

changing trip frequency), and offer an incentive either to behave differently or continue the new behavior. And with emerging "smart shelving" and other technologies, companies can know when consumers are ready to have items replenished, and prompt them to make purchases. In short, the simplicity of connectivity and data exchange in the cloud offers tremendous potential to tailor offers to individual consumers, in ways that increase their relevance.

Safeway's Just 4 U program is emblematic of traditional retailers' efforts to use the cloud to increase the relevance of offers. The grocer, which operates more than 1,600 stores in the U.S. and Canada, offers personalized digital deals to customers based on their past buying behavior. For example, one customer with a high propensity to buy an item (as determined by analyzing the customer's purchase history) may be offered a coupon to buy at a reduced price, while another customer with a dissimilar history may still pay full price (while perhaps being offered a lower price on a different item). Customers capitalize on personalized deals at checkout with a swipe of the loyalty card – no physical coupon or in-store signage required. Individual promotions, pricing and offers are now feasible.

Advanced customer insights

People have always shared information and opinions among their social networks. What's new is the expansive reach of the connected consumer, the enormous scale of the data being shared, and the ability of companies to access and analyze the data to generate valuable consumer insights that companies can act upon.

For example, in a single minute, Tumblr blog owners publish 27,000 new posts; Twitter users send over 100,000 tweets, and Facebook members share 684,000 pieces of content.[12] Much of this social media data is publicly available and ready to be analyzed and acted on by companies. And when understood in combination with companies' own internal information sources (such as transaction history, click-streams, loyalty data, inventory information, QR codes, contact center communication, and so on), the data available in the cloud from social media and other sources provides an opportunity to gain insight into consumer sentiment and behavior like never before.

In our interviews, we found consumer goods leaders largely at the beginning of the journey to bring together disparate "big data" sources and develop advanced insights. For example, when Amadori Group, one of Italy's most innovative CPG manufacturers wanted to boost sales among younger shoppers, it created a cloud-based, multi-faceted social technology program. Starting with a new web development platform, Amadori quickly created a set of highly interactive websites, and then integrated the mini-sites with Facebook and YouTube. Online contest entries and other site inputs helped build a rich database of consumer profiles that were used for campaign marketing. Beyond simply gathering data, Amadori utilized sophisticated predictive analytics to track and visualize what was said about its brand and products on social networking sites, blogs and forums in real time. With a slew of fresh new insights into its consumer segments, Amadori has worked to continuously refine its marketing efforts to expand its consumer reach.

Many leaders interviewed for this paper highlighted cloud-based analytics as a significant opportunity for future solutions and adoption. Several expressed an interest in piloting and adopting cloud-based analytical tools that they would not need to manage, integrate and maintain on their own.

Cloud as a driver of collaboration

Retailers and manufacturers have a strong history of exploring new ways to share data and collaborate with one another, consumers and other business partners. This collaboration has included trade planning, demand forecasting, open innovation and shared logistics, and has been fueled by the growth of the Internet and the rise of new data sharing standards in recent years.

However, collaboration remains difficult to operationalize at scale due to different processes, data and IT solutions across companies, along with the sheer number of trading partners that must be managed. For many, collaboration even within their own companies remains a challenge, due to organizational barriers and lack of a shared version of the truth regarding performance data.

Many business leaders are looking to cloud to usher in the next wave of collaborative solutions and ideas. This includes collaborating directly with consumers with regard to new and existing products and services, and improving alignment and execution across internal functions and value chain partners (see Figure 6).

Collaboration in consumer goods: Cloud can enable discovery of new sources of value among customers, suppliers and third parties.
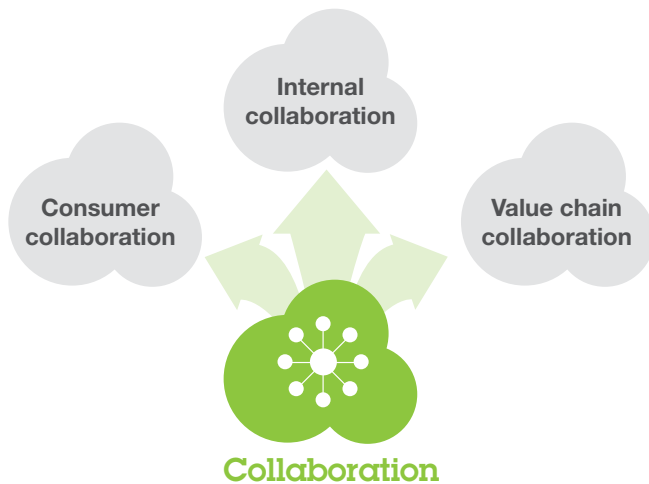
Figure 6: Leveraging the simplicity of connectivity and collaboration in the cloud, companies can share, aggregate, and analyze data to find new sources of value.

Consumer collaboration

Companies have always sought ways to gauge consumer sentiment, typically through focus groups, surveys and other traditional means. Cloud provides an opportunity to take this engagement to a higher level given its simplicity, low cost and ability to dramatically scale the breadth and depth of engagement with consumers.

In product development, the cloud provides a means to involve consumers in decisions across the new product lifecycle, from ideation through packaging options and even pricing. Both manufacturers and retailers can engage consumers in online forums, social media sites and even via email to gauge reactions to products and solicit new ideas. The cloud has allowed marketing departments to create entire campaigns around content submitted by users online.

Frito-Lay has won acclaim for its success in collaboration in developing new products. In an effort to create new, "locally-tailored" potato chips, Frito-Lay went straight to social media to find the best new flavor ideas. Through a new Facebook app, it solicited consumer suggestions and registered preferences on submitted flavors through an "I'd Eat That" button.[13] The best flavor idea won a US$1 million dollar prize.

With a deluge of submissions and votes, Frito-Lay was able to identify new regional flavors, such as spicy crab in Thailand and pickled cucumber in Serbia. In addition to finding new recipes that satisfied local tastes, Frito-Lay ultimately increased consumer engagement in its brand around the globe.

Quirky is an Internet-based company that collaborates with consumers to find, select, design and manufacture new products.[14] Each week, Quirky users vote to choose the best new product ideas submitted by its global user community. From those top ideas, product designers pick one to two ideas to develop, manufacture and bring to market, typically at major retailers. Quirky exemplifies the power of using cloud to extract value from connections among business partners and consumers.

Internal collaboration

Manufacturers and retailers will increasingly adopt cloud-based tools to collaborate internally across functional, organizational and geographic boundaries. Early adopters of cloud-based enterprise collaboration tools seek gains in process efficiency and workforce productivity. But perhaps more important are the innovations that come with leveraging the best people and ideas across company functions.

Many consumer goods companies are in various stages of adopting enterprise social media capabilities. They are deploying internal social media platforms, similar to Facebook and Twitter that are accessible through a web browser and designed to stimulate internal collaboration, file sharing, knowledge management and ideation across the enterprise. One example includes using social media tools to enable "communities of practice" to help business users connect with peers who can assist with system questions, in order to avoid calls, queues and costs associated with IT help desks. Social media tools are also being used to hold company-wide events, and brainstorm new products or company value statements. Beyond social networking, others are leveraging cloud solutions to monitor operational performance, especially across vertically integrated and geographically distributed organizations.

For example, Grupo Pão de Açúcar, the largest retailer in South America, uses a cloud solution to measure the carbon impact of its retail and supply chain operations.[15] Its cloud-based platform measures end-to-end greenhouse gas emissions across a 1,832 store network. In addition to helping the company find ways to reduce the environmental impact of operations, the solution dramatically simplifies its once-cumbersome regulatory reporting process, eliminating the need for an external service provider.[16] The cloud-enabled solution required minimal infrastructure investment, was deployed rapidly and is easily used by non-technical employees.

Business and operating model innovation in consumer goods: Cloud's speed, agility and cost advantages can deliver innovative IT capabilities, new consumer value propositions and new business models.

Value chain collaboration

Expanded collaboration and data sharing among value chain partners will become increasingly common in the cloud. Although solutions and adoption in this area are still evolving, surveyed leaders expressed belief in the enormous benefit potential for cloud-based process collaboration and data sharing among business partners. Among other benefits, expanded collaboration and sharing can enable companies to better understand the true drivers of performance, become ultra-responsive to changes in consumer needs and behavior, better manage costs, and drive productivity and sales.

A major consumer goods company and one of its strategic partners recently conducted a pilot of a new and unique neutral, cloud-based business intelligence platform called C-Suite. With C-Suite, both companies shared performance data in a secure, neutral environment that allowed users to understand the full picture of performance across the value chain. By combining internal information from each company (such as volume, marketing spend and quality data) with external information (including market share, weather, GDP and brand health measures) in a common platform, the companies achieved better, faster, and lower-cost insights into holistic business performance than with separate legacy, internal business intelligence systems.

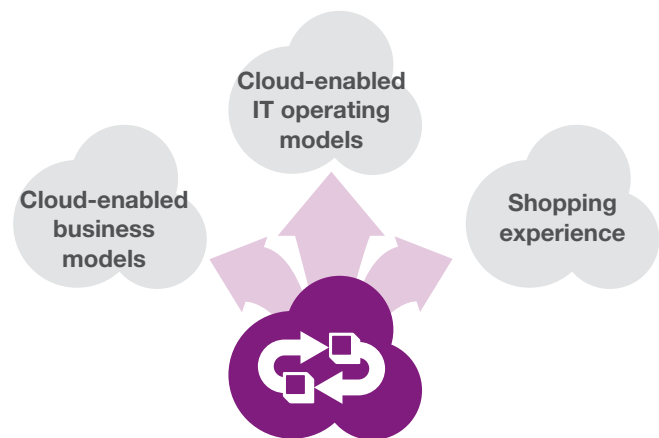## Cloud as a driver of business and operating model innovation

Cloud's most disruptive power lies in its ability to support entirely new business and operating models. Cloud's rapid provisioning and scaling of new capabilities lowers barriers to entry, and so it can present a threat to existing players from new entrants. More than ever before, it is possible for new entrants to offer entirely new value propositions to consumers, or to disrupt existing value chains in unforeseen ways.

Of course, existing industry players can take advantage of cloud, too. Manufacturers and retailers may choose to: invent new cloud-enabled products; reach entirely new segments; or radically innovate their operating models – any of which may be enabled by cloud (see Figure 7). Retailers, in particular, are already using the cloud to innovate the shopping experience – cloud's ability to connect the shopping experience to external networks and information sources holds the promise to create new sources of value for retailers and manufacturers alike.

Cloud-enabled business models

The very nature of business model innovation makes it difficult to predict with specificity, but several themes emerged in our research that highlight cloud's potential to innovate business models.

- *Cloud delivered products and services* leverage the cloud delivery model both to augment an existing product, and to offer an altogether new one. These types of innovations can run the gamut from QR codes that offer value-added product features, such as "scan-able" recipes on a Progresso soup can, to entirely new services like the iTunes music store.
- *Cloud supports rapid positioning of brands* through the viral nature of cloud-based networks, and the low cost and reach of digital campaigns. This feature of cloud can be leveraged by

Business and operating model innovation

Figure 7: Cloud allows companies to create entirely new value propositions through new cloud-enabled business models and offerings, and enables business operating model innovation by changing the way IT capabilities are delivered.

new entrants to reach consumers and to reposition existing brands. For example, Dollar Shave Club established an entirely new business model for shaving products with a monthly fulfillment service. Within 48 hours after the launch of an entertaining promotional YouTube video, it became the top trending topic on Twitter and signed up 18,000 customers.[17] Old Spice was able to rapidly change the perception of an established, 75-year old brand through a series of online viral videos featuring a new "Old Spice Guy" character. The Old Spice Guy responded to tweets with personalized video messages – creating over 180 unique videos – and helped reposition the brand to compete for a younger consumer segment.

- *Direct-to-consumer engagement for manufacturers* is made possible by cloud, which allows some companies in some product segments to transact directly with consumers, in addition to existing retail channels. For example, Procter & Gamble (P&G) offers consumers a wide variety of products through direct fulfillment in the P&G eStore. Other manufacturers are pursuing similar initiatives.
- *Alternative retail models* will continue to emerge, as traditional retailers are squeezed by "showrooming" consumers who browse in stores then buy online to get the lowest prices; or who bypass physical stores altogether to take advantage of the breadth of assortment online. Retailers such as Best Buy are experimenting already with "endless aisle" concepts to expand direct-to-consumer fulfillment and extract value from showrooming.[18] Likewise, online retailers are taking advantage of the showroom trend by opening their own inventory-free storefronts. Formerly online-only companies like Warby Parker now offer physical storefront locations to complement their online offerings.[19]

mySupermarket highlights several of these themes by transforming the grocery price-comparison shopping process for consumers in the UK. The company aggregates real-time price and promotion data from multiple grocery retailers in the cloud, and "does the math" to let customers know where prices are lowest for their shopping list. Customers may select the retailer offering them the lowest total price, or even split a single order to multiple retailers to lower their costs further. mySupermarket links them to the online grocer(s) of their choice with a pre-populated cart, ready for check out. In another cloud-enabled innovation, it earns its revenue entirely by selling analytics based on the shopping data it collects to its manufacturing and retail partners.[20]

Cloud-enabled IT operating models

Though cloud opportunities in the "IT shop" may be better understood than others, its importance will continue to grow in delivering IT without boundaries; improving the speed and dexterity of back-office functions; and creating new business value. Our interviewees stressed the clear opportunity that cloud solutions provide to deliver non-core functions with less management attention and overhead, and reduce total costs. Uptake of software-as-a-service has been strong for consumer goods companies in the Finance, HR and IT areas.

Cloud also presents similar potential for consumer goods companies in the "front office" – core, value-driving areas such as merchandising, marketing, analytics and sales. Our interviewees recognized a largely untapped opportunity to use cloud to expand their use of business partners and outsourcing providers. However, perceived complexity and risk in establishing cloud-based partnerships have so far prevented widespread adoption; companies continue to experiment with smaller "point solutions" to address specific needs, while waiting for front-office solutions to achieve the maturity and risk profile of those in the back office.

Still, the landscape of potential partners continues to evolve. Many leaders view companies like Facebook and Google – or their successors – as almost inevitable partners. The ability of such partners to understand and reach customers is almost undeniable; the open question is how they should be used. However partners are engaged, we expect their use to increase in areas considered "core" or differentiating, and that companies will redefine their core competencies in much narrower ways – allowing partners to take on much of the rest. For example, a retailer today that broadly considers its core competency to be "merchandising" may tomorrow define its core competency to be a much narrower slice of the front office that is truly unique to the company. Partner service providers would execute the less-differentiating activities.

For now, cloud-enabled IT operating models find perhaps their highest uptake among small and high-growth enterprises. For these companies, the cost flexibility and rapid scalability of cloud offers access to advanced capabilities that would have been out of reach through traditional implementation approaches. For example, U.S.-based retailer 3balls.com saw tremendous growth as a startup, as it quickly became a leading seller of golf equipment on eBay. As it grew, managing its financial processes presented tough challenges. The retailer needed to quickly implement a back-office financial and accounting (F&A) solution that did not require big upfront investments or impact the productivity of its limited staff.[21]

To achieve its objectives, 3balls.com adopted a subscription-based F&A platform solution delivered from the cloud. The platform provides on-demand scale for growth and requires no investment in IT infrastructure. Finance analysts remotely access the solution, allowing them to perform channel-by-channel revenue comparisons and control the latest orders, inventory levels, shipping schedules and financial transactions. As a result of the cloud-based solution, 3balls.com increased back-office productivity by 25 percent and reduced time spent reconciling accounts and running financial reports from 12 hours a week to four hours per month.[22] Cloud-enabled IT applications clearly are applicable for larger enterprises as well, as evidenced by the availability and continuing emergence of cloud-based ERP solutions that support large enterprises.

Retailers and their brand partners can leverage the cloud to create differentiated, value-added retail shopping experiences for consumers.

Shopping experience

Retailers and their brand partners can leverage the cloud to create differentiated, value-added retail shopping experiences for consumers. The ubiquity of mobile connectivity, explosion in cloud technologies and increasing shopper acceptance of self-service creates opportunities for innovation of the traditional store shopping model. Investment in in-store networks, geo-fences, near-field communication, and mobile applications, along with other innovations, will be used to improve retail results – including increased trip frequency, conversion, basket size and customer satisfaction (with reductions in operating costs along the way).

Today, there is a lot of piloting and experimentation in this area. Many traditional retailers, across consumer segments, are exploring innovative concepts like digital fitting rooms, dynamic displays, expanded aisle kiosks, VIP concierge applications and same-day home delivery. Many of these solutions leverage cloud-based software, content and analytics, and hold tremendous promise to create a more dynamic and differentiated shopping experience.

Aisle411 is one example that shows the potential pay-off when manufacturers, retailers and third parties collaborate to improve the shopping experience. Its mobile shopping application helps shoppers locate products in stores, manage shopping lists, connect via social media and earn rewards.[23] On the back-end, Aisle411 gathers valuable insights about shopping habits to share with participating brands and retailers.[24] Companies like Walgreens, Price Cutter, and Supervalu's Shop 'n Save have adopted Aisle411's platform.[25]

Other retailers like Walmart and Home Depot have rolled out their own mobile applications with functionality like store maps and aisle numbers for searched items.[26] Walmart has even begun piloting a new checkout system that enables shoppers to avoid long lines and scan items in store aisles using their Smartphones.

Charting a path to cloud

Unlike many other technologies that have emerged over the years, there is no prescribed maturity path for cloud. Companies largely will choose to leverage cloud to meet their specific business objectives, which by definition will vary from company to company. Instead, we classify organizations based on three business archetypes, representing the extent to which they use cloud to impact company and industry value chains, and customer value propositions:

- **Optimizers** use cloud to incrementally enhance their customer value propositions while improving their organizations' efficiency.
- **Innovators** significantly improve customer value through cloud adoption, resulting in the creation of new revenue streams or even changes to their role within an existing industry ecosystem.
- **Disruptors** rely on cloud to create radically different value propositions, as well as generate new customer needs and segments – and even new industry value chains.

Whether companies choose to become optimizers, innovators or disruptors depends on a variety of factors, including: their core competencies; level of maturity in using outside service providers; and current competitive positions.

Cloud-enabled business innovation

Cloud business enablers are already driving innovation across customer value propositions, and company and industry value chains. Enterprises are applying cloud to generate additional revenue streams by enhancing, extending and inventing new customer value propositions. Others are using cloud to improve, transform and create new organization and industry value chains (see Figure 8). This has resulted in shifts in who creates value, as well as how it is created, delivered and captured.
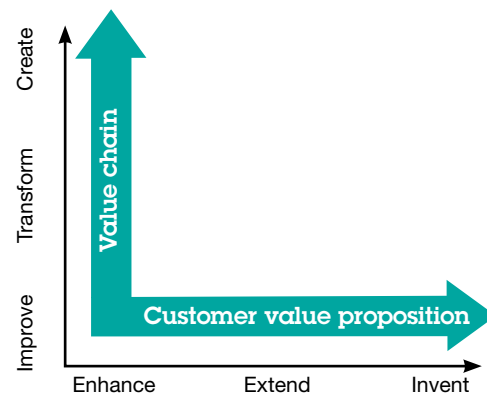
Source: IBM Institute for Business Value analysis. 2012.

Figure 8: **Cloud business enablers help spur innovation across customer value propositions and across company and industry value chains.**

Customer value propositions

- *Enhance:* Organizations can use cloud to improve current products and services, thus *garnering incremental revenue* by enhancing customers' experiences both to retain current and attract new customers.
- *Extend:* Cloud can help a company create new products and services, or utilize new channels or payment methods, thus *attempting to generate significant new revenues* by aiming to attract existing or adjacent customer segments.
- *Invent:* Companies can use cloud to create a new "need" and own a new market, thus *generating entirely new revenue streams* by attracting new customer segments.

Value chains

- *Improve:* Cloud adoption can help an organization maintain its place in an existing value chain through increased efficiency and an improved ability to partner, source and collaborate.
- *Transform:* By assisting in developing new operating capabilities, cloud can help a company change its role within its industry or enter a different industry.
- *Create:* Organizations can use cloud to build a new industry value chain or disintermediate an existing one, radically changing industry economics.

Cloud Enablement Framework

Using customer value proposition and value chain dimensions, we created a "Cloud Enablement Framework," which identifies three organizational archetypes: Optimizers, Innovators and Disruptors (see Figure 9). These archetypes characterize the impact of an organization's cloud-enabled business strategy.

The framework is not a maturity model. We don't expect or recommend that organizations first start as optimizers and then become innovators and disruptors. Instead, an organization should determine its place in the Cloud Enablement Framework based on factors including the company's business strategies, competitive landscape and IT maturity.

Cloud Enablement Framework
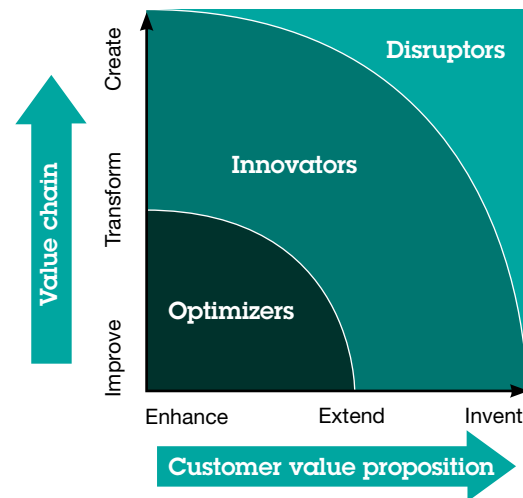
Source: IBM Institute for Business Value analysis, 2012.

Figure 9: The Cloud Enablement Framework helps organizations classify the extent to which their use of cloud impacts value propositions and value chains.

The "Cloud Enablement Framework" identifies three organizational archetypes – optimizers, innovators and disruptors – that characterize the impact of an organization's cloud-enabled business strategy.

Optimizers

Optimizers focus more on efficiency and improving their current value chain position or enhancing existing customer value propositions. While optimizers can expand the value they offer through improved products and services, enhanced customer experiences and broader channel delivery options, they tend to realize lower revenue and market share gains than innovators and disruptors.

Innovators

Innovators transform their roles within the industry, or enter an adjacent market or industry space. By extending and transforming, innovators have the opportunity to combine previously unrelated elements of the value chain and value proposition to gain competitive advantage.

Disruptors

Disruptors capture competitive advantage by creating a new or disrupting an existing industry or market. Disruptors often provide customers what they weren't even aware they wanted or needed! By taking a risk, disruptors can gain "first-mover" advantage.

Given the cloud capability areas we have identified for consumer goods companies, we recommend leaders assess their organizational needs. By identifying gaps in the areas of consumer centricity, collaboration, and business and operating model innovation, they can better understand where cloud capabilities may drive value (see Figure 10).

Consumer centricity
- How can we develop a continuous dialogue with our customers that moves beyond delivery of the latest promotion?
- How can we sift through massive volumes of internal and external data to truly understand consumers' needs and desires?
- How can we tailor offers to consumers in the context of their specific situation, location, needs, and preferences?

Collaboration
- Can we improve our end-to-end supply chain visibility to more quickly react to changes in consumer demand? Improve our sustainability performance?
- How do we establish a model for collaboration with our business partners? Who should we collaborate with?

Business and operating model innovation
- Are we prepared to create new business models, products, services, and shopping experiences that leverage the power of cloud?
- Can we lower barriers to experimentation and innovation with our business capabilities?
- How can IT become more agile in responding to business needs? And at the same time become more cost-efficient?
- How can we foster meaningful collaboration across our own organization? How do we surface the best ideas from our own people?

Source: IBM analysis.

Figure 10: **Discussing each capability area will help organizations identify areas of opportunity and define their cloud agendas.**

To optimize, innovate or disrupt?

We recommend that organizations carefully evaluate the various opportunities available to harness the power of cloud – and find the right opportunities to strengthen their business strategies. As first steps to accomplish this, we recommend three key actions:

1. Establish a joint partnership for cloud strategy across business and IT to determine how cloud can enable your business objectives.

   - Place a senior executive business leader, in partnership with the CIO, in charge of your firm's cloud business strategy development. This collaboration should help ensure cloud is linked with your business and marketing strategies. In future adoption phases, these leaders will help communicate and drive cloud priorities outside of IT.
   - Establish a governing committee of business and IT leaders to oversee cloud evaluation, adoption and implementation. After solutions have been selected, this committee can help oversee the implementation of business changes (for example, processes, role changes and outcomes) that cloud will enable.
   - Establish a robust selection and governance process for cloud service providers. Be prepared to establish rigorous service-level agreements to avoid vendor lock-in, enable solution flexibility, and help ensure data security.

2. Look within and beyond your organization's borders to derive the greatest value from cloud adoption.

   - Determine how your cloud strategy can impact your industry ecosystem, and identify new partners that cloud can attract. Evaluate whether cloud can or should change your role in the ecosystem.

   - Use cloud to respond to and engage your customers and consumers more effectively. Explore whether cloud can help enhance value with your current customers, or reach new customers and consumer segments.
   - Establish a clear understanding of your organization's true core competencies, to inform decisions about what capabilities can be taken to the cloud versus what must remain in-house. Tailor your organization's core competency narrowly, where practical, to take advantage of emerging front-office opportunities, especially in terms of social media, analytics and other methods of consumer engagement.

3. Identify whether your organization seeks to be an optimizer, innovator or disruptor, and use cloud to enable your business strategies to realize that potential.

   - Consider organizational and market factors – such as corporate strategy, competitive dynamics, customer strategy and your firm's risk profile – that impact your cloud strategy.
   - Determine where – if at all – your organization is positioned in the Cloud Enablement Framework today.
   - Determine where your organization should be in the next three to five years – to enable your business strategy. In considering this, remember that the framework is not a maturity model. Rather, each company has to evaluate the opportunities and risks inherent within each archetype and determine "who they want to be" and what works best for their company, categories and customers.
   - Identify and build business and technology capabilities to close the gaps between your current and future cloud positions.

Conclusion

Although cloud has practically become mainstream in the IT world, its promise extends well beyond technological innovation. In fact, cloud has the power to open doors to more efficient, responsive and innovative ways of doing business.

Consumer goods manufacturers and retailers worldwide are beginning to recognize cloud's unique set of capabilities to generate new business models and promote competitive advantage. As more and more companies adopt cloud, those that carefully align the power of cloud with their core business strategies will be well-positioned for greater competitive advantage.

In this new era of connected consumers, we believe the question is not whether, but how, companies will choose to grow their businesses and drive new profits via the cloud.

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