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The Rise of Generation C *Implications for the World of 2020*

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EXECUTIVE SUMMARY

In the course of the next 10 years, a new generation—Generation C—will emerge. Born after 1990, these “digital natives,” just now beginning to attend university and enter the workforce, will transform the world as we know it. Their interests will help drive massive change in how people around the world socialize, work, and live their passions—and in the information and communication technologies they use to do so.

As they grow up, this highly connected generation will live “online” most of their waking hours, comfortably participate in social networks with several hundred or more contacts, generate and consume vast amounts of formerly private information, and carry with them a sophisticated “personal cloud” that identifies them in the converged online and offline worlds.

As a consequence, this generation will expect fast, reliable connectivity through which they will create direct commercial links with a multitude of online business partners—today we call them application players. And the Internet will evolve into a largely “centerless” cloud with no obvious control points.

In the face of declining revenues from traditional services, the challenge for

the communication and technology industries will be to abandon successful but outlived business models and refocus on what it takes to thrive in the Generation C environment. This shouldn’t be taken as bad news, however; the rise of ubiquitous broadband, and of newly connected populations from emerging economies, will enable operators to capitalize on a vast new array of services. The “smart pipe,” an intelligent communication infrastructure, will be at the heart of many new value pools in industries as diverse as healthcare, energy, transportation, and media. Communication and technology players are well positioned to jump on the bandwagon today to help shape the future of these industries—and to capture significant new revenues as the industries change and grow.

THE SHAPE OF THINGS TO COME

By the year 2020, an entire generation will have grown up in a primarily digital world. Computers, the Internet, mobile phones, texting, social networking—all are second nature to them. And their familiarity with technology, reliance on mobile communications, and desire to remain in contact with large networks of family members, friends, business contacts, and others will transform how we work and how we consume. This is the demographic group we call Generation C—the “C” stands for connect, communicate, change (*see “What Is Generation C?”*).

What will the world of 2020 look like? In hopes of better understanding the depth of the changes Generation C will bring with it, and of helping leaders in the information and communication technology (ICT) industries, as well as their colleagues in a variety of related industries, think about and prepare for these changes, Booz & Company has embarked on a long-term project designed to explore the shape of the world inhabited—and influenced—by Generation C. Our goal is not to determine the exact shape of the future, or to promote a particular vision of that future, but rather to investigate the trends that we believe will affect the next decade, and to define the parameters of what should be an ongoing debate about what that future will look like and how business leaders should respond.

What Is Generation C?

They are realists, they are materialists. They are culturally liberal, if not politically progressive. They are upwardly mobile, yet they live with their parents longer than others ever did. Many of their social interactions take place on the Internet, where they feel free to express their opinions and attitudes. They’ve grown up under the influence of Harry Potter, Barack Obama, and iEverything—iPods, iTunes, iPhones. Technology is so intimately woven into their lives that the concept of early adopter is essentially meaningless.

They are Generation C—connected, communicating, content-centric, computerized, community-oriented, always clicking. As a rule, they were born after 1990 and lived their adolescent years after 2000. In the developed world, Generation C encompasses everyone in this age group; in the BRIC countries, they are primarily urban and suburban. By 2020, they will make up 40 percent of the population in the U.S., Europe, and the BRIC countries, and 10 percent in the rest of the world—and by then, they will constitute the largest group of consumers worldwide.

Having owned digital devices all their lives, they are intimately familiar with them and use them as much as six hours a day. They all have mobile phones and constantly send text messages. More than 95 percent of them have computers, and more than half use instant messaging to communicate, have Facebook pages, and watch videos on YouTube.

Consider the typical Gen C “digital native” in 2020. Colin is a 20-year-old computer science student in London, where he lives with two other students on the equivalent of about €600 a month. He enjoys backpacking, sports, music, and gaming. He has a primary digital device (PDD) that keeps him connected 24 hours a day—at home, in transit, and at school. He uses it to download and record music, video, and other content, and to keep in touch with his family, friends, and an ever-widening circle of acquaintances. His apartment is equipped with the latest wireless home technology, with download speeds mandated by the government.

Colin's parents are divorced, and he has one sister. He is close to his family, but his actual physical contact with them is limited. Instead, he prefers to stay in touch through his PDD, which allows him to communicate simultaneously through multiple channels—voice, text, video, data—either to them individually or to all of them at once. His parents would prefer that he visit more often, of course, but they are finally beginning to get used to being a part of his digital life. Still, sometimes Colin feels he is too digitally connected: A recent surprise visit to his mother was ruined because she knew he was in town—he had forgotten to disable the location feature on his PDD. Colin's social life is also mediated through his PDD. He can always find out the location of his friends, even what they are doing, and communicate with them instantly.

Much of Colin's experience at school is mediated by his PDD. He can attend lectures, browse reading material, do research, compare notes with classmates, even take exams—all from the comfort of his apartment. When he does go to campus, his PDD automatically connects to the school's network and downloads relevant content, notices, even bills for fees, and he can authorize their payment later, at his leisure. His PDD does most of the work for him when he's shopping too. Though he prefers to shop online, when he does visit a store, the PDD automatically connects to the store's network, guiding him through product choices, offering peer reviews, and automatically checking out and paying for items he purchases.

Colin's real passion is traveling, preferably with backpack. On a recent trip to Australia, his PDD kept him occupied throughout the long plane ride, then helped him through customs by automatically connecting to the Australian government's network. Then Colin used the PDD to pinpoint the location of Australian friends he was going to travel with (he had met them on the Internet). Once they had met up, they used their PDDs to plan their route, a relatively easy task, given that with the entire world already modeled in 3-D, they could see every twist and turn on their path. No surprises there!

BOUNDARY CONDITIONS

Underpinning this study is the belief that the world we will find ourselves in at the end of the decade will be a better place, with a brighter future for a larger proportion of the global population, in both the developed and the developing world. This belief rests on a number of economic, demographic, and technological “macrotrends” that we have developed out of the extensive surveys and interviews conducted as part of the study (*see Exhibit 1*).

Following the lull that has taken place during the recent worldwide recession, we will enter an era of steady economic growth, with globalization picking up speed again. That, in turn, will reestablish an international environment of global migration of talent and labor as well as capital. As populations in Western countries age, powerful new consumer segments will be created, including a relatively wealthy retirement segment and a new young middle class. The BRIC countries (Brazil, Russia, India, and China) will continue to grow rapidly, outpacing the West in size, in potential talent, and ultimately in innovation. The pace of innovation will create an ever more digital world, even as wireless devices confirm their emerging role as

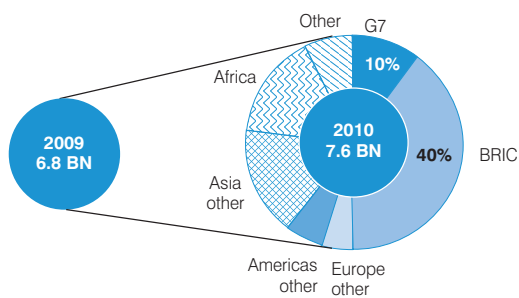
the dominant tool for trade, entrepreneurship, and Internet access for the masses. Finally, concern for the environment and for energy security will remain at a high level.

Much of our thinking is also based on several further—if perhaps less certain—assumptions about the world in the next 10 years. Stable and mobile electrical power will likely be available to a substantially larger part of society, and energy efficiency will no longer represent a hurdle to progress. High-speed broadband, whether fixed or mobile, will be pervasive and affordable. Secure online identity systems will allow reliable user authentication. Rational regulatory schemes will open up commercial activity worldwide. And companies and individuals will be able to profit fairly from the intellectual property they generate.

In the midst of all these changes will come the rise of Generation C. As such, this cohort of “digital natives” will both help to drive the changes described above and benefit from them—transforming how individual industries and society as a whole make use of technology. In what follows we investigate the consequences.

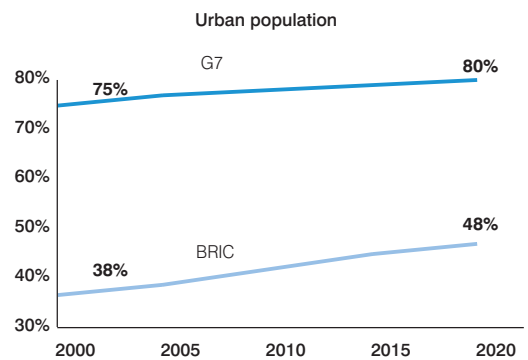
Exhibit 1
Demographic Macrotrends

GROWING WORLD POPULATION



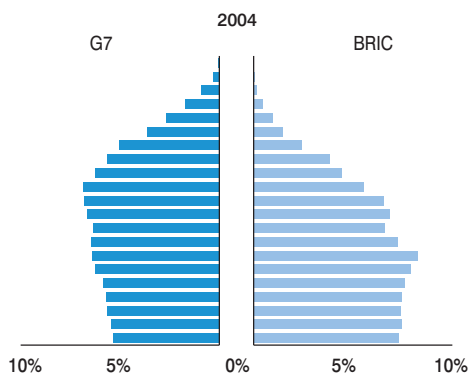
There will be 7.6 billion people in the world by 2020, putting pressure on countries, especially emerging markets, to increase economic growth.¹⁾

INCREASING URBANIZATION



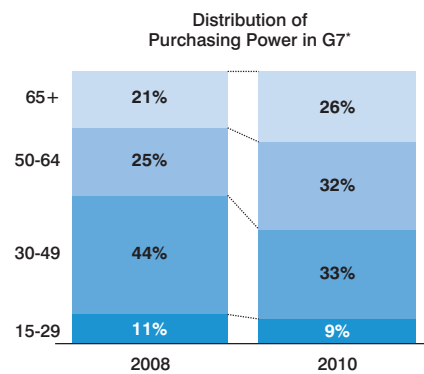
Populations in G7 countries will be 80% urban by 2020; the BRIC countries' primarily rural populations will urbanize at even faster rates.²⁾

INCREASING LIFE EXPECTANCY AND AGING POPULATION



By 2020, 26% of the population in the G7 countries will be over 60, while younger BRIC nations will become key drivers of innovation.³⁾

INCREASING PURCHASING POWER OF OLDER GENERATIONS



By 2020, people ages 50 and over will control 58% of global consumption power, making the monetization of this group increasingly relevant.⁴⁾

* Proxy Germany.

Source:

1) IHS Global Insight.

2) United Nations, 2007

3) United Nations, 2008; Destatis, 2007

4) GfK Group, 2008; Booz & Company analysis

THE INFLUENCE OF GENERATION C

The trends outlined above will have a wide range of effects on how members of Generation C—and, by extension, other generations as well—use communications technology, on how they gather and consume information and entertainment, and on how they interact. These effects will be determined in part by the progress of technologies over the course of the next decade. While many of these ideas have been floating around in the “geek community” for a year or two, the latest consumer behavior studies confirm that these trends are real, and they are reshaping the mass market (see Exhibit 2).

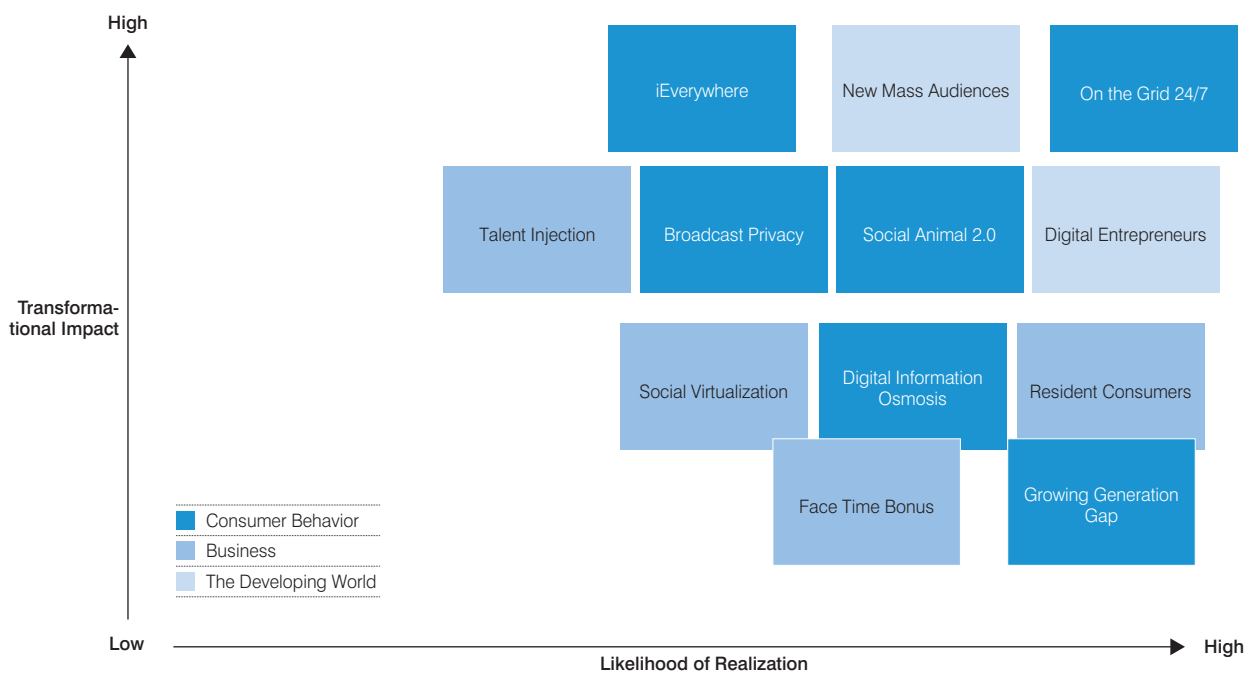
Consumer Behavior

- *On the grid 24/7*: Being connected on a 24/7 basis will be the norm in 2020—indeed, a prerequisite for participation in society. Currently, there are 4.6 billion mobile users globally, and 1.7 billion Internet users.¹ Among younger Europeans, 52 percent say they feel disconnected from the world if they don’t have their mobile phones with them, and 91 percent of mobile

users keep their phones less than a meter away, waking or sleeping.² We forecast that by 2020, the number of mobile users will reach 6 billion and the number of people accessing the Internet will reach 4.7 billion—primarily through their mobile devices. The Internet’s power will develop not just through its online economic might, but also offline, as a cultural and political influence. At the same time, personal and business activities will mingle seamlessly, as the day fragments into a flexible mix of personal and business activities—work, commuting, shopping, communications, entertainment. The inevitable corollary: As “off-grid” time becomes more rare, it will become increasingly valued.

- *Social animal 2.0*: Thanks to the pervasive popularity and performance of social collaboration technologies and mechanisms, including social networks, voice channels, online groups, blogs, and other electronic messages, the size and diversity of networks of

Exhibit 2
Key Trends—Impact and Likelihood



Source: Booz & Company analysis

personal relationships will continue to grow. These networks will include acquaintances ranging far beyond the traditional groups of family, friends, and work colleagues to include extended friends, online acquaintances, and anonymous “interest groups.” Already, 49 percent of 16- to 24-year-olds in Europe are savvy social network users.³ One result will be the rapid creation of abrupt and fast-moving political and business pressures—a trend powerfully witnessed in the tidal wave of electronic interest created by Barack Obama’s presidential campaign. The average person in 2020 will live in a web of 200 to 300 contacts, maintained daily through a variety of channels. Even within the family, the need for physical proximity will be reduced through increased digital interaction. Just as Facebook’s “Connect” buttons are already distributed across 80,000 websites and devices such as Microsoft’s Xbox, social networks will accompany people throughout their daily activities.

- *Digital information osmosis:* People will dramatically increase their consumption of digital information, much of which is unverified. The vast pool of available information will allow consumers to pick and choose the information they want, as well as how they want to consume it. “Nonlinear” information consumption will become the norm. And the supply of digital information itself will explode. Walmart already handles more than 1 million sales transactions every hour, feeding databases estimated at more than 2.5 petabytes, according to a recent study by the *Economist*. Cisco has estimated in a much-cited study that it expects Internet traffic to increase 10-fold by 2013, to 667 exabytes. Right now, much of this information is pure exhaust—unanalyzed and unanalyzable—but it will soon be put to material economic use.
- *Broadcast privacy:* Concerns about privacy and the security of personal data decline as consumers come to perceive the benefits as outweigh-

ing the risks and as mechanisms to secure and process personal information become smarter. The result: the availability of an abundance of real-time, personalized information on individuals’ presence, online status, physical location, preferred communication channels, friend networks, passions, and shopping habits. Facebook already hosts 40 billion photos. Growing use of social networking increasingly determines consumption patterns. Viral marketing and positive peer reviews become essential to success, which in turn erodes the concept of brand value, traditional marketing, and bricks-and-mortar outlets.

- *iEverywhere:* As privacy concerns dwindle, personal data such as identity, payment details, shopping preferences, interests, and membership in social communities becomes widely available. Generation C will be able to access its digital life from a growing multitude of digital interfaces, requiring a fully interconnected world where services

The average person in 2020 will live in a web of 200 to 300 contacts, maintained daily through a variety of channels.

and data exist in the cloud, virtually. Today's consumer electronics indicate the direction: smart phones, iPads, iPods, Netbooks, laptops, PCs, watches—the list is sure to grow in the next decade. At the same time, prices for such devices continue to fall dramatically. Netbooks subsidized by telecom operators go for as little as a penny, and they are approaching the US\$200 mark in retail outlets. Wireless broadband services, however, still typically cost more than \$50 per month.

- *Growing generation gap:* The upper limit of the digitally literate grows older, as the 50-plus age bracket broadly migrates online. At present, 65-year-olds spend just two to three hours online in a typical week, yet the 65-year-olds of 2020 will spend closer to eight hours online weekly—remaining in stark contrast to the 16- to 24-year-old group, which already spends 13 hours online weekly. And the older groups will continue to lag in the intensity of their digital behavior. Generation C will distance itself further, particularly in the development of its own

pervasive culture of communication. That culture has led observers to dub this group “the Silent Generation,” as digital communication channels have replaced the physical interaction so dear to prior generations (*see Exhibit 3*).

Business

- *Social virtualization:* As 24/7 connectivity, social networking, and an attitude of personal freedom further permeate the walls of the corporation, corporate life will continue to move away from traditional hierarchical structures. Instead, workers, mixing business and the personal over the course of the day, will “self-organize” into agile “communities of interest.” By 2020, more than half of employees at large corporations will work in virtual project groups.
- *Resident consumers:* The trend toward the consumerization of corporate IT will continue. More than half of the CIOs in a recent Booz & Company survey said that in the next three to five years most employees will bring their personal computers to work rather than using corporate resources.

The trend to employees as “resident consumers” will be led by Generation C, given its familiarity with technology and its expectation of always-on communications.

- *Talent injection:* Non-Western knowledge workers will continue to migrate to the developed world as virtual communities make it easier for them to join global teams. As they do, they will bring with them the innovative ideas and working behaviors they generated in their home territories.
- *Face time bonus:* The proliferation and increasing sophistication of communication, interaction, and collaboration technologies and tools will result in knowledge workers traveling much less frequently. The opportunity to meet face-to-face will be accorded primarily to top management, and business travel will become a valued luxury.

The Developing World

- *Digital entrepreneurs:* Skilled and innovative digital entrepreneurs will emerge throughout the developing world in massive numbers. The rise of these entrepreneurs has the poten-

tial to significantly disrupt traditional Western business models. And they have the highly connected audience that can benefit from their new ideas. In urban China, for instance, 76 percent of people are already online, and 61 percent have broadband at home. Western countries currently lead the world in just two critical online services, e-commerce (Germany) and online advertising (U.K.), while non-Western countries are ahead of the game in several others: broadband (South Korea), social networking (Brazil), online

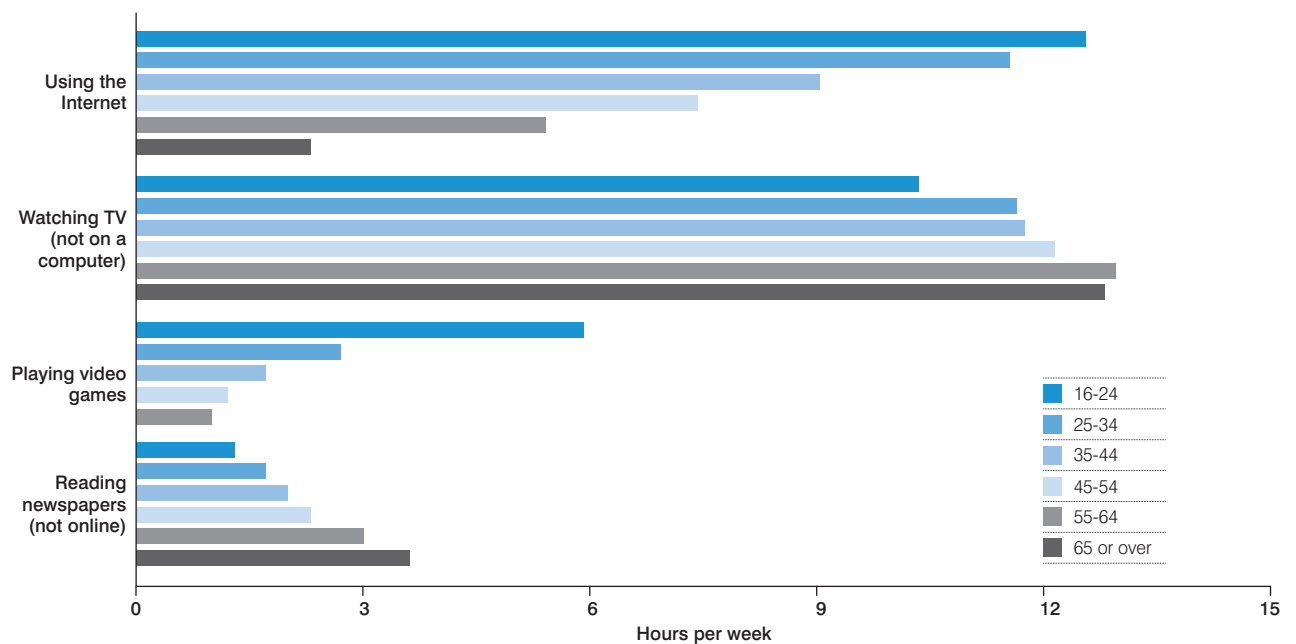
gaming (China), mobile payments (Japan), and microtransactions via SMS (the Philippines).

- *New mass audiences:* As the developing world increases in connectivity and sophistication, a huge new audience of people who have not yet been exposed to consumerism will develop outside already-connected urban centers. Between 1990 and 2005, more than 1 billion people worldwide entered the middle class, and that number continues to grow quickly. Their consumption of media

and other kinds of content will transform the media industry. As with prior technology adoptions, these audiences will leapfrog years of technological development and quickly emulate the behavior of Generation C. The experience of the rapidly developing middle class in China will become typical: The Chinese urban middle class spends almost 30 hours per week online but watches TV for just 12 hours,⁴ and three out of four regularly download music, two out of three watch videos, and almost half play games online.

Exhibit 3
European Internet Usage by Age

TYPICAL WEEKLY HOURS SPENT ON EACH ACTIVITY*



* Base is 23,119 European online consumers.
Source: European Technographics Benchmark Survey, 2009

ICT INDUSTRY IMPACTS

The overall effect of the changes described above will be to tie information and communication technologies ever more tightly into the daily lives of people throughout the world. Generation C—both in the West and in urban areas all over the developing world—is already fully committed to consuming information and communicating with large networks of friends and acquaintances on a 24/7 basis—and as-yet-unconnected mass audiences will grow rapidly in the next decade. These changes will have major implications for the telecommunications and technology industries, which must begin now to develop complex webs of interacting technologies and business models. What challenges are these two critical industries facing, and how should they respond?

- *The infrastructure/application divide:* Customers are already

shifting their loyalties, and their consumption patterns, from their telecom operators to application and service providers such as Google, Apple, and Facebook, and a long tail of smaller players. This trend is playing out just as technology trends are also driving the telecom industry toward the strict separation of infrastructure from services and applications, a move that took place several years ago in the IT space. In this world, the telecom players that remain vertically integrated will come under substantial pressure. Managing both sides under one roof has indeed proven difficult in the past, and it will not become easier.

Thus, the telecom industry will evolve into two types of players: on the one hand, the efficient utility driven by fiber and wireless access technology; on the other, the fast-

moving, customer-centric software innovation powerhouse. An industry handshake based on open standards between the two groups will be unavoidable, since making the new model work will require that they work closely together. Some companies will attempt to play on both levels, but this will require substantial innovation on the part of their employees.

- *The customer relationship:* As consumers use more and more different services, they will establish a wide variety of commercial relationships. While Apple's market power has been sufficient to attract customers into a direct billing relationship, this is an unlikely scenario for the long tail of future services. A key industry control point may therefore emerge in the areas of secure identification, localization,

and (micro)payments on behalf of all these smaller service players. Various contenders are preparing their game, including financial institutions, the likes of PayPal, and telecom operators. Operators are fundamentally well positioned in this arena, but they will have to up their game, establish themselves as honest brokers, and find a way to offer a transnational interface to global service providers.

- *The power of the cloud and IT/telecom convergence:* The shift to cloud computing is clear and pervasive. As the technology that underpins most of the future consumer technologies and preferences, it is already gathering speed. Both information and the intelligence needed to manage it are moving quickly into the cloud. This is only the start, however—telecom, IT, technology, and Internet service

companies will begin to encroach on one another's territory as all move toward higher-margin and differentiating applications.

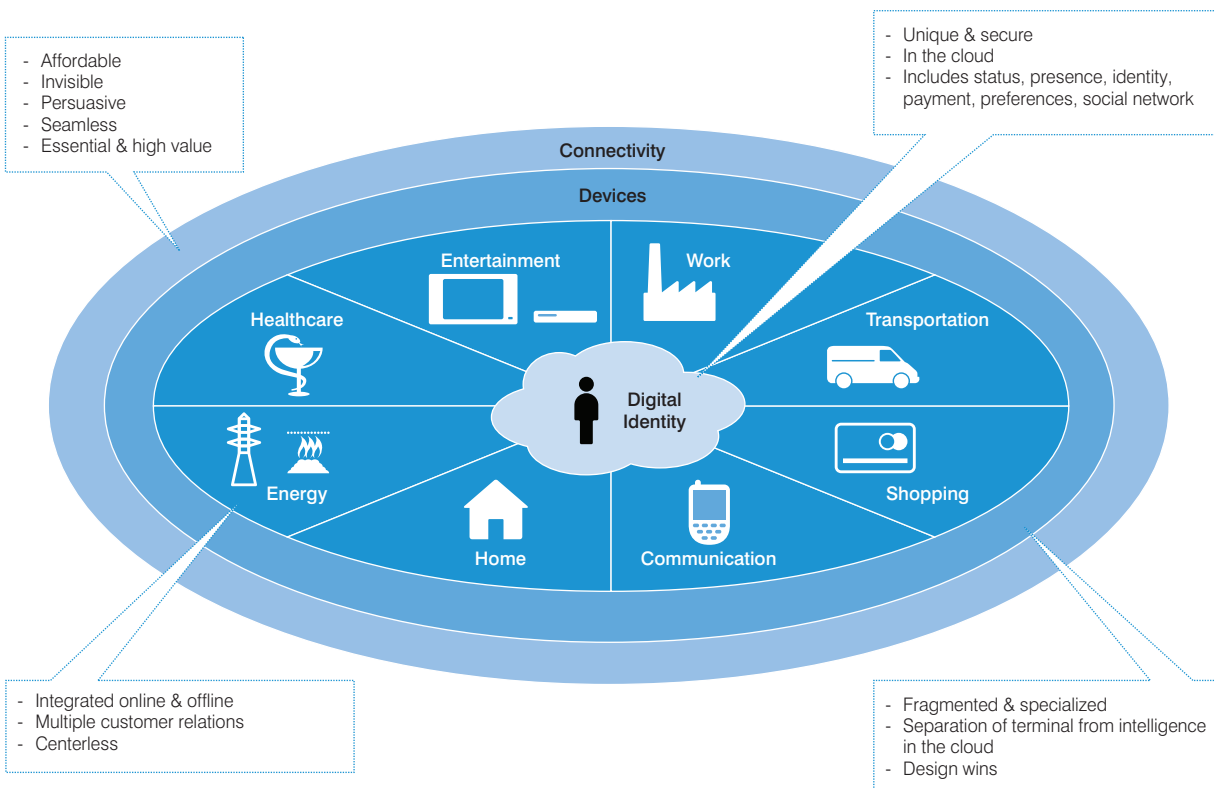
- *The centerless Internet:* Traditional aggregation points such as portals have already become yesterday's focus. Browsers have been touted as the new control points, yet so far they have generated limited customer loyalty. If anything, the Internet will grow increasingly centerless, as services become dynamically reconfigured and consumers choose their preferences as the need arises, following the crowd from one hyped thing to the next. Be prepared for the arrival of many more Twitters.
- *The technology shake-up:* Suppliers of hardware and software technologies to the telecom industry

will struggle as operators, their traditional customers, choose their respective paths—either infrastructure or services. Infrastructure players will be looking to suppliers to help them build efficient, risk-sharing business models and software-based infrastructures, while services players will typically develop their

own wares, since the algorithms in their software will be at the core of lasting differentiation. Software vendors will be forced to meet the challenge of smaller, highly innovative new players, even as they lose the advantage of control points such as operating systems and large-scale enterprise suites.

It is helpful to imagine the individual in 2020 as a “digital identity” sitting at the center of a series of concentric circles, representing the worlds of work and leisure in which he or she operates, and the devices and communication methods needed to stay connected (*see Exhibit 4*).

Exhibit 4
The Individual in an Always-Connected World



Source: Booz & Company analysis

GROWTH IN GLOBAL TELECOM

The trends outlined above will pose real challenges for every player in the global telecom industry over the next decade, separating the winners, who can get ahead of the curve of significant change, from the losers, who can't. We expect that despite the risks and uncertainties inherent in planning for the next 10 years, there will be real opportunities for growth, especially in specific areas.

One thing is certain: The revenues from legacy voice communications that Western operators have long relied on will decline rapidly as the service becomes little more than a bare-bones infrastructure commodity. This trend, already well under way, will result in significant consolidation throughout the industry.

On the upside are a number of trends that will compensate for this steep loss in revenues:

- In more developed economies, pervasive broadband is an essential underpinning of any of the above visions, and of the additional top-line growth to be expected from such services. In particular, governments are likely to directly co-invest in or at least coordinate industry partnerships to build next-generation fiber-based and wireless infrastructure—particularly when this infrastructure is perceived as essential to a country's economic engine, business infrastructure, and consumer lifestyle.
- Second, a huge but equally challenging opportunity lies in the ability of telecom operators to reach vast but still-unconnected segments of the world's population. This is where the next billion customers will come from.
- A third avenue for growth can be generated if the technology and telecom industries can translate to other industries their understanding of how Generation C behaves and

collaborates, and the technologies it prefers, and then capture some of that new value. We believe this represents one of these industries' largest currently untapped value pools (see "*Cross-Industry Perspectives*," page 14).

The fundamental changes outlined above will also be accompanied by any number of new services and devices in both telecom and surrounding industries. Most of them will require these industries to change and cooperate in new ways. In particular, we expect the following to emerge:

- The personal identity and interaction device will provide secure digital access, identity authentication, multichannel communication, and payment—and will be an essential piece of the digital lifestyle.
- The digital passport, perhaps offered by a transnational authority, will encourage growth for telecom players by enabling secure authentication across their infrastructures.
- M2M—variously translated as “machine-to-machine” or “machine-to-mobile”—communication will enable the creation of a smart environment. Without it, the truly digital lifestyle will not become a reality. Beyond the technical difficulties still to be surmounted, the industry needs to find a workable business model for M2M that enables all players to participate in the value created.

Creating future value in any of the above ways will depend heavily on the ability of players of all kinds to partner with each other and across industry boundaries. No individual company can put together the combination of innovation, technology, and market expertise needed. As a result, open standards are key; clinging to proprietary technologies is a sure recipe for irrelevance.

CROSS-INDUSTRY PERSPECTIVES

The massively connected, always-on world of 2020 will have a powerful impact on a variety of industries beyond ICT, thanks to the wide proliferation of digital and mobile services and the open infrastructures that will connect across industries. Changing cultural norms, too, will impact most industries—Generation C’s impulse to share what they know, and to willingly erase the distinction between their online and offline lives, will transform both how information moves around and how players in different industries communicate and market to customers. These trends will play out in a multitude of ways in every industry during the coming years. Among the industries most likely to be affected:

- *Healthcare:* As information about doctors and hospitals, medical treatments, and costs floods the Internet, consumers will gain real power: They will perform their own research; write reviews of physicians, hospitals, and drugs; and force the players to compete more actively. Online services, including user-generated content, will become a primary channel for medical advice, ultimately

substituting for traditional medical support channels.

Widespread connectivity will boost electronic diagnosis, helping to reduce costs; digital health monitoring will become accepted practice; and medical R&D will come to rely on social media such as crowdsourcing. The personalization of medicine will lead to new insurance models, and electronic medical records and national e-health infrastructures will connect with online identity and digital passport technologies.

- *Retail:* Ubiquitous connectivity will continue to transform the retail industry, seamlessly integrating the online and offline worlds, and ultimately leading to a form of augmented reality that allows a more elaborate presentation of retail goods. Peer reviews will become a real-time decision-making tool in physical stores as well as online, and social networks will become critical for brand awareness and customer preference. This will lead to a “winner-take-all” dynamic among retailers, already typical of commerce on the Internet. Electronics retailers will

METHODOLOGY

Our goal in this study was to develop a clear and detailed picture of how the rise of Generation C would impact the use of information and communication technologies in both the business and private spheres. We began with a set of assumptions about the demographic, economic, and social conditions that would ultimately determine the boundary conditions of the world in 2020. Within that context, we developed a general picture of the impact of Generation C, as both workers and consumers, and of how the changes they created would affect earlier generations.

Out of that general picture, we developed detailed global profiles of individuals from around the world, both young and old, with information on their attitudes and preferences regarding private life, work life, healthcare, travel and transportation, entertainment, energy use, and the like. Each of the profiles was tested with academic and business experts from a wide range of industries and disciplines. Using both the scenarios and the profiles, we derived a set of implications for ICT and other industries.

Our next step will be to involve a wider community of experts and interested people in further developing the consequences of our study.

lose ground as consumers purchase software and services from the cloud rather than in their current shrink-wrapped store format. Social media techniques such as crowdsourcing will be used to further product innovation, and increased connectivity will generate new monetization models driven by new partnerships; imagine a digital refrigerator whose cost is subsidized by grocery chains.

- *Travel:* By 2020, business travel will have declined in the face of costs and alternative meeting technologies. In the leisure segment, traditional intermediaries such as travel agents will be cut out, and peer reviews will be a dominant forum for deciding on your next vacation. This will lead to increasingly individualized travel, with online advice and information dictating travel plans in real time. Like work itself, the distinction between travel and home will blur, and the off-the-grid getaway will become a luxury.

Even the concept of distance will be transformed, as the world becomes fully modeled in 3-D and therefore open for inspection by prospective

visitors. The digital world will also further invade the car. For the driver, this will lead to better information on the environment—another instance of augmented reality—improved safety through the presence of sensors that check for sleepiness or drunkenness, and simplified maintenance based on remote diagnostics. It will also improve the efficiency of the street network, allowing for instant data on traffic and the ability to determine traffic flow.

These changes will provide enormous opportunities for ICT companies. The global health industry, for instance, is expected to bring in revenues of about \$17 trillion in 2020. If the evolving ICT industry manages to increase the value of the health market by just 1 percent through its deep insight into the needs of Generation C and the coming transformation of consumer behavior, it could capture \$170 billion in revenues—fully 5 percent of the telecom industry's expected 2020 total. We believe that a growing symbiosis between communications and other industries represents one of the single biggest growth opportunities for embattled telecom companies.

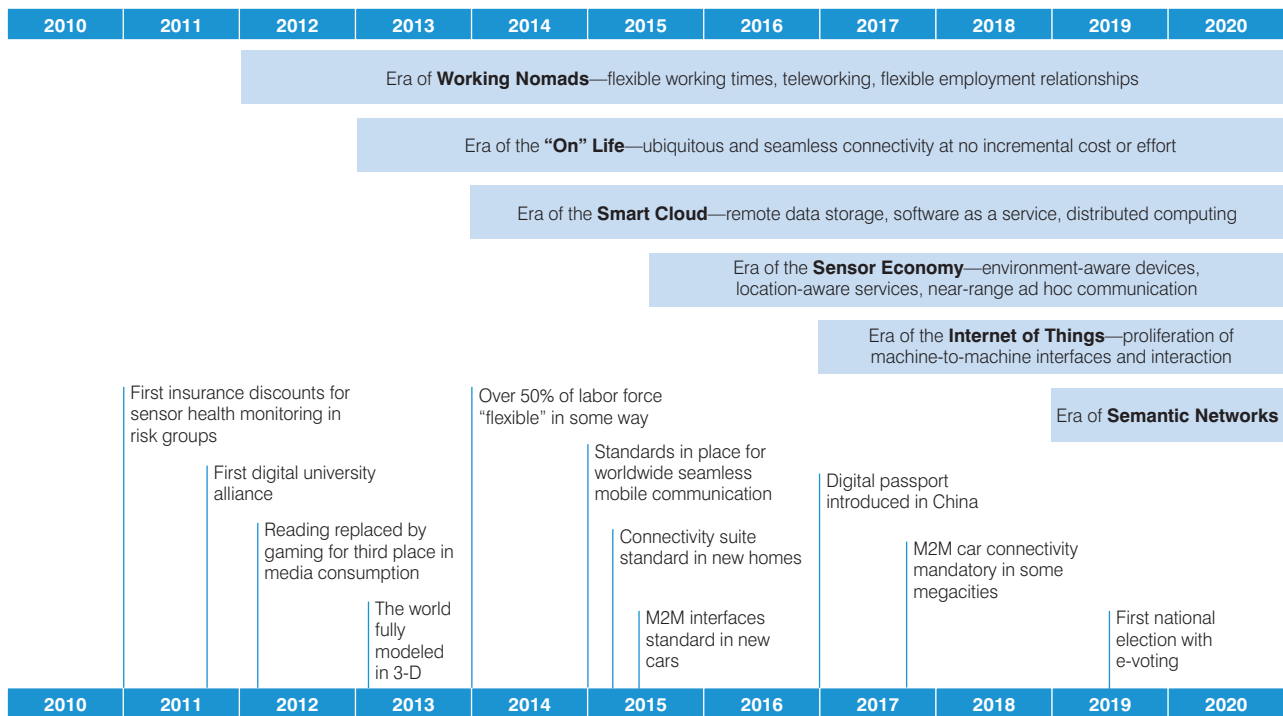
CONCLUSION

The advent of Generation C and its related behavior will drive fundamental change in most industries—and create substantial opportunities and threats for all involved. It is notoriously difficult to project the future; still, in Exhibit 5, we offer, in graphic form, a possible chronology of the next 10 years. We see a series of “eras” triggered by the sequential rise of critical new technologies. The Era of the Smart Cloud, for instance, will enable significant portions of the Generation C lifestyle in the coming years, to be succeeded by the Era of the Sensor Economy, which the cloud will help trigger. At the bottom is a series of specific events keyed to and

dependent on the arrival of the various eras; thus the Era of the Internet of Things will enable auto manufacturers to build cars with full machine-to-machine connectivity.

By 2020, we will be living in a different world indeed. Our predictions should not be seen as inevitable. Nevertheless, we believe this is the shape of things to come. The general outlines, and a great deal of the particulars, are clear. As such, it is incumbent on the technology and communication industries to prepare to help lead us into this world, and to benefit from the technological, social, and cultural changes that will take place.

Exhibit 5
Timeline of Events for the Coming Decade



Source: Booz & Company analysis

Endnotes

¹ ITU World Telecommunication, 2010.

² China Mobile 50K Survey.

³ European Technographics Benchmark Survey, 2009.

⁴ Forrester Research, 2009.

About the Authors

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