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REPORT

THE CONNECTED WORLD

The Internet Economy in the G-20

The $4.2 Trillion Growth Opportunity

THE BOSTON CONSULTING GROUP

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THE $4.2 TRILLION GROWTH OPPORTUNITY

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CONTENTS

INTRODUCTION

THE JANUARY 2012 REPORT in our Connected World series examined how companies and countries can win in the digital economy. This follow-up report provides a more comprehensive analysis of how the scale and speed of Internet-driven economic growth is changing countries, cultures, and companies around the world. It includes national snapshots capturing the economic impact of the Internet as well as in-depth looks into consumer and business usage in the G-20 countries.[1] A forthcoming report will discuss how companies and countries can best build up their digital balance sheets and create digital advantage.

Since the day the first domain was registered in 1985, the Internet has not stopped growing. It has sailed through multiple recessions and one near-collapse and kept on increasing in use, size, reach, and impact. It has ingrained itself in daily life to the extent that most of us no longer think of it as anything new or special. The Internet has become, quite simply, indispensible.

By 2016, there will be 3 billion Internet users globally—almost half the world's population. The Internet economy will reach $4.2 trillion in the G-20 economies. If it were a national economy, the Internet economy would rank in the world's top five, behind only the U.S., China, Japan, and India, and ahead of Germany. Across the G-20, it already amounted to 4.1 percent of GDP, or $2.3 trillion, in 2010—surpassing the economies of Italy and Brazil. The Internet is contributing up to 8 percent of GDP in some economies, powering growth, and creating jobs.

The scale and pace of change is still accelerating, and the nature of the Internet—who uses it, how, and for what—is changing rapidly too. Developing G-20 countries already have 800 million Internet users, more than all the developed G-20 countries combined. Social networks reach about 80 percent of users in developed and developing economies alike. Mobile devices—smartphones and tablets—will account for four out of five broadband connections by 2016.

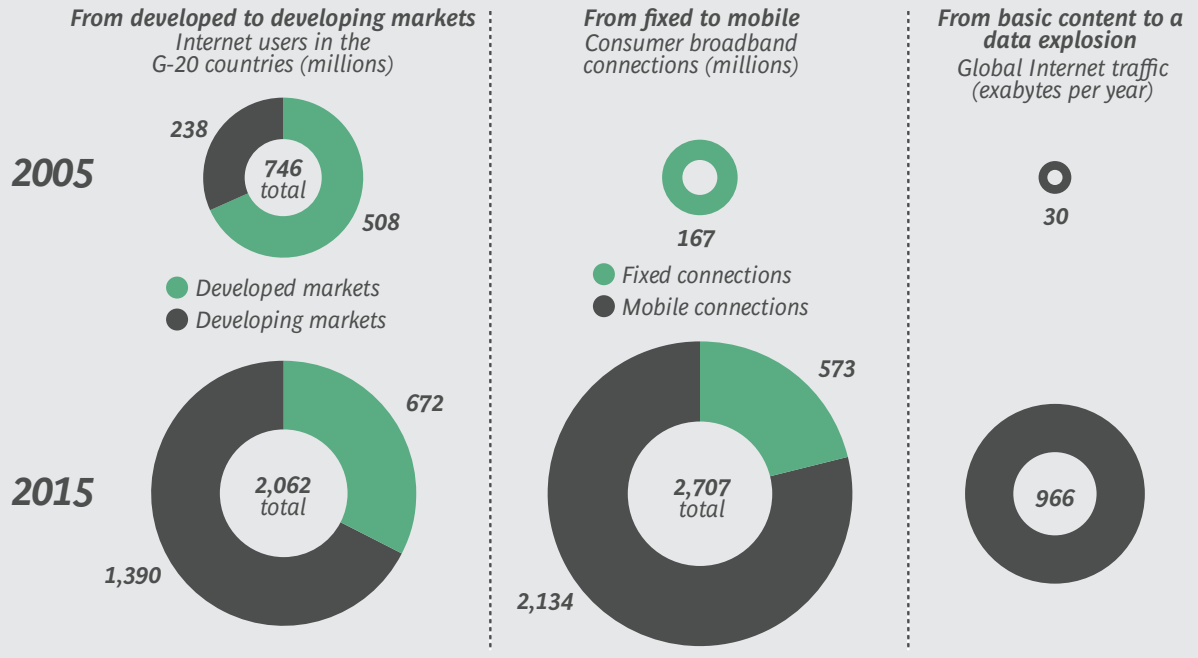
The speed of these developments is often overlooked. Technology has long been characterized by exponential growth—in processing speed, bandwidth, and data storage, among other things—going back to Gordon Moore's observation nearly five decades ago. The Intel 80386 microprocessor, introduced in the same year as that first domain name, held 275,000 transistors. Today, Intel's Core i7 Sandy Bridge-E processor holds 2.27 billion transistors, or nearly 2^{13} times as many. As the growth motors along, it is easy to lose track of just how large the exponential numbers get.

The power of exponential growth is illustrated by an ancient fable, repopularized by Ray Kurzweil in his book, *The Age of Spiritual Machines.* It tells of a rich ruler who agrees to reward an enterprising subject starting with one grain of rice on the first square of a chessboard, then doubling the number of grains on each of the succeeding 63 squares. The ruler thinks he's getting off easy, and by the thirty-second square, he owes a mound weighing 100,000 kilograms, a large but manageable amount. It's in the second half of the chessboard that the real fun starts. Quickly, 100,000 becomes 400,000, then 1.6 million, and keeps growing. By the sixty-fourth square, the ruler owes his subject 461 billion metric tons, more than 4 billion times as much as on the first half of the chessboard, and about 1,000 times global rice production in 2010.

The Internet has moved into the second half of the chessboard. (See Exhibit 1.) It has reached a scale and level of impact that no business, industry, or government can ignore. And like any technological phenomenon with its scale and speed, it presents myriad opportunities, which consumers have been quick and enthusiastic to grasp. Businesses, particularly small and medium enterprises (SMEs)—the growth engine of most economies—have been uneven in their uptake, but they are moving online in increasing numbers and with an increasingly intense commitment.

There are threats too, some misunderstood, and policymakers and regulators alike are challenged to make the right choices in a fast-moving environment. As is often the case with fast-paced change and

Exhibit 1 | Evolution of the Internet



Sources: Economist Intelligence Unit; Cisco; Ovum; BCG analysis.
Notes: While the European Union is a member of the G-20, the figures include only the independent European members: France, Germany, Italy, and the U.K. The developing nations are Argentina, China, India, Indonesia, Mexico, Russia, Brazil, Saudi Arabia, South Africa, and Turkey. The developed nations are Australia, Canada, France, Germany, Italy, Japan, South Korea, U.K., and U.S.

complex issues, many governments are still trying to determine what their role should be.

Meanwhile the rice pile on the next square keeps getting bigger.

This report assesses the far-reaching economic impact of the Internet. It shows how the benefits are large and getting larger, identifies the drivers behind them, and examines their clout. It quantifies gains—economic growth, consumer value, and jobs—in the context of the economies of the G-20. It demonstrates that no one—individual, business, or government—can afford to ignore the ability of the Internet to deliver more value and wealth to more consumers and citizens more broadly than any economic development since the Industrial Revolution.

Note

1. The Group of 20 major economies comprises Argentina, Australia, Brazil, Canada, China, the EU, France, Germany, India, Indonesia, Italy, Japan, Mexico, Russia, Saudi Arabia, South Africa, South Korea, Turkey, the U.K., and the U.S.

THE INTERNET'S ECONOMIC IMPACT

The economic impact of the Internet is getting bigger—just about everywhere—and it already has an enormous base. In the U.K., for example, the Internet's contribution to 2010 GDP is more than that of construction and education. In the U.S., it exceeds the federal government's percentage of GDP. The Internet economy would rank among the top six industry sectors in China and South Korea.

Policymakers in developed countries cite with envy the GDP growth rates of 5 to 10 percent per year being achieved in China and India, particularly in today's troubled economic environment. At the same time, they can often look past similar, or even higher, rates close to home.

The Internet economy in the developed markets of the G-20 will grow at an annual rate of 8 percent over the next five years, far outpacing just about every traditional economic sector, producing both wealth and jobs. The contribution to GDP will rise to 5.7 percent in the EU and 5.3 percent for the G-20. Growth rates will be more than twice as fast—an average annual rate of 18 percent—in developing markets, some of which are banking on a digital future with big investments in broadband infrastructure. Overall, the Internet economy of the G-20 will nearly double between 2010 and 2016, when it will employ 32 million more people than it does today.

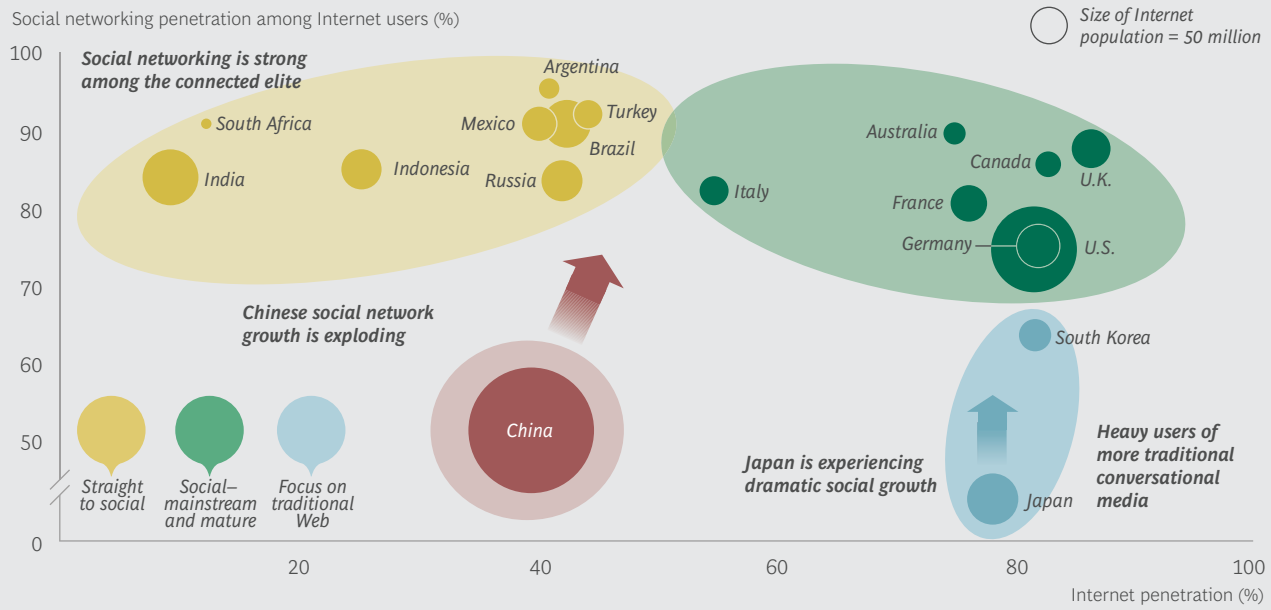
The growth is being fueled in large part by two factors: more users and faster, more ubiquitous access. The number of users around the globe will rise to a projected 3 billion in 2016 from 1.9 billion in 2010. Broadening access, particularly via smartphones and other mobile devices, and the popularity of social media are further compounding the Internet's impact. In the developing world in particular, many consumers are going "straight to social." (See Exhibit 2.)

The Internet economy of the G-20 will nearly double between 2010 and 2016.

National levels of Internet economic activity generally track the BCG e-Intensity Index, which measures each country's level of enablement (the amount of Internet infrastructure that it has in place), expenditure (the amount of money spent on online retail and online advertising), and engagement (the degree to which businesses, governments, and consumers are involved with the Internet). Big differences are apparent among the 50 countries examined, with five clusters emerging according to their performance on the index in absolute terms and relative to per capita GDP. (See Exhibit 3.)

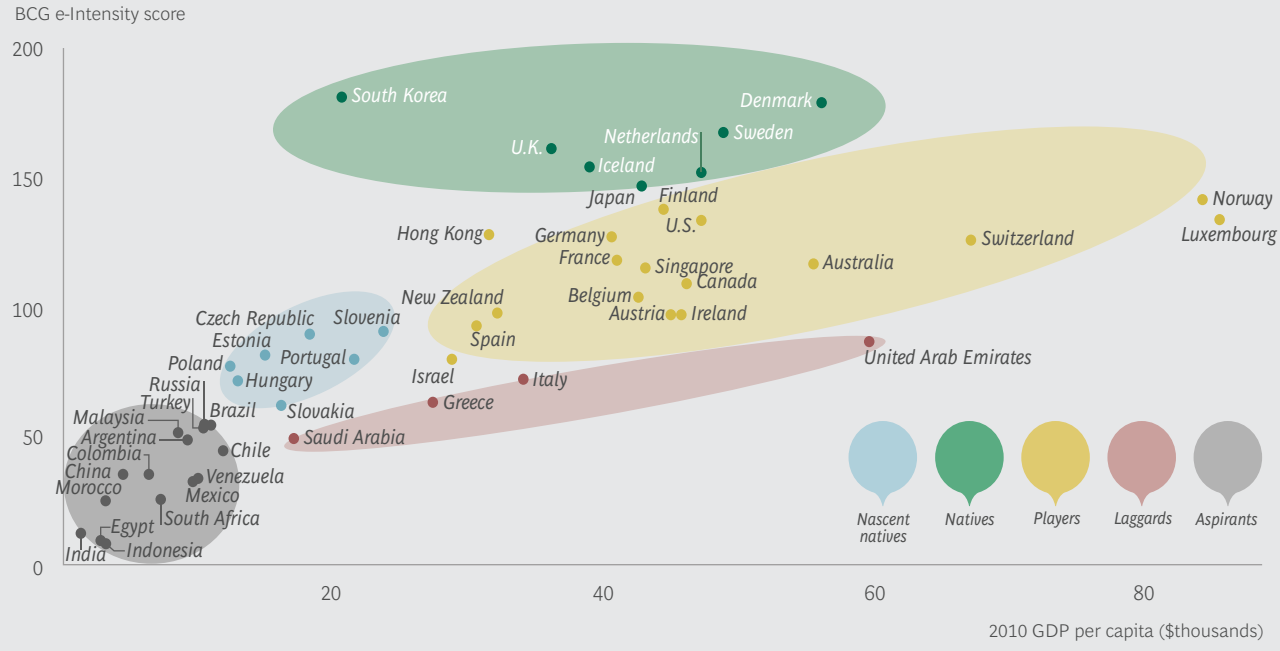
EXHIBIT 2 | Developing Markets Are Going "Straight to Social"

Users Are Adopting Social Networking Quickly as They Come Online



Sources: Economist Intelligence Unit; comScore; Google; Trendstream; eMarketer; local telco reports; BCG analysis.
Note: Data reflect 2011 figures; where unavailable, 2010 figures were used; Saudi Arabia not included.

EXHIBIT 3 | Developed Markets Score Significantly Higher in BCG's e-Intensity Index



Sources: Economist Intelligence Unit; International Monetary Fund, ITU; Speedtest.net; Gartner; Ovum; World Bank; Pyramid Research; United Nations; World Economic Forum; comScore; Magnaglobal; Euromonitor; BCG analysis.
Note: The scores of several countries are estimates based on incomplete data.

Consumption is the principal driver of Internet GDP in most countries, typically representing more than 50 percent of the total in 2010. It will remain the largest single driver through 2016. Investment, mainly in infrastructure, accounts for a higher portion of the total in "aspirant" nations as they are in the earlier stages of development.

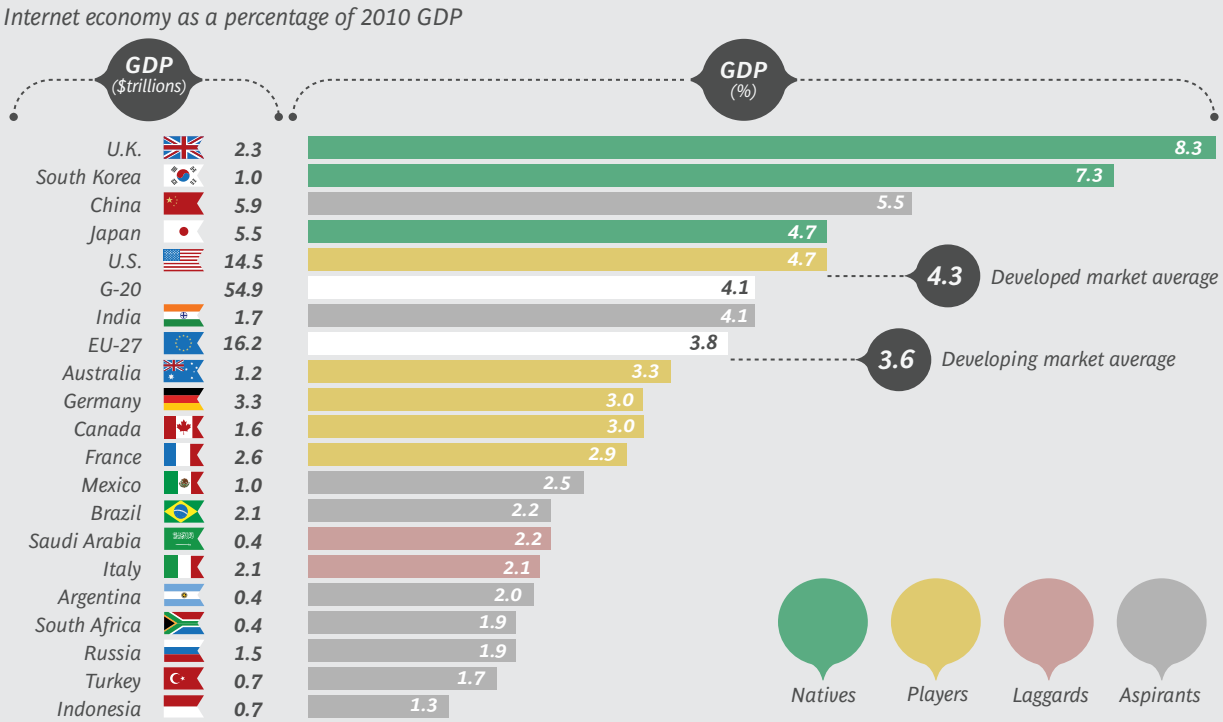
Several "natives" on BCG's e-Intensity Index—the U.K., South Korea, and Japan—are among those nations with the largest Internet contributions to GDP. China and India stand out for their enormous Internet-related exports—China in goods, India in services—which propel their Internet-economy rankings toward the top of the chart. Mexico and South Korea have also developed significant Internet export sectors.

Among G-20 "players," the United States benefits from a vibrant Internet economy, while Germany and France tend to lag. The picture will change by 2016 as, for example, the Internet economies of India and the EU-27 grow rapidly to move into the top five. (See Exhibits 4 and 5.)

Retail represents almost one-third of total GDP in the G-20, and online retail contributes a significant and increasing share in many countries. (See Exhibit 6.) Nowhere is the impact more apparent than in the U.K. Thanks in part to high Internet penetration, efficient delivery infrastructure, a competitive retail market, and high credit-card usage, the U.K. has become a nation of digital shopkeepers, to paraphrase Adam Smith.

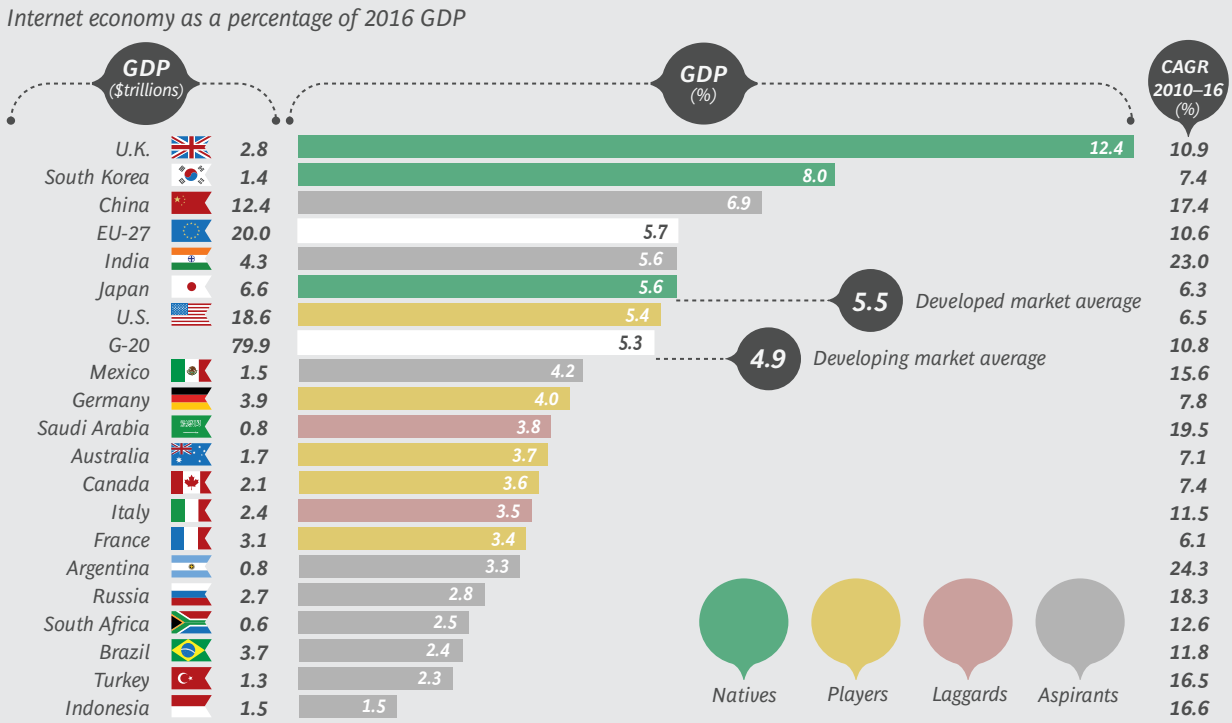
Several European economies—Denmark, the Netherlands, Sweden, and the U.K.—to name but four—perform strongly on BCG's e-Intensity Index. But various barriers hold back the EU as a whole, the world's biggest single market, when it comes to cross-border e-commerce. In January, the European Commission announced plans to catch up, removing these impediments and creating a "digital single market." The commission believes that e-commerce can double its share of overall retail sales by 2015.

EXHIBIT 4 | The Internet Currently Accounts for 4.1% of GDP in the G-20 Countries



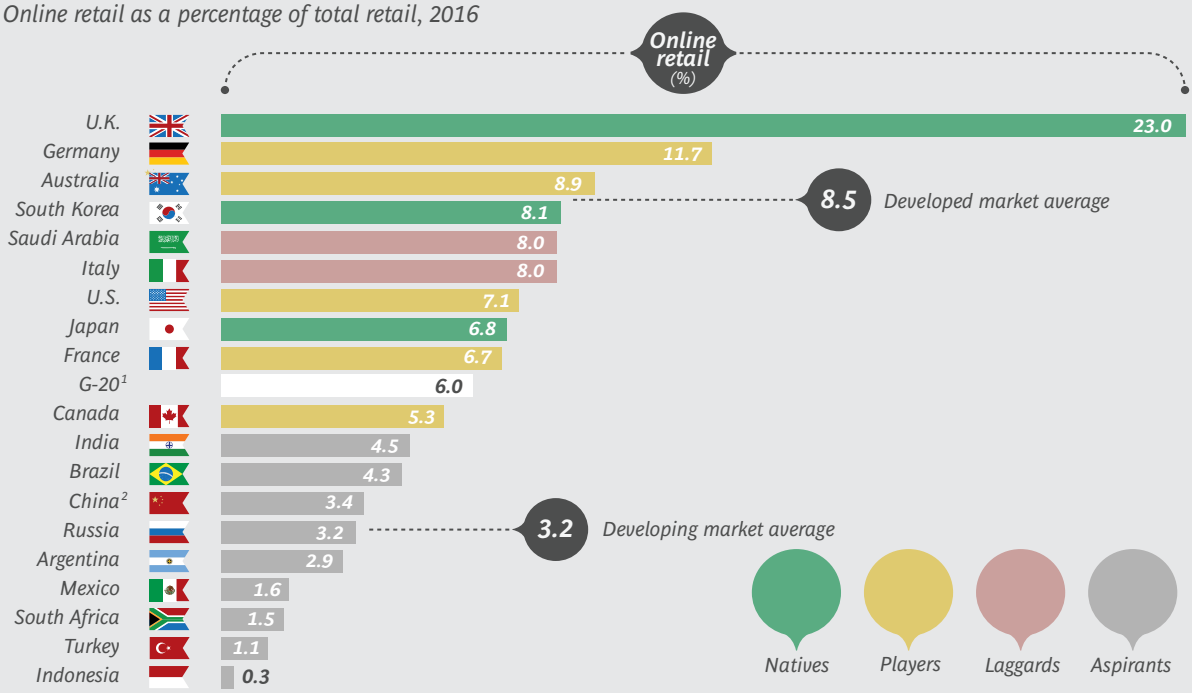
Sources: Economist Intelligence Unit; Organisation for Economic Co-operation and Development (OECD); country statistical agencies; BCG analysis.

EXHIBIT 5 | The Internet Economy Will Account for 5.3% of GDP in the G-20 Countries in 2016



Source: Economist Intelligence Unit; Organisation for Economic Co-operation and Development (OECD); country stastical agencies; BCG analysis.

EXHIBIT 6 | Online Retail Is Expected to Account for Up to 23% of Total U.K. Retail in 2016



Sources: Economist Intelligence Unit; Organisation for Economic Co-operation and Development (OECD); country stastical agencies; BCG analysis.
[1]This figure does not include the EU-27.
[2]This figure reflects business-to-consumer retail only.

THE INTERNET'S FURTHER ECONOMIC IMPACT

As significant as the GDP figures are, they capture only part of the story. In retail alone, G-20 consumers researched *online* and then purchased *offline* (ROPO) more than $1.3 trillion in goods in 2010—the equivalent of about 7.8 percent of consumer spending, or more than $900 per connected consumer.

ROPO is a bigger factor in developed economies, as one would expect, but consumers everywhere research a wide variety of products online before purchasing them elsewhere. In China, groceries are a popular ROPO purchase; in the United States, cars; India, technology products; Brazil, electronics, appliances, and travel packages. Multiple factors affect e-commerce and ROPO. In addition to regulatory barriers like those cited above, the state of infrastructure for online and bricks-and-mortar retail plays a big role, as do Internet penetration, credit-card use, and consumer confidence in online payment systems, delivery, and fulfillment.

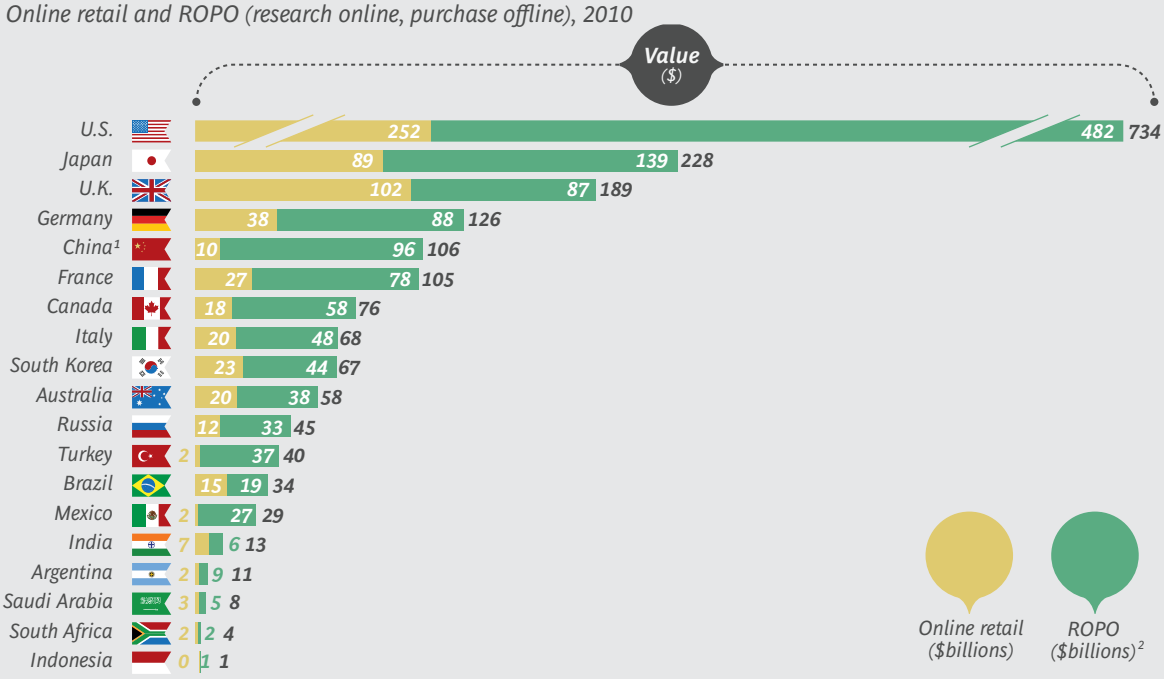
ROPO spending is higher than online retail in virtually all the nations we studied. (See Exhibit 7.) In the U.S., online retail sales totaled $252 billion in 2010, and ROPO added another $482 billion. ROPO dwarfs online retail in Turkey—$37 billion compared with $2 billion—owing in large part to poor delivery infrastructure and consumer concern over fulfillment. In Mexico, although low credit-card penetration and security concerns over online payments hold back online commerce, Mexican consumers without credit cards can pay for their online purchases at 7-Eleven stores. Like the U.S., Japan has a busy online retail market, which totaled $89 billion in 2010. ROPO added $139 billion because Japanese consumers still prefer the experience of shopping in stores. Across the G-20, ROPO would add an additional 2.7 percent if it were counted as part of Internet GDP.

Consumers everywhere research a wide variety of products online before purchasing them elsewhere.

Mobile shopping—using a smartphone to identify deals, compare products and prices, and "seal the deal" while on the go—is growing in popularity worldwide. As device prices fall, especially in developing markets, increased smartphone penetration will have a dramatic impact on both retail commerce and e-commerce—further blurring the lines between online and offline buying. Mobile apps such as RedLaser, Google Shopper, and Amazon Remembers make it ever easier for consumers to research products, compare deals, and make purchases as they see fit at

Exhibit 7 | ROPO Greatly Amplifies the Internet's Impact on Retail

Online retail and ROPO (research online, purchase offline), 2010



Sources: Euromonitor; Google-TNS; BCG analysis.
Note: Figures exclude real estate for some countries; the figures for online retail and ROPO do not add up to the total due to rounding.
[1]This figure reflects business-to-consumer retail only.
[2]Total ROPO (auto and nonauto).

any given moment. Retailers of all stripes face an especially fast-changing and increasingly competitive environment in the years ahead. With the rapid growth of e-commerce and its potential to disrupt both the top and bottom lines, retail may be ripe for a transformation similar to the one seen in media. A multichannel offering that captures sales wherever they occur will become a "must have" for most businesses.

Online advertising, a $65 billion business in the G-20 in 2010, is forecast to grow 12 percent a year to almost $125 billion in 2016. In countries with more developed Internet economies, 15 to 30 percent of advertising spending has migrated online. Online advertising spending in the U.K. overtook spending on television advertising in 2011—and it now exceeds spending on all other media categories.

Consumer-to-consumer Internet commerce is a big factor in China, facilitated by websites such as Taobao, a marketplace for goods of all sorts. More products were purchased on Taobao in 2010 than at China's top-five brick-and-mortar retailers combined.

The Internet is having a big impact on how enterprises do business and interact with one another, too. Cloud-based data storage, integrated procurement systems, and "enterprise social networks" that facilitate communication within and among organizations in real time are helping companies address a host of procurement, coordination, communication, and fragmentation issues. With spending in the $3 trillion range, both the U.S. and Japan lead the world in business-to-business e-commerce, but penetration is picking up in other countries. South Korea's percentage of business-to-business e-commerce is approaching 50 percent, as is Japan's.

CONSUMERS (EVERYWHERE) KNOW A GOOD DEAL WHEN THEY SEE IT

Connected consumers place a considerable value on the Internet. In the G-20 economies, this "consumer surplus"—the perceived value that consumers themselves believe they receive, over and above what they pay for devices, applications, services, and access—amounts to $1,430 a person.[1] Consumer surplus varies vastly across countries, depending in part on the impact of the drivers shaping each nation's Internet economy. For example, it's $323 per person in Turkey, $1,215 in South Africa, $1,287 in Brazil, and $4,453 in France. The aggregate consumer surplus across 13 of the G-20 countries is $1.9 trillion, or about 4.4 percent of the GDP.

It is interesting to note that in countries such as France and Germany, which have relatively low levels of Internet GDP, consumers' perceived value of the Internet is very high. Furthermore, although the consumer surplus figures are lower for many developing markets, they are actually quite high relative to local incomes—lower-income people get relatively more benefit from the Internet than wealthier people do. Closing the digital divide can have a meaningful impact for the less well-off.

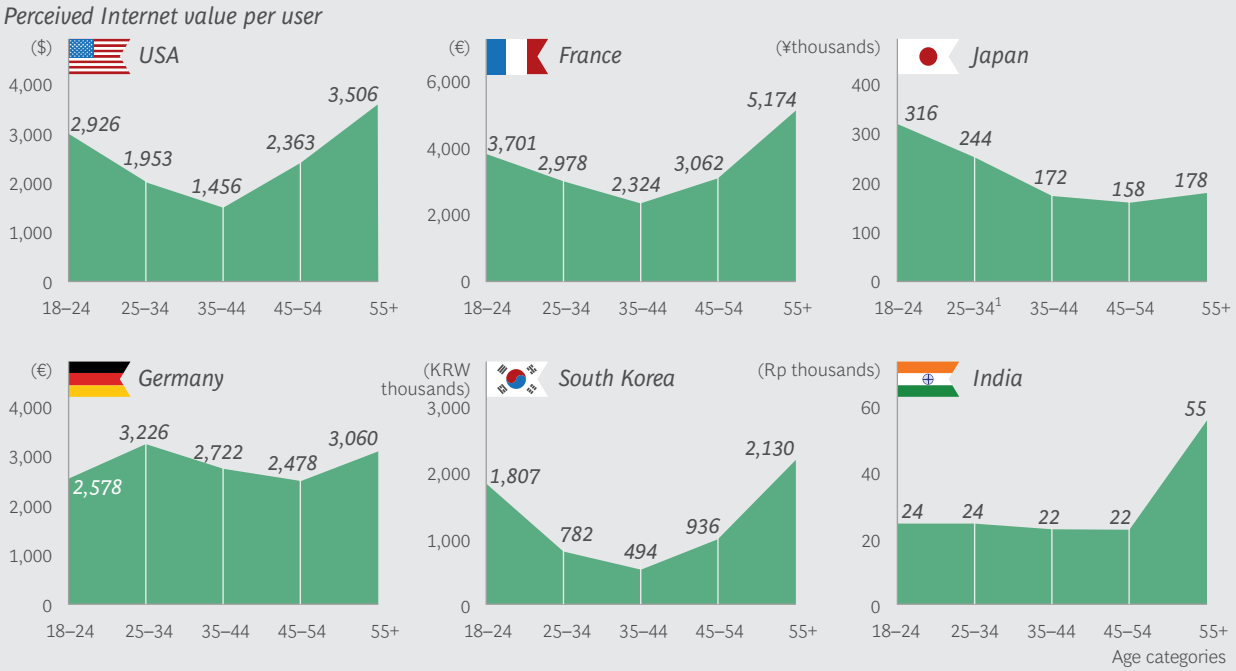
Consumer surplus has multiple drivers, among them the quality of online content, the number of devices in use, the ease and frequency of access, and the number of people online. Demographics play a role in the last factor: in many markets, the heaviest users of the Internet are the young—no surprise there—and those over 55, whose ranks will swell as the population ages. (See Exhibit 8.) All these factors are on the rise, which points to continued growth in the consumer surplus.

Various aspects of consumer surplus are illustrated in the country profiles at the end of this report. These profiles also show the Internet's impact on GDP and on the retail market in each country. Most significantly, they highlight how deeply the Internet has ingrained itself in daily life around the world, by showing what consumers are willing to give up—from satellite navigation to sex—in order to keep their Internet access.

Note

1. In our analysis, we took into consideration the value derived from communication, content (entertainment, news, and social media), search, commerce, and job searches. We used a "loss aversion technique" to avoid anchoring the data to the current prices of goods and services—many of which are free—and to determine the true value that people place on them. To measure "consumer surplus," we subtracted from this value what people currently pay to access the Internet and the cost of the devices, content, and applications. Our analysis found that consumers receive a "surplus" equal to about 80 percent of value, or 4 to 5 percent of personal income.

EXHIBIT 8 | Youngest and Oldest Consumers Tend to Value the Internet the Most



Source: BCG survey.
Note: Value comparisons are weighted by income (excluding the highest and lowest levels by country) to minimize bias.
[1]The figure for Japan's 25–34 category is estimated (base size).

FROM HIGH-WEB TO NO-WEB

OPPORTUNITIES FOR SMALL AND MEDIUM ENTERPRISES

Given their agility and ability to innovate, one would expect SMEs—long the engine of economic growth in many economies—to grasp the power of the Internet to build their businesses. Indeed, many have, and these companies have helped turned the Web into an important vehicle for revenue growth and job creation. But a surprising number have not—or have ventured online only to a limited extent. These companies are leaving an enormous opportunity untapped.

In our view, every business needs to "go digital"—and fast. Policymakers, too, should pay heed. Given SMEs' track record in job creation, policies that encourage more of these companies to develop an online presence could help address the lingering unemployment that currently characterizes the recovery in many countries.

Over the last 18 months, BCG has surveyed workers at more than 15,000 companies that operate in the world's biggest economies and that employ fewer than 250 people (in the U.S., the cutoff was 500). We grouped the companies into four categories: high-Web, medium-Web, low-Web, and no-Web.[1]

The results are compelling. Across 11 of the G-20 countries, high-Web SMEs have experienced revenue growth that was up to 22 percent higher than that achieved by SMEs with low or no use of the Web over the last three years. (See Exhibit 9). In the U.K., sales at high-Web companies increased six times as fast as revenues at firms with no Internet presence.

Many U.S. SMEs have integrated the Internet into their businesses. They are much more aggressive online than low-Web companies, particularly in activities such as search engine optimization, social networking, buying from and paying suppliers. They are even managing their business finances and recruiting staff online.

In many developed *and* developing markets, high-Web companies are twice as likely as their low- or no-Web counterparts to have a national and international customer base, as opposed to selling only locally. In the U.S., high- and medium-Web businesses expect to grow by 17 percent over the next three years, compared with 12 percent for low- and no-Web companies.

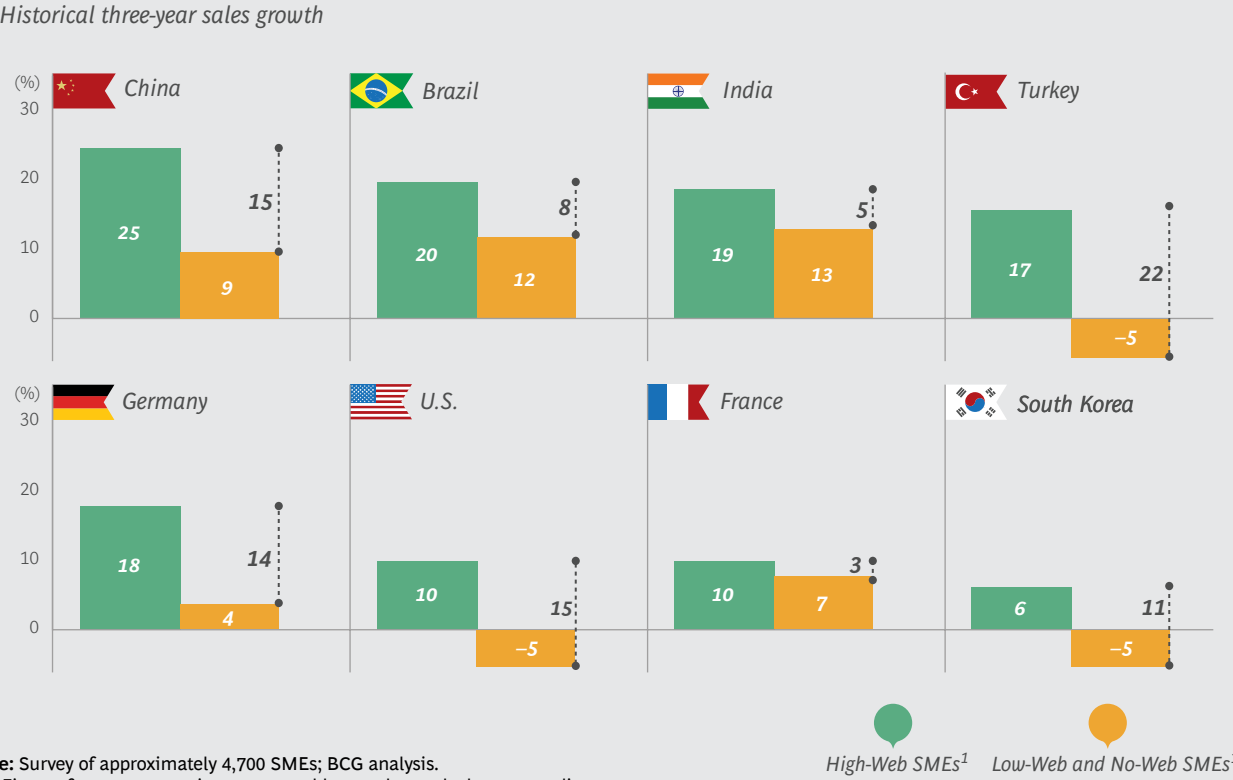
High- and medium-Web SMEs generate more jobs. In Germany, 93 percent of high-Web and 82 percent of medium-Web companies increased employment over the past three years, compared with only 50 percent of the no-Web firms. Japan experienced similar results. In South Korea, employment increased at 94 percent of high-Web SMEs and at 60 percent of no-Web companies.

We've identified five value levers that explain the "Internet advantage" of High-Web SMEs:

- *Geographic Expansion.* The Internet creates a borderless world for many SMEs, enabling them to compete with much larger, multinational companies by accessing markets that were previously out of reach.
- *Enhanced Marketing.* Online marketing delivers expanded reach and measurable returns. It also yields valuable data about consumers and their preferences, enabling expressly targeted advertising and offers.
- *Improved Customer Interactions.* Social media make it possible for companies to engage in real-time dialog with customers not only to boost sales but also to build loyalty and even to help create, refine, and enhance products and services.
- *Leveraging the Cloud.* SMEs can access sophisticated, often cloud-based, tools to enhance a wide range of functions, including customer relationship management, information management, and customer payments. As a result, these companies can grow quickly without requiring large investments in infrastructure.
- *Easier and Quicker Staff Recruitment.* The recruiting options available today are more powerful and less expensive than ever before, and they enable SMEs to tap a global talent market.

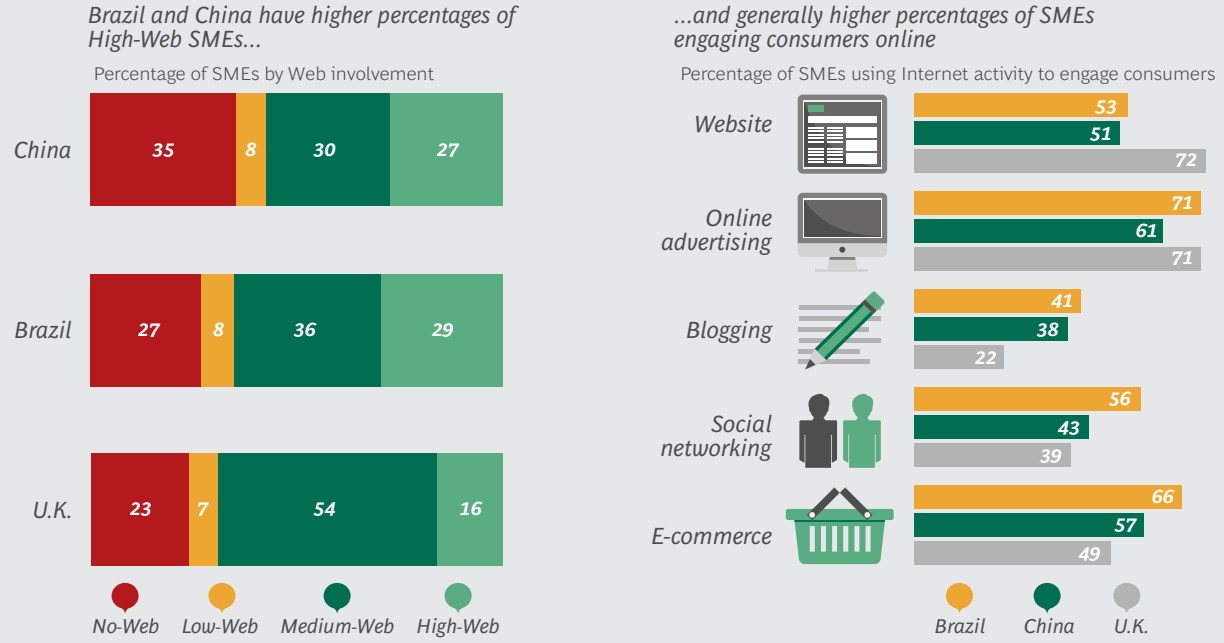
The most powerful lever may be improved customer interaction, which is achieved principally by exploiting the participatory nature of today's Internet. Nearly two-thirds of high-Web SMEs are moving quickly to match their customers' engagement in social networks. The impact can be seen in such developing markets as Brazil and China. (See Exhibit 10.) Despite high barriers impeding SME adoption of online activities (e.g., lack of infrastructure and computer penetration), these countries

EXHIBIT 9 | SMEs That Make Extensive Use of the Web Grow Faster



Source: Survey of approximately 4,700 SMEs; BCG analysis.
Note: Figures for some countries may not add up to the totals due to rounding.
[1]High-Web companies use a wide range of Internet tools to market, sell, and support customers, interact with suppliers, and empower employees; medium-Web businesses market or sell goods or services online; low-Web businesses have a website or a social-networking site; no-Web businesses do not have a website.

Exhibit 10 | More SMEs in Developing Markets Are Using the Internet to Engage with Consumers



Sources: Survey of approximately 1,500 SMEs; IDC; Organisation for Economic Co-operation and Development (OECD); Brazilian Internet Steering Committee; China Network Information Centre; Internet & Mobile Association of India; Zinnov; MARS Indonesia.
Note: Values were adjusted for Internet penetration rates in each country and weighted to reflect an equal distribution of company sizes.

not only boast higher percentages of high-Web SMEs than their developed-market counterparts, but their SMEs are also substantially more adept at moving beyond Internet marketing to exploit the Web's facility for driving sales through more intensive customer interaction.

The barriers keeping SMEs from engaging more broadly or deeply online fall into five general categories: poor access to the requisite technology, lack of capabilities, lack of resources, doubt over the potential returns, and an unfavorable business environment. Not surprisingly, access problems and an unfavorable business environment were cited far more often by SMEs in developing markets than by their developed-market counterparts. Almost half of SMEs in India and Indonesia cited "local business culture" as a significant impediment; one-third of Chinese SMEs said that they are held back by lack of access to computers. Inadequate staff knowledge and time were named the biggest barriers in Japan, and about one-quarter of U.S. and U.K. firms reported a lack of necessary financial resources.

Most of these barriers must be hurdled by the SMEs themselves. But policymakers should take note that access issues and government regulations were cited as impediments by one in five SMEs in developed markets—and by two in five in developing economies. These are areas where governments may have opportunities to lend a hand and can reap the benefits of increased economic growth and job creation.

Note

1. High-Web companies use a wide range of Internet tools to market, sell, and support customers, interact with suppliers, and empower employees; medium-Web businesses market or sell goods or services online; low-Web businesses have a website or a social networking site; no-Web businesses do not have a website.

DON'T BLINK

THE FUTURE IS RUSHING STRAIGHT AT US

The Internet will change even more in the next five years than it has in its first twenty-five. It will have more users (especially in developing markets), more mobile users, more users using various devices throughout the day, and many more people engaged in an increasingly participatory medium. On the second half of the chessboard, as the rice pile starts to rival Mount Everest in magnitude (the size it would reach on the sixty-fourth square), the rapidly evolving Internet has the potential to both enrich and overwhelm.

Businesses in particular need to make a choice. They can rise to the challenge of a new Internet-driven marketplace—and benefit from the expanded capabilities and higher growth rates that high-Web SMEs are already achieving throughout the G-20 nations. The alternative is following in the footsteps of such industries as music and publishing, which held on to outdated business models for too long and are now dealing with competitive environments that have been reshaped around them.

For those willing to think big, embrace change, move quickly, and organize differently, there are countless opportunities to reap the rewards of the Internet's creative destruction (as defined by economist Joseph Schumpeter rather than by Karl Marx) in industries ranging from health care to retail and consumer goods.

Companies that have not yet developed an online strategy for themselves need to build their digital assets while reducing digital liabilities (which are often organizational) that might prevent them from tapping opportunities. This topic will be the subject of the next forthcoming report in BCG's Connected World series.

Governments also face challenges and opportunities—and many of these are increasingly complex. Fifteen years ago, as the commercial Internet was beginning to make its potential apparent in the U.S. and elsewhere, President Bill Clinton outlined five principles constituting a "framework for global electronic commerce":

1. The private sector should lead.
2. Governments should avoid undue restrictions on electronic commerce.
3. Where governmental involvement is needed, its aim should be to support and enforce a predictable, minimalist, consistent, and simple legal environment for commerce.
4. Governments should recognize the unique qualities of the Internet.
5. Electronic commerce on the Internet should be facilitated on a global basis.

The Internet is a very different, much bigger, and more complex place now than it was then. New, important, and difficult issues have moved to the fore, among them privacy, piracy, protection, security, "net neutrality," and taxation. They are already causing conflict and contention as different players with distinct interests choose sides. The recent debate over SOPA—the proposed Stop Online Piracy Act—in the U.S. is one example of how fractious such issues can be. In February, street protests in several European cities against an antipiracy agreement seen as limiting the freedom of online speech showed that citizens are paying attention and have strongly held points of view.

In the best of all worlds, with the Internet being a global phenomenon, governments would act in a coordinated manner, working toward international standards when they are called for and toward cross-country agreements to limit intervention when it is better to let the free market do its own work. This is a high bar, to be sure, and we may need an updated framework with some new principles, but those put forth by President Clinton offer a still-valid structure for engaging the debate.

On a national level, policies that promote investment—especially in the infrastructure in the developing world—and emphasize education, training, and skills-building everywhere are essential. Perhaps even more than the industrial era and information age, the Internet economy requires a well-educated and skilled workforce. Countries that fall behind in providing educational opportunity are also likely to lose out to others in Internet-driven economic growth.

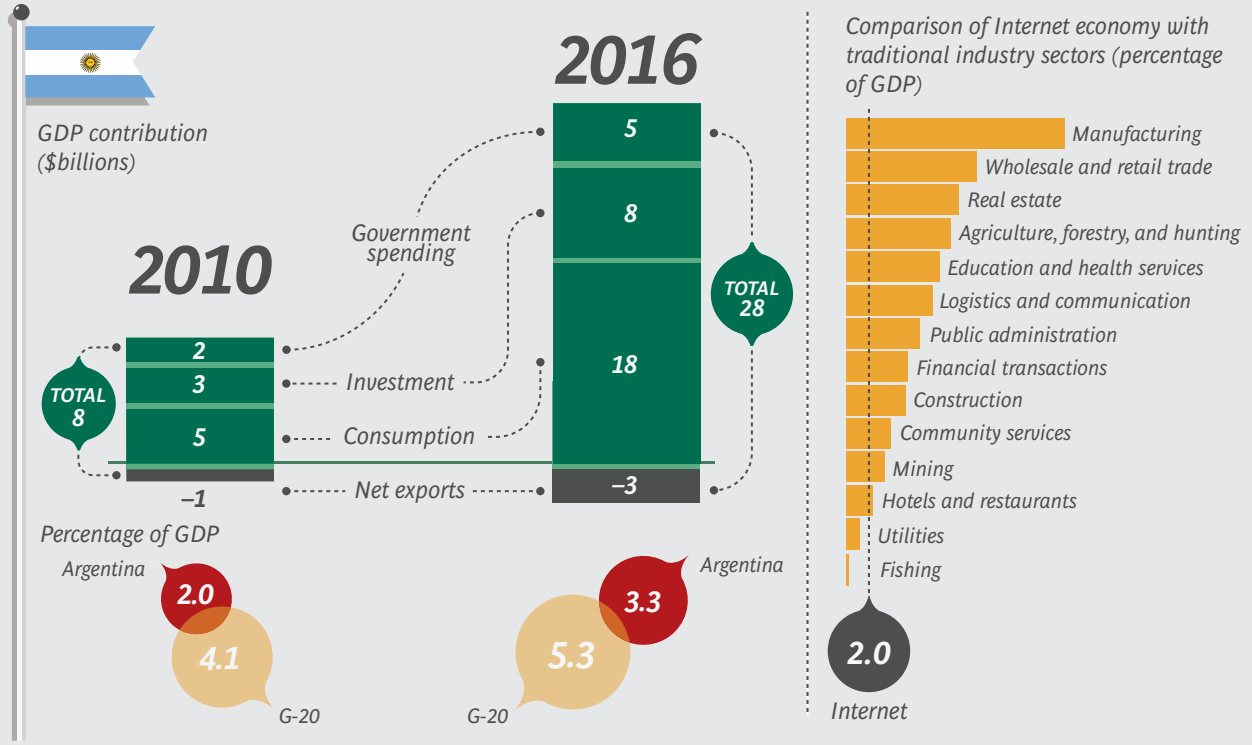
Policies that promote investment and emphasize education, training, and skills-building are essential.

Different countries will take different approaches, but the overarching challenge facing those empowered to do the people's business is the same—ensure ready and affordable access, a level playing field, and an open competitive environment that enables everyone to tap the economic benefits of the Internet.

COUNTRY PROFILES

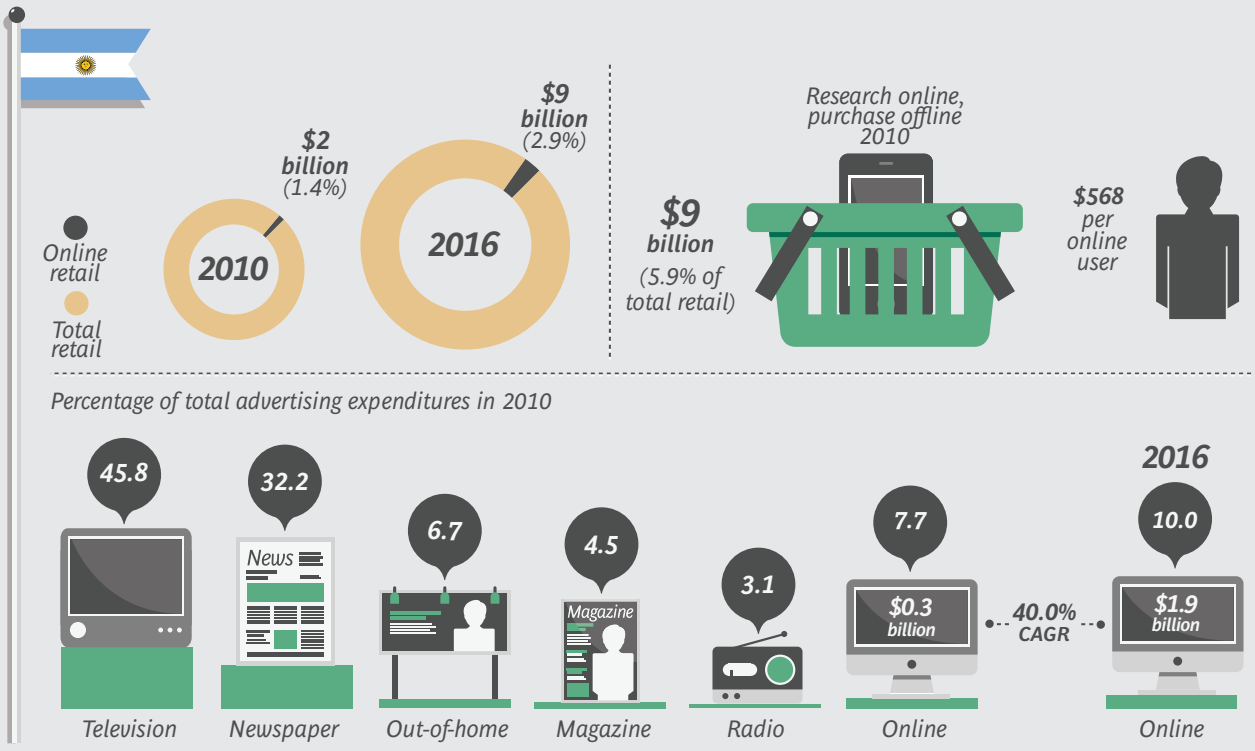
In this section, we feature a series of detailed profiles illustrating Internet economic activity across the G-20. For each economy, we have provided information on the impact of the Internet on commerce and GDP, an illustration of how consumers are using the Internet and what they value, and an assessment of use by—and impact on—small and medium enterprises.

Argentina's Internet Economy



Sources: Economist Intelligence Unit; Ovum; Gartner; Euromonitor International; Organisation for Economic Co-operation and Development (OECD); Magnaglobal; CCB; INDEC; CACE; IEMR; company reports; World Bank; World Trade Organization; AméricaEconomía; BCG analysis.
Note: Some columns may not add up to total contributions due to rounding.

The Internet's Impact on Commerce in Argentina



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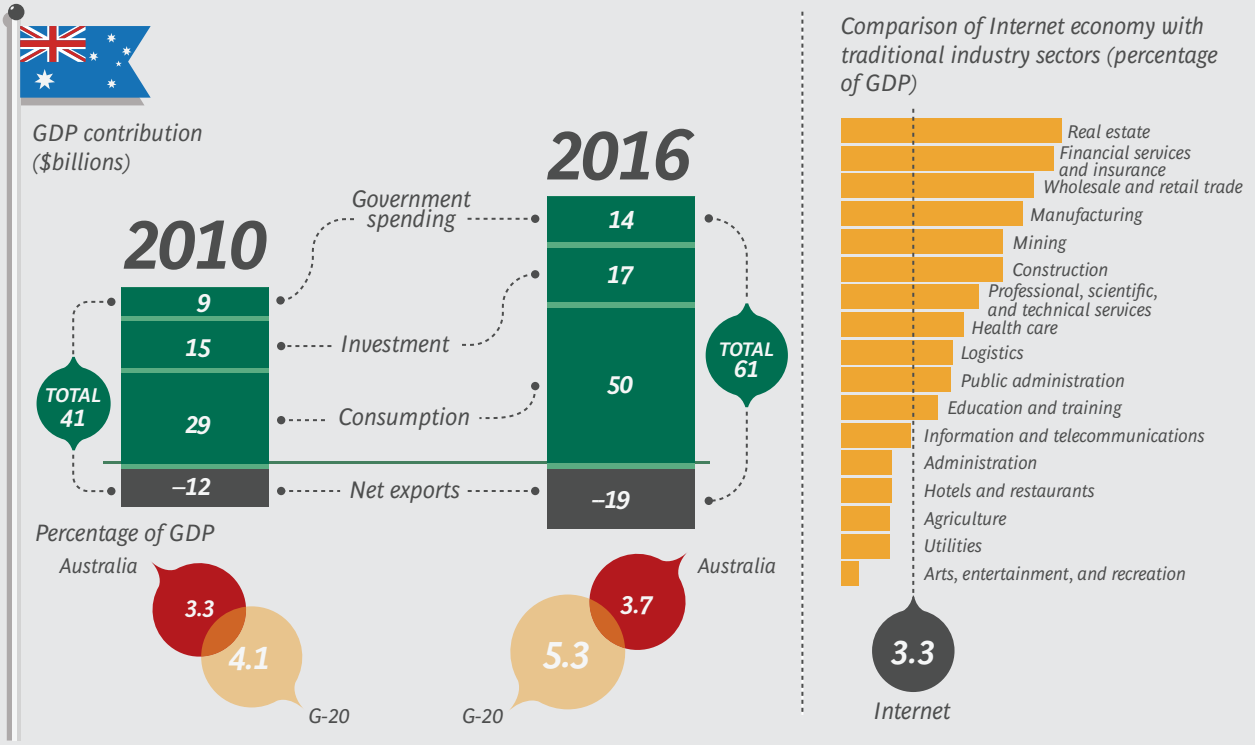
Australia's Internet Economy



Sources: Economist Intelligence Unit; Ovum; Gartner; Euromonitor International; Organisation for Economic Co-operation and Development (OECD); Magnaglobal; CCB; Australian Bureau of Statistics; Forrester Research; IEMR; Australian Communications and Media Authority; company reports; National Broadband Network; BCG analysis.
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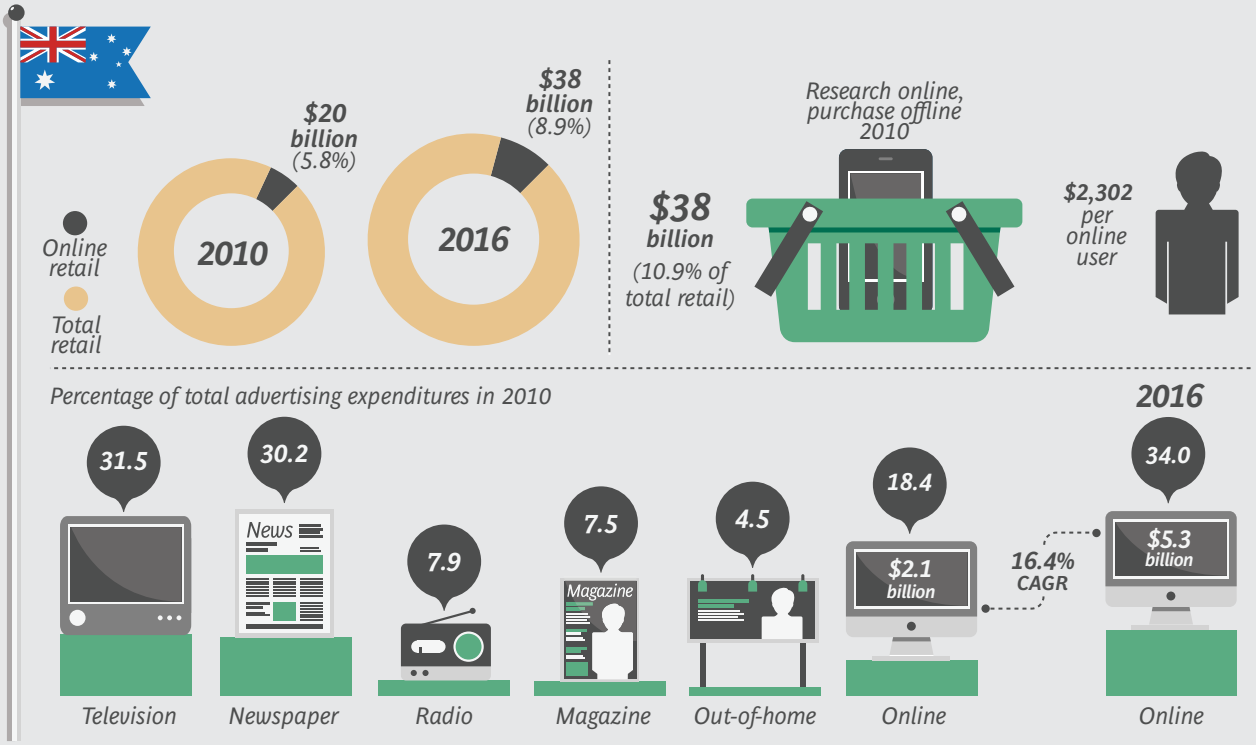
The Internet's Impact on Commerce in Australia



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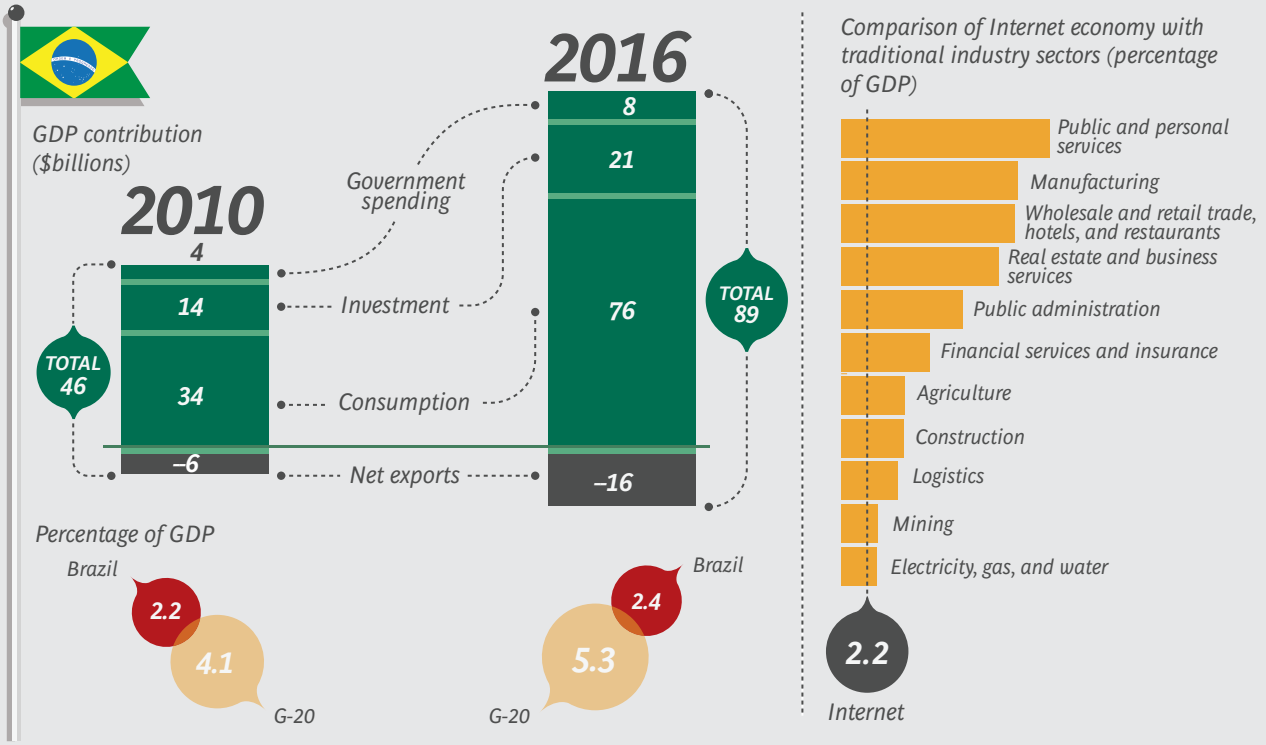
Brazil's Internet Economy



Sources: Economist Intelligence Unit; Ovum; Gartner; Euromonitor International; Organisation for Economic Co-operation and Development (OECD); Magnaglobal; CCB; Brazilian Census Bureau (IBGE); EC; IMRG; ITU, U.K. Office for National Statistics (ONS); IE Market Research; CETIC; Teleco; CGI/ICT; Faraban; BCG analysis.
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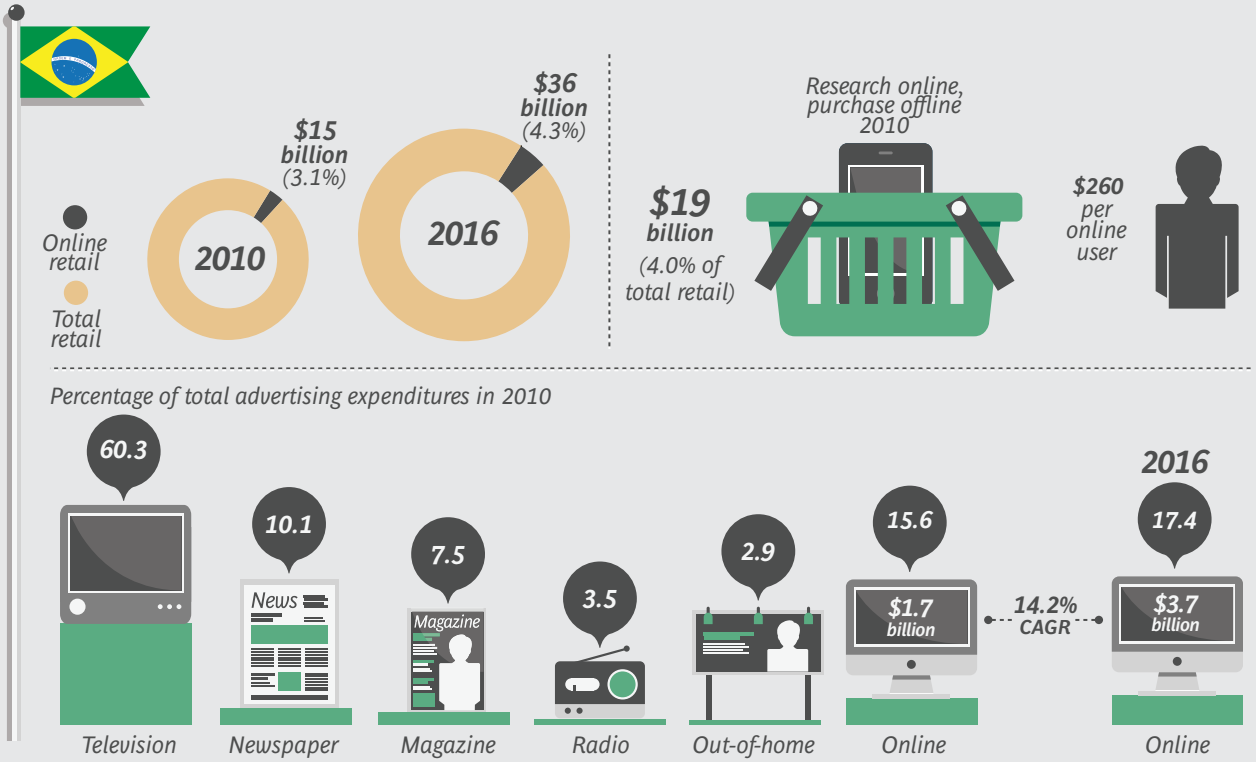
The Internet's Impact on Commerce in Brazil



Sources: Economist Intelligence Unit; Ovum; Gartner; Euromonitor International; Organisation for Economic Co-operation and Development (OECD); Magnaglobal; CCB; Brazilian Census Bureau (IBGE); EC; IMRG; ITU, U.K. Office for National Statistics (ONS); IE Market Research; CETIC; Teleco; CGI/ICT; Faraban; BCG analysis.
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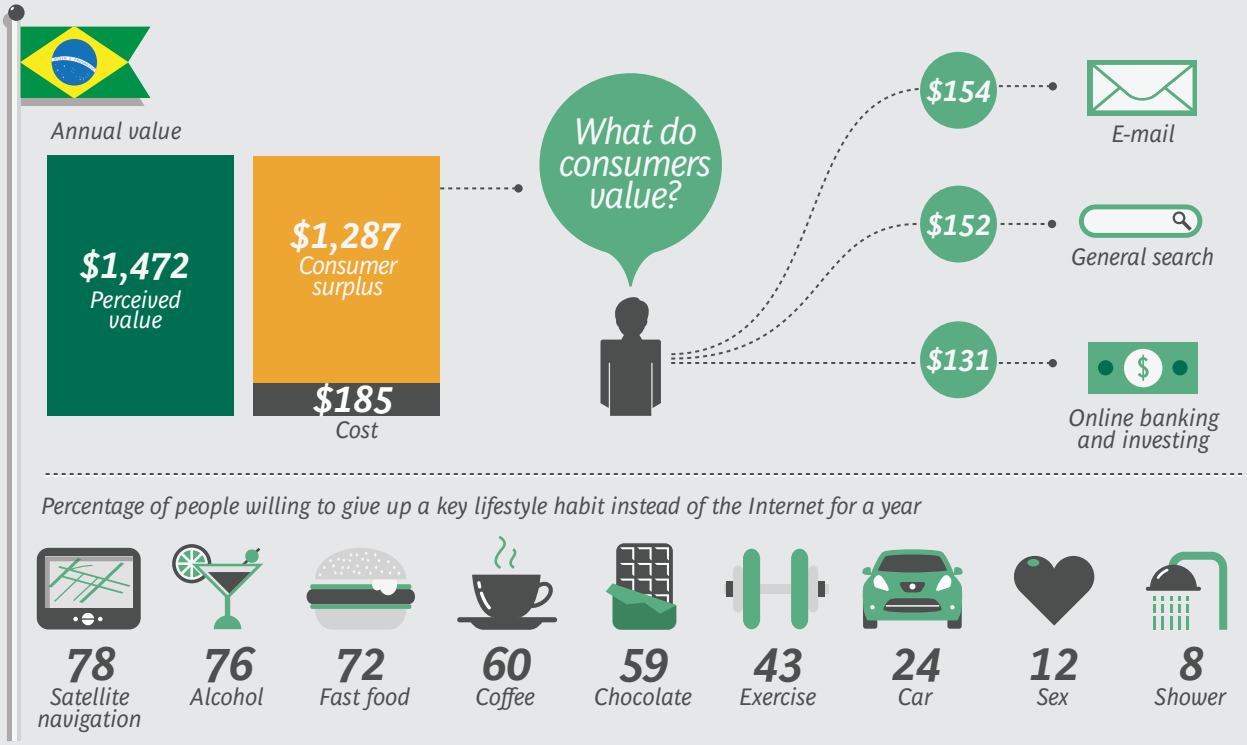
Brazil's Consumers Benefit from the Internet



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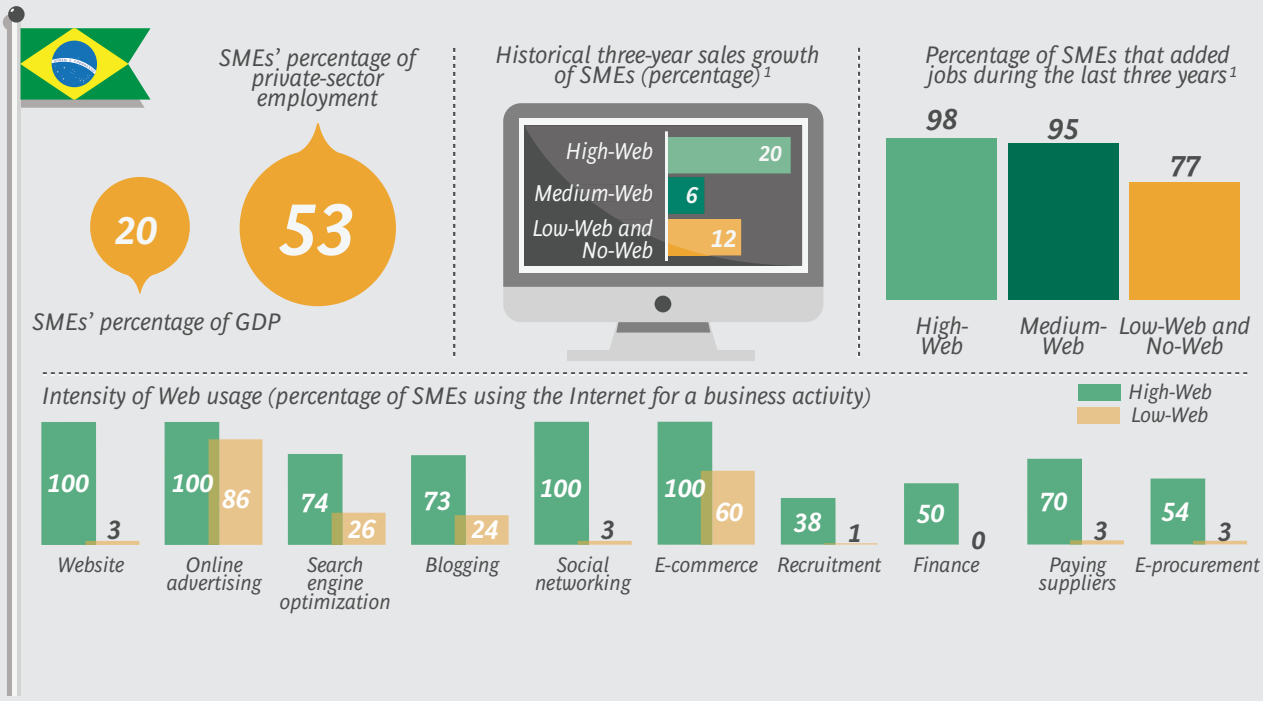
Note: Due to rounding, perceived value does not total consumer surplus plus cost.

The Internet's Impact on Small and Medium Enterprises (SMEs) in Brazil



Sources: Economist Intelligence Unit; Ovum; Gartner; Euromonitor International; Organisation for Economic Co-operation and Development (OECD); Magnaglobal; CCB; Brazilian Census Bureau (IBGE); EC; IMRG; ITU, U.K. Office for National Statistics (ONS); IE Market Research; CETIC; Teleco; CGI/ICT; Faraban; BCG analysis.
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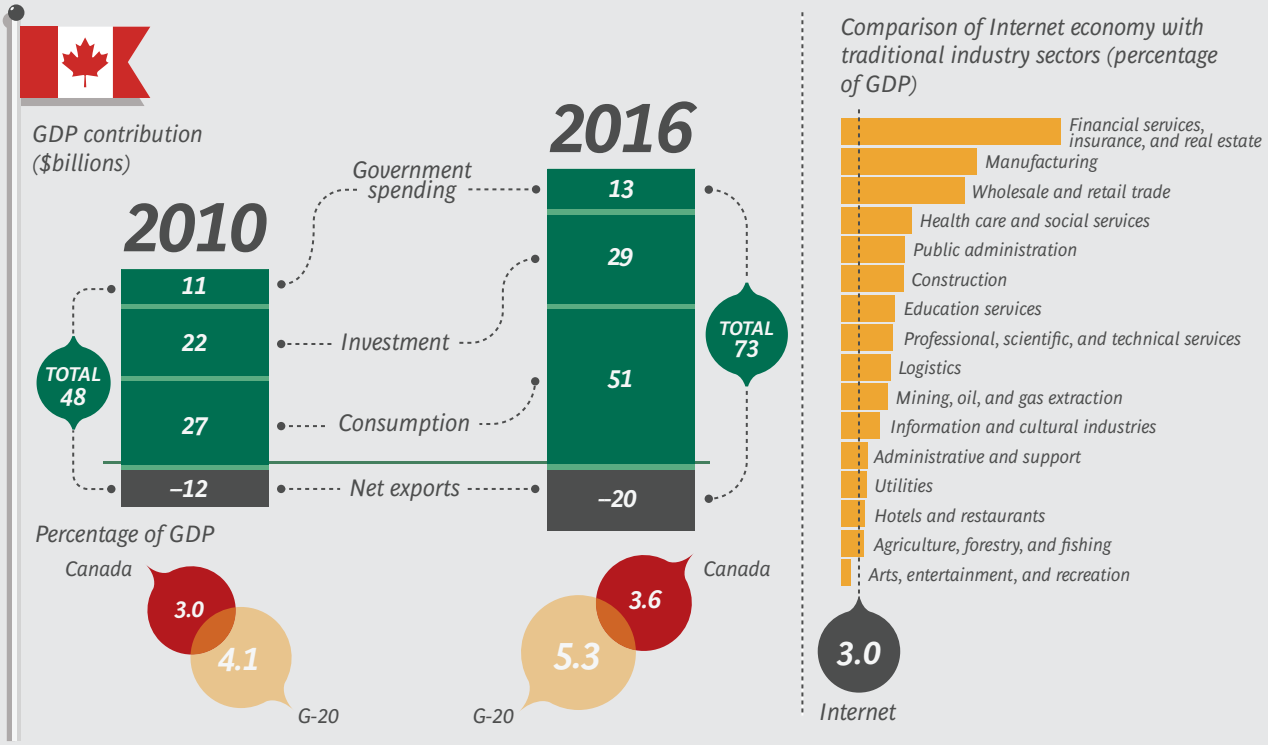
Canada's Internet Economy



Sources: Economist Intelligence Unit; Ovum; Gartner; Euromonitor International; Organisation for Economic Co-operation and Development (OECD); Magnaglobal; CCB; eMarketer; Statistics Canada; Retail Council of Canada; Industry Canada; AXCO; IEMR; H2; BCG analysis.
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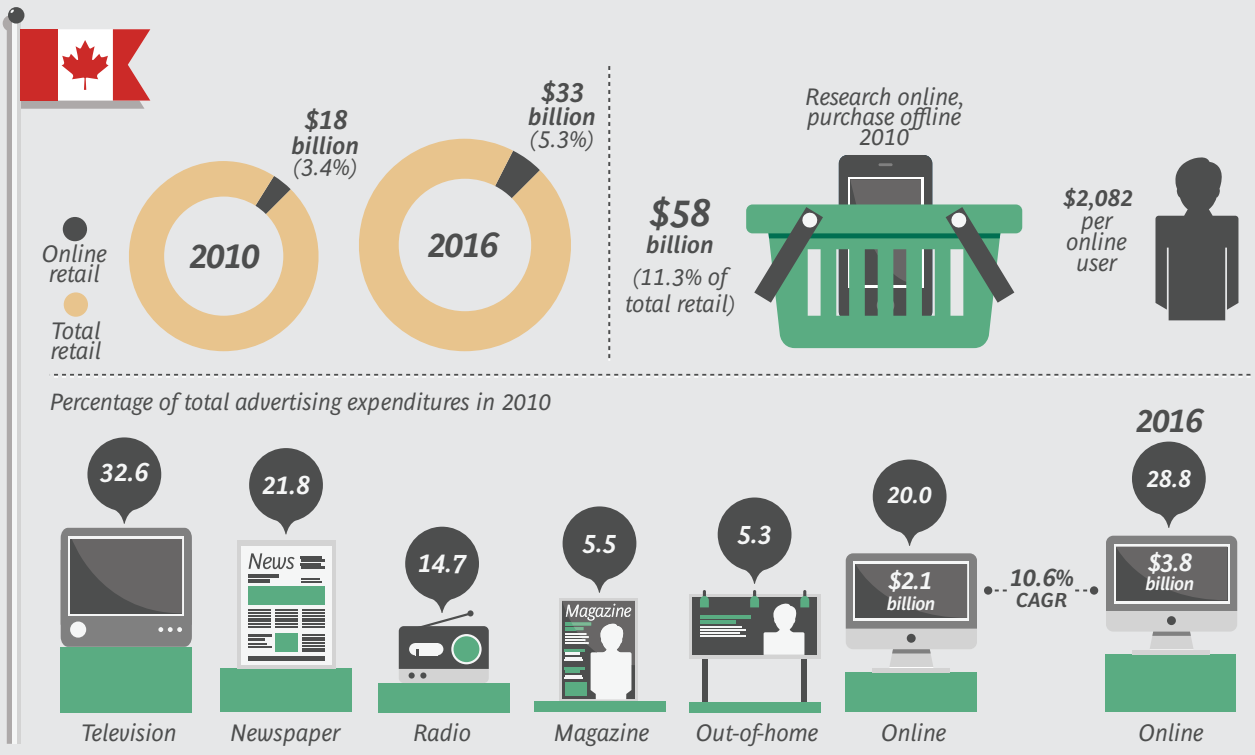
The Internet's Impact on Commerce in Canada



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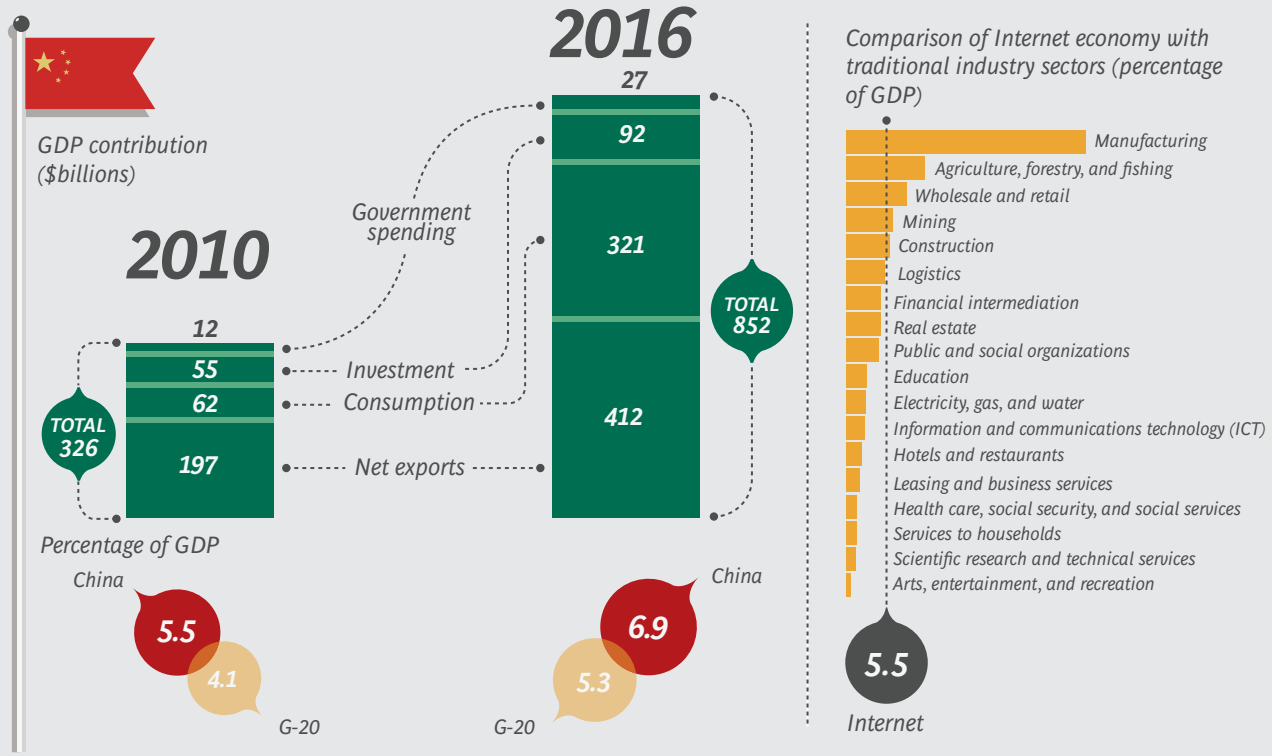
China's Internet Economy



Sources: Economist Intelligence Unit; Ovum; Gartner; Euromonitor International; Organisation for Economic Co-operation and Development (OECD); Magnaglobal; CCB; Chinese government; iResearch; China Information Almanac; BCG analysis.
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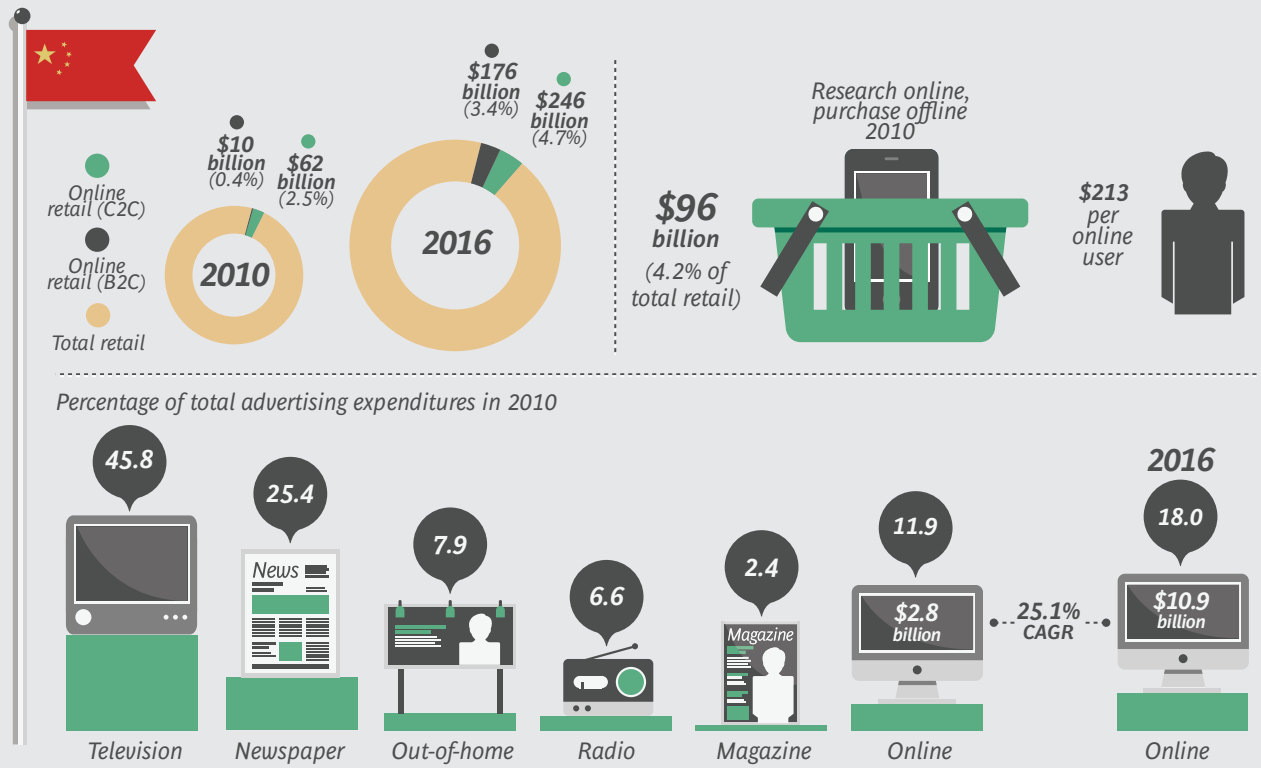
The Internet's Impact on Commerce in China



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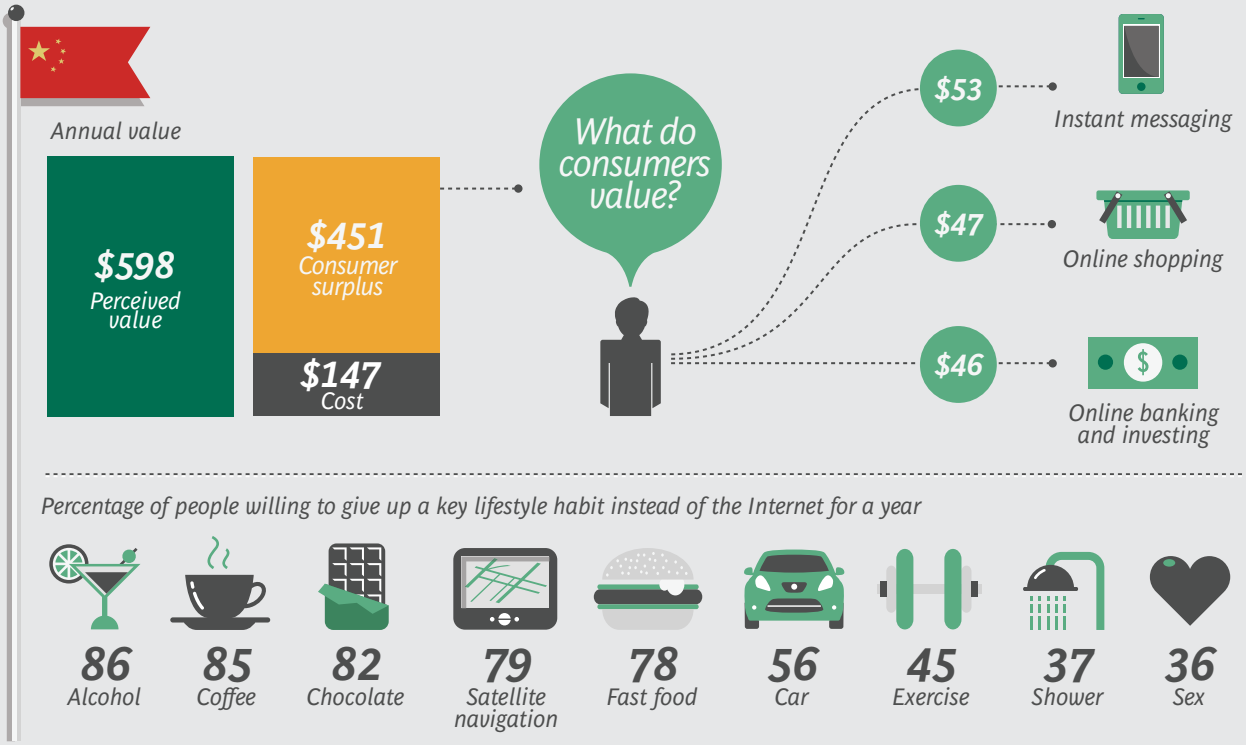
China's Consumers Benefit from the Internet



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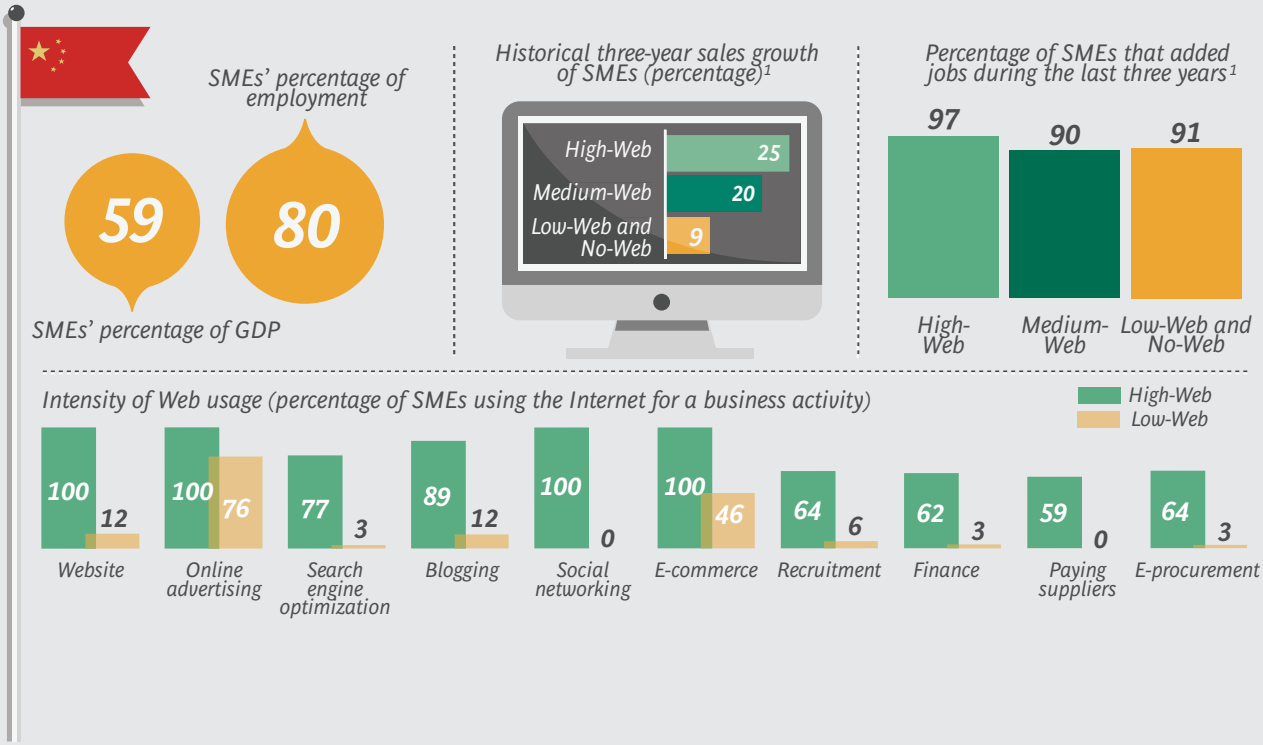
The Internet's Impact on Small and Medium Enterprises (SMEs) in China



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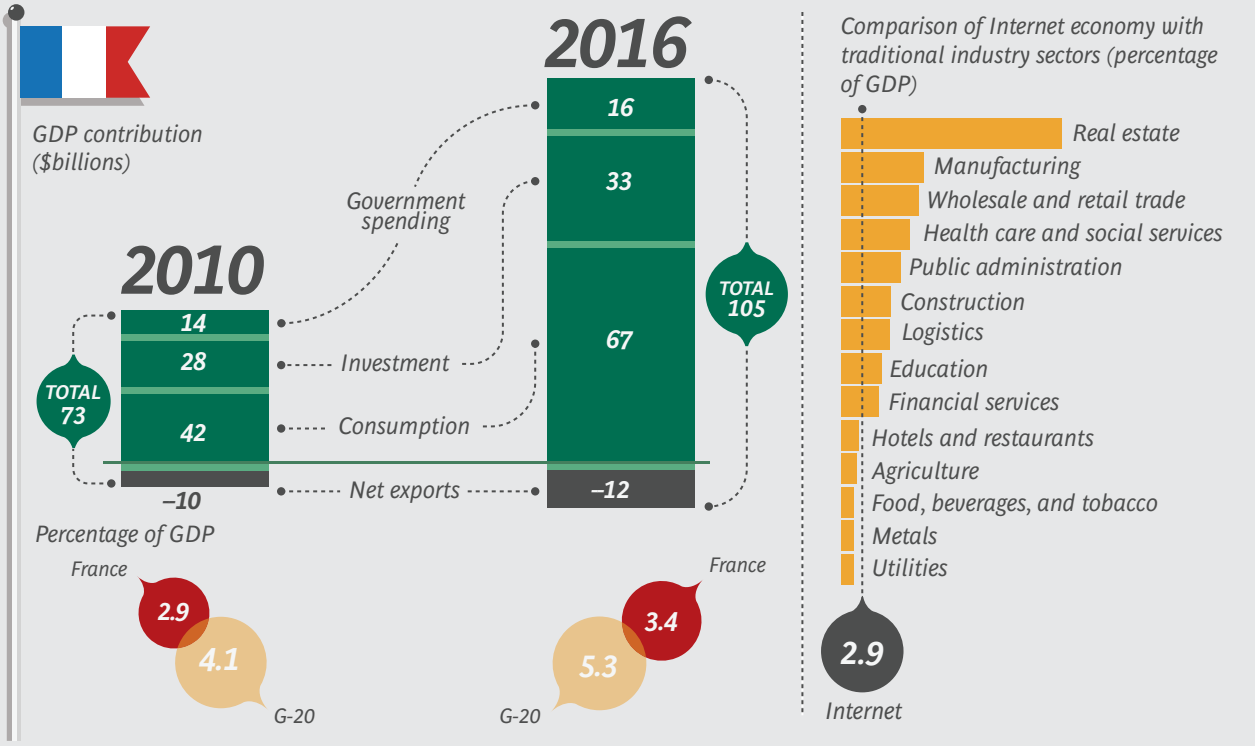
[2]This percentage reflects fewer than 10 responses from no-Web SMEs.

France's Internet Economy



Sources: Economist Intelligence Unit; Ovum; Gartner; Euromonitor International; Organisation for Economic Co-operation and Development (OECD); Magnaglobal; CCB; EC; H2; IE Market Research; IDS; INSEE; company reports; Eurostat; Forrester Research; AXCO; BCG analysis.
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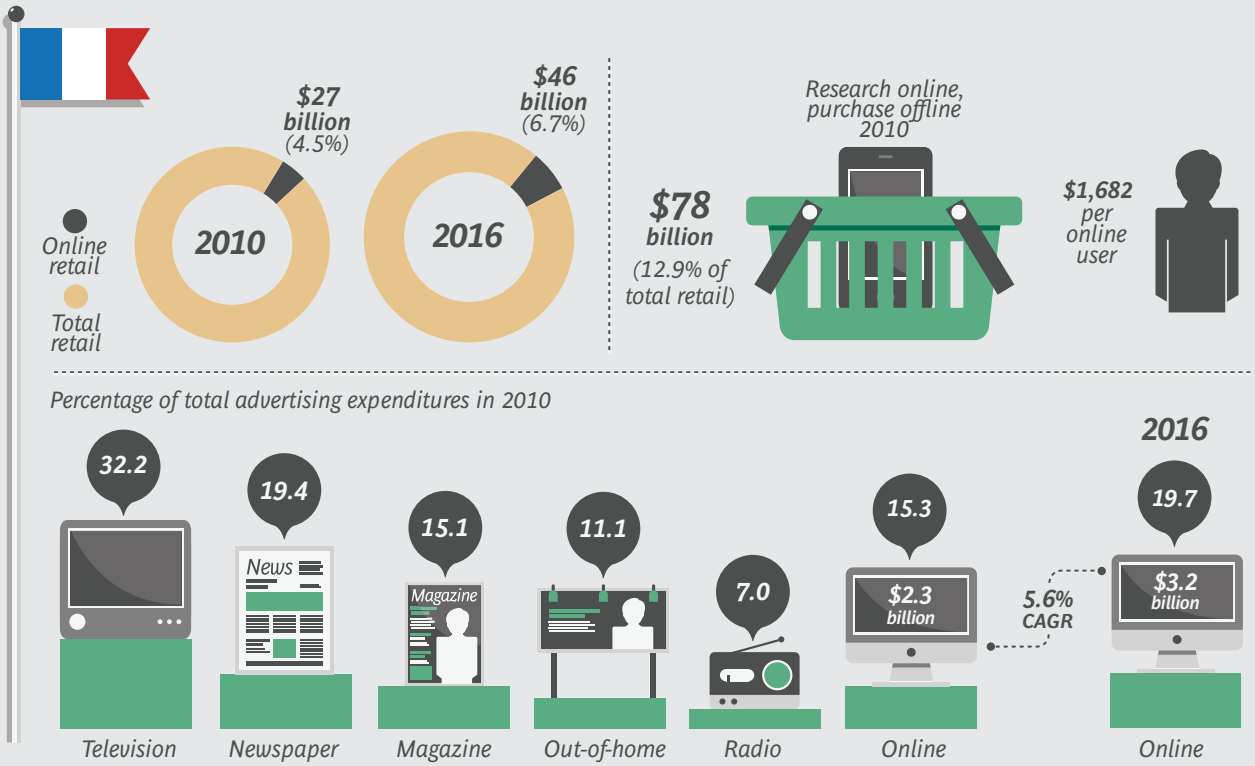
The Internet's Impact on Commerce in France



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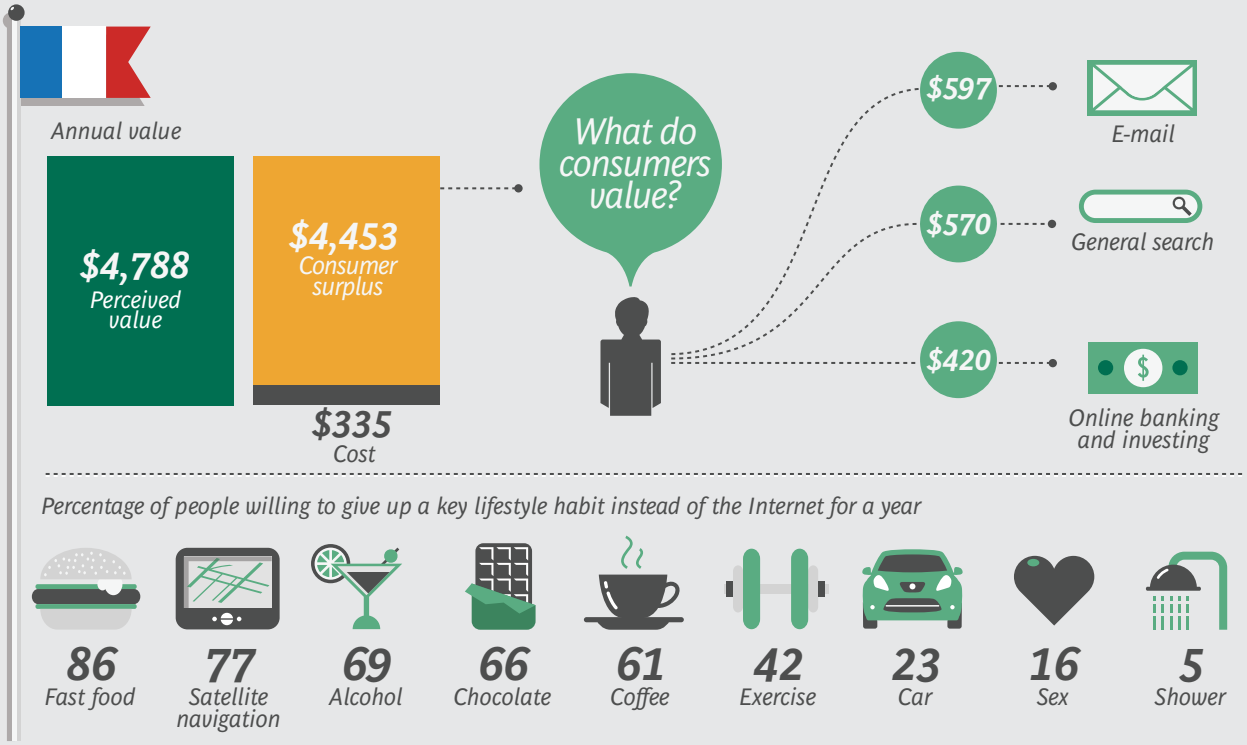
Note: Percentages may not total 100 due to rounding.

France's Consumers Benefit from the Internet



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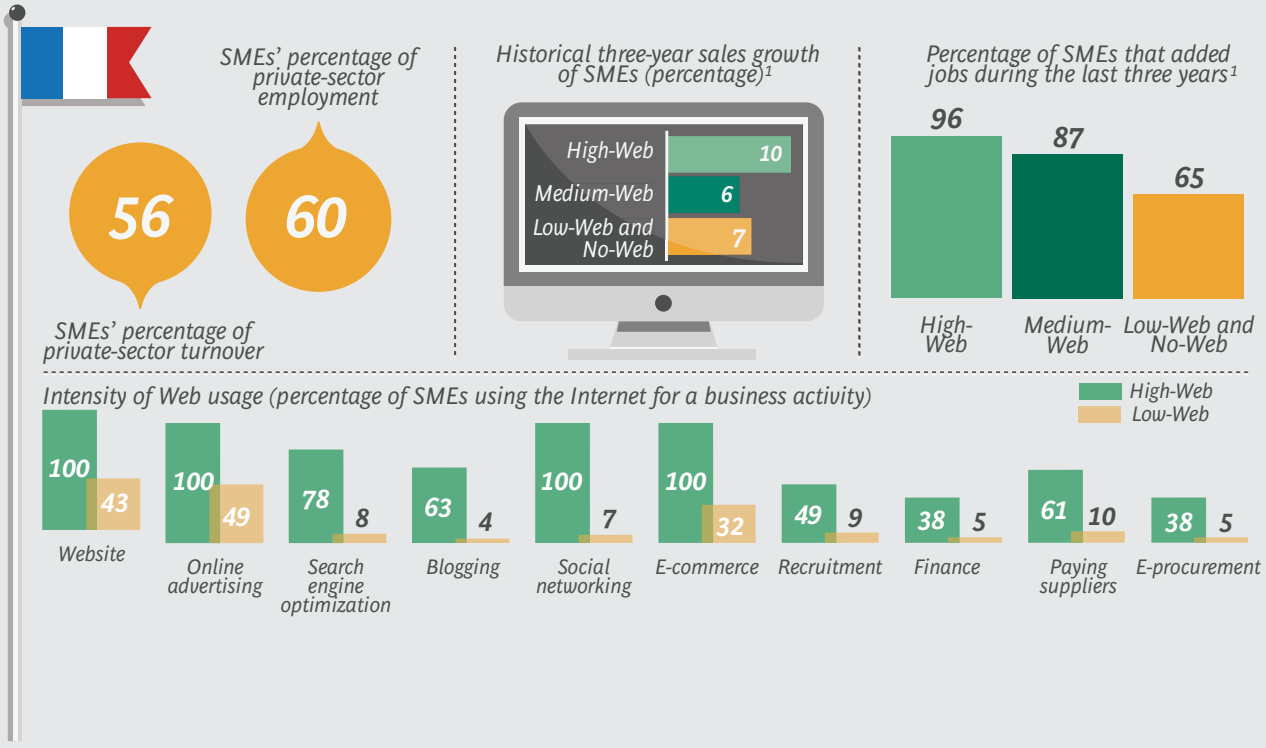
The Internet's Impact on Small and Medium Enterprises (SMEs) in France



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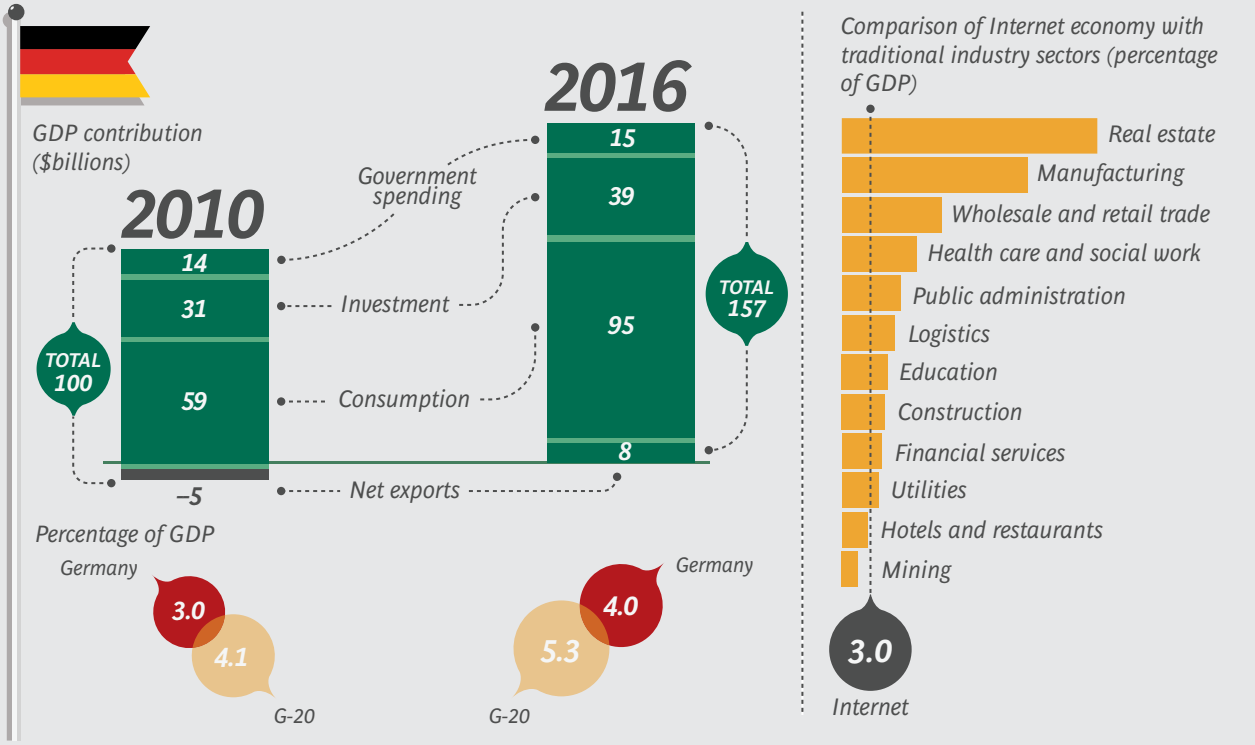
Germany's Internet Economy



Sources: Economist Intelligence Unit; Ovum; Gartner; Euromonitor International; Organisation for Economic Co-operation and Development (OECD); Magnaglobal; CCB; EC; Eurostat; Forrester Research; H2; IE Market Research; AXCO; DB Research; FBS; GfK; IDC; BCG analysis.
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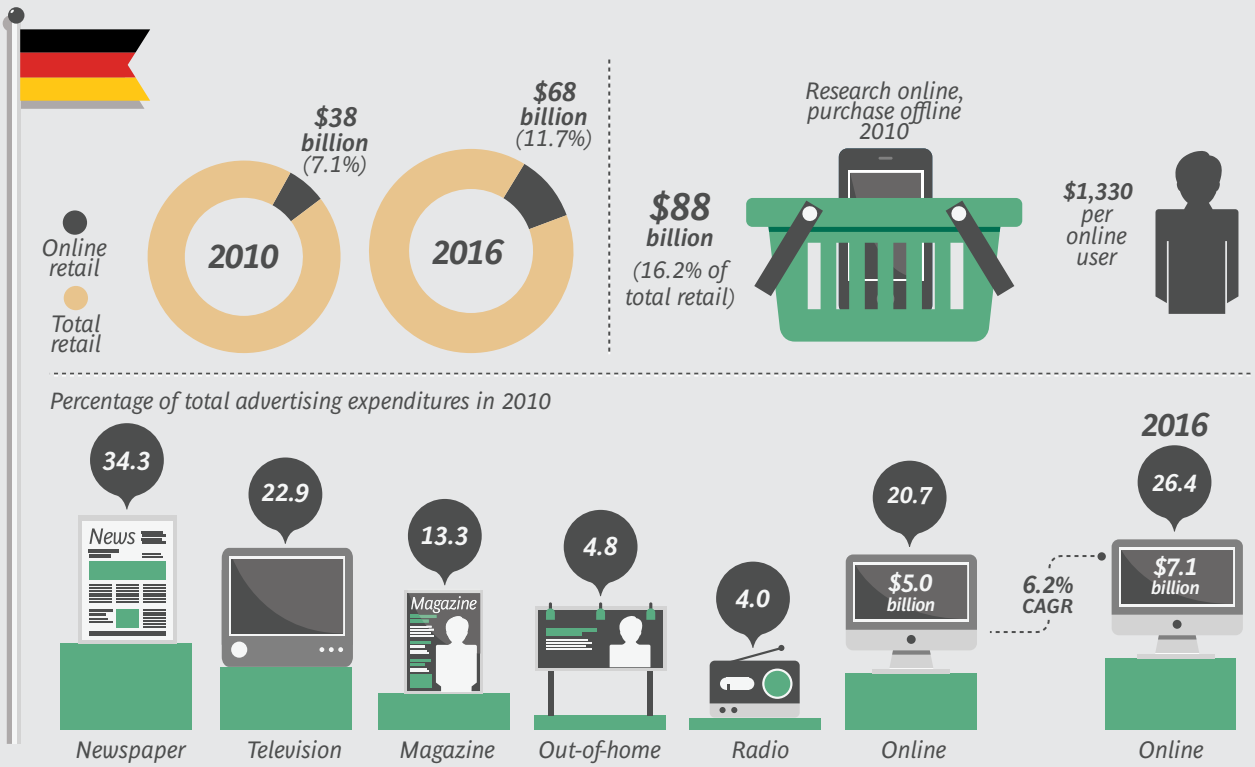
The Internet's Impact on Commerce in Germany



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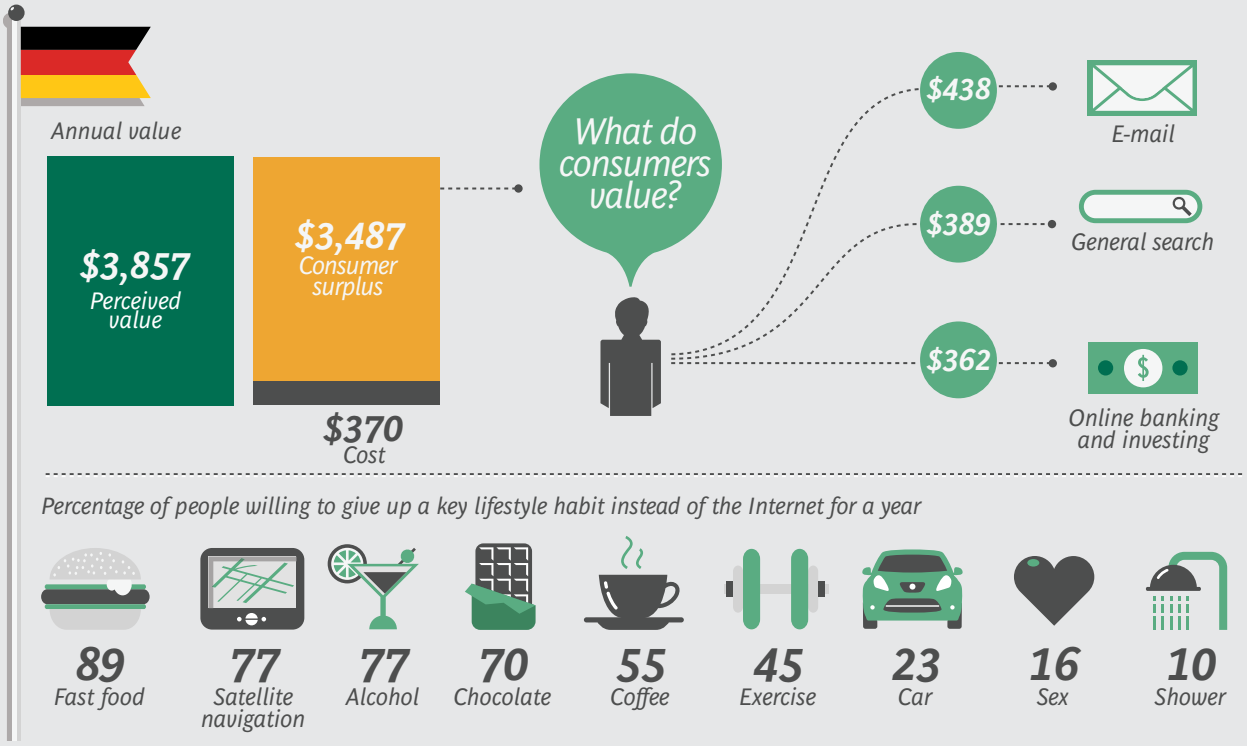
Germany's Consumers Benefit from the Internet



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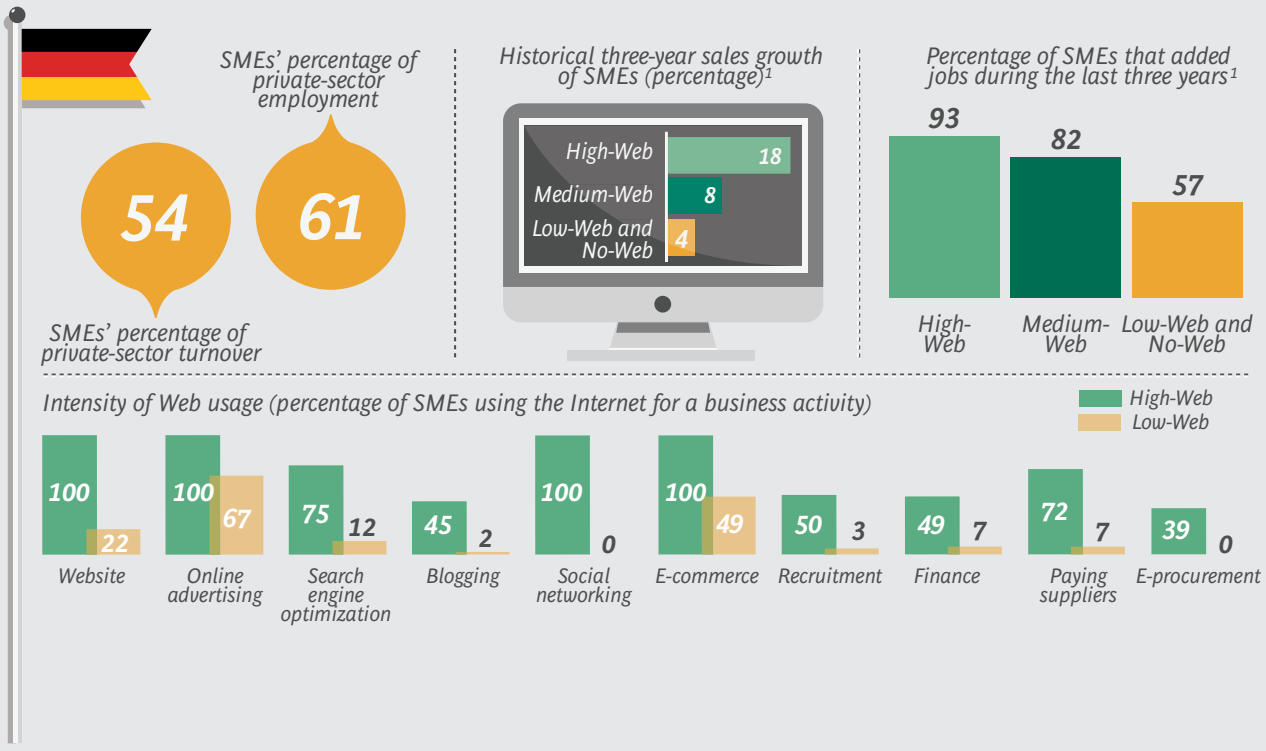
The Internet's Impact on Small and Medium Enterprises (SMEs) in Germany



Sources: Economist Intelligence Unit; Ovum; Gartner; Euromonitor International; Organisation for Economic Co-operation and Development (OECD); Magnaglobal; CCB; EC; Eurostat; Forrester Research; H2; IE Market Research; AXCO; DB Research; FBS; GfK; IDC; BCG analysis.
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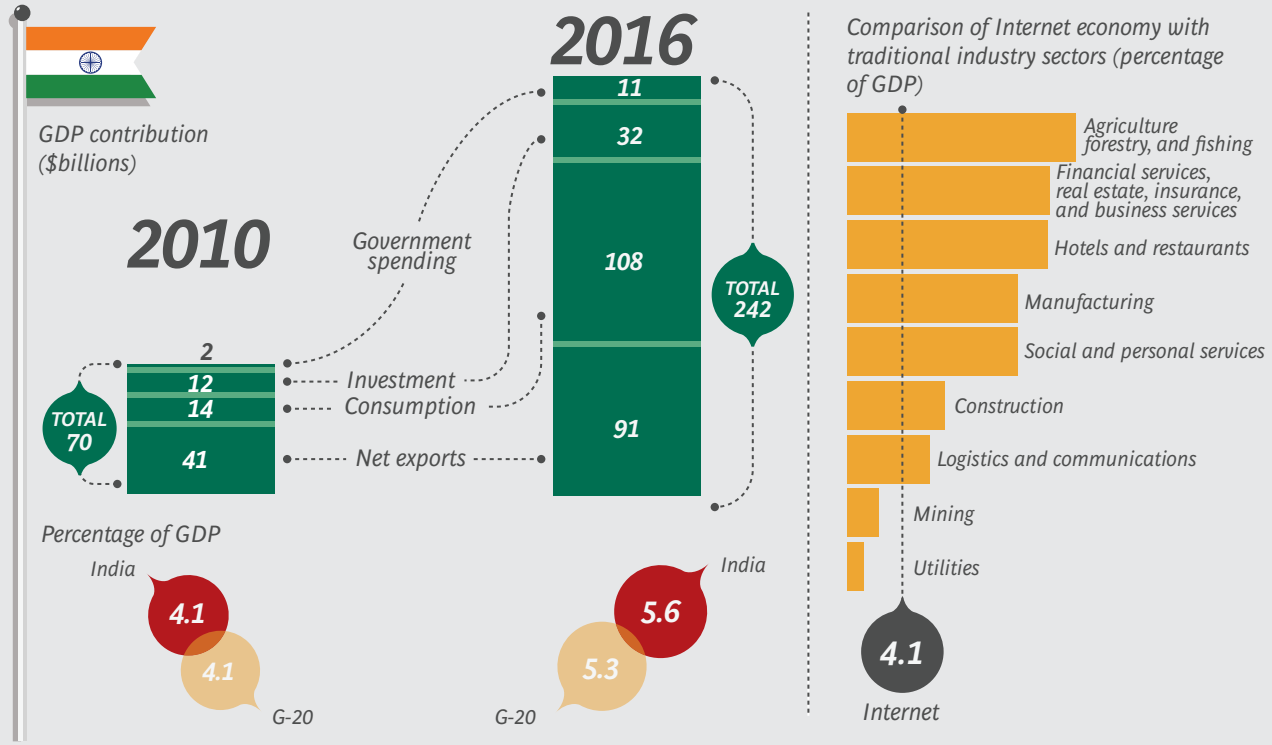
India's Internet Economy



Sources: Economist Intelligence Unit; Ovum; Gartner; Euromonitor International; Organisation for Economic Co-operation and Development (OECD); Magnaglobal; CCB; H2; Reserve Bank of India; Indian government; Telecom Regulatory Authority of India; NASSCOM; MediaNama; Trendstream; BCG analysis.
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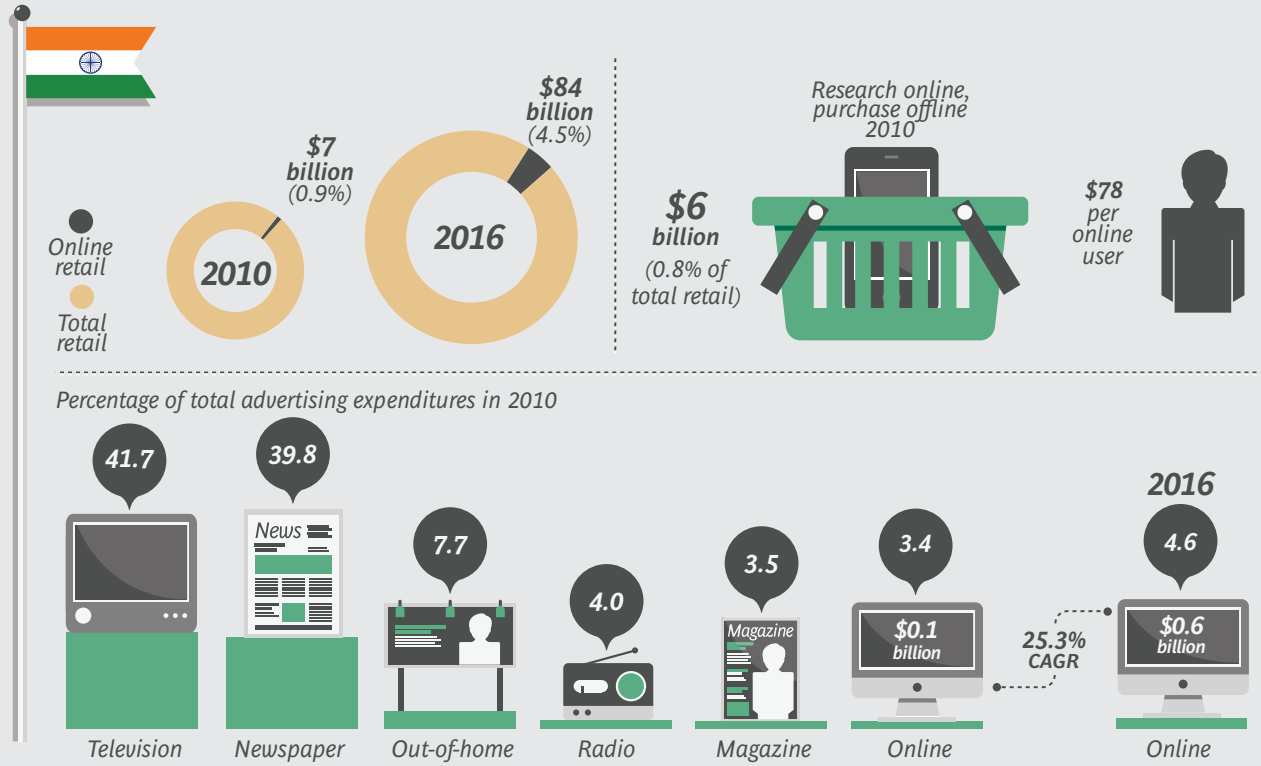
The Internet's Impact on Commerce in India



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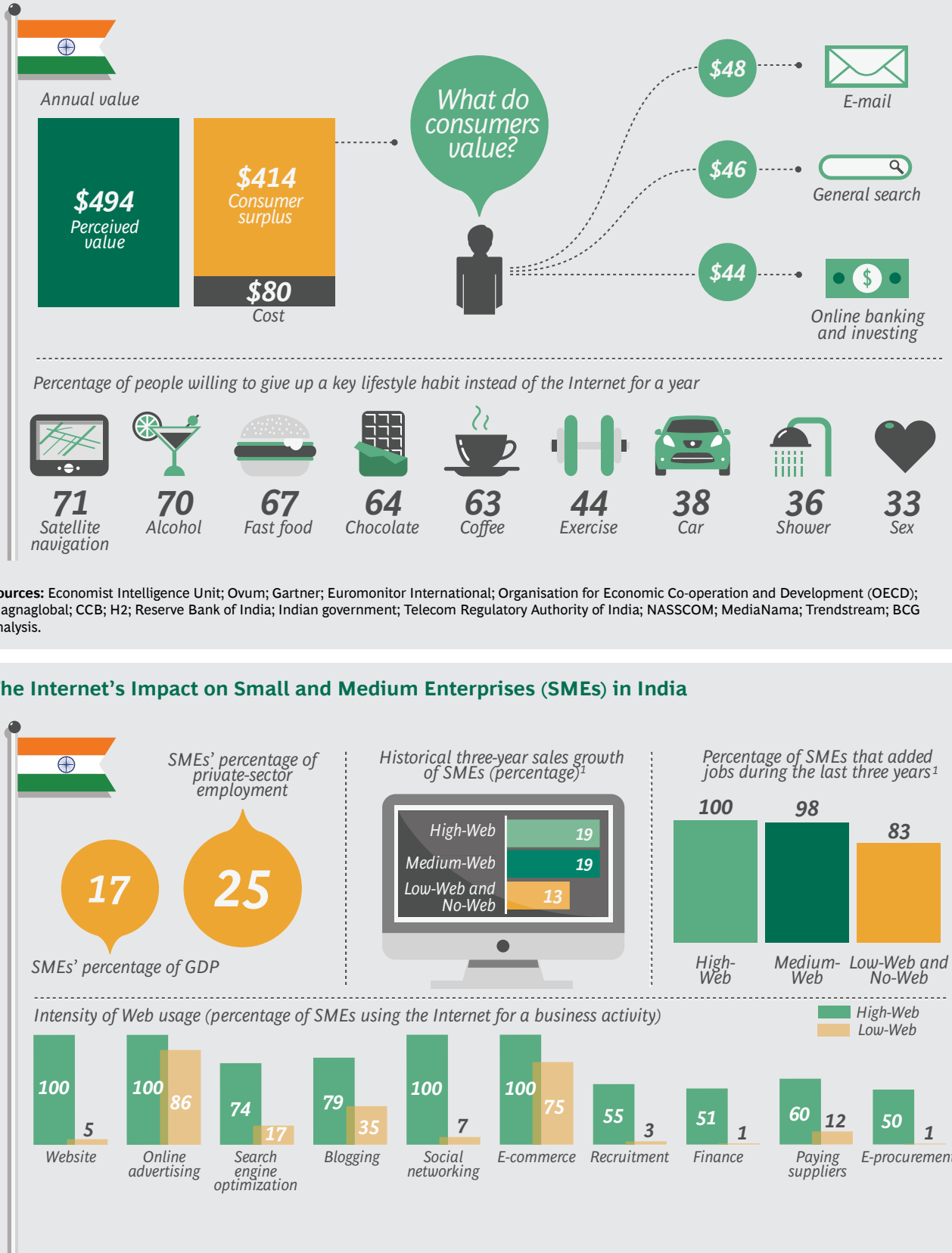
Note: Percentages may not total 100 due to rounding.

India's Consumers Benefit from the Internet



Sources: Economist Intelligence Unit; Ovum; Gartner; Euromonitor International; Organisation for Economic Co-operation and Development (OECD); Magnaglobal; CCB; H2; Reserve Bank of India; Indian government; Telecom Regulatory Authority of India; NASSCOM; MediaNama; Trendstream; BCG analysis.

The Internet's Impact on Small and Medium Enterprises (SMEs) in India

Sources: Economist Intelligence Unit; Ovum; Gartner; Euromonitor International; Organisation for Economic Co-operation and Development (OECD); Magnaglobal; CCB; H2; Reserve Bank of India; Indian government; Telecom Regulatory Authority of India; NASSCOM; MediaNama; Trendstream; BCG analysis.

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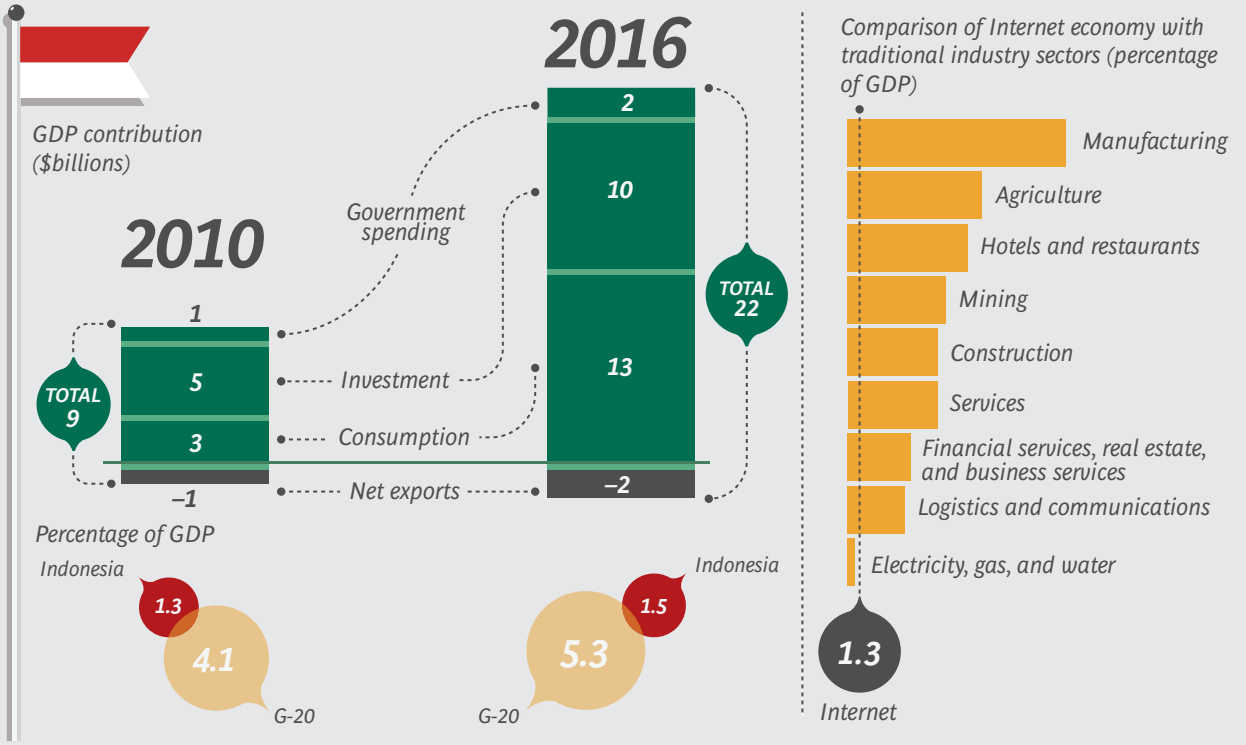
Indonesia's Internet Economy



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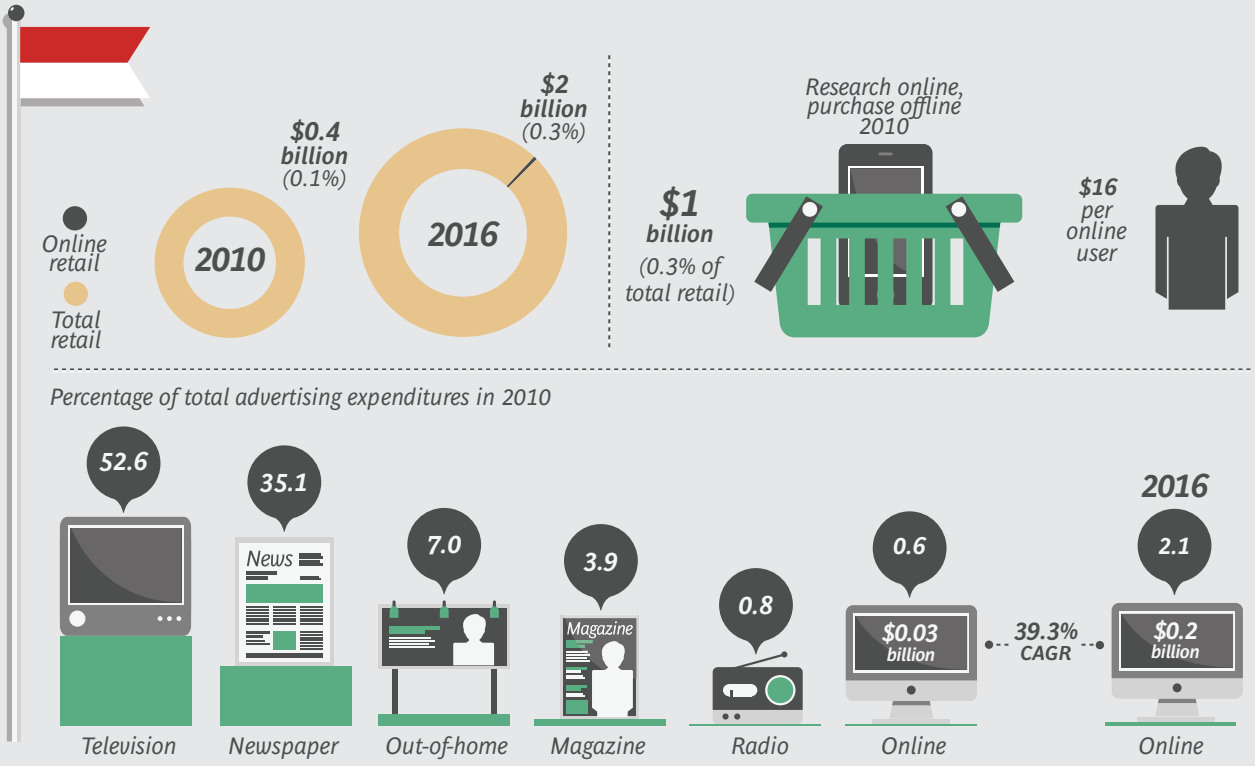
The Internet's Impact on Commerce in Indonesia



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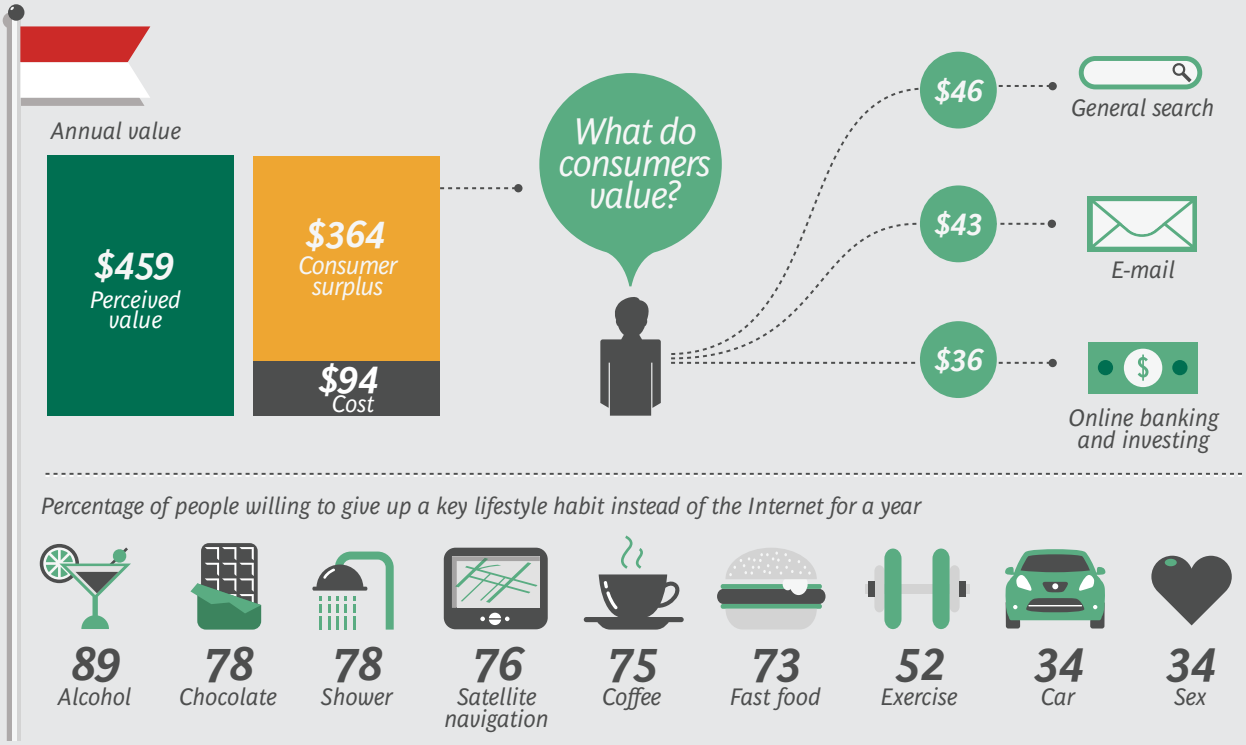
Indonesia's Consumers Benefit from the Internet



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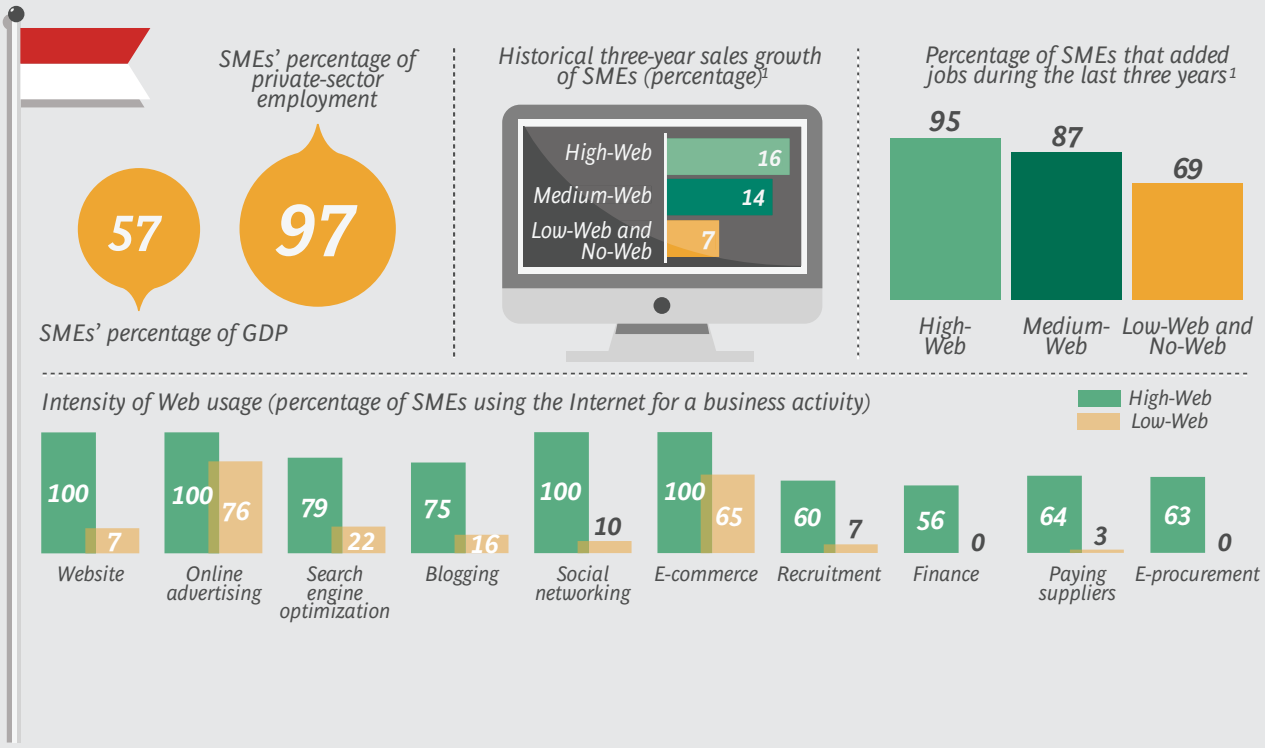
Note: Due to rounding, perceived value does not total consumer surplus plus cost.

The Internet's Impact on Small and Medium Enterprises (SMEs) in Indonesia



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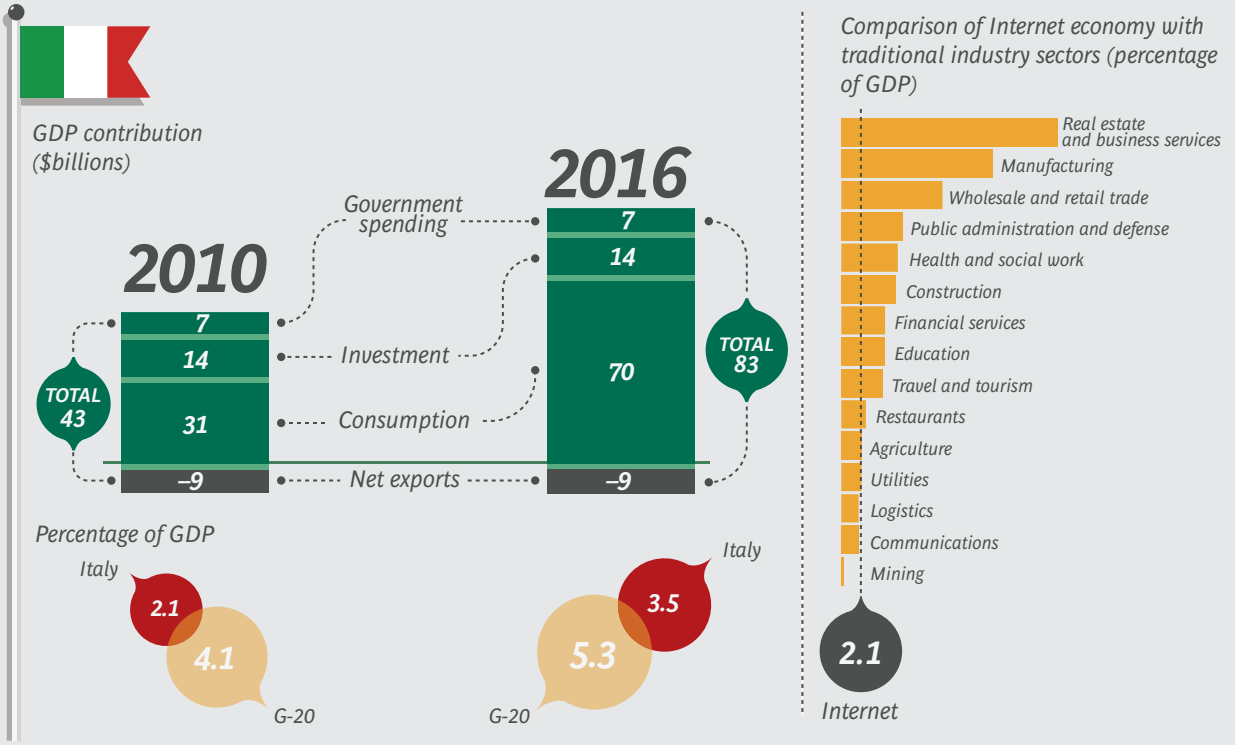
Italy's Internet Economy



Sources: Economist Intelligence Unit; Ovum; Gartner; Euromonitor International; Organisation for Economic Co-operation and Development (OECD); Magnaglobal; CCB; Italian National Institute of Statistics (Istat); Politecnico di Milano (Polimi); Confindustria; Forrester Research; company reports; Assinform; BCG analysis.
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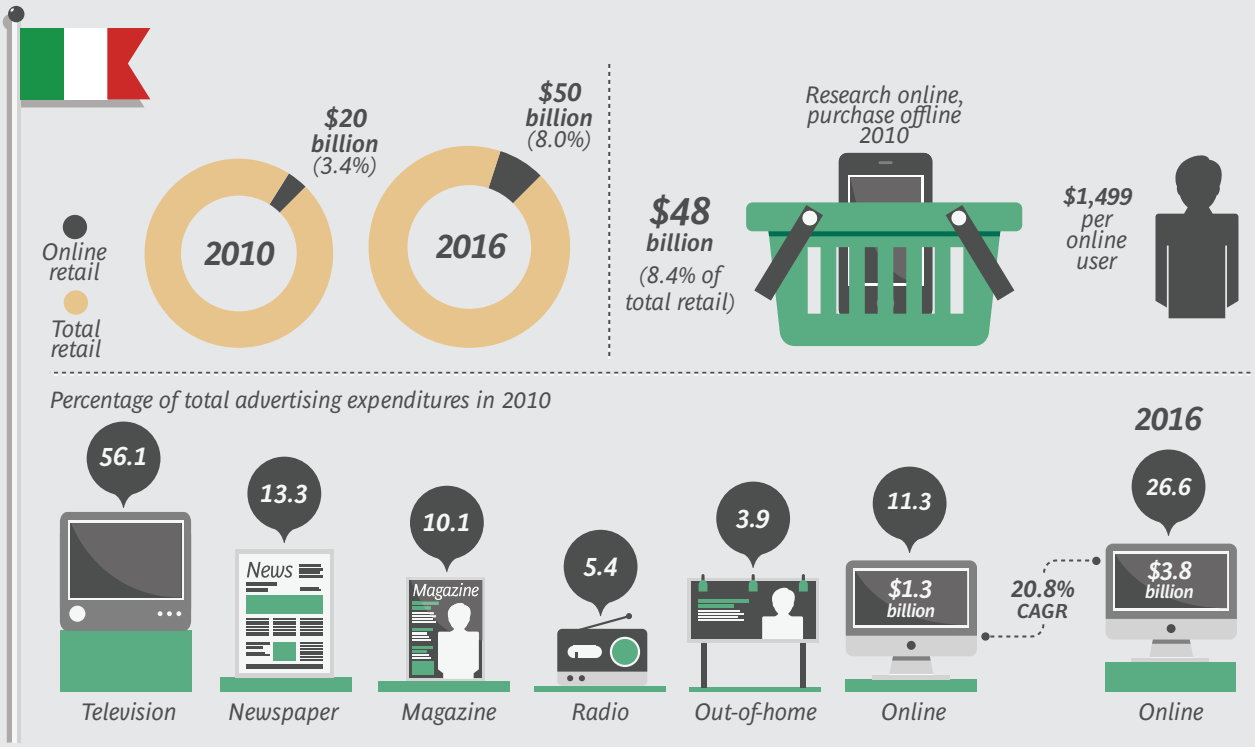
The Internet's Impact on Commerce in Italy



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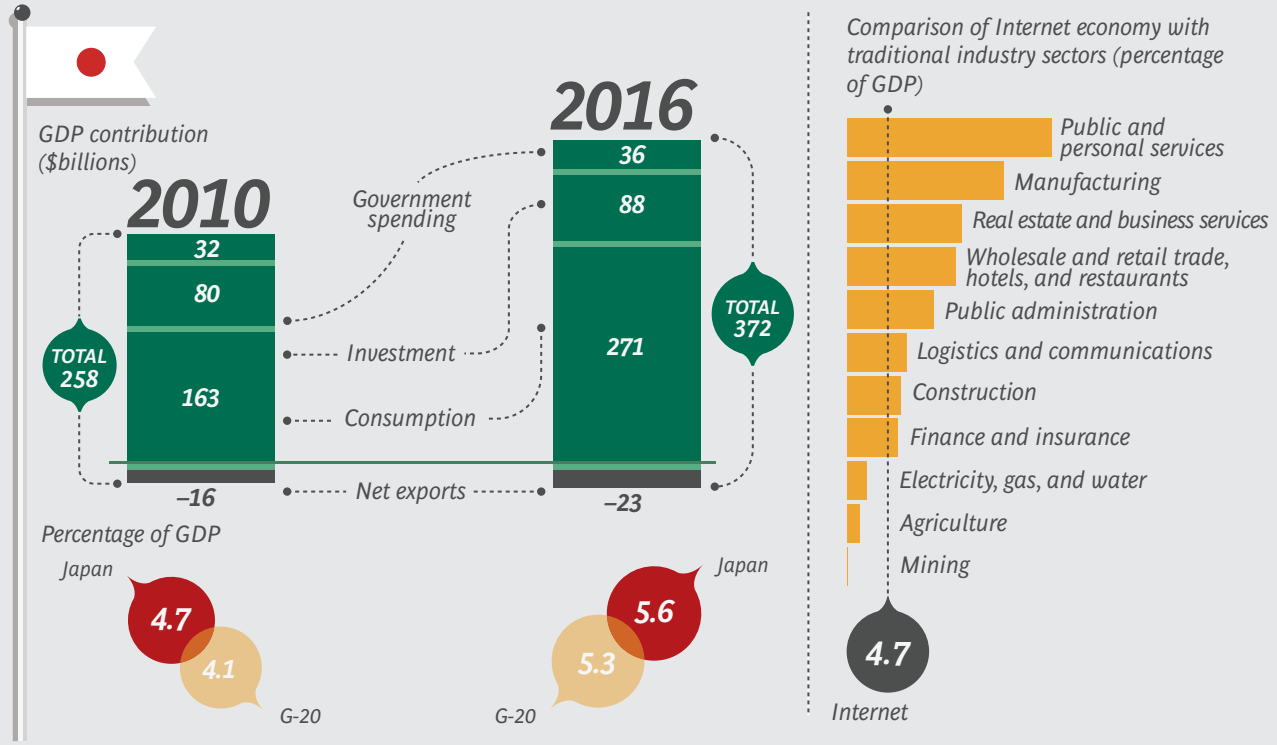
Japan's Internet Economy



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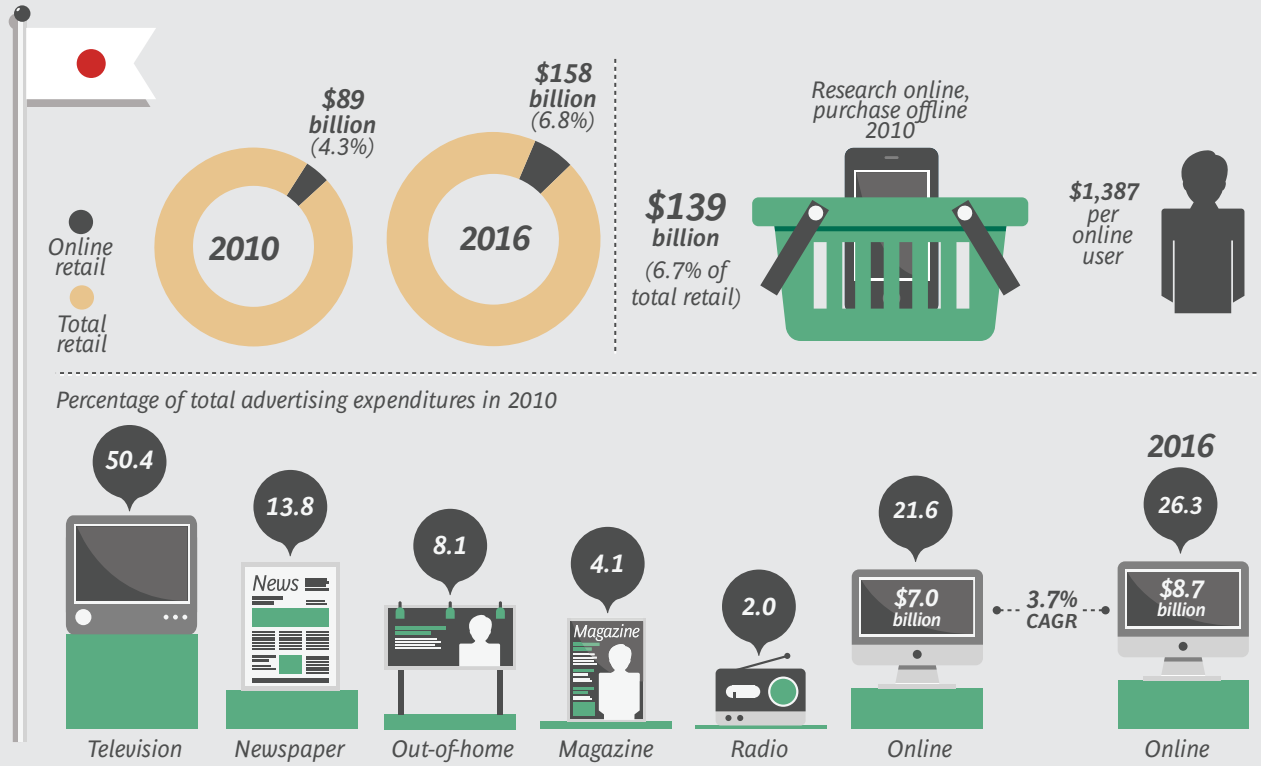
The Internet's Impact on Commerce in Japan



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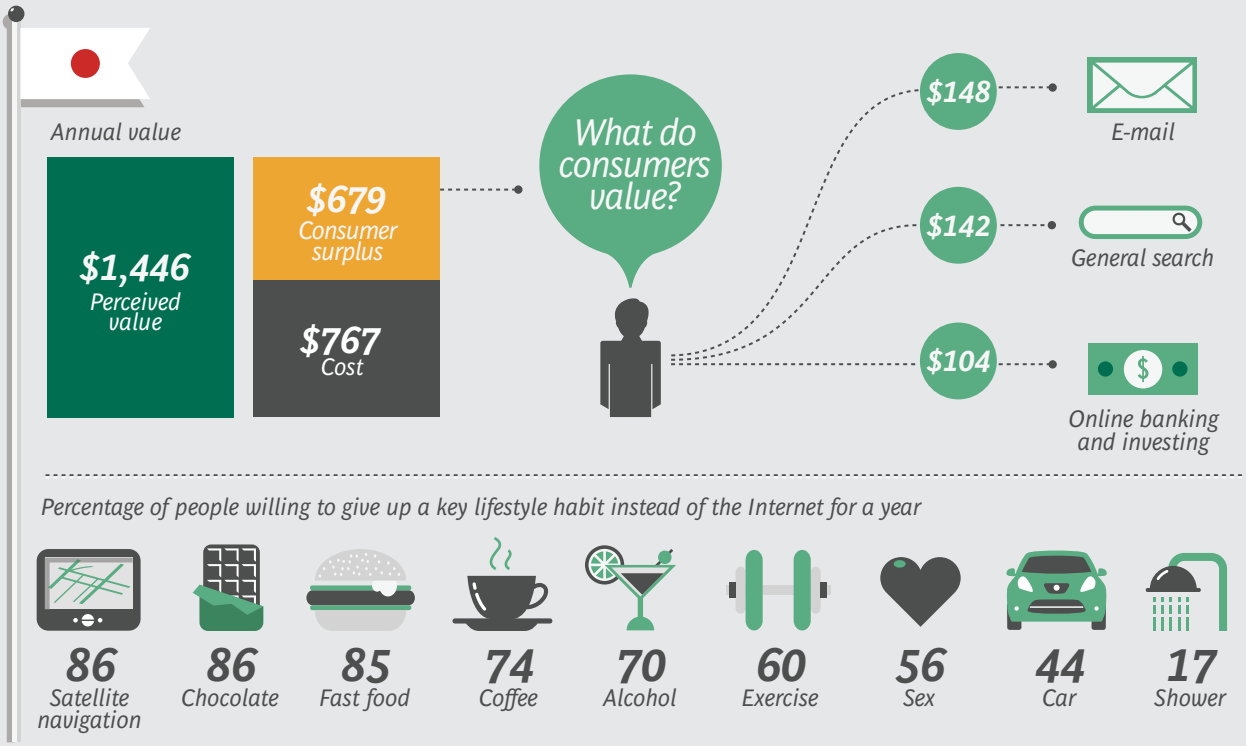
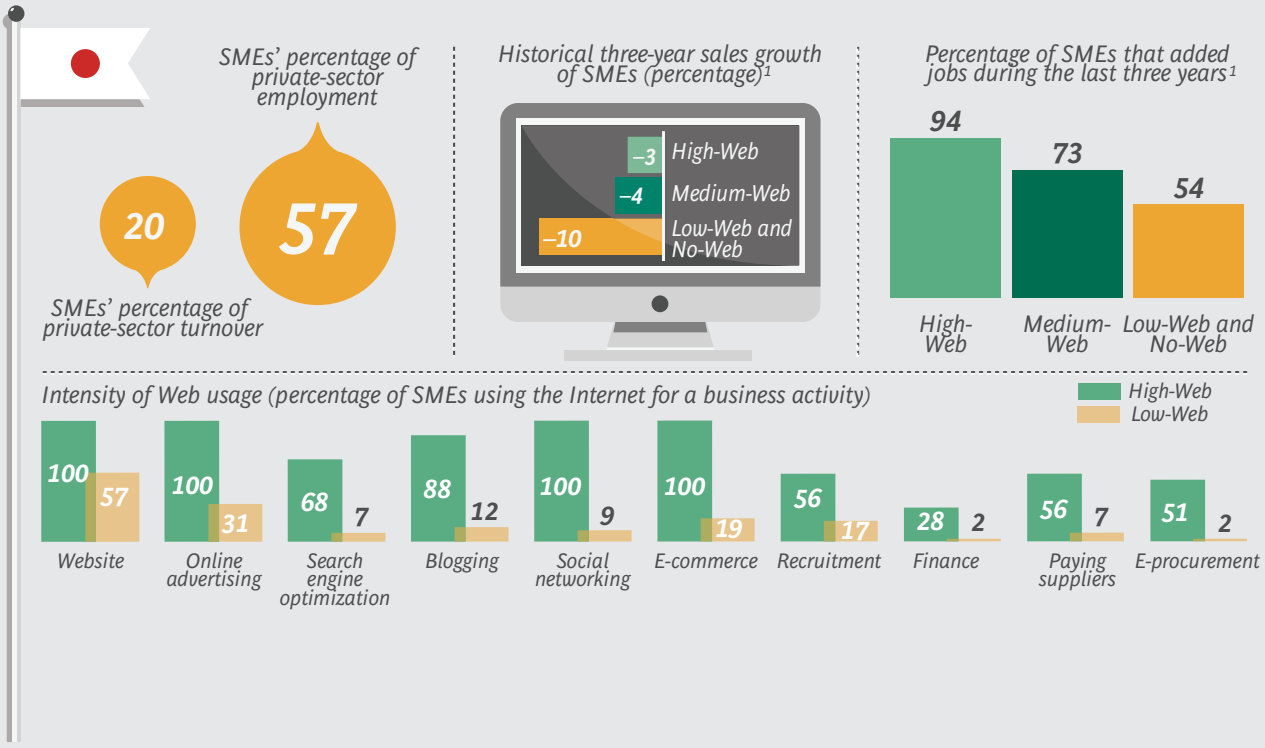
Japan's Consumers Benefit from the Internet



Sources: Economist Intelligence Unit; Ovum; Gartner; Euromonitor International; Organisation for Economic Co-operation and Development (OECD); Magnaglobal; CCB; Japanese government; IDC; FCR; Nomura Research Institute; Nielson; Japan External Trade Organization (JETRO); Dentsu; BCG analysis.

The Internet's Impact on Small and Medium Enterprises (SMEs) in Japan



Sources: Economist Intelligence Unit; Ovum; Gartner; Euromonitor International; Organisation for Economic Co-operation and Development (OECD); Magnaglobal; CCB; Japanese government; IDC; FCR; Nomura Research Institute; Nielson; Japan External Trade Organization (JETRO); Dentsu; BCG analysis.
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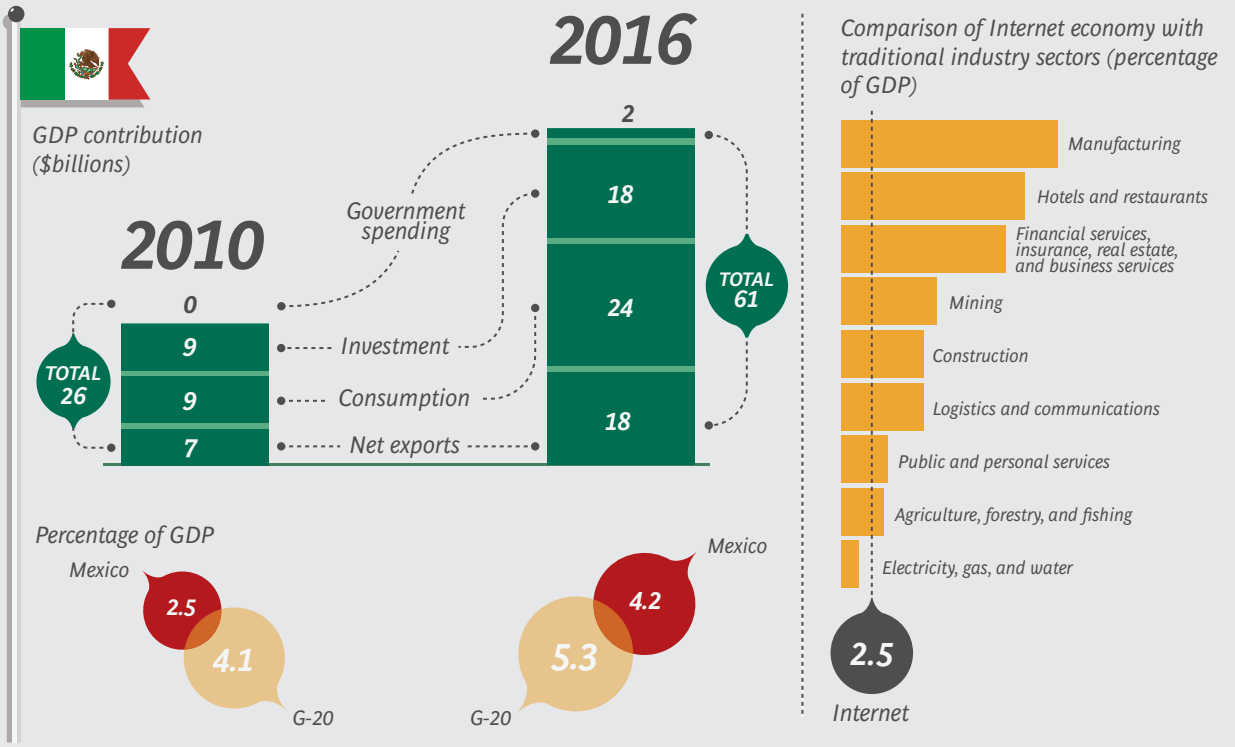
Mexico's Internet Economy



Sources: Economist Intelligence Unit; Ovum; Gartner; Euromonitor International; Organisation for Economic Co-operation and Development (OECD); Magnaglobal; CCB; Banco de México; INEGI; company reports; BCG analysis.
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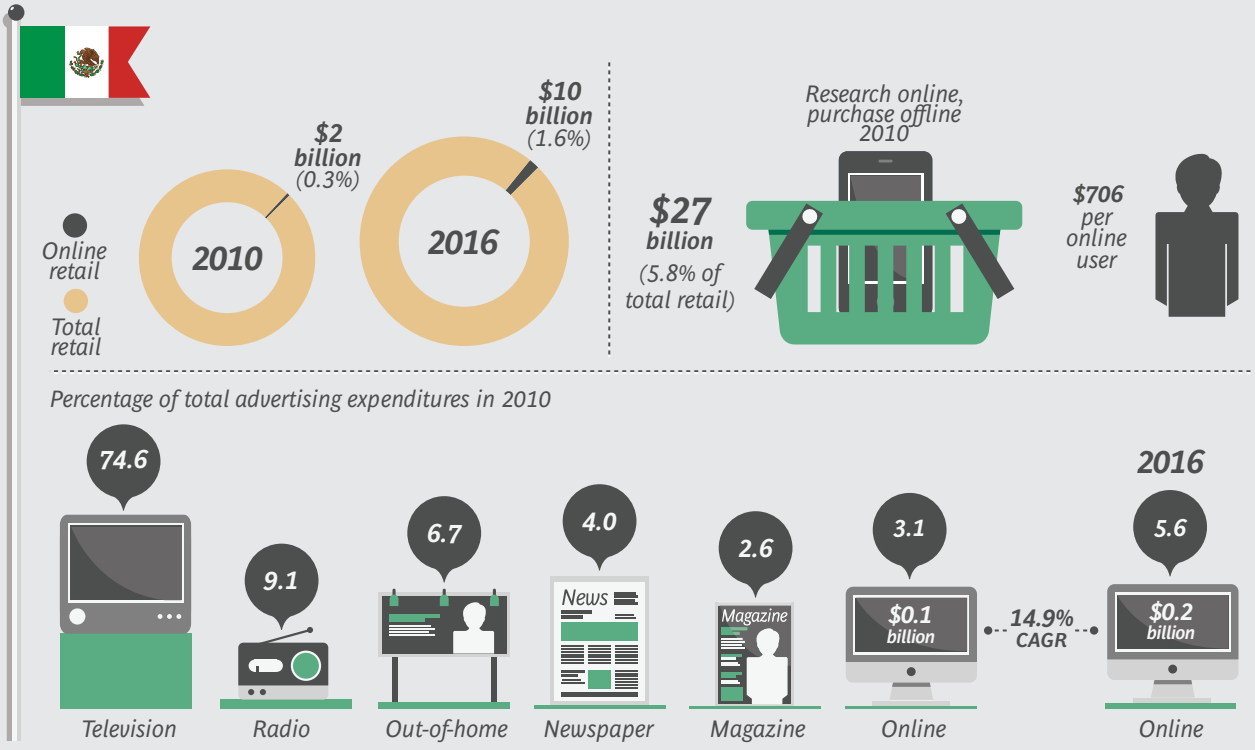
The Internet's Impact on Commerce in Mexico



Sources: Economist Intelligence Unit; Ovum; Gartner; Euromonitor International; Organisation for Economic Co-operation and Development (OECD); Magnaglobal; CCB; Banco de México; INEGI; company reports; BCG analysis.
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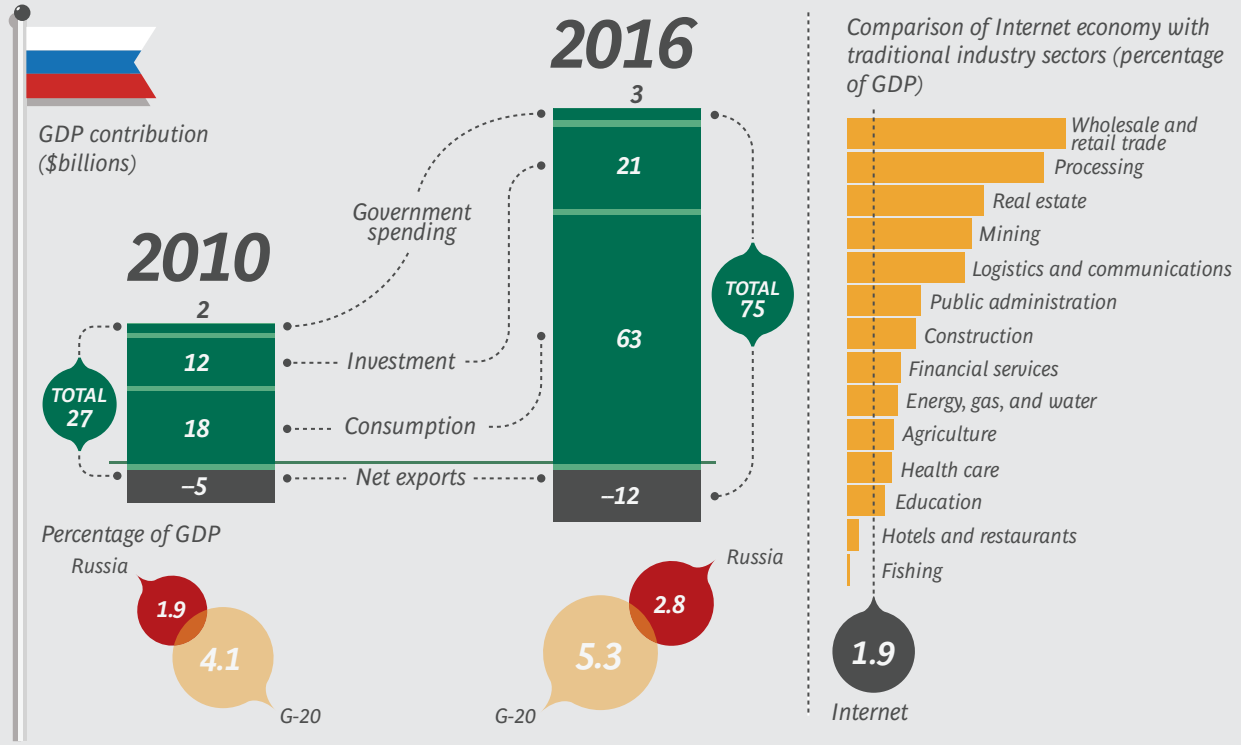
Russia's Internet Economy



Sources: Economist Intelligence Unit (EIU); Ovum; Gartner; Euromonitor International; Organisation for Economic Co-operation and Development (OECD); Magnaglobal; CCB; Central Control Directorate (GKU); ITU; Datamonitor; HSE; InSales; IDC; TNS; company reports; BCG analysis.
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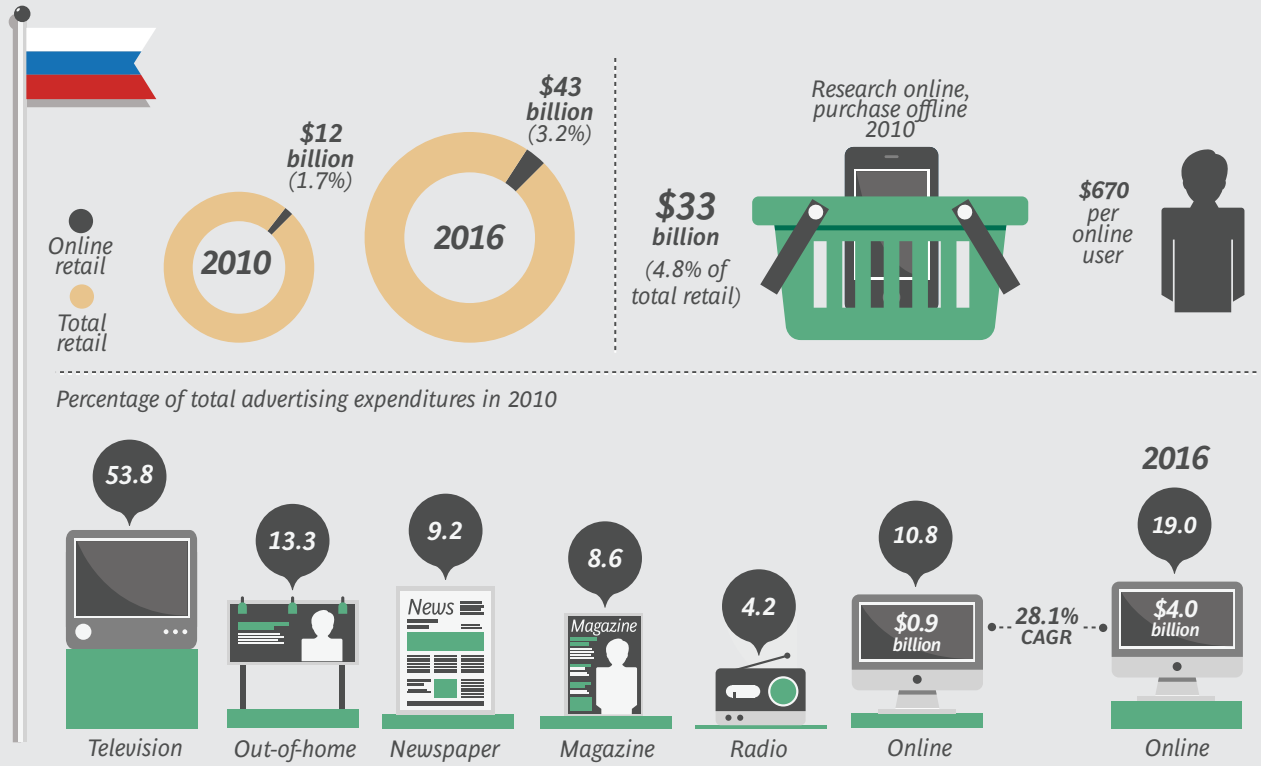
The Internet's Impact on Commerce in Russia



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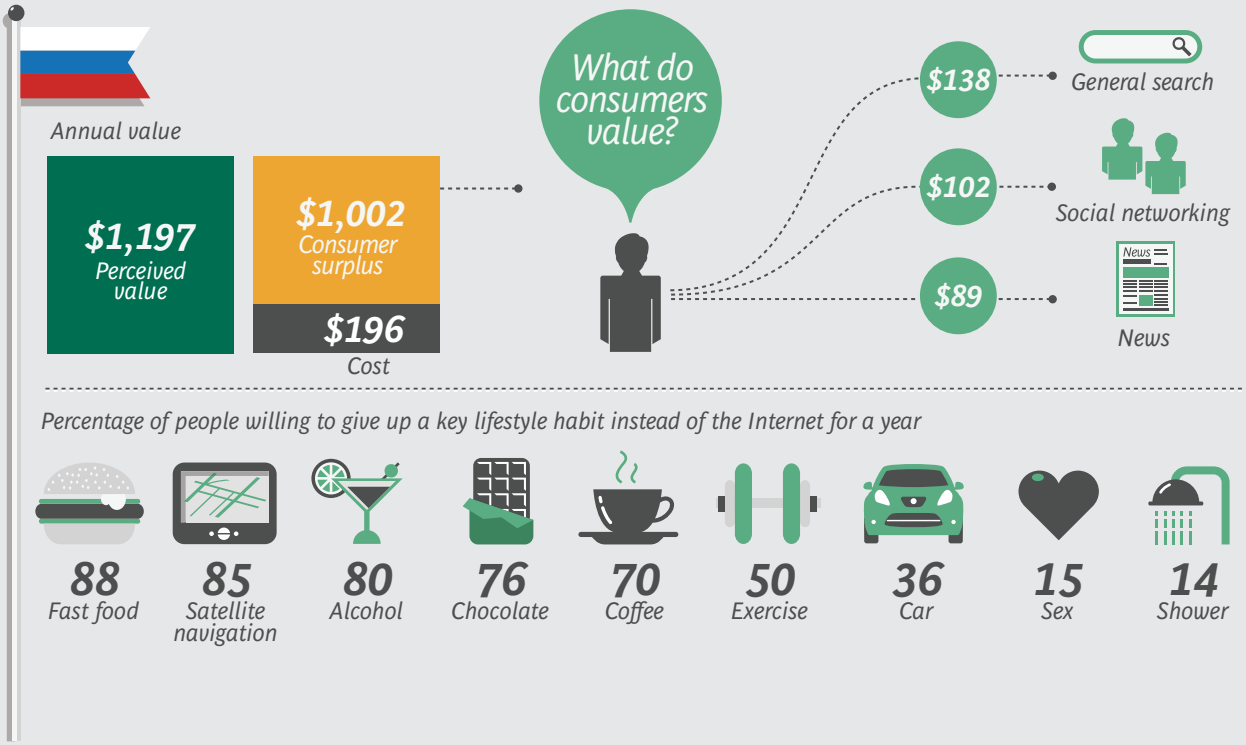
Russia's Consumers Benefit from the Internet



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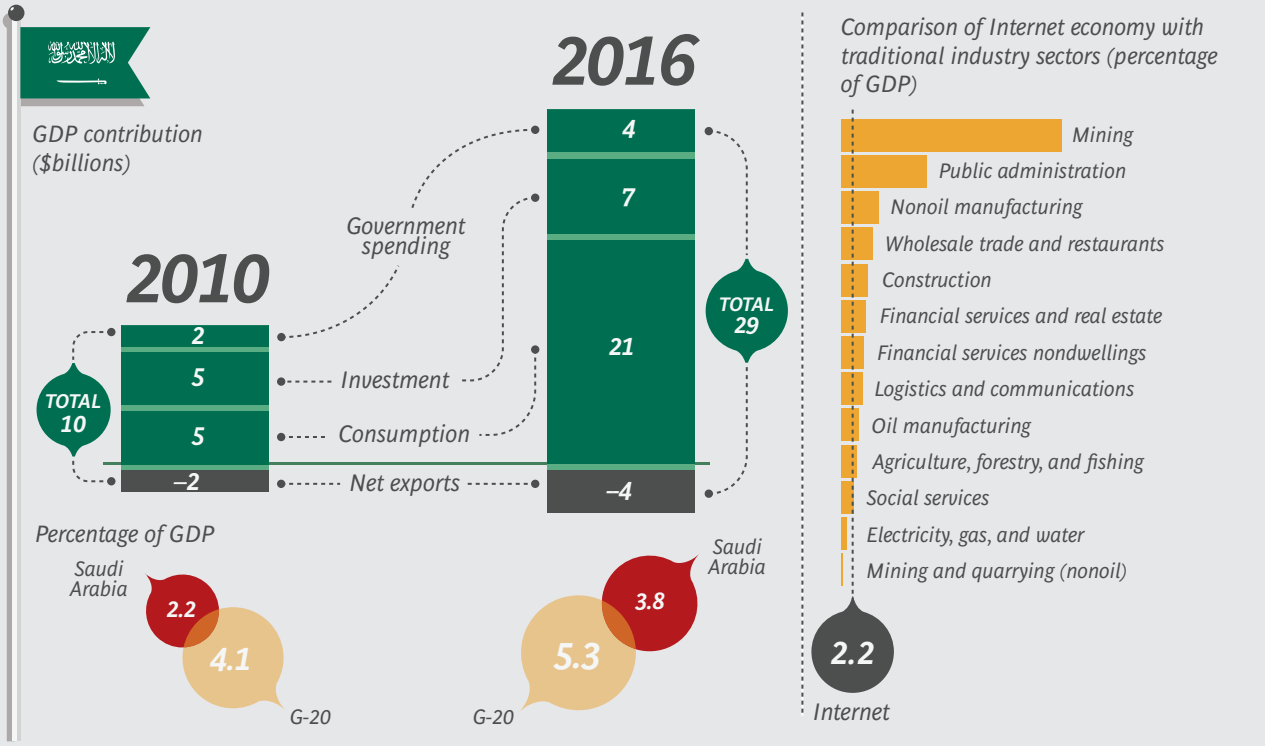
Saudi Arabia's Internet Economy



Sources: Economist Intelligence Unit; Ovum; Gartner; Euromonitor International; Organisation for Economic Co-operation and Development (OECD); CCB; Saudi Arabia Central Department of Statistics and Information; Arab Advisors Group; Pyramid Research; IEMR; company reports; World Bank; BCG analysis.
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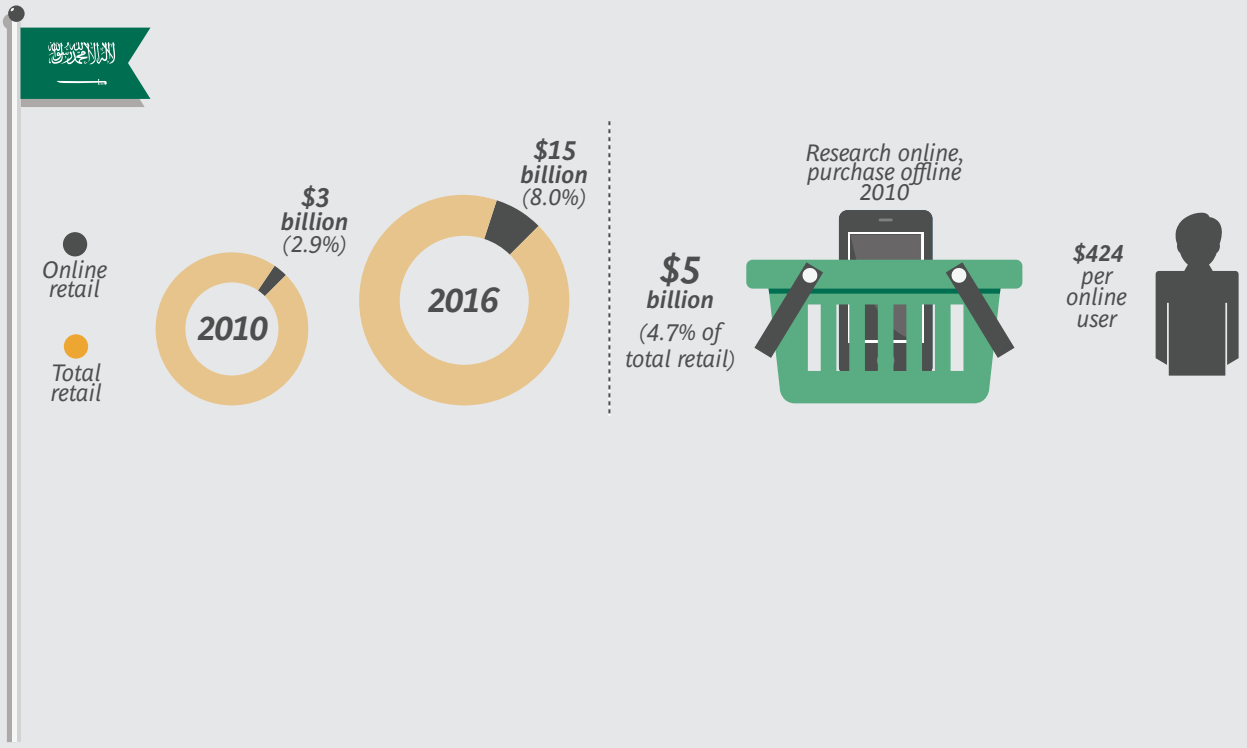
The Internet's Impact on Commerce in Saudi Arabia



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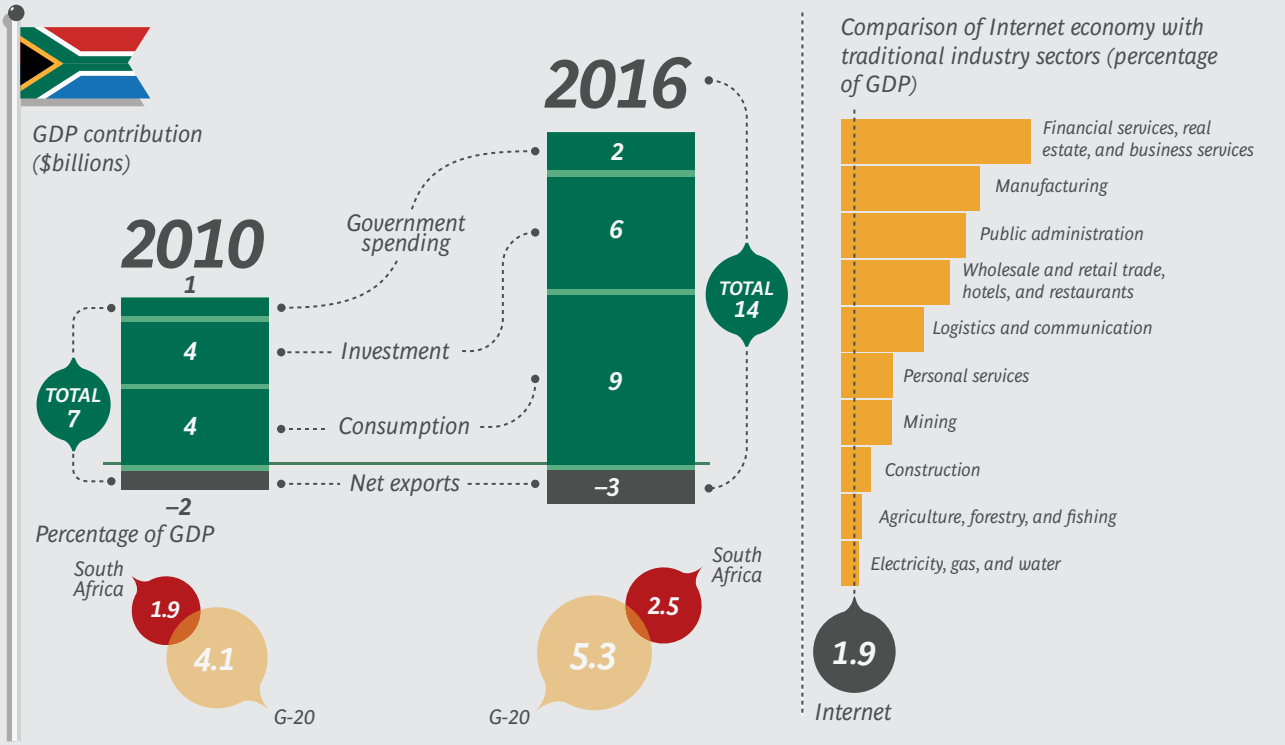
South Africa's Internet Economy



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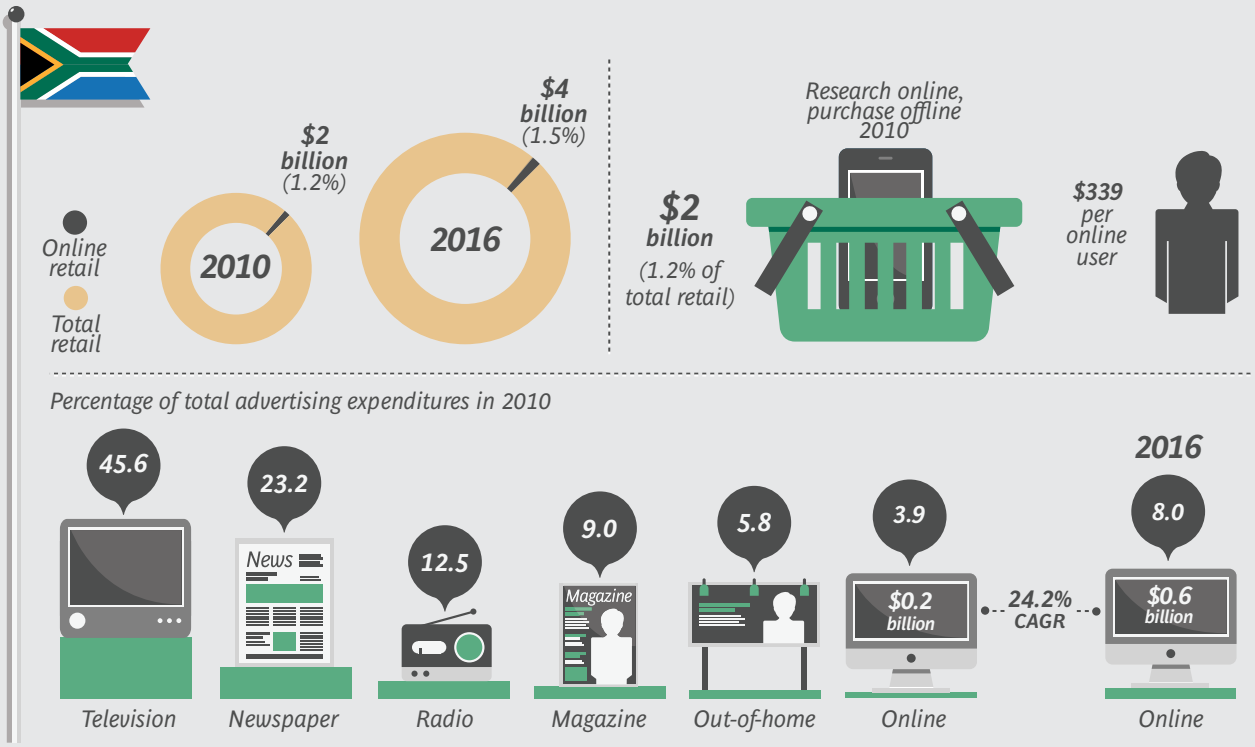
The Internet's Impact on Commerce in South Africa



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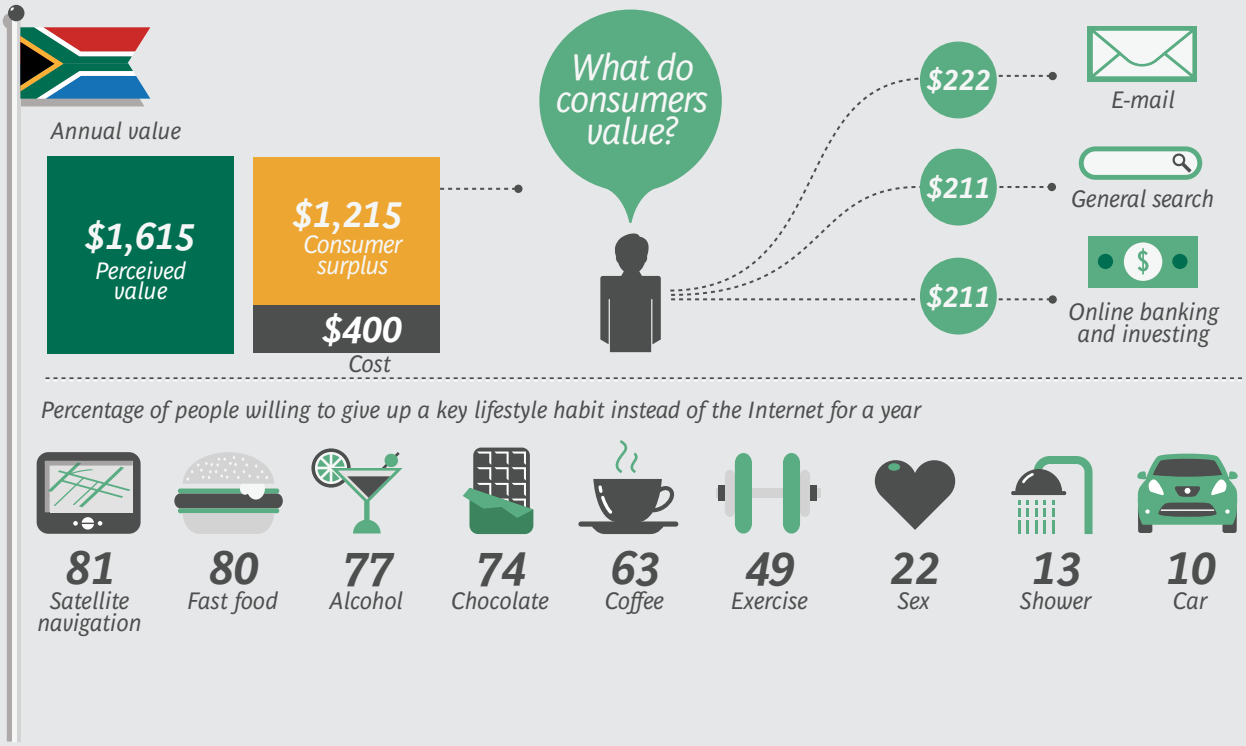
South Africa's Consumers Benefit from the Internet



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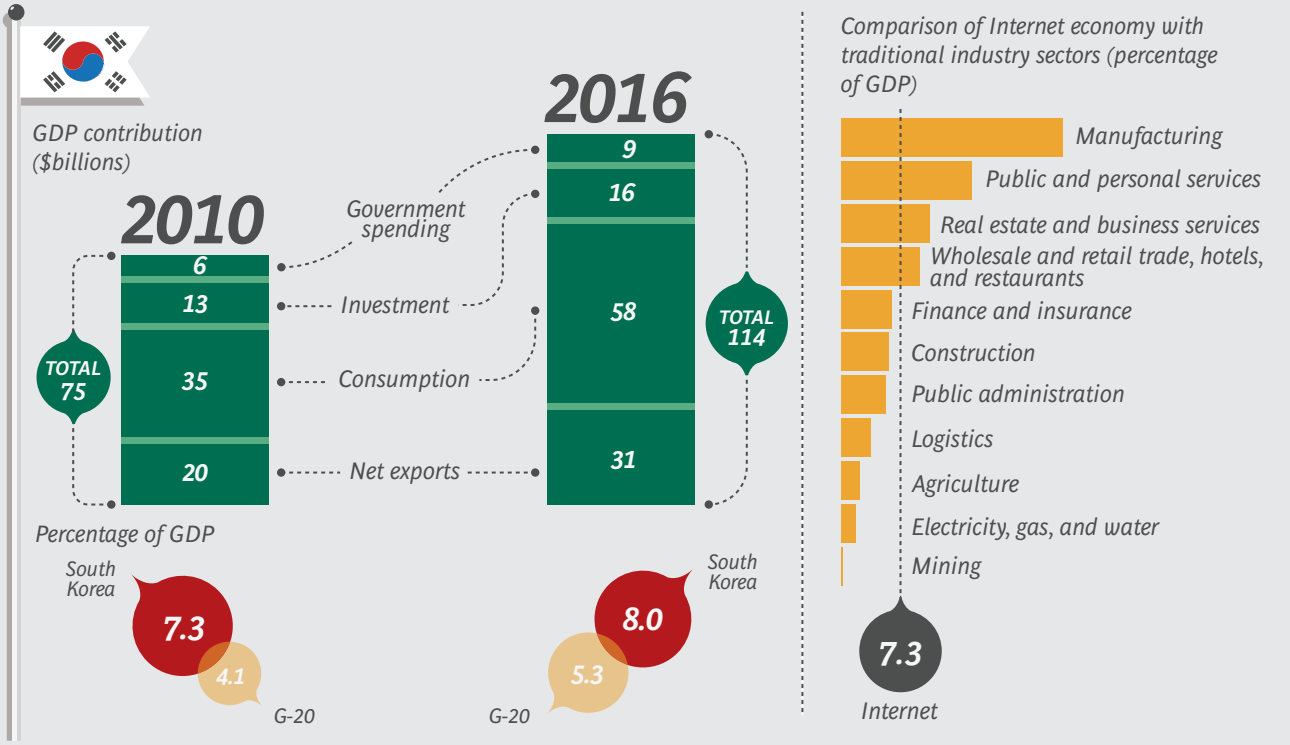
South Korea's Internet Economy



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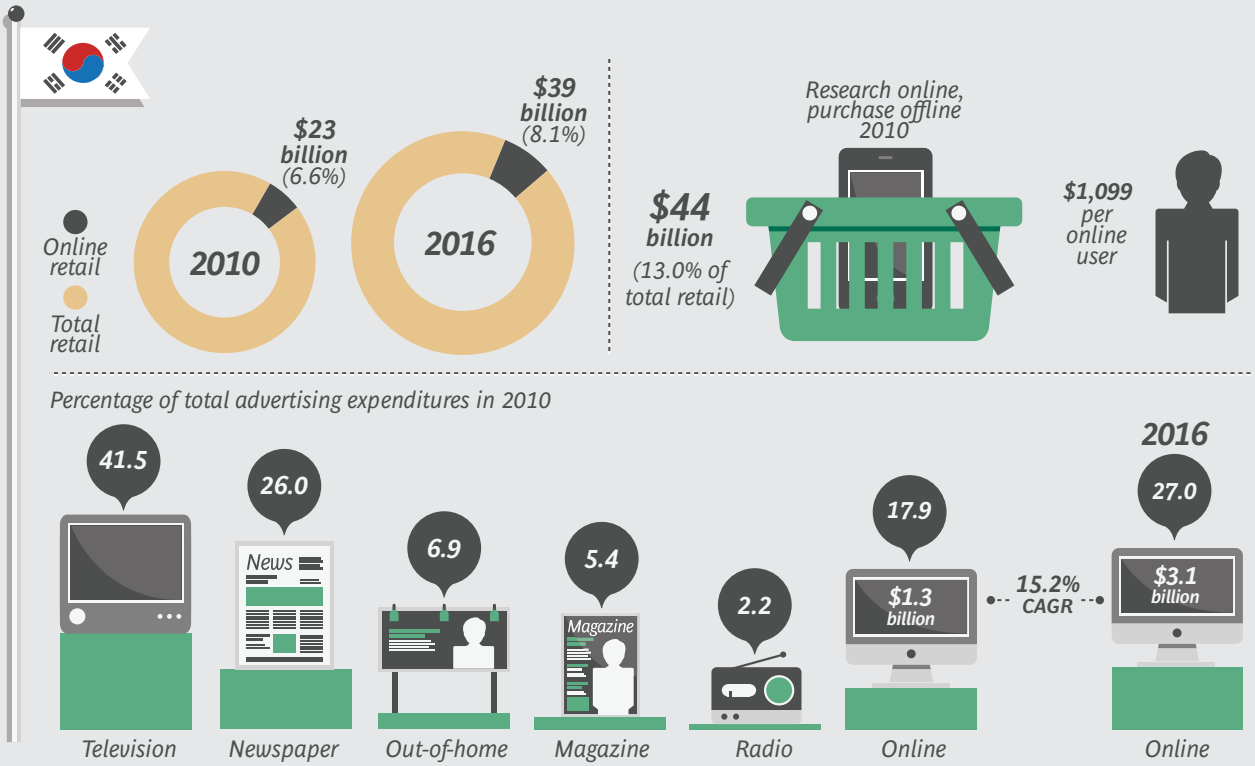
The Internet's Impact on Commerce in South Korea



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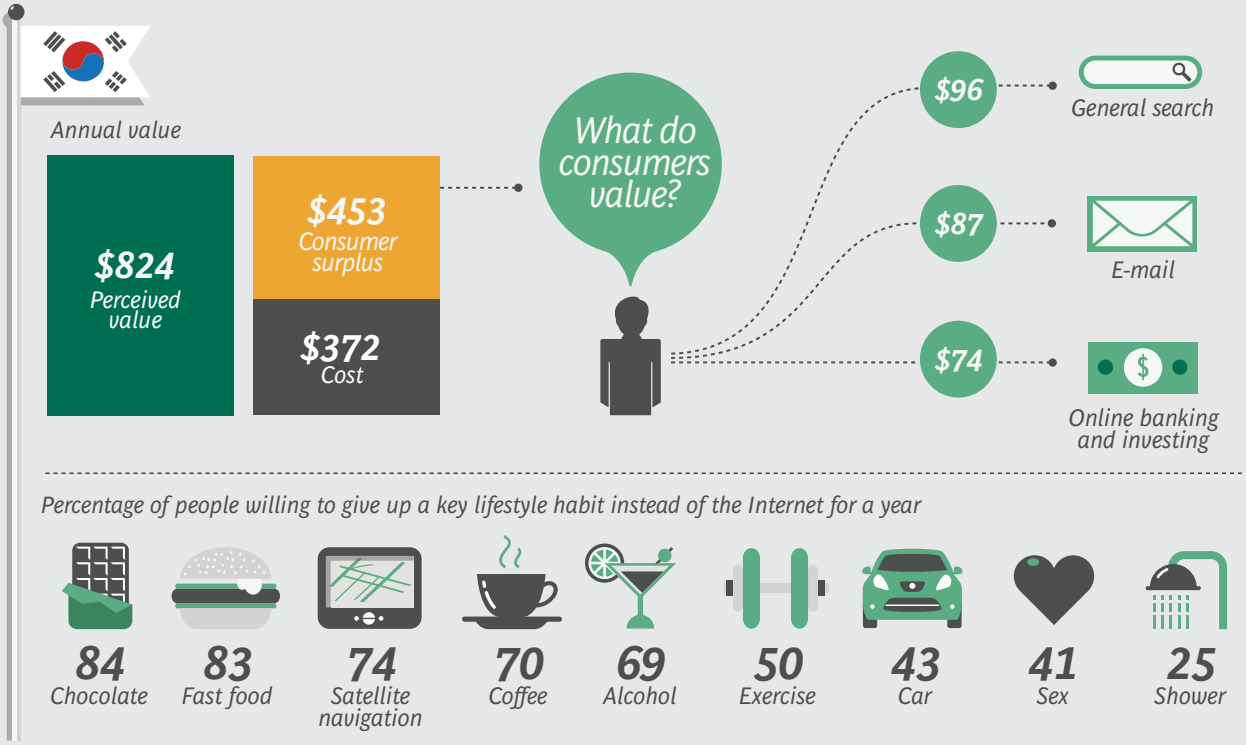
South Korea's Consumers Benefit from the Internet



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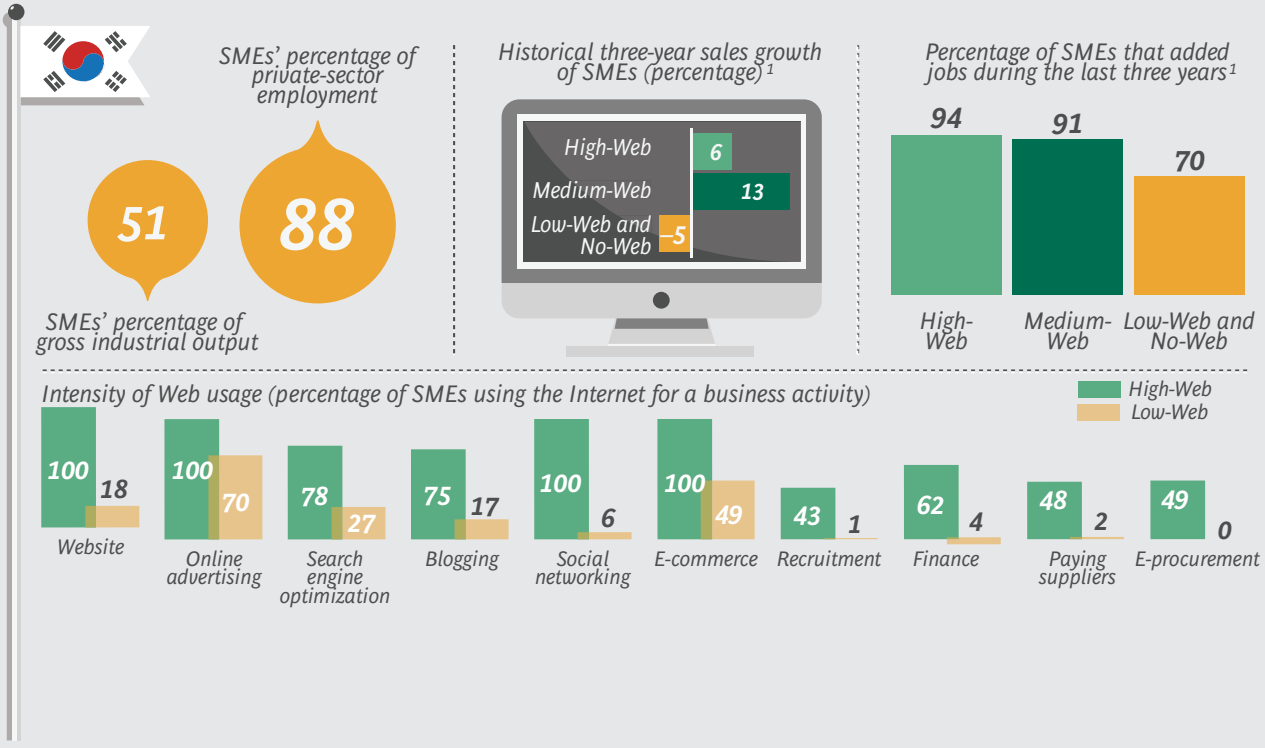
The Internet's Impact on Small and Medium Enterprises (SMEs) in South Korea



Sources: Economist Intelligence Unit; Ovum; Gartner; Euromonitor International; Organisation for Economic Co-operation and Development (OECD); Magnaglobal; CCB; Korea National Statistics Office; IE Market Research; Bank of Korea; Korea Internet Security Agency (KISA); company reports; BCG analysis.
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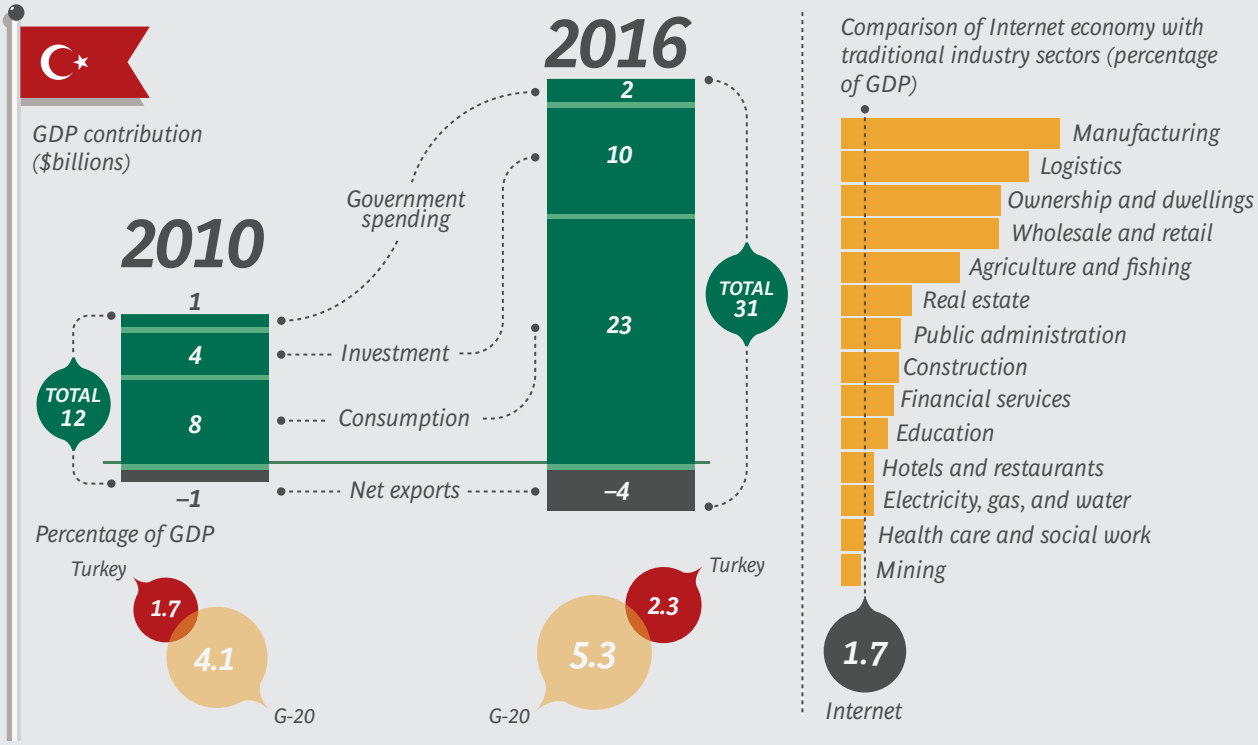
Turkey's Internet Economy



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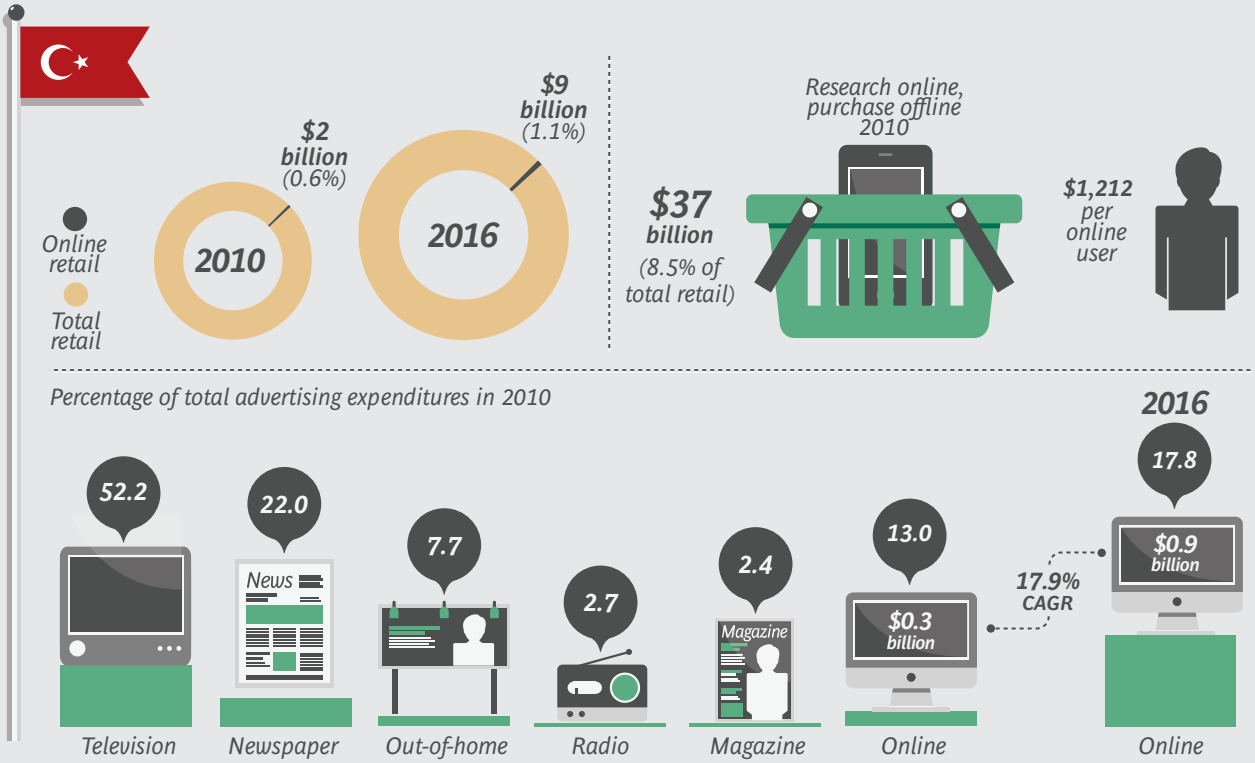
The Internet's Impact on Commerce in Turkey



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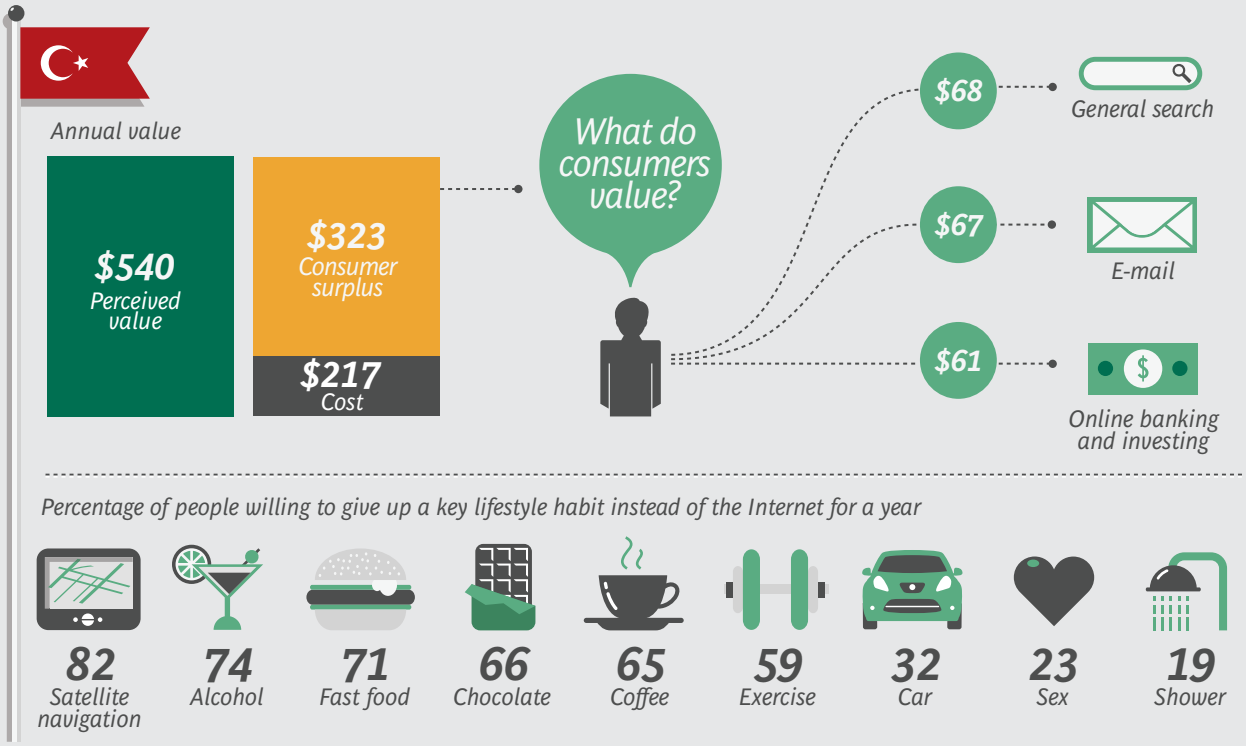
Turkey's Consumers Benefit from the Internet



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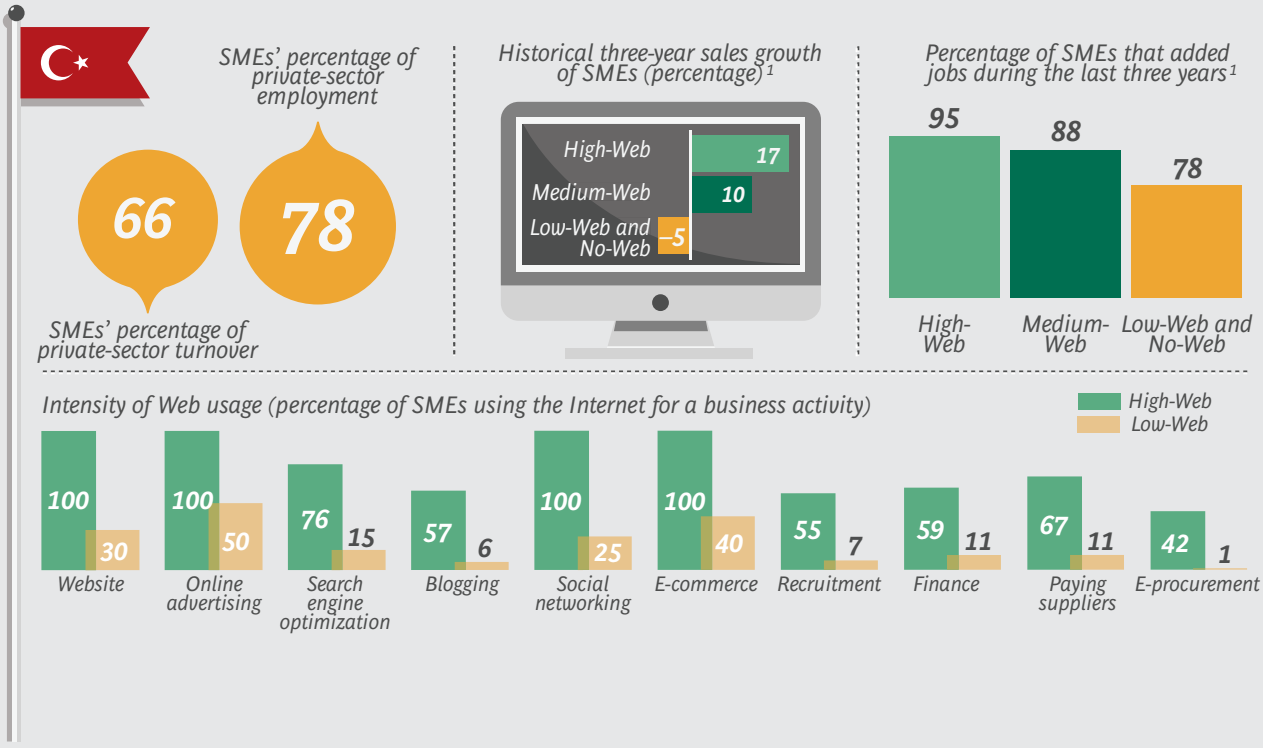
The Internet's Impact on Small and Medium Enterprises (SMEs) in Turkey



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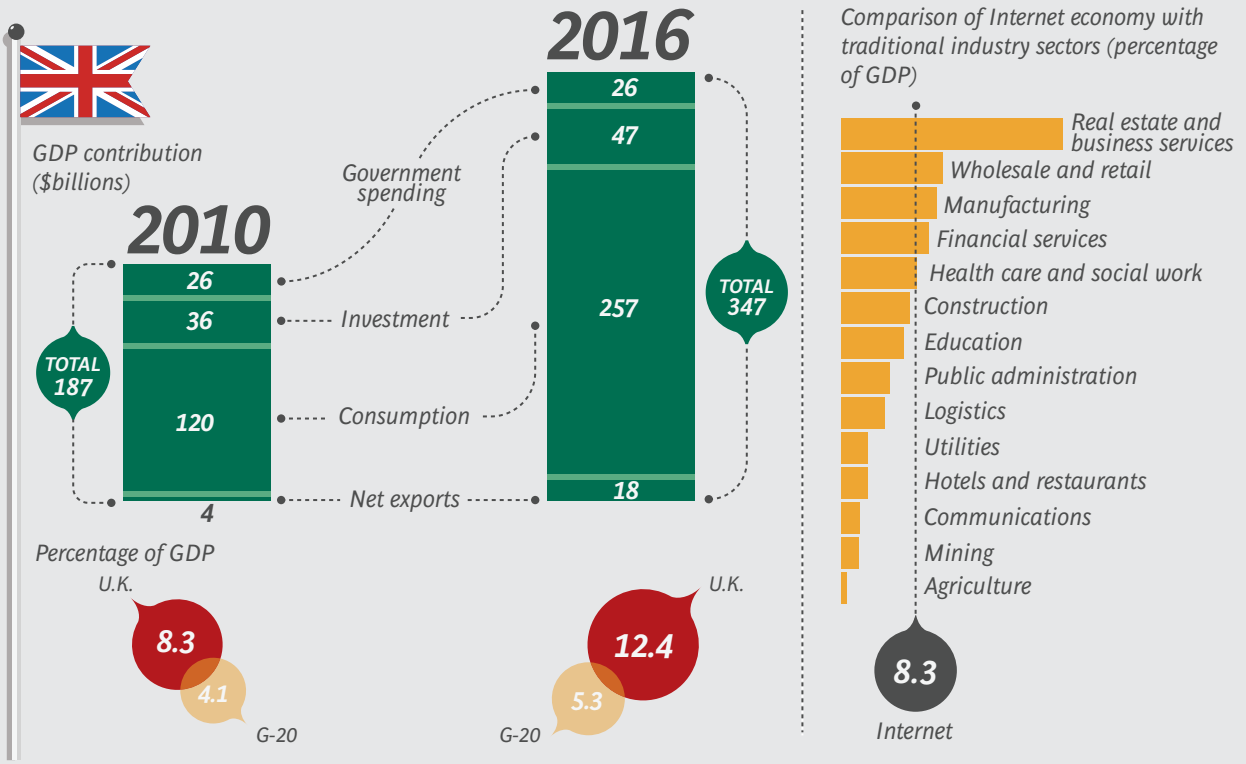
The U.K. Internet Economy



Sources: Economist Intelligence Unit; Ovum; Gartner; Euromonitor International; Eurostat; Organisation for Economic Co-operation and Development (OECD); Magnaglobal; CCB; U.K. Office for National Statistics (ONS); H2; IMRG; IDC; GfK; IE Market Research; BCG analysis.
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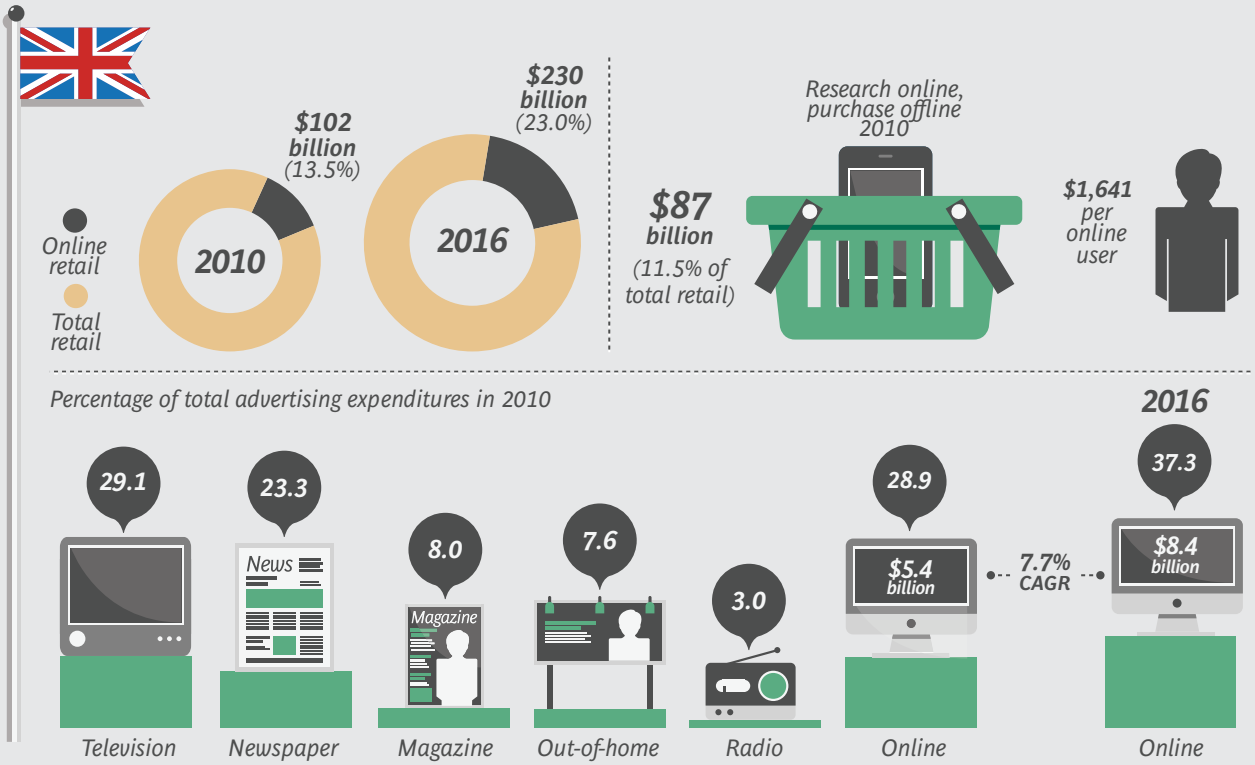
The Internet's Impact on Commerce in the U.K.



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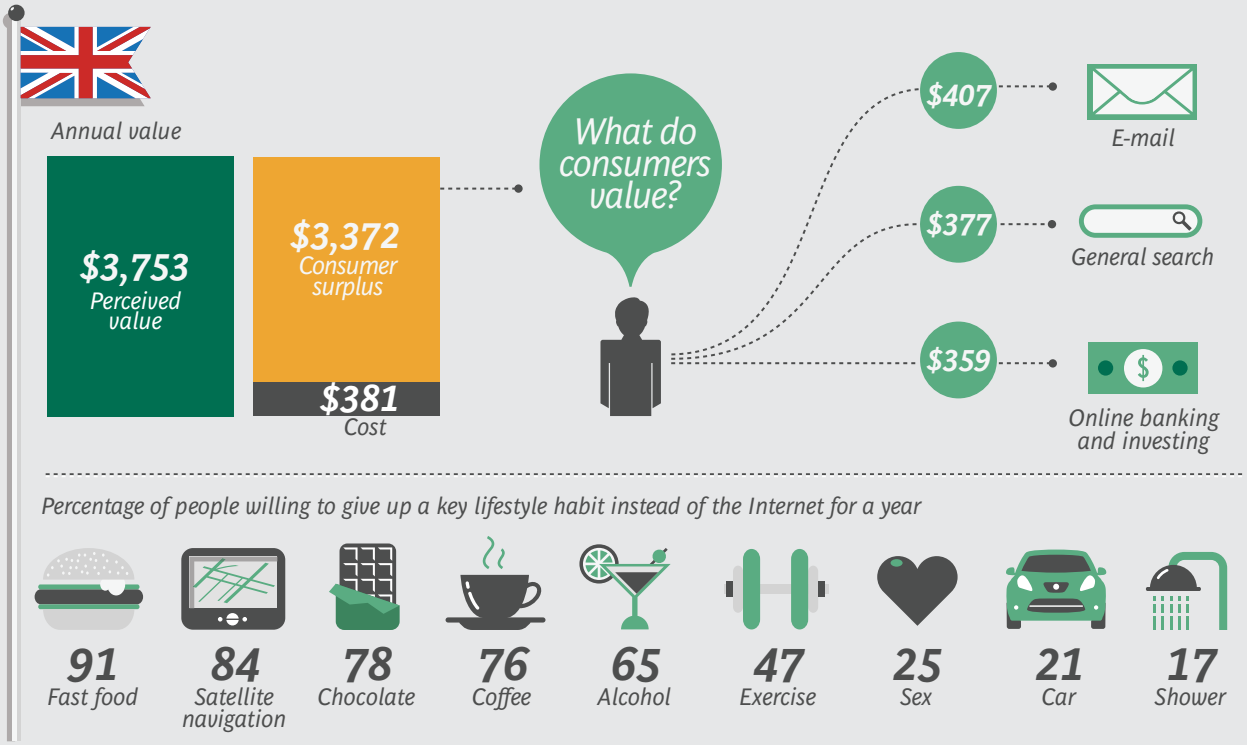
U.K. Consumers Benefit from the Internet



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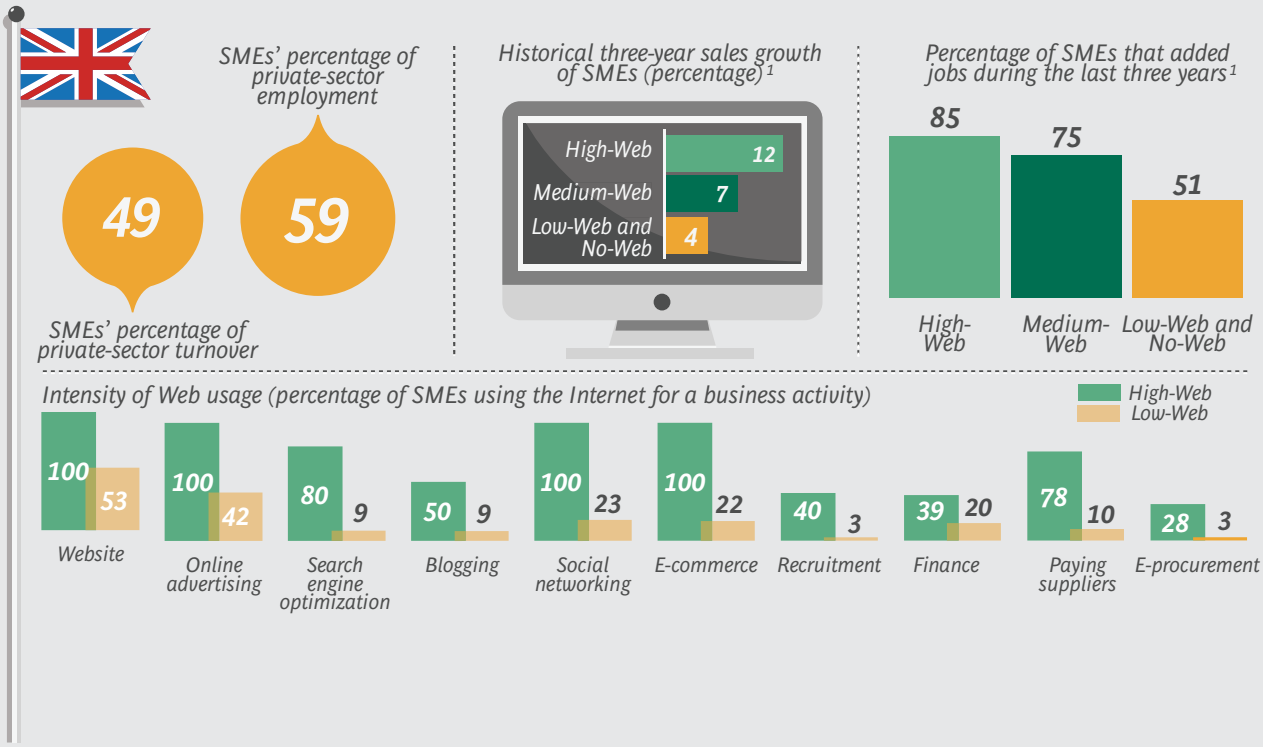
The Internet's Impact on Small and Medium Enterprises (SMEs) in the U.K.



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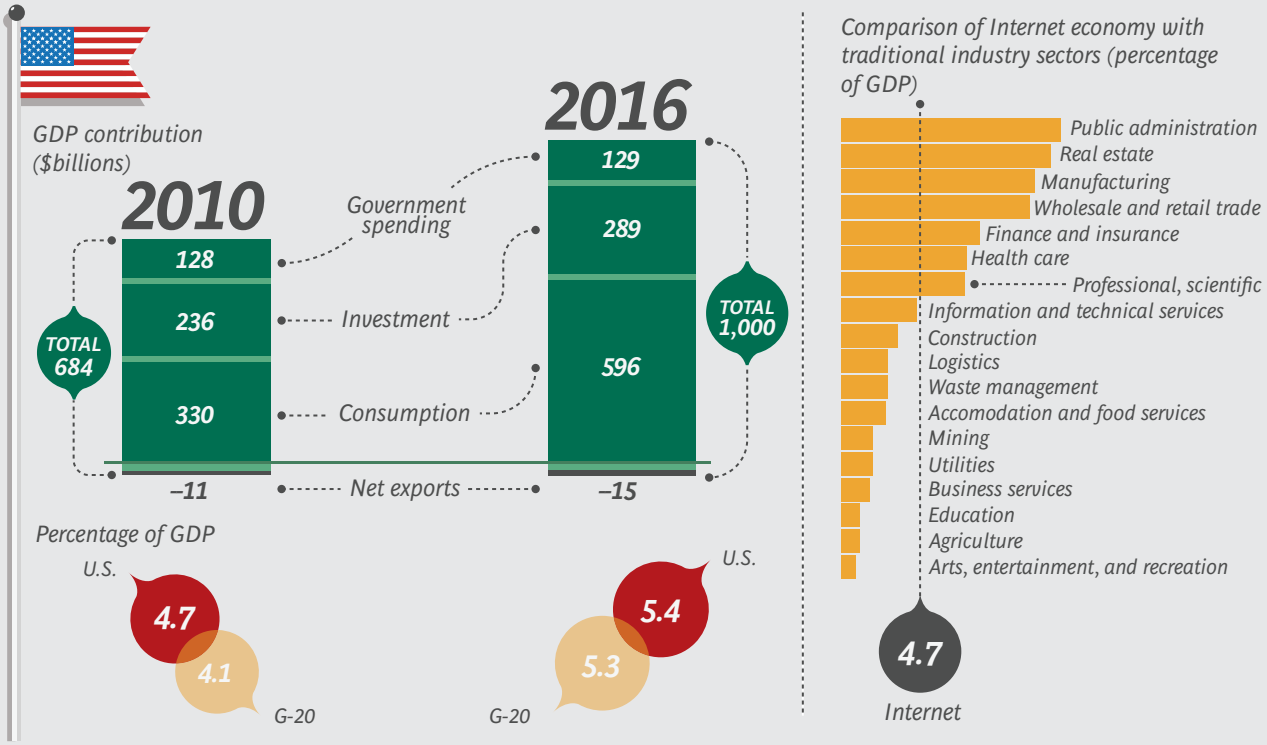
The U.S. Internet Economy



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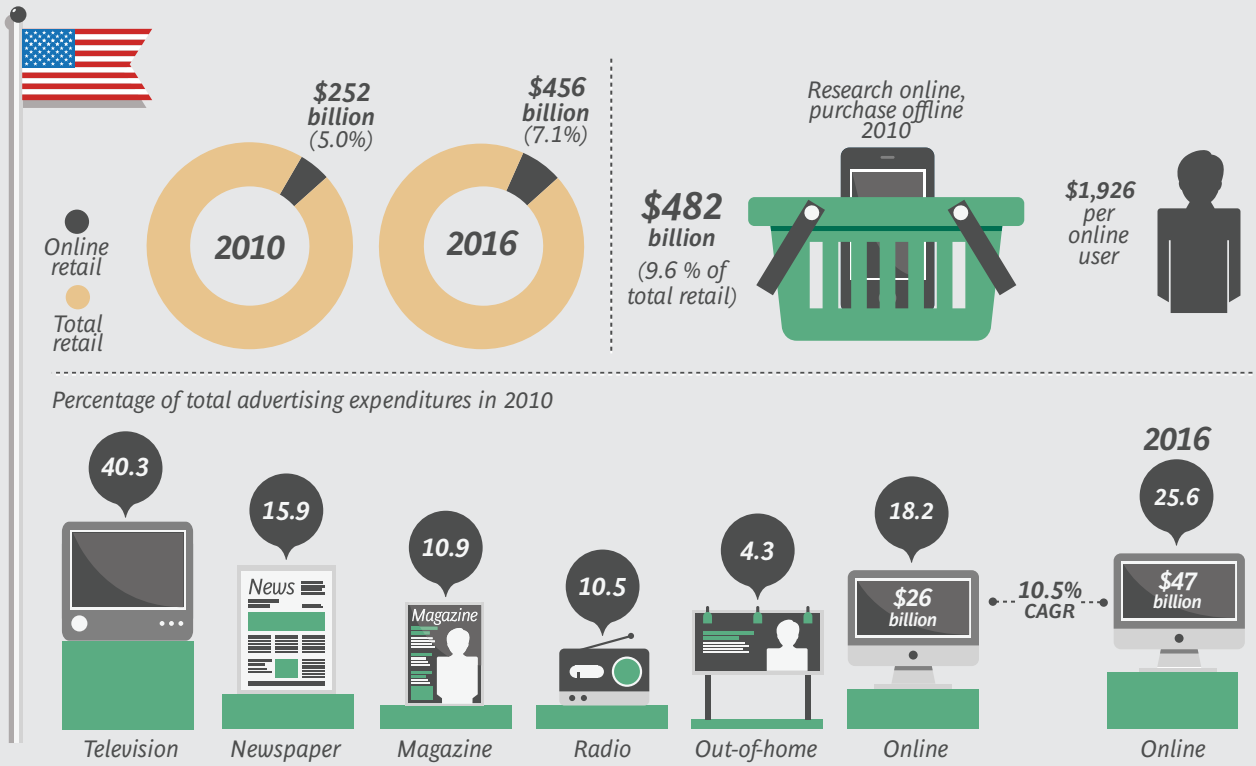
The Internet's Impact on Commerce in the U.S.



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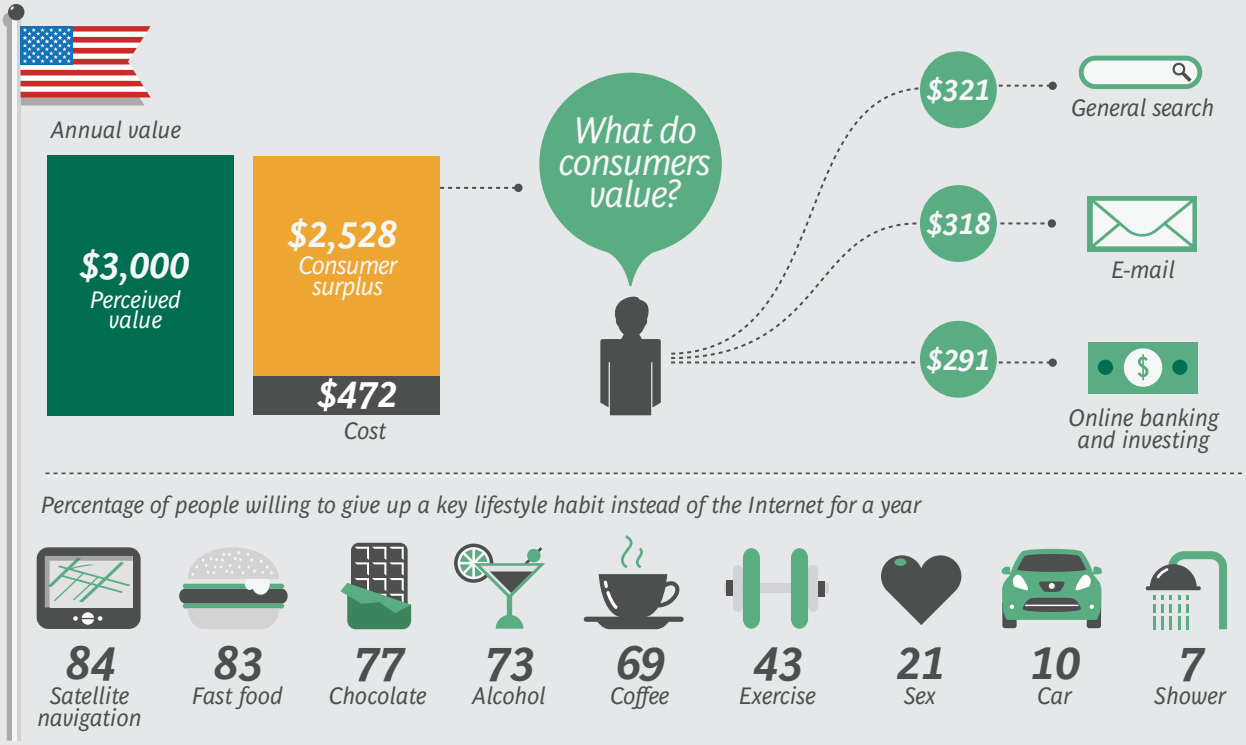
U.S. Consumers Benefit from the Internet



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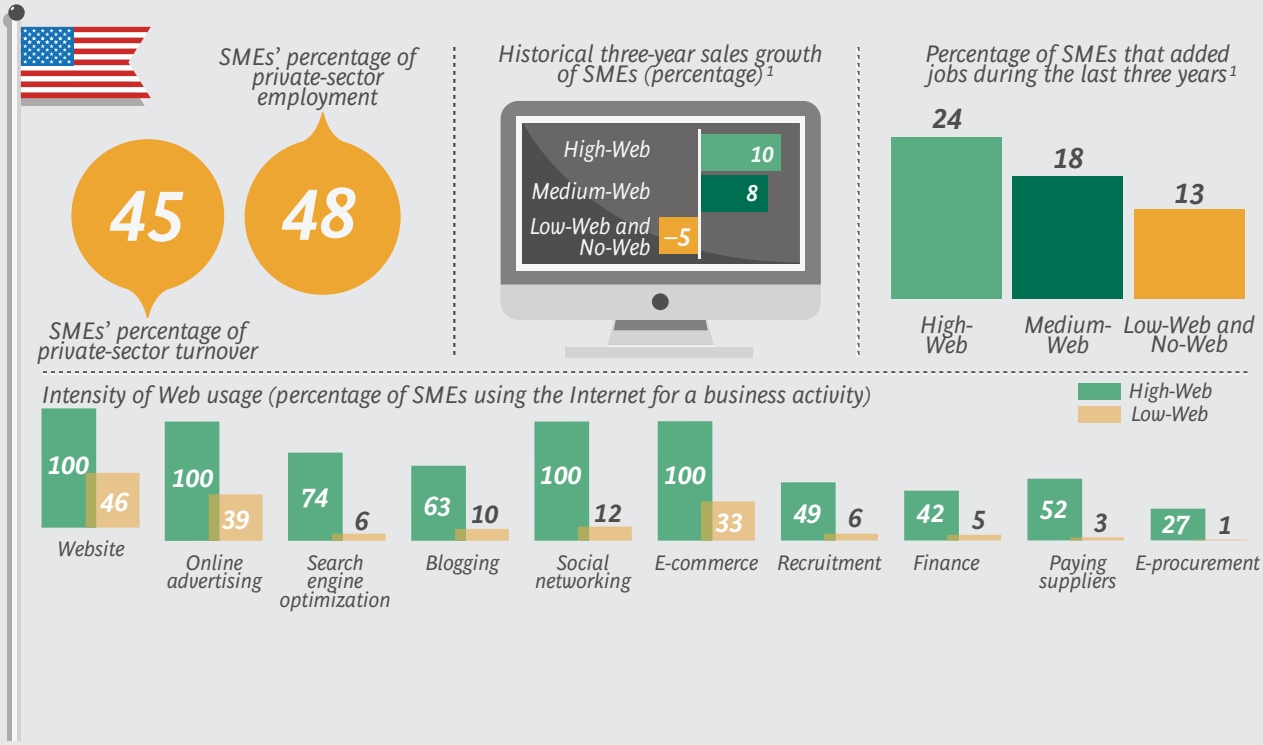
The Internet's Impact on Small and Medium Enterprises (SMEs) in the U.S.



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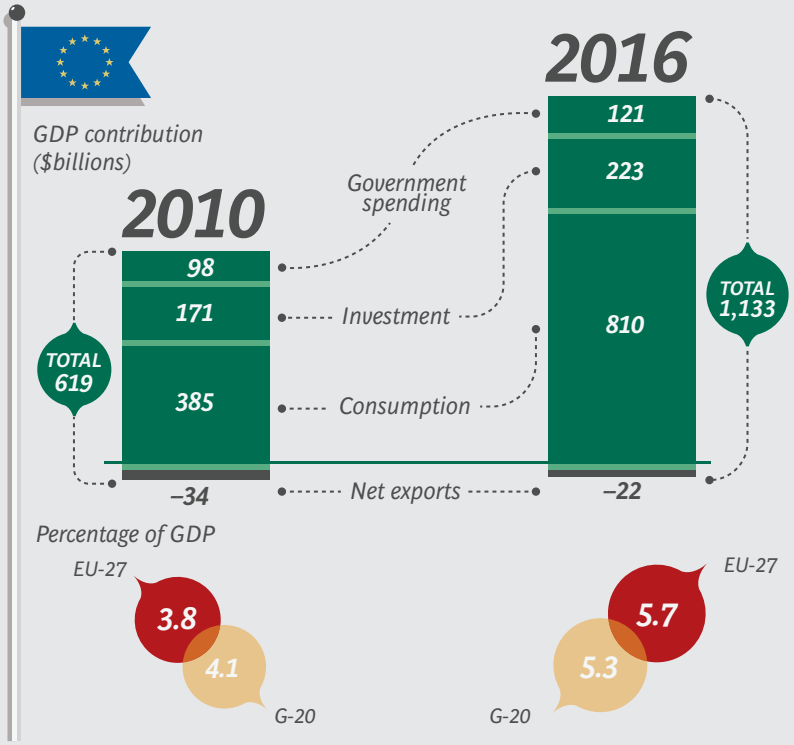
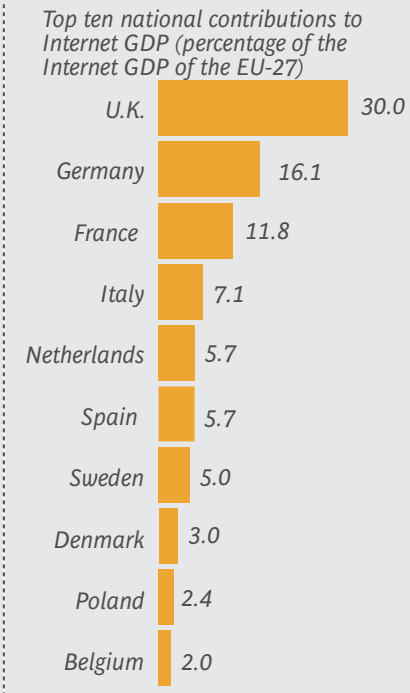
The Internet Economy in the EU-27





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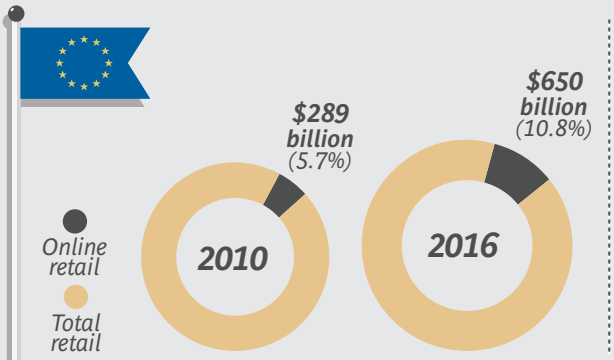
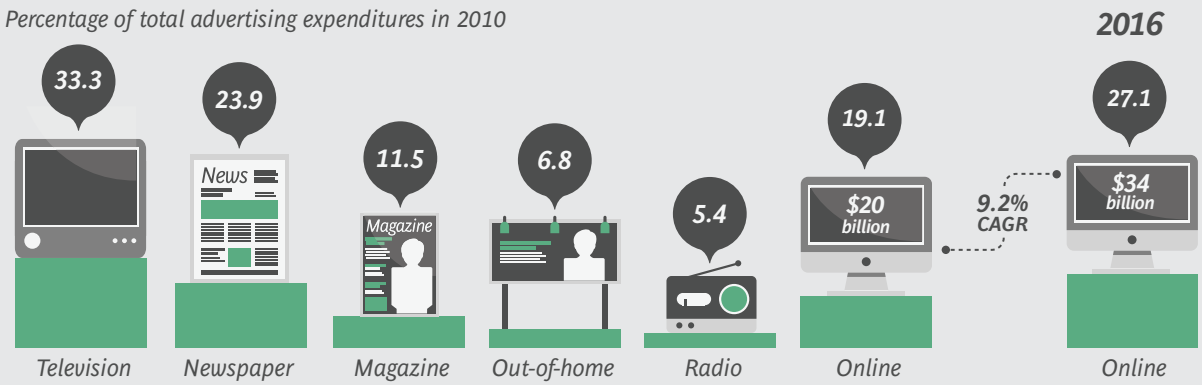
The Internet's Impact on Commerce in the EU-27





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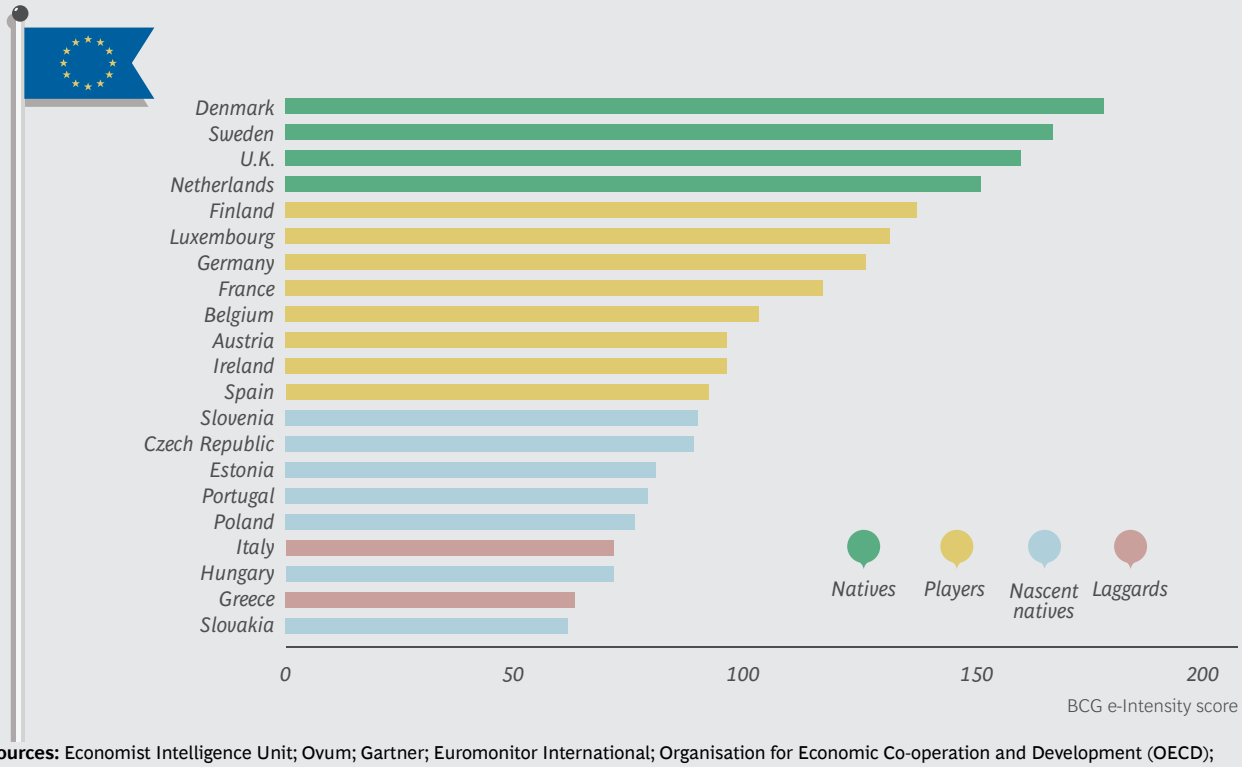
BCG's e-Intensity Index Highlights Internet Prowess Across the EU-27 Economies



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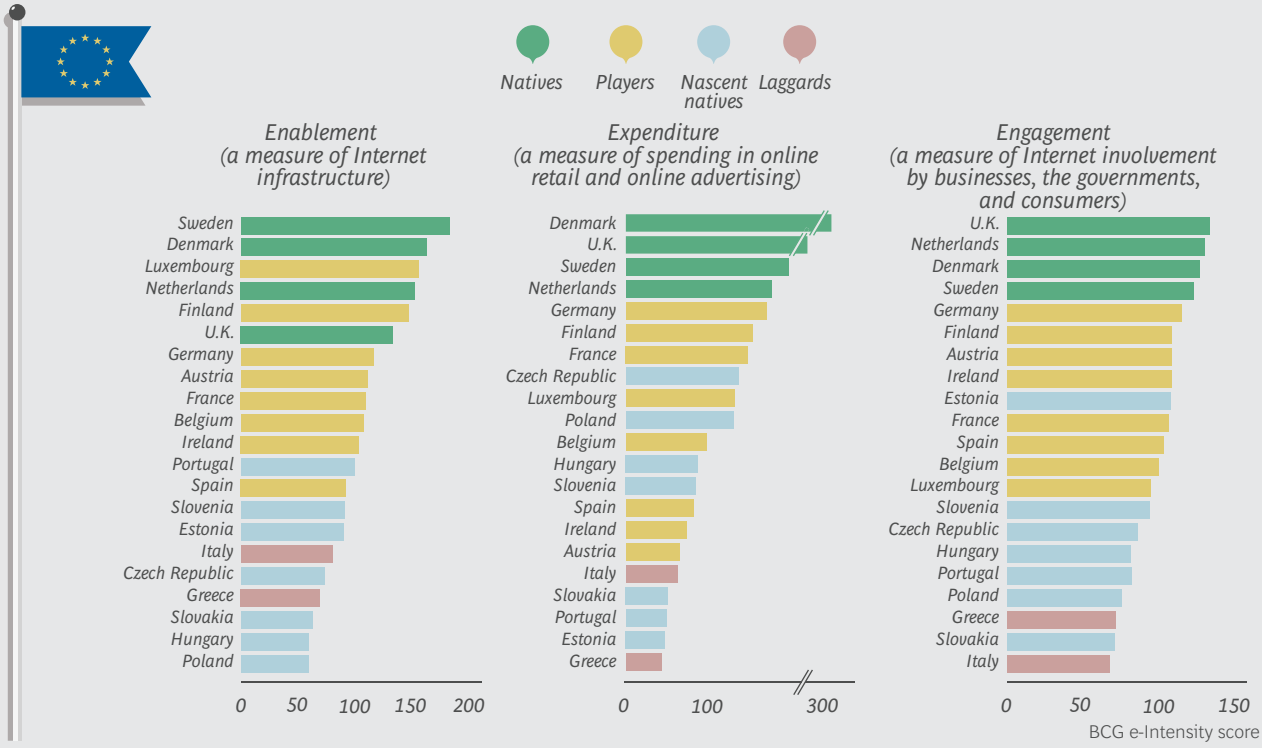
Note: The index is scaled so that the geometric mean is 100 for the 34 OECD member countries. The scores of several countries were derived due to lack of complete data. The categories of Internet intensity–nascent natives, natives, players, and laggards–are illustrated in Exhibit 3 of this report. Graph excludes Bulgaria, Cyprus, Latvia, Lithuania, Malta, and Romania.

How the EU-27 Economies Stack Up on the Components of BCG's e-Intensity Index



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NOTE TO THE READER

About the Authors

David Dean is a senior partner and managing director in the Munich office of The Boston Consulting Group. **Sebastian DiGrande** is a partner and managing director in the firm's San Francisco office. **Dominic Field** is a partner and managing director in BCG's Los Angeles office. **Andreas Lundmark** is a principal in the firm's Stockholm office. **James O'Day** is a project leader in BCG's London office. **John Pineda** is a principal in the firm's San Francisco office. **Paul Zwillenberg** is a partner and managing director in BCG's London office.

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3/12

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