



Uniquely Generation Z

What brands should know about today's youngest consumers

In association with



IBM Institute for Business Value

Executive Report

Consumer products and Retail

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Disruptive and distinctive, Gen Z shoppers are growing up

A new kind of shopper is on the rise. Relentless technological innovations, challenging economic conditions and complicated global politics strongly influence the habits, behaviors and expectations of members of Generation Z (Gen Zers). Despite their young ages, they already hold unprecedented influence over family purchasing decisions and wield enormous economic power of their own. To prosper tomorrow, retail and consumer products (CP) brands must engage Gen Zers today.

Executive summary

Hot on the heels of the ubiquitous Millennial generation, Gen Zers are the next new “crop” of consumers. And our latest research shows that they already display characteristics and preferences different than those who’ve come before — enough so that retail and CP executives should take note.

So who are these Gen Zers? Born in the mid-1990s and beyond, they are estimated to be between 2 and 2.52 billion strong.¹ Self-reliant “digital natives,” they socialize, learn and have fun living in a fluid digital world — one in which the boundaries between their online and offline lives are nearly indistinguishable.

At the same time, Gen Zers are pragmatic and realistic; perhaps surprisingly, more than 98 percent still prefer to make purchases in bricks-and-mortar stores. And while Millennials expect career success, Gen Zers make their own.²

As Gen Zers begin to come of age, CP and retail brands are already feeling the impact. Not only does this young generation have its own money to spend, but its economic influence extends over both family members and wider communities. Gen Zers’ impact is only going to increase as they mature and become mainstream consumers.

To better understand how they prefer to engage with brands and prioritize purchase decisions today, the IBM Institute for Business Value (IBV) conducted a global survey of 15,600 Gen Zers between the ages of 13 and 21, as well as interviews with 20 senior executives (see “Methodology” at the end of the report). In this report, developed in collaboration with the National Retail Federation (NRF) and the first of a series, we explore Gen Zers’ technology preferences, “cyber-savviness” and economic influence. The rest of the series will look at ways to build strong brand relationships — both in growth and mature markets — and to create authentic omni-channel shopping experiences with Gen Zers.



60% of surveyed Gen Zers will not use an app or website that is too slow to load.



Less than 30% of surveyed Gen Zers are willing to share health and wellness, location, personal life or payment information.



Over 70% of surveyed Gen Zers said they influence family decisions on buying furniture, household goods, and food and beverages.

Nice to meet you, Gen Z

As the first true digital natives, Gen Zers have never known a world without the internet and mobile devices. Technology is second nature to them: They are “always on,” with 24/7 access to YouTube, Facebook, WhatsApp, Snapchat and WeChat — as well as any other apps or channels they want to use for interactions. This generation doesn’t distinguish between online and offline channels, as other generations might. Gen Zers expect to move seamlessly between physical and digital worlds, and are less tolerant of technical glitches than Millennials.³

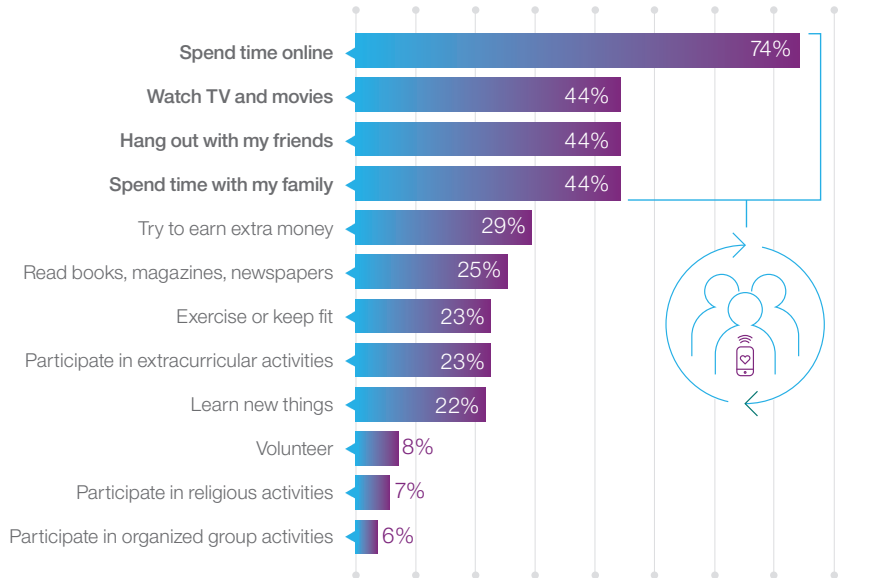
Growing up with the answers to their questions only a few clicks away has enabled them to be more self-reliant. Access to product information — such as peer reviews, product specifications and vendor ratings — empowers them to be smarter shoppers. What’s more, the tumultuous times they’ve been raised in have given them a pragmatic perspective on what’s really important. To engage this upcoming group of consumers, it’s vital that CP and retail executives understand how Gen Zers spend their time, what devices they use and what they expect from their brand experiences.

Free-time pursuits

Whether Gen Zers are online or off, socializing is important to them. When asked what they do with their free time, the top response — cited by 74 percent of survey respondents — was to spend time online (see Figure 1). There was a three-way tie for the second most popular response, with 44 percent of participants selecting each of the following: TV and movies, hanging out with friends and spending time with family.

Figure 1

Gen Zers are an online generation, but also spend substantial amounts of time with friends and family



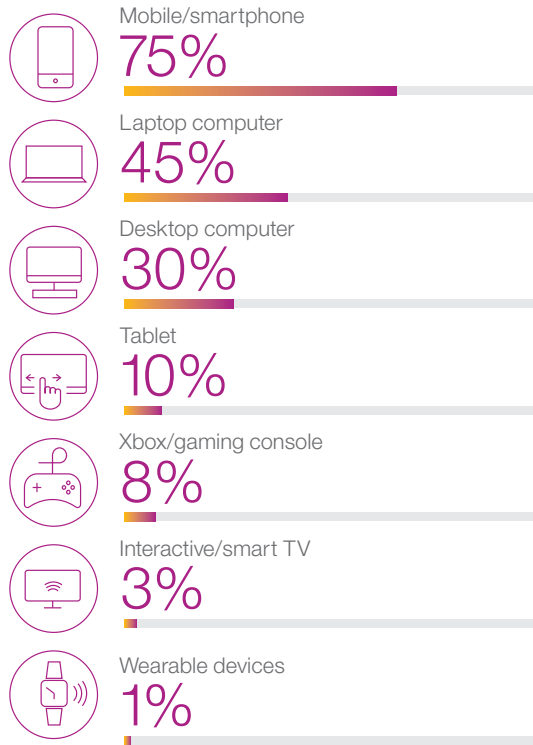
Question: How do you spend most of your time outside of school or work, whether on weekends or longer breaks?

“They are ‘always on’ and they expect everything to be available ‘on-demand’ because they are used to having everything at their fingertips 24/7.”

— CMO, Home and Lifestyle Retailer

Figure 2

The mobile phone is the device of choice for Gen Zers



Question: What are your most frequently used devices?

Upon first glance, these activities may seem contradictory. In actuality, they often overlap. For example, Gen Zers may spend some of their online time interacting with friends and family on social media. Twenty-nine percent of these young people also said they spend some of their free time trying to earn extra money. Twenty-two percent said they spend it learning new things. These responses demonstrate both their work ethic and desire for self-improvement.

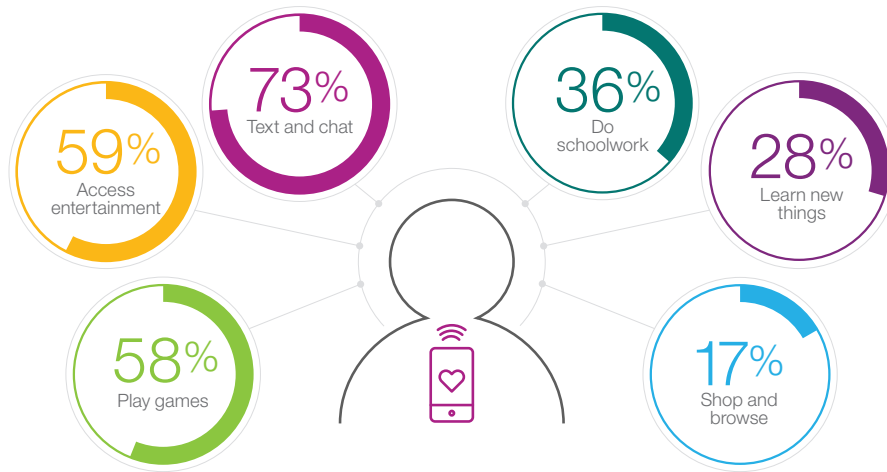
A mega-mobile generation

At a time when mobility is part of everyday life, it's not surprising that 75 percent of respondents selected a mobile phone or smartphone as their device of choice (see Figure 2). Gen Zers aged 19 to 21 make up the dominant group of smartphone users, while younger Gen Zers more often have access to a desktop computer.

The amount of time Gen Zers spend online is considerable. Twenty-five percent of respondents said they spend more than five hours on their mobile phones every day. And they use their phones for much more than shopping and buying. When asked, 73 percent of Gen Zers cited texting and chatting as their primary mobile-phone activities, followed by entertainment at 59 percent and gaming at 58 percent (see Figure 3).

Figure 3

Gen Zers use devices for a wide-ranging medley of activities



Question: What do you mostly use these devices for?

Globally, survey respondents said they primarily use their devices to access social media, messaging and entertainment apps and websites. There were some differences across gender lines and age groups. Females were most inclined to use their devices to text or chat (79 percent versus 67 percent of males), while males were most likely to use them to play games (66 percent versus 50 percent of females). Among 13- to 15-year-olds, 62 percent named gaming as their top activity when using devices. That figure fell to 53 percent for 19- to 21-year-olds, who more often cited emailing and learning new things.

“Facebook is the most popular and frequently used social media platform among teens; half of teens use Instagram, and nearly as many use Snapchat....71% of teens use more than one social network site.”

– **Pew Research Center report**. April 9, 2015.⁴

Figure 4*Gen Zers expect fast, easy-to-use apps and websites*

I have access to high-speed internet at home

87%

I frequently use more than one device at the same time

66%

I will not use an app or website that is hard to navigate

62%

I will not use an app or website that is too slow to load

60%*Percentage who said “agree” or “strongly agree.” Question: Do you agree with the following statements?***Fundamentals are foremost**

Technological-performance expectations are high among this group. A full 87 percent of respondents said they have access to high-speed internet at home, while 66 percent frequently use more than one device at a time (see Figure 4). Gen Zers have little patience for technology that is unresponsive or prone to errors; often balancing the use of multiple devices at once, they become frustrated quickly if the user experience lags. In fact, 62 percent said they will not use apps that are hard to navigate.

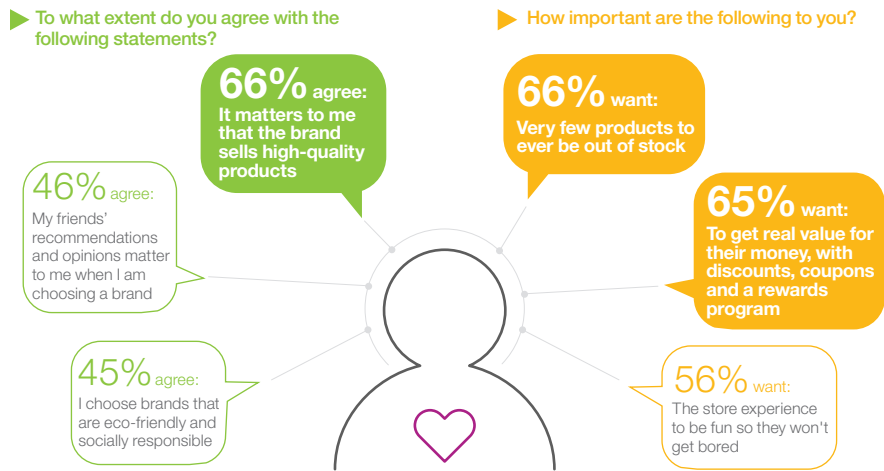
What’s more, in spite of their superior technological abilities, they tend to care more about retail basics than about the “bells and whistles” of shiny apps and capabilities. Two-thirds of surveyed Gen Zers said quality, product availability and value are the most important factors when choosing one brand over another (see Figure 5).

Companies that can’t meet Gen Zers’ extremely high expectations risk rapidly falling out of favor — and leave the way open to competitors. It’s vital that brands recognize and respond to this pragmatism in Gen Zers and to their maturity as shoppers.

Targeting Gen Z consumers with sophisticated, value-add services such as in-context, personalized messages is important. Without the fundamentals in place, however, it’s unlikely brands can secure Gen Zers’ continued loyalty and purchasing power. By understanding and addressing Gen Zers’ evolving behaviors and preferences, including the devices and social media channels they prefer, CP and retail executives can work to cultivate long-term, mutually beneficial relationships.

Figure 5

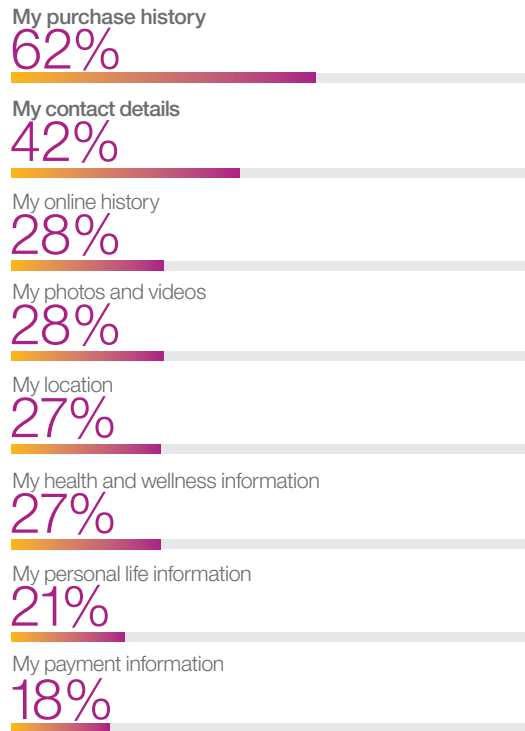
Gen Zers care strongly about product quality, availability and value



Percentage who said "agree" or "strongly agree." Question (left): Thinking about the brands you like, to what extent do you agree with the following statements? Percentage who said "important" or "very important." Question (right): Think about what makes you decide where to purchase a product. How important are the following to you?

Figure 6

Personal information Gen Zers said they'd be willing to share with a brand



Question: Which information would you be comfortable sharing with your favorite brand?

Cyber-savvy with a tight circle of friends

Growing up with access to 24/7 news coverage of turbulent global events — such as recession, terrorism and highly publicized cyberattacks — has shaped Gen Zers' thinking, behavior and attitudes. In addition, schools today provide education about the risks and dangers of cyberspace. As a result, cyber-savvy Gen Zers have learned the importance of privacy and security and are capable of “policing” themselves.

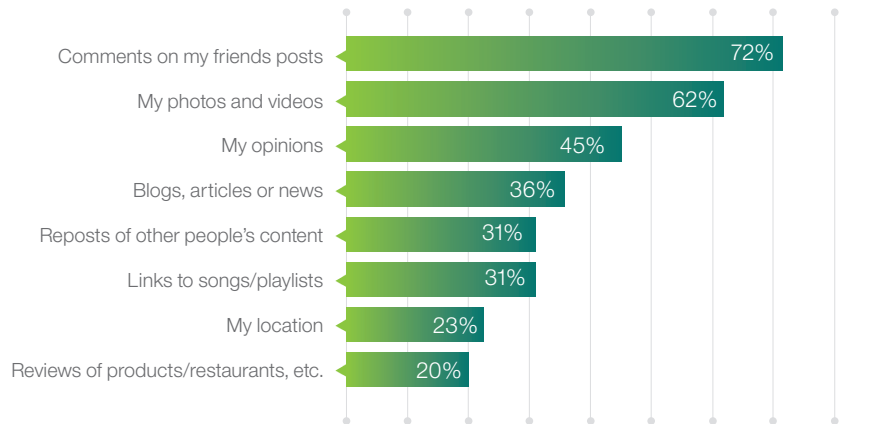
Only 22 percent of surveyed Gen Zers said they are supervised online by an adult and only 19 percent said their parents have set security filters on their devices. Even so, Gen Zers are cautious about sharing sensitive personal information online. Less than one-third said they are comfortable sharing personal details other than contact information and purchase history (see Figure 6). And while 62 percent are prepared to share purchase history details with brands, a mere 21 percent said they would share more sensitive personal data. Also noteworthy, only 18 percent said they are comfortable sharing their payment information.

Their cautiousness extends into online interpersonal relationships, as well. Social media is an important tool for Gen Zers; however, they restrict their posts to a tight circle of family and friends (see Figure 7).

When expressing themselves online, Gen Zers post comments, photos, videos and opinions via social media. These preferences vary in different types of markets — 25 percent of Gen Zers in growth markets are willing to share reviews of products and restaurants publicly, compared to only 14 percent in mature markets.

Figure 7

Gen Zers use social media mostly to share with friends

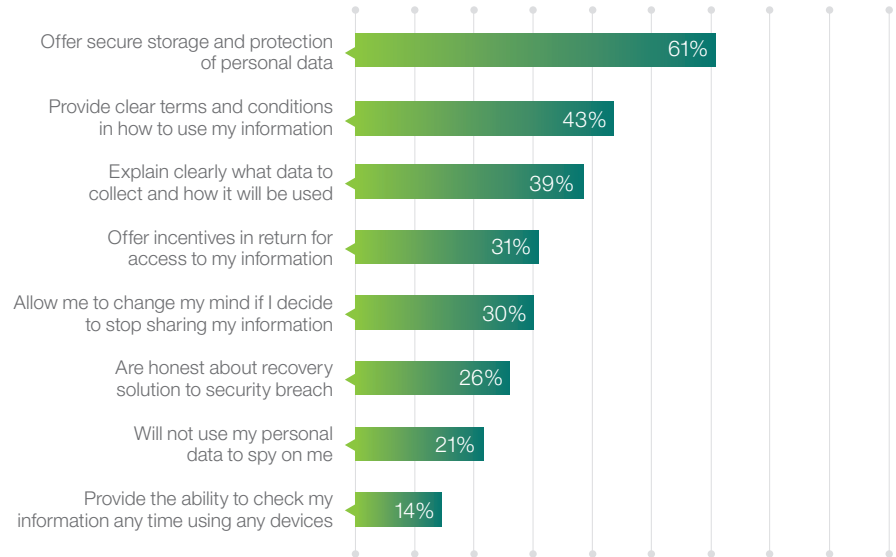


Question: Which of the following have you shared on social media in the last month?

Establishing trust with Gen Zers is vital when engaging with them as future customers. Before they share, they expect brands to be transparent about how their personal data will be stored and used (see Figure 8). If the brand does not demonstrate sufficient diligence in protecting sensitive personal information, Gen Zers may not be as likely to provide it. In that case, brands will miss out on the customer data they need for personalizing the shopping experience — a key differentiator in a highly competitive landscape.

Figure 8

Gen Zers prefer brands that keep personal data secure



Question: Which of the following are most likely to make you feel better about sharing your personal information with brands?

Entrepreneurs and influencers

Although Gen Zers have limited spending power, they wield significant influence over family purchases. In the U.S. alone, consumer spending on Gen Zers totaled a whopping USD 829.5 billion in 2015.⁶ With this degree of potential financial impact, retailers and CP companies shouldn't underestimate the importance of Gen Zers to their businesses.

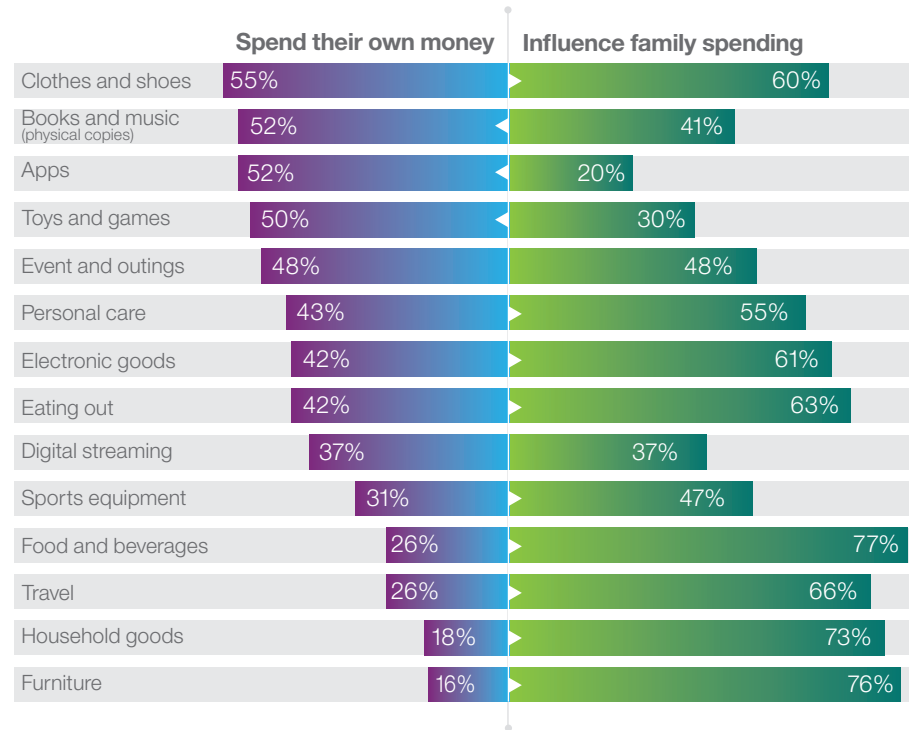
The digital knowledge of Gen Zers often exceeds that of older members of their households and can influence family members' paths to purchase: from product evaluation, to purchasing methods, to post-purchase activities. This influence extends into purchases of household products, food and beverages, and particularly "big ticket" items like furniture and travel, where prices far exceed Gen Zers' own personal budgets (see Figure 9). According to our survey, 75 percent of Gen Zers spend more than half of their monthly income. Clothes, apps and entertainment top their shopping lists.

“Gen Z, tweens/teens carry significant influence on household purchases than previous generations. Ninety-three percent say their children have at least some influence on their family’s spending and household purchases.”

– Deep Focus press release. March 30, 2015.⁶

Figure 9

Gen Zers have significant influence on family spend

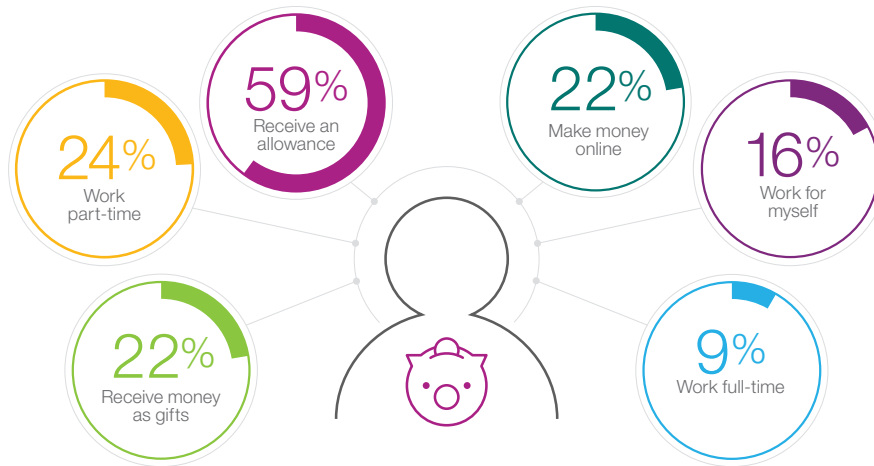


Question: On which of the following categories do you spend your own money or influence how your parents spend their money?

Motivated, creative and tech-savvy, Gen Zers have applied their entrepreneurial skills to creating a new array of careers in the digital world — using new capabilities that enable them to innovate. In addition to the 59 percent who receive an allowance, 22 percent said they also make money online and 16 percent work for themselves (see Figure 10).

Figure 10

In addition to typical teen ways to get money, Gen Zers use their entrepreneurial skills



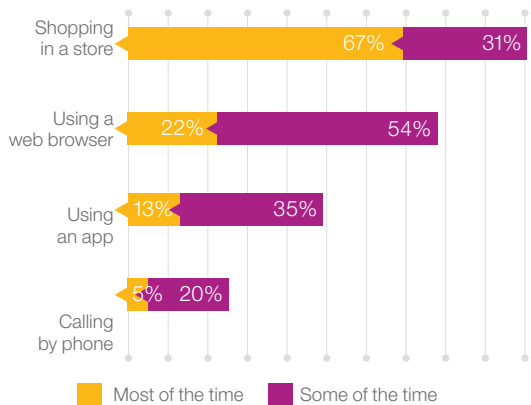
Question: How do you get the money that you spend on yourself?

Forward-thinking Gen Zers are using their digital know-how and the media now available to them to great advantage — often through the use of innovative technologies (see sidebar, “Young entrepreneurs start online businesses”). Across Gen Z age groups, 28 percent of 19- to 21-year-olds make money online, compared to 22 percent of 16- to 18-year-olds and even 14 percent of 13- to 15-year-olds.

Young entrepreneurs start online businesses⁷

Entrepreneurial Gen Zers are using technology to start their own businesses — sometimes at startlingly young ages and with remarkable results.

- An 8-year-old has his own YouTube channel on which he reviews new kids’ toys and video games, garnering over 750 million views since the channel debuted and USD 1.3 million a year.
- An 11-year-old is the CEO and owner of an online boutique that sells eco-friendly accessories.
- A young app developer founded Summly at 15, an application that uses natural language processing and machine learning to generate news summaries from web pages, and sold it at 18 for USD 30 million.
- At age 8, a girl started blogging about fashion and now runs her own online magazine at 15.

Figure 11*How surveyed Gen Zers said they prefer to make purchases**Question: How do you typically make purchases?*

Gen Zers behaviors and attitudes are likely to change to support their different life stages, such as moving into higher education, getting married, starting a family or buying a house. As they grow older and enter the workforce, their spending power increases and gives them greater independence. Even those Gen Zers with less spending money today are developing shopping habits that are likely to continue into adulthood.

Although they live in an age of rapidly advancing technological innovations, Gen Zers remain pragmatic and grounded when choosing brands or deciding where to shop. Gen Zers' omni-channel shopping expectations revolve around basic retail imperatives. Despite using digital devices since toddlerhood, the majority of Gen Zers still make their purchases in store (see Figure 11).

This may be due in part to younger Gen Zers' youth and lack of access to credit cards. Online shopping is slightly more prevalent among 19- to 21-year-olds (84 percent) than 13- to 15-year-olds (69 percent), while using an app to make purchases is more common in growth markets than in mature markets.

Recommendations: Taking the first step

Build a comprehensive Gen Z experience

- *Employ a mobile-focused strategy when developing new capabilities.* Connect with Gen Zers in real time: provide enhanced mobile functionality — incorporating a chat function when possible — for shopping, issue resolution, social interaction, gamification and self-education. Create an environment where they can interact with your brand based on their lifestyles and preferred activities. Repurpose your stores and increase your mobile capabilities to anticipate and exceed Gen Zers' shopping expectations.
- *Let Gen Zers shape their own experiences.* Tap into their entrepreneurial spirits. Build an interactive capability to capture Gen Zers' ideas for new product design and development, and then reward them on their terms. Appeal to their entrepreneurial natures by providing opportunities for income generation related to promoting your brand or increasing sales — for example, when they advocate on behalf of your brand through their social channels.
- *Don't make them wait.* Benchmark the capabilities of your back-end systems frequently and analyze where performance lags behind digital-experience metrics. Identify and implement corrective actions, particularly for mobile capabilities.

Foster a safe online environment built on trust

- *Be transparent regarding data collection and use.* Equip all channels of engagement, particularly mobile, with clearly defined and easily accessible policies on data collection and privacy. Let Gen Zers know how seriously you take privacy threats by stating threat-resolution procedures and disaster-recovery responses upfront.
- *Give Gen Zers control.* Develop safe, secure and swift means for them to manage their personal data. Let them choose when, how and what they wish to share. Carefully consider how to introduce your brand into Gen Zers' online "crowds" for access to their inner circles. If possible, partner with trusted Gen Z influencers, such as peers or others in their communities.

- *Understand international compliance requirements.* Data protection regulations vary depending on the country. Know what you need to do to be compliant in all countries where you're conducting business — and make sure you do it.

Tap into their influence and preferences — both economic and social

- *Don't underestimate the revenue that Gen Zers can generate and their influence on family spending.* Develop marketing and engagement strategies now to attract Gen Zers as they develop habits and brand relationships that they will probably take into adulthood. Use customer relationship management (CRM), connected marketing and advanced analytics capabilities to help develop those strategies.
- *Value their opinions and let them help.* Identify your Gen Z advocates and enlist their assistance in championing your brand with other generations, both within the household and in the wider community. Give them the tools to engage, based on authentic cross-generational product and service messages tailored for both the physical and digital worlds.
- *Don't dictate to or impose on them.* Develop programs and initiatives to understand younger Gen Zers as influencers, and allow them to help shape the brand messages. Reward them in areas where they can directly influence the “shopping basket.”

Are you ready to engage Generation Z?

- How well do you know your Gen Z customers and what they really want? How are you changing the way your business operates to better serve these young consumers?
- What capabilities do you have in place to allow Gen Zers to individualize their brand experiences and make them their own?
- How can you leverage Gen Zers' entrepreneurial capabilities to create new revenue models and drive competitive advantage?
- How can you use transformational technologies, such as cognitive computing, the Internet of Things, "bot" technology and collaborative ecosystems, to differentiate your brand experience for Gen Zers?
- What safeguards do you have in place to counter potential data breaches and privacy threats? How does being transparent influence your security and privacy policies?

For more information

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National Retail Federation

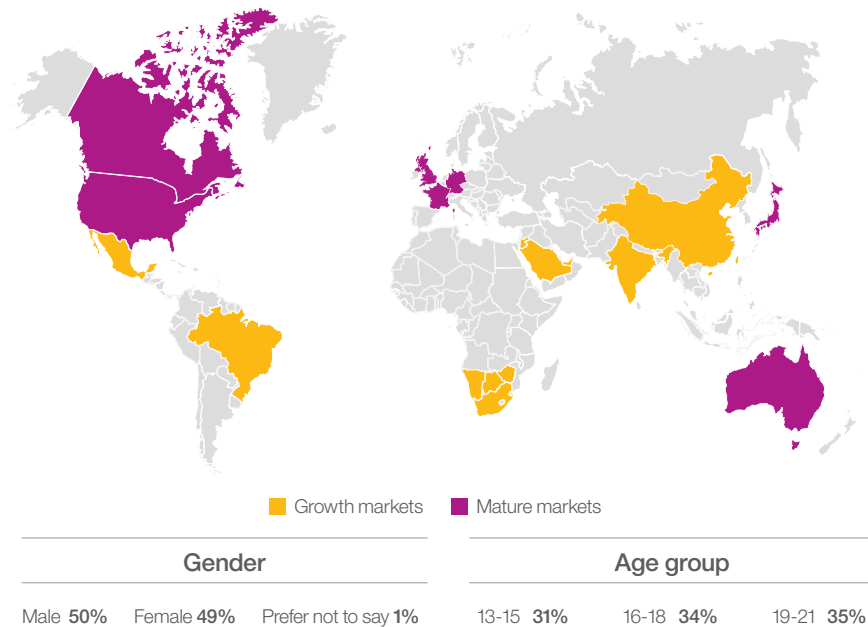
The National Retail Federation is the world’s largest retail trade association, representing discount and department stores, home goods and specialty stores, Main Street merchants, grocers, wholesalers, chain restaurants and internet retailers from more than 45 countries.

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Methodology

To understand what drives Gen Zers in choosing a brand, the IBM Institute for Business Value, in collaboration with Oxford Economics, surveyed 15,600 consumers aged 13 to 21 in 16 countries across six continents. We asked them about their digital habits, preferences in choosing a brand and priorities in making purchases. We analyzed responses by age group, gender and market (growth versus mature). In addition, we conducted interviews with 20 senior executives in the consumer products and retail industries.



About the authors

Jane Cheung is the Global Leader for Consumer Products for the IBM Institute for Business Value. She has over 20 years of working experience across retail and consumer product industries. Jane has worked at Macy's, Disney, Nike and Hallmark Cards and as a trusted advisor for clients in a consulting capacity at IBM and Accenture. Jane has a MBA from California State University, Long Beach. She can be reached at jane.cheung@us.ibm.com.

Simon Glass is the Global Retail Leader for the IBM Institute for Business Value. He is responsible for the development of thought-leadership content and strategic business insights for the IBM retail industry practice. Simon has over 25 years of experience and has worked with major retail clients around the world in the areas of business strategy, omni-channel, transformational change and business model innovation. He can be reached at glasss@uk.ibm.com.

David McCarty is the North America lead for the IBM Consumer Products Industry Solution Sales Team. He has over 25 years of experience in developing, deploying and selling technology solutions to consumer packaged goods (CPG) manufacturers, wholesale distributors and retailers. He has had the pleasure of working with leading CPG companies around the globe in the areas of advanced analytics, digital transformation and operational excellence. He can be reached at davidmccarty@us.ibm.com.

Christopher K. Wong is the Vice President of Strategy and Ecosystem for the IBM Global Consumer Industry. He is responsible for setting the direction for IBM clients in the retail and consumer packaged goods industries. Chris has more than 20 years of experience in areas ranging from sales and product management to corporate transformation. He led the IBM internal deployment of marketing technology, including the world's largest B2B deployment of campaign automation and data systems. Christopher can be reached at cwong@us.ibm.com.

Related publications

Bigornia, Anthony, Jane Cheung and Trevor Davis. "Ready for prime time? New lessons on building the consumer products brand experience." IBM Institute for Business Value. January 2016. <http://www.ibm.com/services/us/gbs/thoughtleadership/primetimecp/>

Bigornia, Anthony, Jane Cheung, Trevor Davis and Sandipan Sarkar. "Inspiring deeper brand enthusiasm: Your cognitive future in the consumer products industry." Institute for Business Value. March 2016. <http://www.ibm.com/common/ssi/cgi-bin/ssialias?htmlfid=GBE03740USEN>

Davis, Gary, Keith Mercier, Anthony Marshall and Sandipan Sarkar. "Thinking like a customer: Your cognitive future in the retail industry." IBM Institute for Business Value. January 2016. <http://www.ibm.com/services/us/gbs/thoughtleadership/cognitiveretail/>

Glass, Simon, Sashank Rao Yaragudipati and Mark Yourek. "Ready to engage with tomorrow's shopper? How retailers can distinguish themselves." IBM Institute for Business Value. September 2016. <http://www.ibm.com/services/us/gbs/thoughtleadership/tomorrowsshopper/>

Contributors

Cynthia Coulbourne, Global SME Retail, Apparel Segment Leader, IBM Global Retail Executive, Global Business Services

Trevor Davis, Global SME Consumer Products, Distinguished Engineer and Member of IBM Industry Academy, Global Business Services

April Harris, Graphic Designer, Digital Services Group

Eva Heukaufel, Strategy Consultant at IBM Interactive Experience, Global Business Services

Kristin Fern Johnson, Content Strategist and Writer, Digital Services Group

Danica Konetski, Retail and Consumer Products Center of Competency, Global Business Services

Joni McDonald, Content Strategist and Writer, Digital Services Group

Natacha Monpellier, Associate Partner, Consumer Products, IBM Interactive Experience, Global Business Services

Jeff Van Pelt, Global Portfolio Leader, Consumer Products Industry Solutions, Sales and Distribution

Sources and notes

- 1 "Gen Z and Gen Alpha Infographic Update." The McCrindle blog. February 4, 2015. <http://mccrindle.com.au/the-mccrindle-blog/gen-z-and-gen-alpha-infographic-update>. Accessed January 6, 2017; "Generation X vs. Y vs. Z Workplace Edition." NextGeneration website. September 10, 2015. <http://www.nextgeneration.ie/generation-x-vs-y-vs-z-workplace-edition/>. Accessed January 6, 2017; Rehman, Asad Ur. "Generation Gap at Workplace & its effect on Organizational Performance." February 23, 2015. <https://www.linkedin.com/pulse/generation-gap-workplace-its-effect-organizational-asad-ur-rehman>. Accessed January 6, 2017.
- 2 Bernstein, Ruth. "Move Over Millennials – Here Comes Gen Z." AdvertisingAge website. January 21, 2015. <http://adage.com/article/cmo-strategy/move-millennials-gen-z/296577/>
- 3 Schlossberg, Mallory. "Teen Generation Z is being called 'millennials on steroids,' and that could be terrifying for retailers." Business Insider. February 11, 2016. <http://www.businessinsider.com/millennials-vs-gen-z-2016-2/#teens-shop-online-for-efficiency-purposes-3>
- 4 Lenhart, Amanda. "Teens, Social Media & Technology Overview 2015." Pew Research Center Report. April 9, 2015. <http://www.pewinternet.org/2015/04/09/teens-social-media-technology-2015/>
- 5 "Gen Z to be Most Image-Conscious, Demanding Consumers in History, Says New Fung Global Retail & Technology Report." Fung Global Retail and Tech press release. September 14, 2016. <https://funglobalretailtech.com/press-releases/gen-z-to-be-most-image-conscious-demanding-consumers-in-history-says-new-fung-global-retail-technology-report/>. Accessed January 9, 2017.
- 6 "Deep Focus' Cassandra Report: Gen Z Uncovers Massive Attitude Shifts Toward Money, Work and Communication Preferences." Deep Focus press release. March 30, 2015. <http://www.marketwired.com/press-release/deep-focus-cassandra-report-gen-z-uncovers-massive-attitude-shifts-toward-money-work-2004889.htm>. Accessed December 21, 2016.
- 7 Bologna, Carolina. "8-Year-Old Kid Makes \$1.3 Million A Year With His Viral YouTube." Huffington Post. September 19, 2016. http://www.huffingtonpost.com/2014/09/19/evantube-viral-youtube-videos_n_5850580.html; Wilson, Julee. "Maya Penn, 11-Year-Old Entrepreneur Designs Eco-Friendly Accessories (VIDEO)." The Huffington Post. April 9, 2012. http://www.huffingtonpost.com/2012/02/08/maya-penn-fashion-designs_n_1263114.html; Executive bio, Summly press resources. Summly website. http://summly.com/press-team_nick.html. Accessed November 24, 2016; Ferrier, Morwenna. "Rising star: meet Oslo's 15-year-old answer to Tavi Gevinson." The Guardian. May 20, 2015. <https://www.theguardian.com/fashion/2015/may/20/rising-star-meet-oslo-15-year-old-answer-to-tavi-gevinson>

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