

White Paper

Shaping the Future Implications of Digital Media for Society

Valuing Personal Data and Rebuilding Trust

End-User Perspectives on Digital Media Survey: Summary Report

Prepared in collaboration with comScore and McKinsey & Company

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Contents

3	Preface
4	Introduction
5	End-user awareness
6	Comfort with data collection, storage and use
7	Control of personal data disclosure
9	Trust and other areas of tension
10	Willingness to engage in a personal data value exchange
11	Country profiles
11	Brazil
15	China
19	Egypt
23	Germany
27	South Africa
31	United States
35	Appendix: Project Contributors
36	Appendix: Methodological Notes
37	Appendix: Data Tables

Preface

The End-User Perspectives on Digital Media survey – conducted by the World Economic Forum’s System Initiative on [Shaping the Future of Information and Entertainment](#) – is an integral part of the [Shaping the Future Implications of Digital Media for Society](#) project. Now in its second phase, the project focuses on improving end-user digital media literacy and on investigating the state of trust between end users and industry, to foster the sustainable development of a robust digital platform and services economy.

Phase 1 of the project explored the evolution of digital media usage in a hyperconnected world, as well as implications for users’ private, professional and public lives. That work highlighted a need for more in-depth research on two aspects of digital media use: the need for increased end-user awareness of the implications surrounding their digital footprints generated by online activity; and increasing tensions around trust between industry and the end user, requiring solutions for all stakeholders. Thus, Phase 2 of the project focuses on valuing personal data and rebuilding trust.

For Phase 2, the World Economic Forum, in partnership with comScore and McKinsey & Company, has performed a worldwide online survey to explore and quantify the end-user perspective on digital media platforms, services, and products, and the collection, storage, and use of personal data by companies. This survey covers six countries with more than 6,000 respondents across a range of age groups. Brazil, China, Egypt, Germany, South Africa, and the United States each contributed a population sample of about 1,000 participants.

In addition, the Shaping the Future Implications of Digital Media for Society project hosted two workshop-style meetings to convene experts from industry, government, civil society and academia to examine and discuss preliminary survey results. The first, held in New York City, USA, on 31 October 2016, explored collaborative approaches to lift end-user digital media literacy levels. The second, held in Brussels, Belgium, on 28 November 2016, examined the potential repercussions of end-user perceptions on trust in digital media services and platforms.

In both meetings, participants previewed results from this survey and remarked on disparities between how people answer survey questions and how they behave in the real world, for example response bias can lead some respondents to say they care more about privacy than they actually do. These are of importance when interpreting, for example, sentiment around privacy policies. When people express concerns, do these actually translate into a mitigating action, such as cancelling an account? If not, should their viewpoints be discounted, or should they be empowered with better options? The survey did not investigate these important questions – further research could be useful to answer them.

While recognizing the natural limitations of self-reported perspectives from surveys, we believe there is essential value in understanding the end-user perspective: today’s beliefs, attitudes and emotions could become the wellspring for tomorrow’s willingness to engage with digital platforms, services and products.

Introduction

In this era of hyperconnectivity, the web and internet-connected devices are advancing into nearly every part of one's life. Recent developments have enabled entirely new business models and presented consumers with innovative solutions to age-old problems. Such changes promise to continue reshaping industries and societies for years to come.

However, end users may be unaware of the full extent of personal data collected by the platforms and services they use. Further, more recent trends in end user behaviour, such as the spread of ad blockers and use of virtual private networks (VPNs), run against the implicit value exchange typical of many consumer-business relationships. Research contained in this report has shown that some digital media users report avoiding or stopping use of a service or platform altogether because it did not provide enough control over their personal data. These facts and findings point to some key sources of tension in the relationship between end users and digital media platforms.

The World Economic Forum is committed to improving the state of this relationship between citizens and industry. The decisions made and values established today will support the evolution of sustainable and fruitful digital engagement well into the future. Current tensions and anticipated future issues alike must be addressed to ensure the successful development of a robust digital economy for all stakeholders.

To maintain clarity and consistency around the concepts surrounding personal data, the World Economic Forum has introduced a new framework called Valuing Personal Data (see Figure 1), which provides a taxonomy of types of personal data that result from an end user's use of digital media platforms, services and products. This serves as a source of definitions used in the Forum's research and it complements existing data frameworks; it incorporates the relationships and distinctions between different building

blocks of data and the end user's relative level of awareness of each.

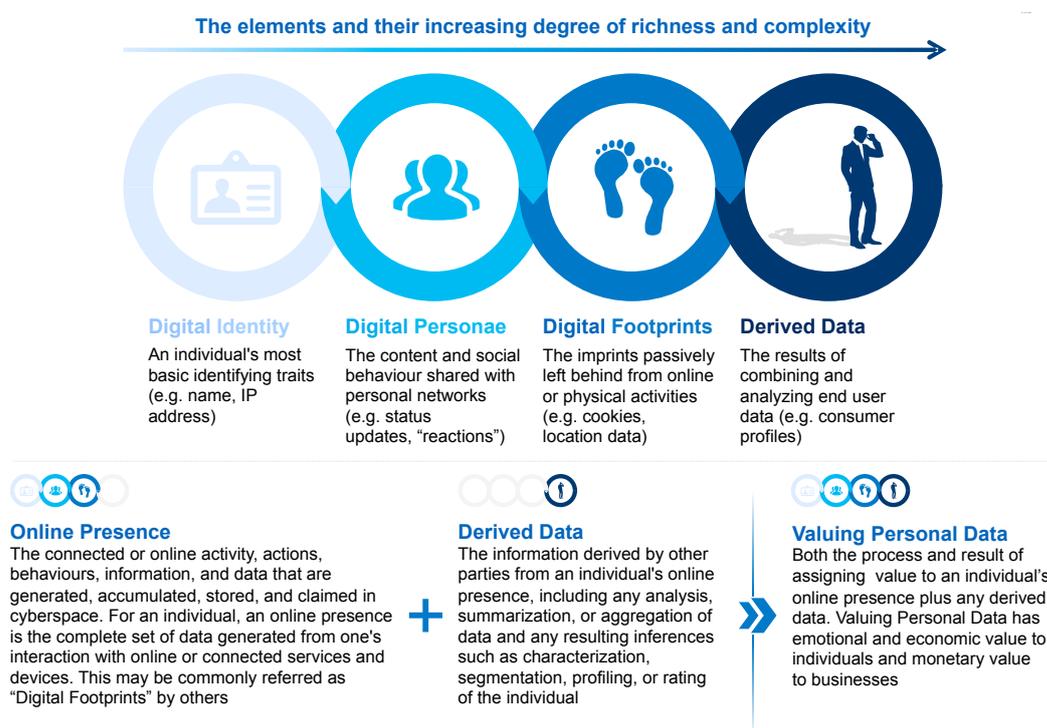
According to the Valuing Personal Data framework, the key building blocks of an individual's personal data are their digital identity, digital personae, digital footprints and derived data. Each element in this progression builds on its predecessor and includes the data sets before it. These elements are also linked by diminishing end-user awareness, as we move across the terms in Figure 1: as indicated by Forum research, results have shown that end users are most aware of the online presence concept and least aware of the concepts surrounding derived data.

These two terms – *online presence and derived data* – are fundamental concepts that can help end users think clearly about the implications of their online actions.

Online presence refers to the connected or online activity, actions, behaviours, information and data that are generated, accumulated, stored and claimed in cyberspace. For an individual, an online presence is the complete set of data generated from one's interaction with online and/or connected services and devices. This is sometimes referred to as the digital footprint.

By combining and analysing different data sets, companies can gain new insights about individuals to help them tailor their products, services and advertising, and provide intelligence for other research-related purposes. Some examples of such research-related purposes include analyzing the text in Twitter posts to predict food shortages in countries, and analyzing demographic data to serve people with more useful and relevant content. Information learned about individuals based on analysis of data that the individual does not explicitly provide or may not be aware of is called derived data.

Figure 1: The Valuing Personal Data framework



End-user awareness

As a result of the proliferation of online and connected technologies in daily life, an unprecedented scale and scope of personal data is being generated, collected, analysed and monetized. For society and businesses alike to realize the full benefits of participation in digital life and avoid unintended consequences, end users must be empowered to make informed decisions about their use of digital media and the associated ripple effects. Increasing levels of “digital media literacy” is one path to empowering end users and is a step towards building a more informed society.

Digital media literacy, in this context, is the level of awareness and understanding of how use of different media platforms, services and products is creating a rich set of personal data, how that data is being collected and used, and the potential impacts of that data on private, public and professional lives.

To achieve a more informed society, end users must develop an understanding of fundamental concepts (such as online presence and derived data), awareness of implications of specific scenarios involving personal data, and a toolkit of practical knowledge and skills. Results point to an opportunity to improve end-user understanding. For instance, after reading the definitions above, 32% and 47% of respondents still do not agree¹ that they understand online presence and derived data, respectively (see Table 6 in the Appendix).

¹ Respondents who “do not agree” are those who selected “Strongly disagree,” “Disagree,” or “Neither agree nor disagree”.

While useful, conceptual understanding alone has its limitations. The particulars of data collection, storage and use depend on the type of service involved, the way it is used, and even the specific brand. End users would benefit from a nuanced understanding of which data is collected, and when.

For example, survey results show that awareness that companies or third parties can collect, analyse, or store an individual’s data varies considerably for different activities – on the low end, 28% of users are aware of these possibilities when using internet-connected wearable devices, and on the high end, 48% of users are aware of these possibilities for social media and professional networks (see Figure 2 and Table 10 in the Appendix).

End users would also benefit from practical knowledge and skills to shape the data implications of their use of digital media. 54% of respondents agree that they have sufficient knowledge about which activities, actions, behaviours and information make up their online presence (see Table 6 in the Appendix). Further, common tools such as ad blocking, tracking protection browser add-ons and VPNs are mostly or completely understood by 48%, 44% and 43% of respondents, respectively (see Table 17 in the Appendix). Respondents were provided with definitions of each of these tools prior to being asked about their level of understanding. These results show that although there is some level of awareness and understanding, there is still a portion of the user base surveyed that could benefit from more knowledge.

Figure 2: Awareness that companies and third parties can collect, analyse, or store personal data

% aware (vs. somewhat aware or not aware)

Activities during which companies can collect, analyze, and store personal data	Generation (%)			Education (%)							Total (%)
	Generation Z / Millennials	Generation X	Baby Boomers	Did not complete high school	Completed high school	Some college/technical school or university	Completed college/technical school	Completed university/undergraduate degree	Completed graduate school/graduate degree	Prefer not to answer	
Online browsers, apps, and other media services or products ¹	43%	39%	36%	39%	39%	45%	41%	40%	44%	27%	41%
Internet-connected vehicles, personal assistants, and home monitors and appliances ²	31%	30%	25%	22%	27%	29%	29%	30%	36%	18%	29%
Commercial Internet-connected wearable devices	30%	29%	23%	31%	25%	31%	24%	29%	34%	19%	28%
Public places, facilities and infrastructure	31%	29%	26%	28%	27%	29%	29%	31%	35%	19%	30%
Internet-connected media players	32%	27%	24%	26%	26%	30%	30%	29%	35%	17%	29%
Retail sites	43%	42%	42%	37%	41%	47%	42%	42%	46%	27%	42%
Digital entertainment services	34%	31%	26%	24%	30%	33%	31%	31%	39%	18%	32%
Internet-connected mobile devices	45%	39%	35%	41%	38%	46%	42%	42%	45%	25%	41%
Social media and professional networks	52%	46%	42%	47%	45%	58%	45%	45%	53%	36%	48%

¹ Including one’s choices, searches, content viewed and preferences

² Including one’s choices, searches, settings and statistics

Comfort with data collection, storage and use

Survey results showed that individuals hold preferences when it comes to sharing their data, and these may influence their reactions to different data policies and practices. Such individual preferences, or comfort zones, are complex, as they depend on the type of data in question and its context. Understanding end user comfort zones could help companies better design customer-centric data policies.

30% to 45% of respondents say they are comfortable² with data about their activities being collected, analysed and stored by companies, including third parties, across the various types of services examined. The low end of the range is for data from the use of public places, facilities, or infrastructure and the high end is for data from the use of internet-connected home appliances, personal assistants, or vehicles. Other emerging technologies, such as internet-connected wearable devices, also appear near the top of the list of activity types examined – where end-user comfort zones are the widest (see Table 11 in the Appendix).

To gain a clearer picture of end-user comfort zones, one must also consider the trade-offs they are willing to make. 31% of respondents say they would prefer to have their information collected, stored and linked to their identity for the personalization of their user experience; and 26% say they would prefer that any information collected and stored was not linked to their identity, knowing that this would mean a lesser degree of personalization. The balance say they would prefer to give up all personalization in favour of privacy (see Table 15 in the Appendix). These results should be interpreted in light of the fact that even after given definitions of online presence and derived data, some users still did not have a clear understanding of these terms.

Overall, there are many factors driving end-user concerns, both around the “how” and the “why” of data collection, suggesting that there are a number of opportunities to expand end-user comfort zones. The top reasons why some respondents have concerns with data about their activities being collected, analysed and stored all seem addressable: they are not aware of data being collected, they may not believe they have given their permission, and they are not comfortable sharing data with third parties (see Table 13 in the Appendix).

Data sharing with third parties was examined more closely, and only 18% of respondents were comfortable with their personal data and digital footprint information being sold to third parties for marketing purposes. Personalization, an important benefit of sharing personal data, seems to present another opportunity to improve comfort; 27% of respondents said they were comfortable with their personal data and digital footprint information being used to personalize the content, products, services and digital advertising they are exposed to (see Table 12 in the Appendix).

2 Respondents who selected “Somewhat comfortable” or “Very comfortable”.

Control of personal data disclosure

Given varying degrees of comfort around data being collected, stored and used, some end users may want control over their personal information, and this is reflected in the survey results. On average, respondents intend to keep 32% of their online activity anonymous (i.e. not linked to them as an individual), and 33% private (i.e. restricted to a closed group of individuals, such as friends on a social network) (see Table 16 in the Appendix). To do this, end users have three basic approaches at their disposal: use the standard options that may be offered by a service, install and use third-party tools, or change the way they use a service in order to shape what data is generated in the first place.

Different services offer different combinations of end-user controls. A relatively common example of controls provided by services is data encryption; 53% of users say that a main reason they use certain instant messaging services is because all message content is data encrypted (see Table 25 in the Appendix). Across all service types examined, end users express reservations with the controls provided: for each one, 52% to 71% of respondents do not agree that it provides adequate end-user control over what personal information is shared. Respondents are most likely to be satisfied with instant messaging services, personal email services, internet-connected wearable devices, internet-connected home appliances/monitors, digital personal assistants, internet-connected in-car technology, and web browsers. On the other hand, respondents are least likely to be satisfied with public places, facilities and infrastructure, internet connected media players, digital video/TV services, search engines, internet-connected mobile devices, digital

audio services, and retail sites. Social media and professional networks fall in the middle of the fifteen service types examined (see Table 23 in the Appendix).

The top reasons why some respondents are not satisfied with end-user controls are that they do not know what controls are provided and they do not trust that controls work the way they are supposed to (see Figure 3 and Table 24 in the Appendix).

In recent years, several notable tools and trends have emerged for end users to limit their personally identifiable digital footprint, including ad blockers, tracking protection, VPNs, and false or anonymous profiles (see Figure 4). However, when individuals desire greater privacy than they can achieve with an assortment of third-party tools, they may simply assume their data will be collected and to adapt accordingly; indeed, 47% of respondents say they have decided not to use, or to stop using, certain technologies, sites, or services because it/they did not provide adequate end-user control (see Table 22 in the Appendix). However, this implies that 53% have not made such a decision, highlighting the diversity in end user perspectives and behaviour.

Existing approaches to restrict what data is collected, stored and used have their limitations, and not all users who want control go so far as to abandon a service. The survey did not explore whether some people may continue to use a service without meeting their desire for control or any potential implications of such a scenario on the relationship between end users and industry.

Figure 3: Reasons behind perceived inadequacy with end user controls

% of global respondents

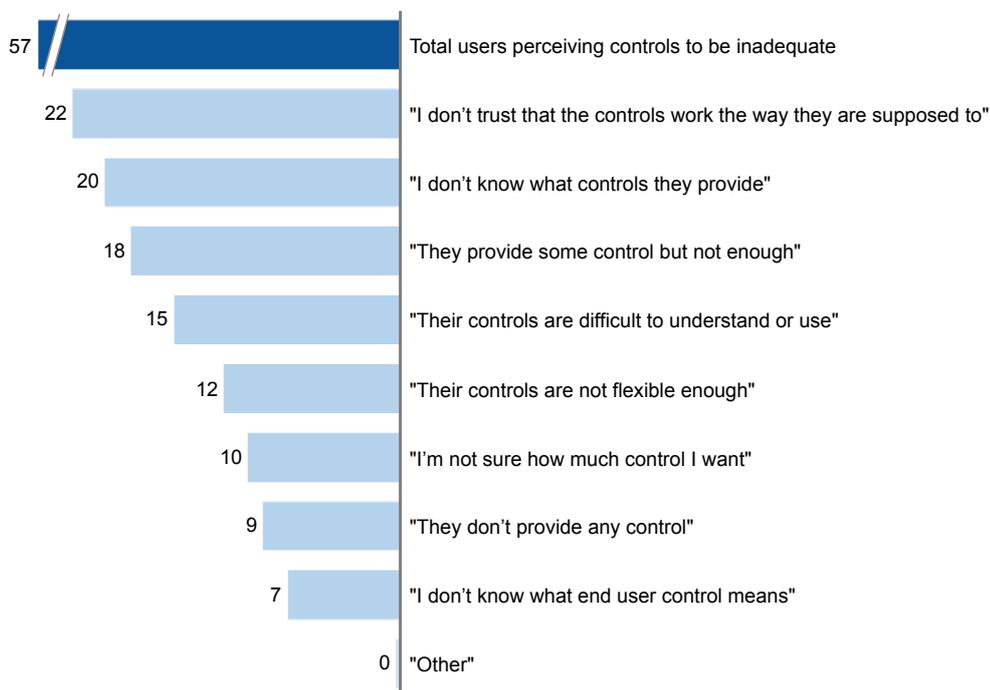
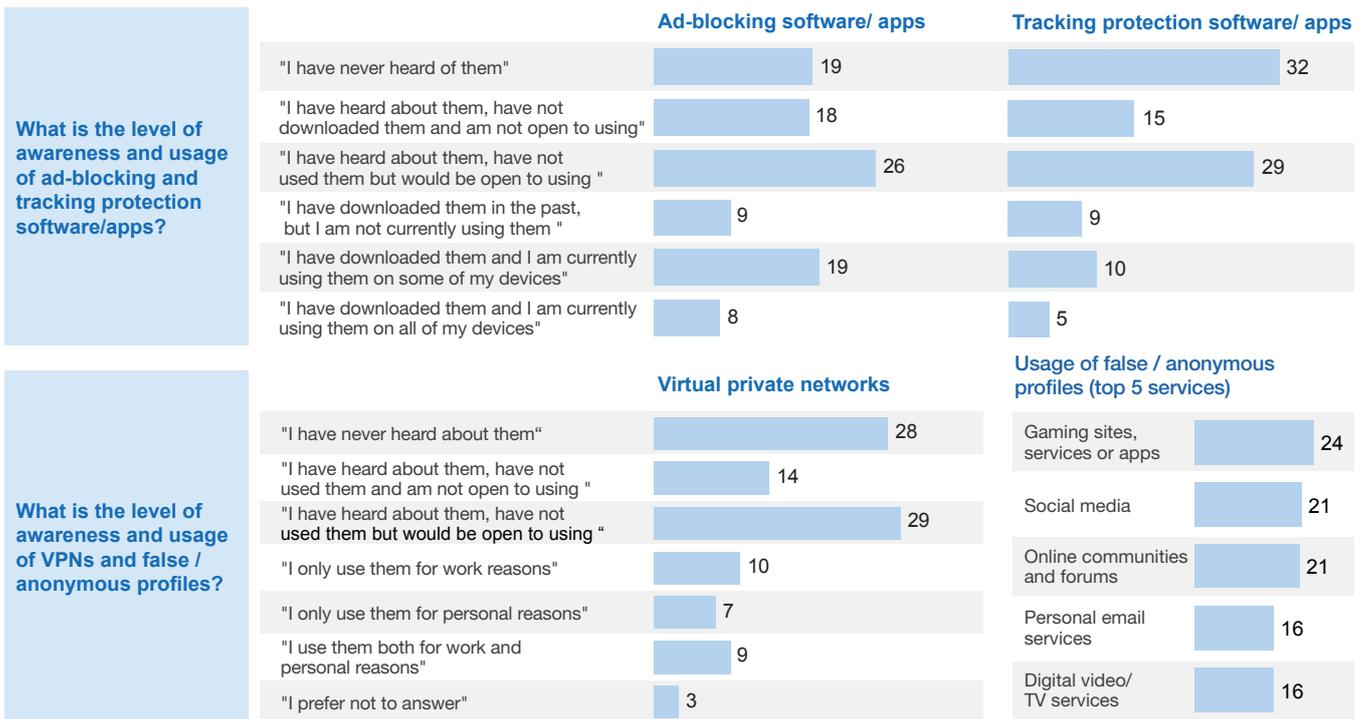


Figure 4: Usage and awareness of methods to control personal data disclosure

% of global respondents



Note: numbers may not sum due to rounding.

Trust and other areas of tension

When end-user comfort zones and desires for control meet the realities of platform design and data collection, areas of tension can emerge. Such tensions, including varying levels of end-user trust of industry, could have both short-term costs (e.g. slower adoption of new products) and long-term implications (e.g. greater support for government regulation or more conservative social norms around data sharing, and less innovation and personalization of services) for all involved.

When deciding to use a platform, product, or service, it is often the case that users accept terms of service. 44% of respondents make an effort to find and read personal data policies, 36% find personal data-related end user agreements and terms and conditions reasonably easy to find, read and understand, and 34% find it reasonably easy to keep up with changes to personal data-related end user agreements and privacy settings (see Table 26 in the Appendix).

End users have varying perceptions about whether the technologies they use have their privacy interests in mind. Respondents were most positive about internet-connected home appliances/monitors, with 47% agreeing that they respect a reasonable and limited use of user personal data for commercial purposes and that they genuinely value end-user privacy. On the low end, 36% agreed to this statement for web browsers and search engines (see Table 27 in the Appendix).

Further, end users trust their service providers to varying degrees when it comes to personal data. On the high end, 50% of respondents agree that they trust their main provider of internet-connected wearable devices to define fair terms and conditions that determine the use of their personal data. On the low end, 39% trust their main provider of internet-connected media players (see Table 28 in the Appendix).

According to the end users who took the survey, the changes that would have the greatest impact on building trust are all focused on other parties accessing their data: improved security measures to prevent data breaches; increased transparency on which other companies could access personal data; and reduced sharing of personal data with other companies (see Table 29 in the Appendix). By carefully managing how other parties access end-user data, companies may be able to bolster their own efforts to build trust, as end users have no way to assess the intentions and trustworthiness of unknown parties.

Willingness to engage in a personal data value exchange

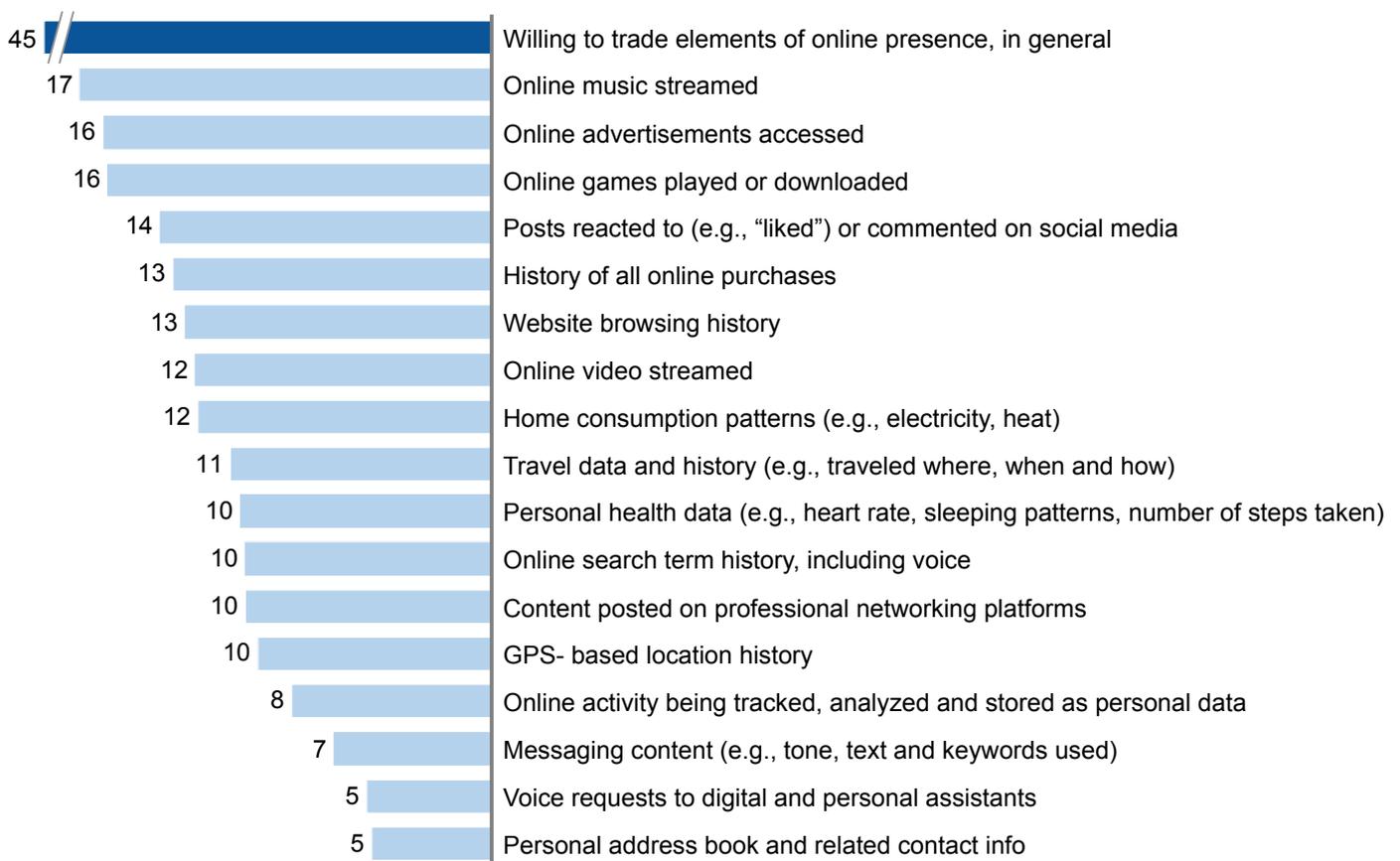
There is an implicit bargain underlying much of the digital economy: users are asked to trade their attention and their personal data in exchange for free access to valuable services and content. This is not to say that paid services refrain from data monetization.

This so-called “value exchange” can be a useful lens for thinking about the major themes addressed in this survey. For instance, end user comfort and trust may arise from a fair and transparent value exchange.

As noted above, there are varying levels of end-user awareness and understanding, implying that the value exchange is transparent to many, but that opportunities exist to improve digital media literacy. Further, 31% of respondents agree that they already receive fair value in exchange for access to their online presence and derived data (see Table 30 in the Appendix). For others, offering new value in exchange for their personal data could help to recalibrate the bargain; 45% say they would actively engage in trading elements of their online presence in return for (otherwise) free value-added content or services (see Table 30 in the Appendix). There appears to be appetite across many data types for this type of end user engagement with industry (see Figure 5 and Table 31 in the Appendix).

A related, but distinct, alternative approach to the value exchange is to simply allow users to pay for privacy. In the project’s Phase 1 survey, 45% of respondents said they were willing to pay for a high level of control over how their information is collected and used. Whether the value exchange takes the form of payment for privacy or trading data for in-kind value, the result is the same: end users are split on their preferences. Does this imply that some respondents are prepared to take a chance on how their personal data is used by other parties, while others are signalling that privacy is an inherent right that should not require payment? This question requires further research.

Figure 5: Willingness to trade elements of online presence in return for free value-added services
% of global respondents



Brazil

Digital media usage

What are the top 3 most popular brands for each major type of digital media services or site examined?

Type of site or service	Most commonly used brands (% used in last six months)					
	#1	%	#2	%	#3	%
Online browsers	Google Chrome	71	Firefox	11	Internet Explorer	5
Social media networks	Facebook	77	Instagram	9	Twitter	3
Personal email services	Gmail	46	Microsoft Outlook	35	Yahoo Mail	10
Instant messaging services	WhatsApp	82	Facebook Messenger	11	Skype	2
Professional networking platforms	LinkedIn	75	Other	7	E.Factor	3
Online retailers	Mercadolivre.com.br	25	Americanas.com	25	Submarino.com.br	15
Online search engines	Google	94	Yahoo	2	Bing	2
Free information portals, news sites, and blogs	Globo.com	36	Uol.com.br	12	MSN.com	11
Digital video and TV services	YouTube	50	Netflix	31	Google Play	6
Digital audio services	Google Play Music	29	Spotify	26	Vagalume	17

End user understanding, awareness and beliefs

Levels of digital media literacy and related actions, beliefs, and values

% agreeing with each statement	Brazil				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
I understand the concept of online presence.	68	67	59	66	68
I understand the concept of derived data.	52	52	47	51	53
I have sufficient knowledge about which activities, actions, behaviors and information make-up my online presence.	56	53	50	54	54
I have the tools and know-how to properly manage and control my online presence.	36	35	29	35	46
I have carefully constructed my public online presence.	49	48	36	47	50
I make choices about who sees the content I post (for example, I choose to share some content publicly, and other content with just people I know).	72	71	63	70	67

% agreeing with each statement	Brazil				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
My public online presence is important to me.	53	49	44	50	53
Keeping a private online presence is important to me.	67	70	63	67	72
I consider my online presence to be valuable to businesses and industries.	61	56	48	58	54
I consider my derived data to be of personal value to me.	63	64	63	63	55
I consider my derived data to be valuable to businesses and industries.	56	61	47	56	52

Awareness of personal data scenarios

% aware (vs. somewhat aware or not aware)	Brazil				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
Individual browsing activity can be tracked and stored as personal data, not only by the websites visited, but also by 3rd parties such as advertisers and social media websites, which can match this data to your profile.	41	46	38	42	37
Most online browsers (smartphone, tablet, PC) have a private or incognito browsing feature, which does not store the history of browsing activity and searches on your device.	54	46	31	48	40
Private or incognito browsing can be tracked and stored as personal data, by servers that are owned by an Internet service provider and by the websites visited.	34	34	32	34	31

% aware (vs. somewhat aware or not aware)	Brazil				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
Using GPS technology, applications can track, collect and store users' geographic location over extended periods of time.	47	52	46	48	42
Applications set different defaults, and some set GPS/location tracking to "On" by default.	45	40	24	40	35
GPS/location tracking can be disabled in the app's settings to remove any stored location data.	49	48	34	47	39
In some cases, you can access your GPS/location data online and delete all historical data.	39	38	29	37	30
Some messaging applications and services can scan and analyze message content, including emojis, and store related data in order to profile end users and target them with more personalized offers and advertising..	36	33	30	34	30
Applications and services on connected devices usually require the user's full consent to access their personal data, such as address books. This consent is often mandatory in order to use the application.	48	49	33	46	38
Data from many sources can be purchased, aggregated, analyzed, and resold by 3rd parties for marketing or other purposes.	35	41	37	37	36

% aware (vs. somewhat aware or not aware)	Brazil				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
Online browsers, apps, and other media services or products (including one's choices, searches, content viewed, and preferences)	47	48	36	46	41
Internet-connected vehicles, personal assistants, and home monitors and appliances (including one's choices, searches, settings, and statistics)	33	33	22	31	29
Commercial Internet-connected wearable devices	32	33	22	31	28
Public places, facilities and infrastructure	34	36	29	34	30
Internet-connected media players	35	34	24	33	29
Retail sites	52	52	43	51	42
Digital entertainment services	45	43	31	42	32
Internet-connected mobile devices	49	48	38	47	41
Social media and professional networks	56	56	49	55	48

Comfort with personal data collection, storage and use

What makes end users feel uncomfortable?

Reasons why 65% of Brazilian end users feel uncomfortable with personal data collection, storage and use (%)

41	It is being done without my knowledge
48	It is being done without my permission
17	I don't understand why it is being done
36	I'm not comfortable with my data being used for personalized advertising
20	I'm not comfortable with my data being used to personalize or improve the products and services I use
59	I'm not comfortable with my data being shared with 3rd parties
10	I don't understand how it could affect me
47	I fear my data could be used to commercially exploit me
24	I fear my data could disadvantage me in other ways (e.g., in hiring or lending decisions)
52	I fear my private data and digital footprint could become public
38	I don't receive enough value or benefits in exchange for my data
35	I don't understand how my data is protected
45	I don't think sufficient measures are being taken to keep my data secure
31	I don't think there is sufficient/effective regulation or oversight around the use of my data
30	I fear that "anonymous" or "anonymized" data could be traced back to my identity
38	I think that all types of data should be kept completely private, no matter what
21	I don't fully understand what it means for companies and 3rd parties to track, analyze, and store data

Brazil

Trade-offs between privacy and personalization

% selecting each preference	Brazil				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
Prefer to have none of my information collected, analyzed, and stored; therefore, I would not have a personalized user experience	38	46	49	42	44
Prefer that my information is collected, analyzed, and stored, but not linked to my identity; therefore, there would still be some personalization of my user experience, including what ads and marketed products/services I see.	29	24	23	27	26
Prefer that my information is collected, analyzed, stored, and linked to my identity, for the personalization of my user experience, including what ads and marketed products/services I see.	33	30	29	32	31

Control of personal data disclosure

How many end users think the technologies, sites, or services they use provide enough control over their data?

% agreeing	Brazil				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
Online browsers	44	41	41	43	41
Public places, facilities and infrastructure	31	31	22	30	29
Digital personal assistants	45	44	35	43	43
Internet-connected home appliances / monitors	48	49	31	47	45
Internet-connected in-car technology	47	47	37	46	41
Internet-connected wearable devices	50	51	34	49	46
Internet-connected mobile devices	43	39	35	41	39
Internet-connected media players	42	42	30	40	37
Social media and professional networks	46	43	36	44	40
Personal email services	46	53	48	48	46
Instant messaging services	51	50	49	50	48
Retail sites	39	43	37	40	39
Search engines	40	41	40	40	38
Digital video/TV services	45	46	34	44	38
Digital audio services	41	42	32	40	39

58% say they have decided not to use, or to stop using, certain technologies, sites, or services because it/they did not provide adequate control.

Why do some end users feel that controls are not enough? (%)

14	They don't provide any control
32	They provide some control but not enough
17	Their controls are not flexible enough
26	Their controls are difficult to understand or use
38	I don't trust that the controls work the way they are supposed to
32	I don't know what controls they provide
9	I'm not sure how much control I want
6	I don't know what end user control means

Trust and other areas of tension

How many end users trust their providers to define fair Terms and Conditions around personal data?

% agreeing	Brazil				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
Social media	45	48	41	46	43
Personal email services	47	53	46	48	46
Instant messaging services	48	53	48	50	46
Professional networking	49	52	45	49	48
Online browsers and search engines	43	42	38	42	40
Retail sites	42	44	35	42	43
Digital video/TV services	45	43	35	43	40
Digital audio services	43	45	32	42	42
Online communities and forums	39	43	33	39	39
Free educational sites	46	49	39	46	47
Digital personal assistants	44	44	36	43	45
Internet-connected home appliances / monitors	48	55	35	49	48
Internet-connected in-car technology	47	47	35	46	44
Internet-connected wearable devices	52	54	47	52	50
Mobile operating systems	42	43	36	42	41
Internet-connected media players	43	40	26	40	39

What changes would most improve end users' trust towards their service providers?

	29	Easier-to-find and easier-to-understand terms & conditions of use
	15	Improved communications after data breaches
	30	New or improved privacy-enhancing tools for users to manage their personal data
	36	Improved security measures to prevent data breaches
	21	Reduced use of personal data for secondary purposes (e.g., targeted advertising)
	20	Reduced sharing of personal data with other companies
	15	More regulation or government oversight of technology and service providers
	10	Improved reputation of my technology and service providers among my friends, family, and other contacts
	24	Improving my own understanding of how to better manage my online presence
	17	Increasing my own level of familiarity or experience with each technology and service provider
	41	Transparency on which other companies could access my data

Willingness to engage in a personal data value exchange

What do end users think about the value of their personal data?

% agreeing	Brazil				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
I consider my online presence and derived data to be an asset with monetary value	54	57	47	54	52
I would actively engage in trading or bartering elements of my online presence in return for value added content or services that would be free of charge	51	56	43	51	45
I feel that I already receive fair value in exchange for my online presence and derived data	32	25	17	28	31
If I received free content or services for my online presence and derived data, I would be more comfortable with my online activity being tracked, analyzed, and stored	51	51	40	49	45

China

Digital media usage

What are the top 3 most popular brands for each major type of digital media services or site examined?

Type of site or service	% used most often in past six months					
	Most commonly used brands (% used in last six months)					
	#1	%	#2	%	#3	%
Online browsers	360	35	Google Chrome	13	QQ	8
Social media networks	Sina Weibo	44	Qzone	37	Douban	4
Personal email services	QQmail	36	163mail	26	Sinamail	11
Instant messaging services	WeChat	71	QQ Mobile	16	AlITM	3
Professional networking platforms	LinkedIn	51	Dajie	26	Wealink	19
Online retailers	Taobao.com	35	Tmall.com	20	JD.com	17
Online search engines	Baidu	72	Sogou	7	Google	6
Free information portals, news sites, and blogs	Weibo.com	24	QQ.com	17	Sina.com	17
Digital video and TV services	Qiyi/iQiyi	31	Youku	24	Tencent Video	15
Digital audio services	QQMusic	27	KuGou	24	Kuwo	12

End user understanding, awareness and beliefs

Levels of digital media literacy and related actions, beliefs, and values

% agreeing with each statement	China				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
I understand the concept of online presence.	65	64	51	63	68
I understand the concept of derived data.	61	50	41	55	53
I have sufficient knowledge about which activities, actions, behaviors and information make-up my online presence.	56	50	43	53	54
I have the tools and know-how to properly manage and control my online presence.	57	48	33	51	46
I have carefully constructed my public online presence.	62	45	37	54	50
I make choices about who sees the content I post (for example, I choose to share some content publicly, and other content with just people I know).	68	58	50	62	67

% agreeing with each statement	China				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
My public online presence is important to me.	62	64	52	61	53
Keeping a private online presence is important to me.	77	81	79	78	72
I consider my online presence to be valuable to businesses and industries.	60	58	50	58	54
I consider my derived data to be of personal value to me.	65	60	48	61	55
I consider my derived data to be valuable to businesses and industries.	63	61	50	61	52

Awareness of personal data scenarios

% aware (vs. somewhat aware or not aware)	China				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
Individual browsing activity can be tracked and stored as personal data, not only by the websites visited, but also by 3rd parties such as advertisers and social media websites, which can match this data to your profile.	34	35	27	33	37
Most online browsers (smartphone, tablet, PC) have a private or incognito browsing feature, which does not store the history of browsing activity and searches on your device.	42	31	19	35	40
Private or incognito browsing can be tracked and stored as personal data, by servers that are owned by an Internet service provider and by the websites visited.	38	30	23	34	31

% aware (vs. somewhat aware or not aware)	China				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
Using GPS technology, applications can track, collect and store users' geographic location over extended periods of time.	36	36	23	34	42
Applications set different defaults, and some set GPS/location tracking to "On" by default.	38	33	23	35	35
GPS/location tracking can be disabled in the app's settings to remove any stored location data.	37	27	24	33	39
In some cases, you can access your GPS/location data online and delete all historical data.	37	26	17	31	30
Some messaging applications and services can scan and analyze message content, including emojis, and store related data in order to profile end users and target them with more personalized offers and advertising..	29	27	18	27	30
Applications and services on connected devices usually require the user's full consent to access their personal data, such as address books. This consent is often mandatory in order to use the application.	39	33	22	35	38
Data from many sources can be purchased, aggregated, analyzed, and resold by 3rd parties for marketing or other purposes.	41	36	25	37	36

% aware (vs. somewhat aware or not aware)	China				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
Online browsers, apps, and other media services or products (including one's choices, searches, content viewed, and preferences)	38	36	26	36	41
Internet-connected vehicles, personal assistants, and home monitors and appliances (including one's choices, searches, settings, and statistics)	37	34	21	34	29
Commercial Internet-connected wearable devices	30	30	21	29	28
Public places, facilities and infrastructure	33	28	23	31	30
Internet-connected media players	36	25	20	31	29
Retail sites	40	43	31	40	42
Digital entertainment services	40	30	22	34	32
Internet-connected mobile devices	39	36	25	36	41
Social media and professional networks	42	35	22	37	48

Comfort with personal data collection, storage and use

What makes end users feel uncomfortable?

Reasons why 43% of Chinese end users feel uncomfortable:

47	It is being done without my knowledge
54	It is being done without my permission
16	I don't understand why it is being done
19	I'm not comfortable with my data being used for personalized advertising
8	I'm not comfortable with my data being used to personalize or improve the products and services I use
42	I'm not comfortable with my data being shared with 3rd parties
15	I don't understand how it could affect me
38	I fear my data could be used to commercially exploit me
47	I fear my data could disadvantage me in other ways (e.g., in hiring or lending decisions)
53	I fear my private data and digital footprint could become public
16	I don't receive enough value or benefits in exchange for my data
25	I don't understand how my data is protected
41	I don't think sufficient measures are being taken to keep my data secure
36	I don't think there is sufficient/effective regulation or oversight around the use of my data
38	I fear that "anonymous" or "anonymized" data could be traced back to my identity
27	I think that all types of data should be kept completely private, no matter what
16	I don't fully understand what it means for companies and 3 parties to track, analyze, and store data

Trade-offs between privacy and personalization

% selecting each preference	China				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
Prefer to have none of my information collected, analyzed, and stored; therefore, I would not have a personalized user experience	25	36	43	31	44
Prefer that my information is collected, analyzed, and stored, but not linked to my identity; therefore, there would still be some personalization of my user experience, including what ads and marketed products/services I see.	31	29	24	30	26
Prefer that my information is collected, analyzed, stored, and linked to my identity, for the personalization of my user experience, including what ads and marketed products/services I see.	43	35	33	40	31

Control of personal data disclosure

How many end users think the technologies, sites, or services they use provide enough control over their data?

% agreeing	China				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
Online browsers	50	47	39	48	41
Public places, facilities and infrastructure	48	40	36	44	29
Digital personal assistants	59	54	54	57	43
Internet-connected home appliances / monitors	61	54	51	58	45
Internet-connected in-car technology	55	57	42	54	41
Internet-connected wearable devices	59	61	51	59	46
Internet-connected mobile devices	49	55	43	50	39
Internet-connected media players	52	46	42	49	37
Social media and professional networks	49	46	42	47	40
Personal email services	57	52	50	54	46
Instant messaging services	52	57	50	53	48
Retail sites	55	54	47	54	39
Search engines	51	49	40	49	38
Digital video/TV services	53	47	36	49	38
Digital audio services	51	52	34	49	39

70% say they have decided not to use, or to stop using, certain technologies, sites, or services because it/they did not provide adequate control

Why do some end users feel that controls are not enough? (%)

18	They don't provide any control
29	They provide some control but not enough
23	Their controls are not flexible enough
27	Their controls are difficult to understand or use
31	I don't trust that the controls work the way they are supposed to
43	I don't know what controls they provide
27	I'm not sure how much control I want
23	I don't know what end user control means

Trust and other areas of tension

How many end users trust their providers to define fair Terms and Conditions around personal data?

% agreeing	China				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
Social media	53	46	44	50	43
Personal email services	57	51	44	54	46
Instant messaging services	51	50	44	50	46
Professional networking	58	52	44	55	48
Online browsers and search engines	51	45	37	48	40
Retail sites	58	54	42	55	43
Digital video/TV services	57	48	35	52	40
Digital audio services	57	47	40	52	42
Online communities and forums	49	46	40	47	39
Free educational sites	56	49	45	53	47
Digital personal assistants	59	54	50	57	45
Internet-connected home appliances / monitors	67	60	51	63	48
Internet-connected in-car technology	62	52	40	56	44
Internet-connected wearable devices	64	60	59	63	50
Mobile operating systems	51	47	38	48	41
Internet-connected media players	57	48	38	52	39

What changes would most improve end users' trust towards their service providers?

17	Easier-to-find and easier-to-understand terms & conditions of use
21	Improved communications after data breaches
30	New or improved privacy-enhancing tools for users to manage their personal data
51	Improved security measures to prevent data breaches
23	Reduced use of personal data for secondary purposes (e.g., targeted advertising)
29	Reduced sharing of personal data with other companies
35	More regulation or government oversight of technology and service providers
16	Improved reputation of my technology and service providers among my friends, family, and other contacts
19	Improving my own understanding of how to better manage my online presence
17	Increasing my own level of familiarity or experience with each technology and service provider
16	Transparency on which other companies could access my data

Willingness to engage in a personal data value exchange

What do end users think about the value of their personal data?

% agreeing	China				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
I consider my online presence and derived data to be an asset with monetary value	68	71	67	69	52
I would actively engage in trading or bartering elements of my online presence in return for value added content or services that would be free of charge	64	56	51	60	45
I feel that I already receive fair value in exchange for my online presence and derived data	59	46	39	52	31
If I received free content or services for my online presence and derived data, I would be more comfortable with my online activity being tracked, analyzed, and stored	65	59	50	61	45

Egypt

Digital media usage

What are the top 3 most popular brands for each major type of digital media services or site examined?

Type of site or service	Most commonly used brands (% used in last six months)					
	#1	%	#2	%	#3	%
Online browsers	Google Chrome	57	Firefox	23	Android Browser	5
Social media networks	Facebook	85	Twitter	4	Google Plus+	4
Personal email services	Gmail	50	Yahoo Mail	33	Microsoft Outlook	12
Instant messaging services	WhatsApp	47	Facebook Messenger	38	Skype	6
Professional networking platforms	LinkedIn	90	Other:	10	n/a	-
Online retailers	Souq.com	37	Jumia.com	18	Amazon.com	18
Online search engines	Google	87	Yahoo	8	Ask.com	2
Free information portals, news sites, and blogs	Youm7.com	28	Yahoo.com	25	Wikipedia.org	20
Digital video and TV services	YouTube	79	Aljazeera	5	Torrent sites (e.g., ExtraTorrent and The Pirate Bay)	5
Digital audio services	SoundCloud	49	Anghami Music Player	27	Apple Music	11

End user understanding, awareness and beliefs

Levels of digital media literacy and related actions, beliefs, and values

% agreeing with each statement	Egypt				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
I understand the concept of online presence.	70	76	74	72	68
I understand the concept of derived data.	53	60	70	57	53
I have sufficient knowledge about which activities, actions, behaviors and information make-up my online presence.	63	68	70	65	54
I have the tools and know-how to properly manage and control my online presence.	62	67	70	65	46
I have carefully constructed my public online presence.	64	66	75	66	50
I make choices about who sees the content I post (for example, I choose to share some content publicly, and other content with just people I know).	65	72	73	68	67

% agreeing with each statement	Egypt				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
My public online presence is important to me.	72	75	80	74	53
Keeping a private online presence is important to me.	77	83	80	79	72
I consider my online presence to be valuable to businesses and industries.	70	76	79	73	54
I consider my derived data to be of personal value to me.	65	71	77	68	55
I consider my derived data to be valuable to businesses and industries.	57	62	69	59	52

Awareness of personal data scenarios

% aware (vs. somewhat aware or not aware)	Egypt				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
Individual browsing activity can be tracked and stored as personal data, not only by the websites visited, but also by 3rd parties such as advertisers and social media websites, which can match this data to your profile.	26	25	30	26	37
Most online browsers (smartphone, tablet, PC) have a private or incognito browsing feature, which does not store the history of browsing activity and searches on your device.	41	34	28	37	40
Private or incognito browsing can be tracked and stored as personal data, by servers that are owned by an Internet service provider and by the websites visited.	23	24	29	24	31

% aware (vs. somewhat aware or not aware)	Egypt				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
Using GPS technology, applications can track, collect and store users' geographic location over extended periods of time.	33	33	29	33	42
Applications set different defaults, and some set GPS/location tracking to "On" by default.	24	26	20	24	35
GPS/location tracking can be disabled in the app's settings to remove any stored location data.	29	27	24	28	39
In some cases, you can access your GPS/location data online and delete all historical data.	28	28	21	27	30
Some messaging applications and services can scan and analyze message content, including emojis, and store related data in order to profile end users and target them with more personalized offers and advertising..	23	23	24	23	30
Applications and services on connected devices usually require the user's full consent to access their personal data, such as address books. This consent is often mandatory in order to use the application.	34	35	28	34	38
Data from many sources can be purchased, aggregated, analyzed, and resold by 3rd parties for marketing or other purposes.	21	25	25	23	36

% aware (vs. somewhat aware or not aware)	Egypt				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
Online browsers, apps, and other media services or products (including one's choices, searches, content viewed, and preferences)	33	32	28	32	41
Internet-connected vehicles, personal assistants, and home monitors and appliances (including one's choices, searches, settings, and statistics)	22	19	18	21	29
Commercial Internet-connected wearable devices	24	21	25	23	28
Public places, facilities and infrastructure	23	21	18	22	30
Internet-connected media players	24	17	24	22	29
Retail sites	27	28	20	26	42
Digital entertainment services	17	17	16	17	32
Internet-connected mobile devices	36	29	34	34	41
Social media and professional networks	44	41	42	43	48

Comfort with personal data collection, storage and use

What makes end users feel uncomfortable?

Reasons why 64% of Egyptian end users feel uncomfortable:

45	It is being done without my knowledge
46	It is being done without my permission
21	I don't understand why it is being done
32	I'm not comfortable with my data being used for personalized advertising
24	I'm not comfortable with my data being used to personalize or improve the products and services I use
54	I'm not comfortable with my data being shared with 3rd parties
16	I don't understand how it could affect me
38	I fear my data could be used to commercially exploit me
49	I fear my data could disadvantage me in other ways (e.g., in hiring or lending decisions)
47	I fear my private data and digital footprint could become public
28	I don't receive enough value or benefits in exchange for my data
29	I don't understand how my data is protected
43	I don't think sufficient measures are being taken to keep my data secure
35	I don't think there is sufficient/effective regulation or oversight around the use of my data
36	I fear that "anonymous" or "anonymized" data could be traced back to my identity
47	I think that all types of data should be kept completely private, no matter what
16	I don't fully understand what it means for companies and 3 parties to track, analyze, and store data

Trade-offs between privacy and personalization

% selecting each preference	Egypt				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
Prefer to have none of my information collected, analyzed, and stored; therefore, I would not have a personalized user experience	25	36	43	31	44
Prefer that my information is collected, analyzed, and stored, but not linked to my identity; therefore, there would still be some personalization of my user experience, including what ads and marketed products/services I see.	31	29	24	30	26
Prefer that my information is collected, analyzed, stored, and linked to my identity, for the personalization of my user experience, including what ads and marketed products/services I see.	43	35	33	40	31

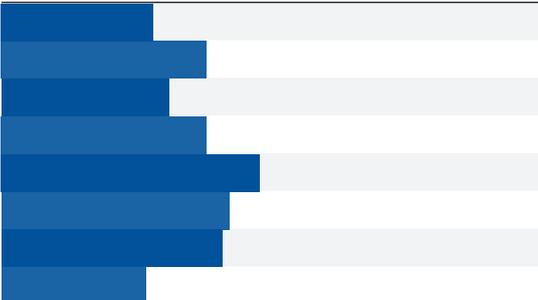
Control of personal data disclosure

How many end users think the technologies, sites, or services they use provide enough control over their data?

% agreeing	Egypt				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
Online browsers	53	51	56	52	41
Public places, facilities and infrastructure	38	35	43	38	29
Digital personal assistants	49	45	53	48	43
Internet-connected home appliances / monitors	44	43	40	43	45
Internet-connected in-car technology	42	38	46	41	41
Internet-connected wearable devices	45	46	44	45	46
Internet-connected mobile devices	51	48	56	50	39
Internet-connected media players	51	45	40	48	37
Social media and professional networks	53	53	56	53	40
Personal email services	53	55	58	54	46
Instant messaging services	54	55	56	55	48
Retail sites	45	45	48	45	39
Search engines	51	50	58	51	38
Digital video/TV services	41	38	41	40	38
Digital audio services	41	36	48	40	39

28% say they have decided not to use, or to stop using, certain technologies, sites, or services because it/they did not provide adequate control

Why do some end users feel that controls are not enough? (%)

	20	They don't provide any control
	27	They provide some control but not enough
	22	Their controls are not flexible enough
	27	Their controls are difficult to understand or use
	34	I don't trust that the controls work the way they are supposed to
	30	I don't know what controls they provide
	29	I'm not sure how much control I want
	19	I don't know what end user control means

Trust and other areas of tension

How many end users trust their providers to define fair Terms and Conditions around personal data?

% agreeing	Egypt				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
Social media	50	44	57	49	43
Personal email services	48	47	53	48	46
Instant messaging services	49	44	51	47	46
Professional networking	45	41	54	44	48
Online browsers and search engines	45	41	51	44	40
Retail sites	43	41	46	43	43
Digital video/TV services	39	35	30	37	40
Digital audio services	40	32	49	38	42
Online communities and forums	39	34	38	37	39
Free educational sites	50	44	46	48	47
Digital personal assistants	41	42	44	42	45
Internet-connected home appliances / monitors	40	37	47	40	48
Internet-connected in-car technology	38	40	46	39	44
Internet-connected wearable devices	42	41	53	43	50
Mobile operating systems	42	40	48	42	41
Internet-connected media players	49	34	44	44	39

What changes would most improve end users' trust towards their service providers?

	26	Easier-to-find and easier-to-understand terms & conditions of use
	11	Improved communications after data breaches
	27	New or improved privacy-enhancing tools for users to manage their personal data
	41	Improved security measures to prevent data breaches
	26	Reduced use of personal data for secondary purposes (e.g., targeted advertising)
	24	Reduced sharing of personal data with other companies
	23	More regulation or government oversight of technology and service providers
	12	Improved reputation of my technology and service providers among my friends, family, and other contacts
	19	Improving my own understanding of how to better manage my online presence
	21	Increasing my own level of familiarity or experience with each technology and service provider
	29	Transparency on which other companies could access my data

Willingness to engage in a personal data value exchange

What do end users think about the value of their personal data?

% agreeing	Egypt				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
I consider my online presence and derived data to be an asset with monetary value	48	51	57	50	52
I would actively engage in trading or bartering elements of my online presence in return for value added content or services that would be free of charge	39	39	50	40	45
I feel that I already receive fair value in exchange for my online presence and derived data	36	35	43	36	31
If I received free content or services for my online presence and derived data, I would be more comfortable with my online activity being tracked, analyzed, and stored	45	46	56	46	45

Germany

Digital media usage

What are the top 3 most popular brands for each major type of digital media services or site examined?

Type of site or service	% used most often in past six months					
	Most commonly used brands (% used in last six months)					
	#1	%	#2	%	#3	%
Online browsers	Firefox	36	Google Chrome	35	Internet Explorer	10
Social media networks	Facebook	76	Instagram	9	Twitter	4
Personal email services	Gmail	21	GMX	20	WEB.DE	18
Instant messaging services	WhatsApp	77	Facebook Messenger	10	Skype	4
Professional networking platforms	Xing	56	LinkedIn	19	Other:	6
Online retailers	Amazon.com	62	eBay.com	22	Otto.de	3
Online search engines	Google	86	T-Online	4	Yahoo	3
Free information portals, news sites, and blogs	Wikipedia.org	37	Bild.de	17	Spiegel.de	11
Digital video and TV services	YouTube	62	Amazon Instant Video / Amazon Prime Instant Video	14	Netflix	7
Digital audio services	Spotify	36	Amazon Prime Music	17	Google Play Music	15

End user understanding, awareness and beliefs

Levels of digital media literacy and related actions, beliefs, and values

% agreeing with each statement	Germany				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
I understand the concept of online presence.	64	69	72	68	68
I understand the concept of derived data.	51	47	49	49	53
I have sufficient knowledge about which activities, actions, behaviors and information make-up my online presence.	50	49	49	49	54
I have the tools and know-how to properly manage and control my online presence.	37	35	34	35	46
I have carefully constructed my public online presence.	33	30	34	33	50
I make choices about who sees the content I post (for example, I choose to share some content publicly, and other content with just people I know).	62	70	66	66	67

% agreeing with each statement	Germany				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
My public online presence is important to me.	34	31	28	31	53
Keeping a private online presence is important to me.	65	72	74	71	72
I consider my online presence to be valuable to businesses and industries.	40	38	30	36	54
I consider my derived data to be of personal value to me.	39	38	39	39	55
I consider my derived data to be valuable to businesses and industries.	40	44	39	41	52

Awareness of personal data scenarios

% aware (vs. somewhat aware or not aware)	Germany				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
Individual browsing activity can be tracked and stored as personal data, not only by the websites visited, but also by 3rd parties such as advertisers and social media websites, which can match this data to your profile.	42	39	37	39	37
Most online browsers (smartphone, tablet, PC) have a private or incognito browsing feature, which does not store the history of browsing activity and searches on your device.	46	37	27	36	40
Private or incognito browsing can be tracked and stored as personal data, by servers that are owned by an Internet service provider and by the websites visited.	33	28	25	29	31

% aware (vs. somewhat aware or not aware)	Germany				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
Using GPS technology, applications can track, collect and store users' geographic location over extended periods of time.	52	48	50	50	42
Applications set different defaults, and some set GPS/location tracking to "On" by default.	42	38	32	37	35
GPS/location tracking can be disabled in the app's settings to remove any stored location data.	42	43	33	39	39
In some cases, you can access your GPS/location data online and delete all historical data.	24	29	22	25	30
Some messaging applications and services can scan and analyze message content, including emojis, and store related data in order to profile end users and target them with more personalized offers and advertising..	35	34	30	33	30
Applications and services on connected devices usually require the user's full consent to access their personal data, such as address books. This consent is often mandatory in order to use the application.	45	41	37	41	38
Data from many sources can be purchased, aggregated, analyzed, and resold by 3rd parties for marketing or other purposes.	45	47	50	47	36

% aware (vs. somewhat aware or not aware)	Germany				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
Online browsers, apps, and other media services or products (including one's choices, searches, content viewed, and preferences)	47	44	40	44	41
Internet-connected vehicles, personal assistants, and home monitors and appliances (including one's choices, searches, settings, and statistics)	32	34	28	31	29
Commercial Internet-connected wearable devices	34	33	24	30	28
Public places, facilities and infrastructure	30	27	26	28	30
Internet-connected media players	32	32	26	30	29
Retail sites	51	49	49	49	42
Digital entertainment services	42	37	29	35	32
Internet-connected mobile devices	49	44	40	44	41
Social media and professional networks	58	52	45	51	48

Comfort with personal data collection, storage and use

What makes end users feel uncomfortable?

Reasons why 83% of German end users feel uncomfortable:

49	It is being done without my knowledge
57	It is being done without my permission
11	I don't understand why it is being done
38	I'm not comfortable with my data being used for personalized advertising
23	I'm not comfortable with my data being used to personalize or improve the products and services I use
53	I'm not comfortable with my data being shared with 3rd parties
9	I don't understand how it could affect me
42	I fear my data could be used to commercially exploit me
34	I fear my data could disadvantage me in other ways (e.g., in hiring or lending decisions)
33	I fear my private data and digital footprint could become public
14	I don't receive enough value or benefits in exchange for my data
31	I don't understand how my data is protected
44	I don't think sufficient measures are being taken to keep my data secure
33	I don't think there is sufficient/effective regulation or oversight around the use of my data
40	I fear that "anonymous" or "anonymized" data could be traced back to my identity
45	I think that all types of data should be kept completely private, no matter what
14	I don't fully understand what it means for companies and 3 parties to track, analyze, and store data

Germany

Trade-offs between privacy and personalization

% selecting each preference	Germany				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
Prefer to have none of my information collected, analyzed, and stored; therefore, I would not have a personalized user experience	25	36	43	31	44
Prefer that my information is collected, analyzed, and stored, but not linked to my identity; therefore, there would still be some personalization of my user experience, including what ads and marketed products/services I see.	31	29	24	30	26
Prefer that my information is collected, analyzed, stored, and linked to my identity, for the personalization of my user experience, including what ads and marketed products/services I see.	43	35	33	40	31

Control of personal data disclosure

How many end users think the technologies, sites, or services they use provide enough control over their data?

% agreeing	Germany				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
Online browsers	30	29	27	29	41
Public places, facilities and infrastructure	24	22	14	20	29
Digital personal assistants	23	33	19	24	43
Internet-connected home appliances / monitors	30	38	19	29	45
Internet-connected in-car technology	25	31	18	25	41
Internet-connected wearable devices	31	37	26	32	46
Internet-connected mobile devices	26	26	17	23	39
Internet-connected media players	25	23	11	20	37
Social media and professional networks	26	25	16	22	40
Personal email services	32	34	32	33	46
Instant messaging services	26	27	24	26	48
Retail sites	29	29	25	28	39
Search engines	26	23	18	22	38
Digital video/TV services	27	24	15	22	38
Digital audio services	34	26	23	30	39

47% say they have decided not to use, or to stop using, certain technologies, sites, or services because it/they did not provide adequate control

Why do some end users feel that controls are not enough? (%)

16	They don't provide any control
29	They provide some control but not enough
18	Their controls are not flexible enough
26	Their controls are difficult to understand or use
48	I don't trust that the controls work the way they are supposed to
26	I don't know what controls they provide
9	I'm not sure how much control I want
7	I don't know what end user control means

Trust and other areas of tension

How many end users trust their providers to define fair Terms and Conditions around personal data?

% agreeing	Germany				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
Social media	25	29	22	25	43
Personal email services	36	34	42	37	46
Instant messaging services	29	31	30	30	46
Professional networking	32	40	38	36	48
Online browsers and search engines	26	24	28	26	40
Retail sites	33	33	41	36	43
Digital video/TV services	29	26	23	26	40
Digital audio services	32	35	35	33	42
Online communities and forums	25	30	28	27	39
Free educational sites	33	41	41	37	47
Digital personal assistants	29	33	35	32	45
Internet-connected home appliances / monitors	32	46	42	38	48
Internet-connected in-car technology	35	30	36	34	44
Internet-connected wearable devices	37	40	36	38	50
Mobile operating systems	26	26	29	27	41
Internet-connected media players	29	31	25	29	39

What changes would most improve end users' trust towards their service providers?

	22	Easier-to-find and easier-to-understand terms & conditions of use
	13	Improved communications after data breaches
	22	New or improved privacy-enhancing tools for users to manage their personal data
	34	Improved security measures to prevent data breaches
	29	Reduced use of personal data for secondary purposes (e.g., targeted advertising)
	40	Reduced sharing of personal data with other companies
	22	More regulation or government oversight of technology and service providers
	7	Improved reputation of my technology and service providers among my friends, family, and other contacts
	16	Improving my own understanding of how to better manage my online presence
	13	Increasing my own level of familiarity or experience with each technology and service provider
	39	Transparency on which other companies could access my data

Willingness to engage in a personal data value exchange

What do end users think about the value of their personal data?

% agreeing	Germany				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
I consider my online presence and derived data to be an asset with monetary value	34	38	36	36	52
I would actively engage in trading or bartering elements of my online presence in return for value added content or services that would be free of charge	36	30	21	28	45
I feel that I already receive fair value in exchange for my online presence and derived data	27	22	14	20	31
If I received free content or services for my online presence and derived data, I would be more comfortable with my online activity being tracked, analyzed, and stored	38	31	27	32	45

South Africa

Digital media usage

What are the top 3 most popular brands for each major type of digital media services or site examined?

Type of site or service	Most commonly used brands (% used in last six months)					
	#1	%	#2	%	#3	%
Online browsers	Google Chrome	59	Internet Explorer	11	Firefox	10
Social media networks	Facebook	73	Instagram	9	Google Plus+	5
Personal email services	Gmail	62	Microsoft Outlook	24	Yahoo Mail	10
Instant messaging services	WhatsApp	87	Facebook Messenger	5	Skype	2
Professional networking platforms	LinkedIn	88	Other	2	Data.com Connect	2
Online retailers	Takealot.com	51	OLX.com	13	Amazon.com	8
Online search engines	Google	96	Yahoo	2	Bing	1
Free information portals, news sites, and blogs	News24.com	56	Wikipedia.org	24	Yahoo.com	9
Digital video and TV services	YouTube	66	Google Play	14	Torrent sites (e.g., ExtraTorrent and The Pirate Bay)	8
Digital audio services	Google Play Music	51	Apple Music	21	Deezer	11

End user understanding, awareness and beliefs

Levels of digital media literacy and related actions, beliefs, and values

Understanding and actions	South Africa				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
I understand the concept of online presence.	69	73	71	70	68
I understand the concept of derived data.	57	53	55	56	53
I have sufficient knowledge about which activities, actions, behaviors and information make-up my online presence.	57	53	47	55	54
I have the tools and know-how to properly manage and control my online presence.	51	42	39	48	46
I have carefully constructed my public online presence.	56	47	51	54	50
I make choices about who sees the content I post (for example, I choose to share some content publicly, and other content with just people I know).	74	79	75	75	67

Beliefs and values	South Africa				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
My public online presence is important to me.	49	54	58	51	53
Keeping a private online presence is important to me.	69	77	82	72	72
I consider my online presence to be valuable to businesses and industries.	53	48	51	52	54
I consider my derived data to be of personal value to me.	58	54	65	58	55
I consider my derived data to be valuable to businesses and industries.	52	43	48	50	52

Awareness of personal data scenarios

Browsing activity	South Africa				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
Individual browsing activity can be tracked and stored as personal data, not only by the websites visited, but also by 3rd parties such as advertisers and social media websites, which can match this data to your profile.	44	36	31	41	37
Most online browsers (smartphone, tablet, PC) have a private or incognito browsing feature, which does not store the history of browsing activity and searches on your device.	54	33	29	47	40
Private or incognito browsing can be tracked and stored as personal data, by servers that are owned by an Internet service provider and by the websites visited.	34	27	25	32	31

% aware (vs. somewhat aware or not aware)	South Africa				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
Using GPS technology, applications can track, collect and store users' geographic location over extended periods of time.	52	45	41	50	42
Applications set different defaults, and some set GPS/location tracking to "On" by default.	44	36	25	40	35
GPS/location tracking can be disabled in the app's settings to remove any stored location data.	55	46	33	51	39
In some cases, you can access your GPS/location data online and delete all historical data.	36	25	19	32	30
Some messaging applications and services can scan and analyze message content, including emojis, and store related data in order to profile end users and target them with more personalized offers and advertising..	31	28	21	30	30
Applications and services on connected devices usually require the user's full consent to access their personal data, such as address books. This consent is often mandatory in order to use the application.	47	40	34	45	38
Data from many sources can be purchased, aggregated, analyzed, and resold by 3rd parties for marketing or other purposes.	40	33	34	38	36

% aware (vs. somewhat aware or not aware)	South Africa				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
Online browsers, apps, and other media services or products (including one's choices, searches, content viewed, and preferences)	52	41	30	47	41
Internet-connected vehicles, personal assistants, and home monitors and appliances (including one's choices, searches, settings, and statistics)	29	22	13	26	29
Commercial Internet-connected wearable devices	30	24	17	28	28
Public places, facilities and infrastructure	33	24	23	30	30
Internet-connected media players	31	20	14	27	29
Retail sites	46	32	30	41	42
Digital entertainment services	31	26	18	29	32
Internet-connected mobile devices	51	35	33	46	41
Social media and professional networks	61	45	45	56	48

Comfort with personal data collection, storage and use

What makes end users feel uncomfortable?

Reasons why 80% of South African end users feel uncomfortable:

	59	It is being done without my knowledge
	61	It is being done without my permission
	19	I don't understand why it is being done
	45	I'm not comfortable with my data being used for personalized advertising
	23	I'm not comfortable with my data being used to personalize or improve the products and services I use
	65	I'm not comfortable with my data being shared with 3rd parties
	11	I don't understand how it could affect me
	57	I fear my data could be used to commercially exploit me
	44	I fear my data could disadvantage me in other ways (e.g., in hiring or lending decisions)
	60	I fear my private data and digital footprint could become public
	35	I don't receive enough value or benefits in exchange for my data
	29	I don't understand how my data is protected
	54	I don't think sufficient measures are being taken to keep my data secure
	43	I don't think there is sufficient/effective regulation or oversight around the use of my data
	45	I fear that "anonymous" or "anonymized" data could be traced back to my identity
	44	I think that all types of data should be kept completely private, no matter what
	17	I don't fully understand what it means for companies and 3 parties to track, analyze, and store data

South Africa

Trade-offs between privacy and personalization

% selecting each preference	South Africa				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
Prefer to have none of my information collected, analyzed, and stored; therefore, I would not have a personalized user experience	42	50	57	45	44
Prefer that my information is collected, analyzed, and stored, but not linked to my identity; therefore, there would still be some personalization of my user experience, including what ads and marketed products/services I see.	28	26	25	27	26
Prefer that my information is collected, analyzed, stored, and linked to my identity, for the personalization of my user experience, including what ads and marketed products/services I see.	31	24	18	28	31

Control of personal data disclosure

How many end users think the technologies, sites, or services they use provide enough control over their data?

% agreeing	South Africa				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
Online browsers	40	35	32	38	41
Public places, facilities and infrastructure	26	13	9	21	29
Digital personal assistants	39	29	28	37	43
Internet-connected home appliances / monitors	44	30	25	40	45
Internet-connected in-car technology	39	24	22	35	41
Internet-connected wearable devices	34	31	26	33	46
Internet-connected mobile devices	40	30	27	37	39
Internet-connected media players	33	20	23	29	37
Social media and professional networks	43	36	30	41	40
Personal email services	55	45	41	52	46
Instant messaging services	58	49	48	56	48
Retail sites	33	28	22	31	39
Search engines	37	29	30	35	38
Digital video/TV services	31	30	23	30	38
Digital audio services	31	24	19	29	39

52% say they have decided not to use, or to stop using, certain technologies, sites, or services because it/they did not provide adequate control

Why do some end users feel that controls are not enough? (%)

11	They don't provide any control
36	They provide some control but not enough
23	Their controls are not flexible enough
28	Their controls are difficult to understand or use
33	I don't trust that the controls work the way they are supposed to
36	I don't know what controls they provide
16	I'm not sure how much control I want
12	I don't know what end user control means

Trust and other areas of tension

How many end users trust their providers to define fair Terms and Conditions around personal data?

% agreeing	South Africa				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
Social media	48	42	39	46	43
Personal email services	53	47	49	51	46
Instant messaging services	57	51	48	55	46
Professional networking	51	42	46	49	48
Online browsers and search engines	44	27	29	39	40
Retail sites	40	29	34	37	43
Digital video/TV services	40	28	28	37	40
Digital audio services	38	25	29	35	42
Online communities and forums	38	27	26	36	39
Free educational sites	46	36	29	43	47
Digital personal assistants	44	41	36	43	45
Internet-connected home appliances / monitors	45	31	25	41	48
Internet-connected in-car technology	43	30	29	40	44
Internet-connected wearable devices	45	29	38	42	50
Mobile operating systems	50	38	36	46	41
Internet-connected media players	30	28	31	30	39

What changes would most improve end users' trust towards their service providers?

	28	Easier-to-find and easier-to-understand terms & conditions of use
	15	Improved communications after data breaches
	29	New or improved privacy-enhancing tools for users to manage their personal data
	37	Improved security measures to prevent data breaches
	28	Reduced use of personal data for secondary purposes (e.g., targeted advertising)
	32	Reduced sharing of personal data with other companies
	15	More regulation or government oversight of technology and service providers
	8	Improved reputation of my technology and service providers among my friends, family, and other contacts
	27	Improving my own understanding of how to better manage my online presence
	15	Increasing my own level of familiarity or experience with each technology and service provider
	32	Transparency on which other companies could access my data

Willingness to engage in a personal data value exchange

What do end users think about the value of their personal data?

% agreeing	South Africa				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
I consider my online presence and derived data to be an asset with monetary value	51	45	59	51	52
I would actively engage in trading or bartering elements of my online presence in return for value added content or services that would be free of charge	50	42	47	48	45
I feel that I already receive fair value in exchange for my online presence and derived data	24	20	16	23	31
If I received free content or services for my online presence and derived data, I would be more comfortable with my online activity being tracked, analyzed, and stored	44	35	40	42	45

USA

Digital media usage

What are the top 3 most popular brands for each major type of digital media services or site examined?

Type of site or service	Most commonly used brands (% used in last six months)					
	#1	%	#2	%	#3	%
Online browsers	Google Chrome	44	Internet Explorer	19	Firefox	17
Social media networks	Facebook	70	Instagram	9	Twitter	8
Personal email services	Gmail	34	Yahoo Mail	30	Microsoft Outlook	20
Instant messaging services	Facebook Messenger	35	Skype	11	Snapchat	10
Professional networking platforms	LinkedIn	71	AngelList	6	Other	6
Online retailers	Amazon.com	71	eBay.com	8	Walmart.com	4
Online search engines	Google	66	Bing	17	Yahoo	11
Free information portals, news sites, and blogs	Yahoo.com	27	Wikipedia.org	11	MSN.com	9
Digital video and TV services	Netflix	39	YouTube	31	Amazon Instant Video / Amazon Prime Instant Video	8
Digital audio services	Pandora	43	Spotify	24	Other	13

End user understanding, awareness and beliefs

Levels of digital media literacy and related actions, beliefs, and values

% agreeing with each statement	USA				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
I understand the concept of online presence.	61	71	70	67	68
I understand the concept of derived data.	47	56	52	51	53
I have sufficient knowledge about which activities, actions, behaviors and information make-up my online presence.	49	51	47	49	54
I have the tools and know-how to properly manage and control my online presence.	41	49	39	42	46
I have carefully constructed my public online presence.	48	43	39	44	50
I make choices about who sees the content I post (for example, I choose to share some content publicly, and other content with just people I know).	59	67	59	61	67

% agreeing with each statement	USA				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
My public online presence is important to me.	47	52	51	50	53
Keeping a private online presence is important to me.	56	70	69	64	72
I consider my online presence to be valuable to businesses and industries.	47	46	38	44	54
I consider my derived data to be of personal value to me.	42	44	44	43	55
I consider my derived data to be valuable to businesses and industries.	39	48	45	44	52

Awareness of personal data scenarios

% aware (vs. somewhat aware or not aware)	USA				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
Individual browsing activity can be tracked and stored as personal data, not only by the websites visited, but also by 3rd parties such as advertisers and social media websites, which can match this data to your profile.	44	47	40	43	37
Most online browsers (smartphone, tablet, PC) have a private or incognito browsing feature, which does not store the history of browsing activity and searches on your device.	41	39	28	36	40
Private or incognito browsing can be tracked and stored as personal data, by servers that are owned by an Internet service provider and by the websites visited.	37	36	31	35	31

% aware (vs. somewhat aware or not aware)	USA				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
Using GPS technology, applications can track, collect and store users' geographic location over extended periods of time.	37	40	42	39	42
Applications set different defaults, and some set GPS/location tracking to "On" by default.	42	36	31	37	35
GPS/location tracking can be disabled in the app's settings to remove any stored location data.	37	39	31	36	39
In some cases, you can access your GPS/location data online and delete all historical data.	35	29	22	29	30
Some messaging applications and services can scan and analyze message content, including emojis, and store related data in order to profile end users and target them with more personalized offers and advertising..	37	31	29	33	30
Applications and services on connected devices usually require the user's full consent to access their personal data, such as address books. This consent is often mandatory in order to use the application.	34	31	23	29	38
Data from many sources can be purchased, aggregated, analyzed, and resold by 3rd parties for marketing or other purposes.	30	42	43	38	36

% aware (vs. somewhat aware or not aware)	USA				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
Online browsers, apps, and other media services or products (including one's choices, searches, content viewed, and preferences)	44	38	40	41	41
Internet-connected vehicles, personal assistants, and home monitors and appliances (including one's choices, searches, settings, and statistics)	36	35	29	34	29
Commercial Internet-connected wearable devices	31	32	24	29	28
Public places, facilities and infrastructure	34	39	30	34	30
Internet-connected media players	34	32	26	31	29
Retail sites	47	48	47	48	42
Digital entertainment services	35	36	29	33	32
Internet-connected mobile devices	45	41	35	40	41
Social media and professional networks	52	51	44	49	48

Comfort with personal data collection, storage and use

What makes end users feel uncomfortable?

Reasons why 60% of American end users feel uncomfortable:

42	It is being done without my knowledge
53	It is being done without my permission
15	I don't understand why it is being done
38	I'm not comfortable with my data being used for personalized advertising
25	I'm not comfortable with my data being used to personalize or improve the products and services I use
48	I'm not comfortable with my data being shared with 3rd parties
15	I don't understand how it could affect me
36	I fear my data could be used to commercially exploit me
26	I fear my data could disadvantage me in other ways (e.g., in hiring or lending decisions)
42	I fear my private data and digital footprint could become public
36	I don't receive enough value or benefits in exchange for my data
27	I don't understand how my data is protected
40	I don't think sufficient measures are being taken to keep my data secure
33	I don't think there is sufficient/effective regulation or oversight around the use of my data
30	I fear that "anonymous" or "anonymized" data could be traced back to my identity
31	I think that all types of data should be kept completely private, no matter what
14	I don't fully understand what it means for companies and 3 parties to track, analyze, and store data

Trade-offs between privacy and personalization

% selecting each preference	USA				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
Prefer to have none of my information collected, analyzed, and stored; therefore, I would not have a personalized user experience	37	45	57	45	44
Prefer that my information is collected, analyzed, and stored, but not linked to my identity; therefore, there would still be some personalization of my user experience, including what ads and marketed products/services I see.	27	24	22	25	26
Prefer that my information is collected, analyzed, stored, and linked to my identity, for the personalization of my user experience, including what ads and marketed products/services I see.	35	31	21	30	31

Control of personal data disclosure

How many end users think the technologies, sites, or services they use provide enough control over their data?

% agreeing	USA				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
Online browsers	35	38	28	34	41
Public places, facilities and infrastructure	30	24	12	22	29
Digital personal assistants	47	54	22	43	43
Internet-connected home appliances / monitors	41	38	35	39	45
Internet-connected in-car technology	38	45	28	38	41
Internet-connected wearable devices	49	47	20	44	46
Internet-connected mobile devices	38	36	19	31	39
Internet-connected media players	37	40	19	34	37
Social media and professional networks	35	31	20	29	40
Personal email services	44	41	29	38	46
Instant messaging services	41	48	29	41	48
Retail sites	43	40	28	37	39
Search engines	32	36	25	31	38
Digital video/TV services	40	42	28	38	38
Digital audio services	39	40	26	36	39

31% say they have decided not to use, or to stop using, certain technologies, sites, or services because it/they did not provide adequate control

Why do some end users feel that controls are not enough? (%)

18	They don't provide any control
33	They provide some control but not enough
20	Their controls are not flexible enough
21	Their controls are difficult to understand or use
41	I don't trust that the controls work the way they are supposed to
40	I don't know what controls they provide
18	I'm not sure how much control I want
13	I don't know what end user control means

Trust and other areas of tension

How many end users trust their providers to define fair Terms and Conditions around personal data?

% agreeing	USA				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
Social media	40	37	33	37	43
Personal email services	40	42	36	40	46
Instant messaging services	45	50	28	43	46
Professional networking	56	49	39	49	48
Online browsers and search engines	45	38	32	39	40
Retail sites	44	44	39	42	43
Digital video/TV services	46	42	38	43	40
Digital audio services	50	46	32	45	42
Online communities and forums	49	43	31	42	39
Free educational sites	58	47	40	52	47
Digital personal assistants	58	60	35	54	45
Internet-connected home appliances / monitors	53	56	31	51	48
Internet-connected in-car technology	47	51	39	46	44
Internet-connected wearable devices	58	49	30	51	50
Mobile operating systems	43	40	30	38	41
Internet-connected media players	39	40	34	38	39

What changes would most improve end users' trust towards their service providers?

	20	Easier-to-find and easier-to-understand terms & conditions of use
	14	Improved communications after data breaches
	22	New or improved privacy-enhancing tools for users to manage their personal data
	35	Improved security measures to prevent data breaches
	22	Reduced use of personal data for secondary purposes (e.g., targeted advertising)
	27	Reduced sharing of personal data with other companies
	15	More regulation or government oversight of technology and service providers
	10	Improved reputation of my technology and service providers among my friends, family, and other contacts
	22	Improving my own understanding of how to better manage my online presence
	17	Increasing my own level of familiarity or experience with each technology and service provider
	25	Transparency on which other companies could access my data

Willingness to engage in a personal data value exchange

What do end users think about the value of their personal data?

% agreeing	USA				Global
	Generation Z / Millennials	Generation X	Baby Boomers	Total	Total
I consider my online presence and derived data to be an asset with monetary value	46	57	49	51	52
I would actively engage in trading or bartering elements of my online presence in return for value added content or services that would be free of charge	39	46	44	43	45
I feel that I already receive fair value in exchange for my online presence and derived data	31	33	21	28	31
If I received free content or services for my online presence and derived data, I would be more comfortable with my online activity being tracked, analyzed, and stored	41	41	35	39	45

Appendix: Project Contributors

World Economic Forum Project Team

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Appendix: Methodological Notes

Sampling

Survey respondents were recruited using online panels. The final sample may not be fully representative of the broader general online population due to the likely tendency of online survey panels to have higher levels of understanding and comfort with the concepts presented in the survey.

Screening criteria

All survey respondents fall in the age range 15-69, own an internet-connected TV, desktop/laptop, smartphone, tablet, or video game player, and actively use it at least once a week.

Fielding dates

Brazil: 26 September – 4 October, 2016
China: 29 September – 11 October, 2016
Egypt: 29 September – 13 October, 2016
Germany: 3 October – 6 October, 2016
South Africa: 22 September – 4 October, 2016
US: 30 August – 2 September, 2016

Cleaning

Standard data cleaning strategies were employed, including removing data from respondents who showed signs of straightlining or backtracking, completed the survey too quickly, or responded to open-ended questions with inappropriate/irrelevant answers.

Respondents by country

Brazil	n=1,049
China	n=1,057
Egypt	n=1,013
Germany	n=1,052
South Africa	n=1,015
United States	n=1,081

Total	n=6,347
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Weighting

In order to allow readers to draw broader inferences about the internet population in each country, the data for Brazil, China, Germany, South Africa and the United States have been weighted on age and gender, using comScore's Media Metrix solution, to reflect the demographics of the total internet population in each country. However, data for Egypt have not been weighted due to limited availability of internet population data.

Survey design

Given the nature of the question wording and length of the overall survey, and potential differences in end user interpretation, certain survey questions may have produced biases, either positive or negative, across the sample that may have influenced the results.

Localization

Although the present results are reported in English, all survey questions, instructions and response options were translated into local languages before being fielded in Brazil, China, Egypt, and Germany. In addition, survey questions were localized for their respective countries as best possible as-at September 2016, to provide names of locally or globally recognized brands; however, impacts on brand name, digital media service or platform recognition may exist.

Survey logic

Questions asking about a specific type of service, platform, or product were asked only to respondents who indicated they use the specific type of service, platform, or product in question.

Survey respondent behaviour

Several factors should be considered when interpreting the results of this survey. First, this survey measures and reports on respondents' self-stated opinions, beliefs, attitudes, and perceptions, and is not an empirical analysis of actual end user behavior. Therefore, results are not necessarily reflective of actual end user behaviour. Second, this survey deals with terms and concepts that may be complex or abstract for some users, which may have resulted in a variety of interpretations depending on the sophistication or personal experience of each respondent. In some instances individuals surveyed demonstrated a lack of comprehension of the definitions of terms introduced in the survey. Third, although the survey was conducted anonymously, the social desirability response bias may have affected responses to some questions; for example, some users may have over-reported their awareness of scenarios if they viewed such knowledge as favourable.

Appendix: Data Tables

Respondent profile

Overview of respondents

% of respondents

Demographics	Generation Z / Millennials (n=3,294)	Generation X (n=1,781)	Baby Boomers (n=1,272)	Brazil (n=1,049)	China (n=1,047)	Egypt (n=1,103)	Germany (n=1,052)	South Africa (n=1,015)	USA (n=1,081)	Total (n=6,347)
Gender										
Male	55	58	62	50	53	86	52	52	48	57
Female	45	42	38	50	47	14	48	48	52	43
Age										
age=15-17	3	0	0	1	1	3	2	1	0	1
age=18-24	45	0	0	26	23	24	13	36	20	24
age=25-34	52	0	0	31	33	29	18	33	18	27
age=35-44	0	71	0	22	25	25	17	14	16	20
age=45-54	0	29	33	12	13	13	23	9	17	15
age=55-64	0	0	52	8	4	5	20	5	19	10
age=65+	0	0	16	1	1	0	7	1	9	3
Generation										
Generation Z / Millennials (age=15-34)	100	0	0	58	57	57	33	70	38	52
Generation X (age=35-50)	0	100	0	27	30	34	29	19	29	28
Baby Boomers (age=51-69)	0	0	100	15	14	9	39	11	33	20
Current employment status										
Employed full-time	54	67	38	51	81	43	46	58	48	54
Employed part-time	14	9	9	10	5	13	16	10	14	11
Self-employed	8	11	12	16	2	19	3	10	7	10
Not currently employed & looking for work	11	4	4	12	2	10	6	10	8	8
Not currently employed & not looking for work	6	4	5	4	0	8	7	6	9	6
Retired	0	2	29	4	3	3	15	2	12	7
Other	7	2	2	3	7	4	7	3	3	5
Current student status										
Full-time student	25	6	2	8	14	24	13	18	12	15
Part-time student	20	8	3	30	8	17	3	19	4	13
Not currently a student, but planning to return to school	23	20	8	39	10	21	9	26	11	19
Not currently a student, not planning to return to school	31	66	88	24	68	38	75	37	73	52
Marital status										
Single, never married	61	18	12	41	29	49	34	48	35	39
Married or domestic partnership	37	73	69	52	70	47	52	46	55	54
Separated or divorced	1	8	15	6	2	3	13	5	7	6
Widowed	0	1	4	1	0	1	2	1	2	1
Number of people in household										
1	8	10	20	5	3	4	27	7	19	11
2	18	18	41	20	11	9	35	22	36	22
3	31	32	21	28	63	19	20	24	21	29
4	22	23	11	27	13	29	13	22	15	20
5 or more	22	18	7	19	10	39	5	24	9	18
Number of people aged under 18 in household										
None	54	37	81	47	46	45	71	49	69	55
1	28	34	13	30	49	24	17	25	15	27
2	13	20	4	17	4	19	10	16	11	13
3	4	7	1	5	0	8	2	8	4	4
4 or more	2	2	0	1	1	4	0	2	2	2
Highest level of education completed										
Did not complete high school	4	2	3	4	2	4	4	3	1	3
Completed high school	24	20	27	27	7	15	45	29	17	23
Some college/technical school or university	14	10	13	17	4	4	12	20	20	13
Completed college/technical school	10	13	15	8	12	5	18	18	13	12
Completed university/undergraduate degree	34	38	26	27	65	52	10	19	28	34
Completed graduate school/ graduate degree	12	16	13	17	9	16	7	10	20	13
Prefer not to answer	2	1	2	0	1	4	4	1	0	2

Digital media usage

Table 1: Access to digital media devices, by country and generation

% responding that they have access to each device

Type of device	% Yes, by country						% Yes, by generation			% of total
	Brazil	China	Egypt	Germany	South Africa	USA	Generation Z / Millennials	Generation X	Baby Boomers	
Traditional TV (excluding Internet-connected television/Smart TV)	63	40	36	57	64	57	48	55	62	53
Internet-connected TV/Smart TV	55	69	28	50	30	35	45	46	41	44
Desktop/laptop	83	97	81	94	93	93	89	89	94	90
Smartphone	94	98	78	86	96	78	91	90	80	88
Basic phone	42	16	23	28	22	21	23	25	31	25
Tablet	57	70	36	50	57	52	54	56	47	53
Video game console/player	48	35	15	42	40	39	43	36	19	36
Streaming media player such as a set-top-box or stick	23	57	8	20	19	26	27	27	18	25
Other	1	0	1	1	1	1	1	0	1	1
None of the above	0	0	0	0	0	0	0	0	0	0

Question: Which of the following devices do you have access to? Please select all that apply.

Table 2: Frequent users of digital media devices, by country and generation

% claiming to use each device for at least 14 hours per week

Type of device	% by country						% by generation			% of total
	Brazil	China	Egypt	Germany	South Africa	USA	Generation Z / Millennials	Generation X	Baby Boomers	
Traditional TV (excluding internet-connected television/Smart TV)	20	15	17	39	24	45	20	28	44	28
Internet-connected TV/Smart TV	27	22	24	33	24	43	25	30	36	28
Desktop/laptop	44	53	43	53	52	53	46	51	58	50
Smartphone	53	48	45	31	52	31	51	43	26	44
Basic phone	8	13	15	10	10	10	13	11	6	10
Tablet	18	20	23	15	22	22	21	19	17	20
Video game console/player	7	19	14	10	10	16	14	10	8	12
Streaming media player such as a set-top-box or stick	13	20	14	15	19	18	20	14	16	17

Question: On average, approximately how many hours per week do you actively use each of the following types of media and/or device? Please provide your best estimate for each row.

Table 3: Frequent users of Internet-connected technologies, by country and generation

% claiming to use each technology for at least 3 hours per week

Type of internet-connected technology	% by country						% by generation			% of total
	Brazil	China	Egypt	Germany	South Africa	USA	Generation Z / Millennials	Generation X	Baby Boomers	
Digital personal assistants	33	27	33	13	29	11	29	24	12	24
Internet-connected home appliances/monitors	25	28	32	11	16	14	26	20	10	21
Internet-connected in-car technology	29	38	22	19	19	21	29	25	13	25
Internet-connected wearable devices	19	36	19	15	16	21	25	21	11	21

Question: On average, approximately how many hours per week do you actively use each of the following types of technology? Please provide your best estimate for each row.

Table 4: Frequent users of sites and services, by country and generation

% claiming to use each site or service at least 4 days per week

Type of site or service	% by country						% by generation			% of total
	Brazil	China	Egypt	Germany	South Africa	USA	Generation Z / Millennials	Generation X	Baby Boomers	
Social media	79	54	77	57	76	50	70	65	56	65
Personal email services	83	65	53	75	86	70	68	75	78	72
Instant messaging services	83	81	61	60	91	18	71	67	48	65
Professional networking	34	25	17	11	19	8	22	19	13	19
Retail sites	24	38	16	33	12	22	26	24	19	24
Search engines	81	65	74	70	86	59	73	74	67	72
Free information portals, news sites and blogs	58	58	46	42	45	32	44	52	47	47
Paid/subscription-based information and news sites	27	28	15	11	8	9	17	17	13	16
Digital video/TV services	39	46	16	37	16	20	33	28	18	29
Digital audio services	27	42	16	16	13	17	29	19	9	22
Online communities and forums	25	35	16	12	11	10	21	18	10	18
Free educational sites	21	22	15	9	9	6	17	12	6	14
Gaming sites, services or apps	30	32	29	30	22	20	30	26	19	27

Question: Approximately how often do you use or visit each of the following online sites and services? Please provide your best estimate for each row.

End user awareness, understanding, and beliefs

Table 5: Amount of online presence believed to be subject to third-party analysis, by country and generation

% selecting each option

Amount	% by country						% by generation			% of total
	Brazil	China	Egypt	Germany	South Africa	USA	Generation Z / Millennials	Generation X	Baby Boomers	
All	25	10	19	14	12	15	17	17	12	16
More than half, but not all	35	48	28	48	33	33	39	36	35	37
Some, but less than half	21	26	19	16	23	19	22	20	19	21
None	2	1	3	1	4	3	2	2	2	2
Not sure	11	10	14	17	17	20	11	15	23	15
I didn't know my online presence was tracked and analysed by third parties	6	6	17	4	12	10	9	9	8	9

Question: Third parties are companies that are not directly related to the content, products and services you use, and generally provide content, advertising and other functionality on a website. An example of a third party would be a company who examines purchase data from grocery store loyalty cards. What percentage of your online presence do you believe is subject to third-party analysis?

Table 6: Knowledge, values, beliefs and behaviours concerning online presence, by country and generation

% agreeing with each statement

Statement	% Agree, by country						% Agree, by generation			% of total
	Brazil	China	Egypt	Germany	South Africa	USA	Generation Z / Millennials	Generation X	Baby Boomers	
I understand the concept of online presence.	66	63	72	68	70	67	66	70	68	68
My public online presence is important to me.	50	61	74	31	51	50	55	55	46	53
Keeping a private online presence is important to me.	67	78	79	71	72	64	70	76	73	72
I have carefully constructed my public online presence.	47	54	66	33	54	44	54	47	41	50
I consider my online presence to be valuable to businesses and industries.	58	58	73	36	52	44	57	55	42	54
I have sufficient knowledge about which activities, actions, behaviours and information make-up my online presence.	54	53	65	49	55	49	56	55	49	54
I have the tools and know-how to properly manage and control my online presence.	35	51	65	35	48	42	49	47	38	46
I make choices about who sees the content I post (for example, I choose to share some content publicly, and other content with just people I know).	70	62	68	66	75	61	68	69	63	67
Personal email service(s) do not track the contents of sent and received messages for commercial targeting reasons.	40	56	57	39	35	33	44	46	38	43
The online platforms, products and services I use do NOT use, track, or access parts of my personal data unless authorized by me (e.g. my contacts stored in third-party applications).	36	54	56	38	37	32	46	42	34	42

Question: How much do you agree or disagree with each statement as it relates to you about your online presence? Please select a response for each row.

Table 7: Knowledge of derived data and importance to the end user, by country and generation

% agreeing with each statement

Statement	% Agree, by country						% Agree, by generation			% of total
	Brazil	China	Egypt	Germany	South Africa	USA	Generation Z / Millennials	Generation X	Baby Boomers	
I understand the concept of derived data.	51	55	57	49	56	51	54	53	51	53
I consider my derived data to be of personal value to me.	63	61	68	39	58	43	57	56	50	55
I consider my derived data to be valuable to businesses and industries.	56	61	59	41	50	44	53	54	46	52

Question: How much do you agree or disagree with each statement as it relates to you about derived data? Please select a response for each row.

Table 8: Awareness of scenarios related to access to personal data, by country and generation

% aware (vs. somewhat aware or not aware)

Scenario	% Aware, by country						% Aware, by generation			% of total
	Brazil	China	Egypt	Germany	South Africa	USA	Generation Z / Millennials	Generation X	Baby Boomers	
Individual browsing activity can be tracked and stored as personal data, not only by the websites visited, but also by third parties such as advertisers and social media websites, which can match this data to your profile.	42	33	26	39	41	43	38	37	36	37
Most online browsers (smartphone, tablet, PC) have a private or incognito browsing feature, which does not store the history of browsing activity and searches on your device.	48	35	37	36	47	36	47	37	27	40
Private or incognito browsing can be tracked and stored as personal data, by servers that are owned by an Internet service provider and by the websites visited.	34	34	24	29	32	35	33	30	28	31

Question: Below are possible scenarios related to your browsing activity. Prior to this survey, how familiar were you with each scenario? Please select a response for each row.

Table 9: Awareness of scenarios related to access to personal data, by country and generation

% aware (vs. somewhat aware or not aware)

Scenario	% Aware, by country						% Aware, by generation			% of total
	Brazil	China	Egypt	Germany	South Africa	USA	Generation Z / Millennials	Generation X	Baby Boomers	
Using GPS technology, applications can track, collect and store users' geographic location over extended periods of time.	48	34	33	50	50	39	43	42	42	42
Applications set different defaults, and some set GPS/location tracking to "On" by default.	40	35	24	37	40	37	39	34	28	35
GPS/location tracking can be disabled in the app's settings to remove any stored location data.	47	33	28	39	51	36	42	37	31	39
In some cases, you can access your GPS/location data online and delete all historical data.	37	31	27	25	32	29	34	29	22	30
Some messaging applications and services can scan and analyse message content, including emojis, and store related data in order to profile end users and target them with more personalized offers and advertising.	34	27	23	33	30	33	31	29	27	30
Applications and services on connected devices usually require the user's full consent to access their personal data, such as address books. This consent is often mandatory in order to use the application.	46	35	34	41	45	29	41	38	30	38
Data from many sources can be purchased, aggregated, analysed and resold by third parties for marketing or other purposes.	37	37	23	47	38	38	35	37	40	36

Question: Below are existing scenarios related to access to your personal data. Prior to this survey, how familiar were you with each scenario? Please select a response for each row.

Table 10: Awareness of collection, analysis and storage of personal data for different activities, by country and generation

% aware (vs. somewhat aware or not aware)

Activity	% Aware, by country						% Aware, by generation			% of total
	Brazil	China	Egypt	Germany	South Africa	USA	Generation Z / Millennials	Generation X	Baby Boomers	
Online browsers, apps, and other media services or products (including one's choices, searches, content viewed, and preferences)	46	36	32	44	47	41	43	39	36	41
Internet-connected vehicles, personal assistants, and home monitors and appliances (including one's choices, searches, settings, and statistics)	31	34	21	31	26	34	31	30	25	29
Commercial internet-connected wearable devices	31	29	23	30	28	29	30	29	23	28
Public places, facilities and infrastructure	34	31	22	28	30	34	31	29	26	30
Internet-connected media players	33	31	22	30	27	31	32	27	24	29
Retail sites	51	40	26	49	41	48	43	42	42	42
Digital entertainment services	42	34	17	35	29	33	34	31	26	32
Internet-connected mobile devices	47	36	34	44	46	40	45	39	35	41
Social media and professional networks	55	37	43	51	56	49	52	46	42	48

Question: Below are existing activities, during which either companies providing the product or service or related third parties can collect, analyse and store data on a person's individual activity. This data can be used as research to inform the decisions made by businesses and other organizations. For each activity listed below, please indicate how familiar you are with companies and/or third parties collecting, analyzing, and/or storing an individual's information? Please select a response for each row.

Comfort with personal data collection, storage, and use

Table 11: End user comfort zones around sharing personal data, by service, country and generation

% comfortable with their use of each service being collected, analysed and stored by companies, including third parties

Type of site, service, or internet-connected technology	% Comfortable, by country						% Comfortable, by generation			% of total
	Brazil	China	Egypt	Germany	South Africa	USA	Generation Z / Millennials	Generation X	Baby Boomers	
Online browsers or apps	32	49	44	11	26	29	36	33	19	32
Internet-connected media players	35	50	46	17	31	32	41	32	22	35
Internet-connected home appliances, personal assistants, or vehicles	43	62	45	16	38	46	48	43	31	45
Public places, facilities, or infrastructures	29	46	41	15	20	25	35	28	18	30
Social media or professional networks	36	48	47	13	26	33	38	35	23	34
Internet-connected mobile devices	34	51	44	11	25	28	37	33	20	32
Internet-connected wearable devices	45	61	42	17	34	40	46	41	32	43
Retail sites	38	53	47	19	35	38	43	39	27	38
Digital video or TV services	41	54	39	19	34	41	44	36	25	39
Digital audio services	38	54	44	23	40	38	45	40	28	41
Personal email services	35	50	51	9	24	28	37	33	22	33
Instant messaging services	35	54	46	10	23	34	37	35	26	35

Question: How comfortable are you with companies, including third parties, collecting, analysing and storing your use of each of the following? Please select a response for each row.

Table 12: End user comfort zones around specific scenarios, by country and generation

% comfortable with each scenario

Scenario	% Comfortable, by country						% Comfortable, by generation			% of total
	Brazil	China	Egypt	Germany	South Africa	USA	Generation Z / Millennials	Generation X	Baby Boomers	
Using connected and tracking technology on your children or other family members (Note: companies would have access to this data).	30	41	44	10	26	25	32	32	20	30
Using connected and tracking technology on a pet or other animal (Note: companies would have access to this data).	36	39	43	23	42	33	39	36	29	36
Your personal data and digital footprint information being sold to third parties for marketing purposes.	22	33	18	7	10	20	22	18	10	18
Your personal data and digital footprint information being used to personalize the content, products, services and digital advertising you are exposed to. This would include receiving product and service offers based on your personal information.	29	44	27	11	22	28	32	26	15	27

Question: How comfortable are you with each of the following possible scenarios? Please select a response for each row.

Table 13: Reasons for end user discomfort with tracking, analysing and storing personal data, by country and generation

% selecting each option

Reason for not feeling comfortable	% by country						% by generation			% of total
	Brazil	China	Egypt	Germany	South Africa	USA	Generation Z / Millennials	Generation X	Baby Boomers	
It is being done without my knowledge	41	47	45	49	59	42	43	47	58	47
It is being done without my permission	48	54	46	57	61	53	48	53	66	53
I don't understand why it is being done	17	16	21	11	19	15	18	15	16	16
I'm not comfortable with my data being used for personalized advertising	36	19	32	38	45	38	33	34	44	35
I'm not comfortable with my data being used to personalize or improve the products and services I use	20	8	24	23	23	25	19	21	27	21
I'm not comfortable with my data being shared with third parties	59	42	54	53	65	48	49	54	66	53
I don't understand how it could affect me	10	15	16	9	11	15	14	10	11	12
I fear my data could be used to commercially exploit me	47	38	38	42	57	36	43	42	48	43
I fear my data could disadvantage me in other ways (e.g. in hiring or lending decisions)	24	47	49	34	44	26	36	36	39	36
I fear my private data and digital footprint could become public	52	53	47	33	60	42	49	45	45	46
I don't receive enough value or benefits in exchange for my data	38	16	28	14	35	36	28	27	29	28
I don't understand how my data is protected	35	25	29	31	29	27	29	28	31	29
I don't think sufficient measures are being taken to keep my data secure	45	41	43	44	54	40	41	45	55	44
I don't think there is sufficient/effective regulation or oversight around the use of my data	31	36	35	33	43	33	31	35	43	34
I fear that "anonymous" or "anonymized" data could be traced back to my identity	30	38	36	40	45	30	36	36	41	36
I think that all types of data should be kept completely private, no matter what	38	27	47	45	44	31	35	41	52	39

Question: What are your reasons for not feeling comfortable with your individual activities being tracked, analysed and stored by companies, including third parties? Please select all that apply.

Table 14: Level of understanding that sharing personal data can enable a personalized user experience, by country and generation

% selecting each option

Level of understanding	% by country						% by generation			% of total
	Brazil	China	Egypt	Germany	South Africa	USA	Generation Z / Millennials	Generation X	Baby Boomers	
Do not understand at all	23	13	22	14	10	7	14	16	16	15
Somewhat understand	53	59	53	47	40	39	48	50	47	49
Mostly understand	18	20	19	27	29	30	23	24	24	24
Understand completely	6	8	6	12	21	23	14	10	13	13

Question: How well do you understand that as a result of your activity being tracked, analysed and stored by different companies, you can be provided with a personalized online user experience (e.g. targeted advertisements, product recommendations, etc.)?

Table 15: End user preferences concerning trade-offs between privacy and personalization, by service, country and generation

% stating each preference (see legend for details)

Type of site, service, or technology	% by country						% by generation			% of total
	Brazil	China	Egypt	Germany	South Africa	USA	Generation Z / Millennials	Generation X	Baby Boomers	
Public places, facilities and infrastructure (e.g. airports, cities, transportation, etc.)	41 / 28 / 31	36 / 27 / 37	49 / 21 / 30	56 / 23 / 21	43 / 30 / 27	49 / 24 / 27	40 / 27 / 33	48 / 24 / 28	56 / 24 / 21	45 / 26 / 29
Online browsers	56 / 21 / 22	38 / 27 / 35	52 / 21 / 28	62 / 22 / 17	56 / 23 / 21	59 / 18 / 23	47 / 23 / 29	59 / 19 / 22	64 / 21 / 15	54 / 22 / 24
Digital personal assistants	43 / 28 / 28	25 / 32 / 43	45 / 23 / 32	47 / 22 / 31	34 / 31 / 36	33 / 31 / 35	34 / 29 / 37	41 / 26 / 33	49 / 25 / 26	38 / 28 / 34
Internet-connected home appliances / monitors	41 / 25 / 35	28 / 29 / 43	49 / 19 / 32	43 / 23 / 34	43 / 23 / 33	24 / 33 / 43	36 / 25 / 40	41 / 25 / 34	47 / 28 / 26	38 / 25 / 37
Internet-connected in-car technology	36 / 32 / 32	25 / 33 / 42	45 / 22 / 34	50 / 26 / 24	44 / 29 / 27	36 / 24 / 39	34 / 31 / 35	42 / 24 / 34	47 / 26 / 27	38 / 28 / 33
Internet-connected wearable devices	33 / 28 / 39	25 / 33 / 42	38 / 25 / 37	47 / 25 / 28	42 / 25 / 33	30 / 31 / 39	32 / 30 / 38	35 / 26 / 39	44 / 27 / 29	34 / 28 / 37
Internet-connected mobile devices	43 / 26 / 30	32 / 29 / 38	51 / 21 / 27	59 / 22 / 19	48 / 28 / 24	50 / 23 / 27	41 / 27 / 32	50 / 24 / 26	59 / 22 / 19	47 / 25 / 28
Internet-connected media players	41 / 26 / 32	29 / 32 / 40	44 / 24 / 32	55 / 25 / 20	40 / 26 / 34	47 / 25 / 28	36 / 28 / 36	46 / 25 / 29	55 / 24 / 22	42 / 27 / 31
Social media and professional networks	41 / 28 / 30	32 / 30 / 39	45 / 24 / 32	56 / 24 / 20	45 / 28 / 27	47 / 26 / 27	39 / 28 / 33	47 / 25 / 28	54 / 25 / 21	44 / 27 / 29
Personal email services	46 / 24 / 30	36 / 25 / 39	49 / 21 / 30	64 / 19 / 17	51 / 21 / 28	53 / 21 / 26	45 / 22 / 33	51 / 22 / 27	59 / 22 / 18	50 / 22 / 29
Instant messaging services	46 / 25 / 29	34 / 29 / 37	51 / 20 / 29	61 / 22 / 17	52 / 24 / 24	48 / 21 / 32	45 / 24 / 31	50 / 23 / 28	56 / 24 / 20	48 / 24 / 28
Retail sites	39 / 24 / 37	25 / 30 / 45	38 / 25 / 37	45 / 25 / 30	38 / 30 / 32	41 / 23 / 36	33 / 28 / 40	39 / 25 / 36	47 / 24 / 29	38 / 26 / 36
Search engines	39 / 30 / 31	35 / 29 / 36	46 / 23 / 32	57 / 25 / 18	43 / 30 / 27	49 / 26 / 26	39 / 29 / 32	48 / 25 / 27	54 / 24 / 22	45 / 27 / 28
Digital video/TV services	31 / 27 / 41	24 / 33 / 43	49 / 24 / 27	52 / 26 / 22	38 / 29 / 33	33 / 28 / 39	31 / 29 / 40	42 / 27 / 31	52 / 25 / 23	37 / 28 / 35
Digital audio services	37 / 28 / 35	28 / 31 / 41	47 / 23 / 30	42 / 30 / 28	36 / 28 / 36	36 / 30 / 34	33 / 29 / 38	41 / 27 / 31	44 / 28 / 28	37 / 28 / 35
Gaming sites, services or apps	44 / 25 / 31	34 / 30 / 36	50 / 22 / 29	50 / 29 / 20	44 / 29 / 27	43 / 27 / 30	39 / 28 / 33	49 / 26 / 26	54 / 26 / 20	44 / 27 / 29

Question: Your activity data may be collected, analysed and stored by different companies to provide you with a personalized online user experience (e.g. targeted advertisements, product recommendations, etc.). For each option, please select your preference with the level of data collection and use. Please select one response.

Legend

- 1st number - Prefer to have none of my information collected, analysed and stored; therefore, I would not have a personalized user experience
- 2nd number - Prefer that my information is collected, analysed, stored and linked to my identity, for the personalization of my user experience, including what ads and marketed products/services I see.
- 3rd number - Prefer that my information is collected, analysed and stored, but not linked to my identity; therefore, there would still be some personalization of my user experience, including what ads and marketed products/services I see.

Control of personal data disclosure

Table 16: End user intentions around privacy of online activity, by country and generation

Average % of online activity intended to be anonymous, private, or public

Intended level of privacy	Average %, by country						Average %, by generation			% of total
	Brazil	China	Egypt	Germany	South Africa	USA	Generation Z / Millennials	Generation X	Baby Boomers	
Anonymous (i.e. not linked to you as an individual) - For example, browsing the internet on a public computer.	23	38	34	36	28	33	31	33	34	32
Private (i.e. restricted to a closed group of individuals, such as friends) - For example, sharing content with a closed or limited group.	35	27	31	32	38	37	34	32	33	33
Publicly visible (i.e. not restricted to a closed group of individuals, such as friends) - For example, sharing content that is accessible to people you do not know.	42	36	35	32	34	30	35	35	33	35

Question: Approximately what percentage of your online activity do you intend to be in each of the following categories: anonymous, publicly visible and private? *Your total should add up to 100%. Please give your best estimate.*

Table 17: Understanding of methods to control personal data disclosure, by country and generation

% claiming to mostly or completely understand

Method	% Understand, by country						% Understand, by generation			% of total
	Brazil	China	Egypt	Germany	South Africa	USA	Generation Z / Millennials	Generation X	Baby Boomers	
Ad blocking software/apps	36	53	44	36	57	59	54	45	34	48
Tracking protection software/apps	33	50	39	27	56	57	49	43	31	44
Virtual Private Networks (VPN)	35	48	43	33	47	54	47	42	33	43
False or anonymous profiles	49	47	52	47	65	69	55	53	43	53

Question: What is your level of understanding of each of the following technologies? Please select a response for each row.

Table 18: Awareness and usage of ad-blocking software/apps, by country and generation

% selecting each statement

Statement	% by country						% by generation			% of total
	Brazil	China	Egypt	Germany	South Africa	USA	Generation Z / Millennials	Generation X	Baby Boomers	
I have never heard of ad blocking software/apps	21	11	22	19	25	16	20	18	18	19
I have heard about ad blocking software/apps, have not downloaded them and am not open to using	17	22	23	20	13	15	18	19	19	18
I have heard about ad blocking software/apps, have not used them but would be open to using	32	27	22	19	27	30	24	28	30	26
I have downloaded ad blocking software/apps in the past, but I am not currently using them	7	10	13	9	8	8	9	9	9	9
I have downloaded ad blocking software/apps and I am currently using them on some of my devices	18	23	14	22	20	20	22	18	17	19
I have downloaded ad blocking software/apps and I am currently using them on all of my devices	5	8	6	11	7	11	8	8	8	8

Question: Ad blocking software/apps enable you to remove advertising when you browse the internet. Which statement below best describes you regarding your familiarity and use of ad blocking software/apps? Please select one response.

Table 19: Awareness and usage of tracking protection software/apps, by country and generation

% selecting each statement

Statement	% by country						% by generation			% of total
	Brazil	China	Egypt	Germany	South Africa	USA	Generation Z / Millennials	Generation X	Baby Boomers	
I have never heard of tracking protection software/apps	35	20	31	35	42	29	32	31	33	32
I have heard about tracking protection software/apps, have not downloaded them and am not open to using	11	19	19	16	13	11	16	14	14	15
I have heard about tracking protection software/apps, have not used them but would be open to using	34	29	25	27	26	32	27	30	33	29
I have downloaded tracking protection software/apps in the past, but I am not currently using them	6	12	12	6	6	10	10	8	5	9
I have downloaded tracking protection software/apps and I am currently using them on some of my devices	9	16	9	10	8	11	10	11	10	10
I have downloaded tracking protection software/apps and I am currently using them on all of my devices	5	3	4	6	4	7	5	6	4	5

Question: Tracking protection software/apps enable you to block tracking by third parties when you browse the internet. Which statement below best describes you regarding your familiarity and use of tracking protection software/apps? Please select one response.

Table 20: Awareness and usage of virtual private networks, by country and generation, by country and generation

% selecting each statement

Statement	% by country						% by generation			% of total
	Brazil	China	Egypt	Germany	South Africa	USA	Generation Z / Millennials	Generation X	Baby Boomers	
I have never heard about VPN(s)	23	20	32	33	25	32	24	26	39	28
I have heard about VPN(s), have not used them and am not open to using	12	15	17	14	10	13	15	13	11	14
I have heard about VPN(s), have not used them but would be open to using	36	30	22	24	35	28	29	30	28	29
I only use VPN(s) for work reasons	11	11	9	9	14	8	11	11	7	10
I only use VPN(s) for personal reasons	7	9	6	10	6	6	8	6	6	7
I use VPN(s) both for work and personal reasons	8	15	10	6	7	9	10	9	6	9
I prefer not to answer	2	1	4	4	2	4	3	4	2	3

Question: Virtual Private Network(s) (VPN) enable you to improve the security and privacy of your online activity, such as the services accessed. Which statement below best describes you regarding your usage of VPN(s)? Please select one response.

Table 21: Usage of false/anonymous profiles, by service, country and generation

% selecting each type of site or service

Type of site or service	% by country						% by generation			% of total
	Brazil	China	Egypt	Germany	South Africa	USA	Generation Z / Millennials	Generation X	Baby Boomers	
Social media	14	42	17	18	18	18	24	20	14	21
Personal email services	10	30	14	16	10	14	18	14	12	16
Instant messaging services	10	34	11	14	9	17	17	16	12	16
Professional networking	10	27	9	11	3	8	13	10	8	12
Retail sites	9	26	12	10	6	8	14	12	8	12
Paid/subscription-based information and news sites	9	18	10	9	12	12	14	12	7	12
Digital video/TV services	10	29	13	15	7	13	18	15	10	16
Digital audio services	7	25	9	12	6	10	13	14	8	13
Online communities and forums	12	38	17	20	20	13	22	21	15	21
Free educational sites	8	21	7	11	5	10	12	10	7	11
Gaming sites, services or apps	14	37	18	25	27	20	26	22	19	24
I do not use false or anonymous profiles to keep my personal data unidentified	57	12	46	46	54	57	37	49	61	45
I prefer not to answer	6	3	10	9	7	8	6	7	9	7

Question: For which sites or services do you use false or anonymous profiles (e.g. with a false or modified version of your name) in order to keep your personal data unidentified? Please select all that apply.

Table 22: Prevalence of end users opting out of technologies, sites, or services because of inadequate end-user control, by country and generation

% selecting each option

	% by country						% by generation			% of total
	Brazil	China	Egypt	Germany	South Africa	USA	Generation Z / Millennials	Generation X	Baby Boomers	
Yes	58	70	28	47	52	31	49	46	45	47
No	42	30	72	53	48	69	51	54	55	53

Question: Have you decided not to use, or to stop using, certain technologies, sites, or services because you believed it/they did not provide adequate end-user control?

Table 23: Perceived adequacy of end-user control, by service, country and generation

% agreeing that each type of technology, site, or service provides enough end user control

Type of technology, site, or service	% Agree, by country						% Agree, by generation			% of total
	Brazil	China	Egypt	Germany	South Africa	USA	Generation Z / Millennials	Generation X	Baby Boomers	
Online browsers	43	48	52	29	38	34	43	41	33	41
Public places, facilities and infrastructure	30	44	38	20	21	22	34	29	19	29
Digital personal assistants	43	57	48	24	37	43	45	44	33	43
Internet-connected home appliances/monitors	47	58	43	29	40	39	47	45	34	45
Internet-connected in-car technology	46	54	41	25	35	38	43	42	30	41
Internet-connected wearable devices	49	59	45	32	33	44	47	49	34	46
Internet-connected mobile devices	41	50	50	23	37	31	42	40	27	39
Internet-connected media players	40	49	48	20	29	34	41	37	24	37
Social media and professional networks	44	47	53	22	41	29	44	40	28	40
Personal email services	48	54	54	33	52	38	49	47	38	46
Instant messaging services	50	53	55	26	56	41	50	49	40	48
Retail sites	40	54	45	28	31	37	41	41	31	39
Search engines	40	49	51	22	35	31	41	39	29	38
Digital video/TV services	44	49	40	22	30	38	41	39	26	38
Digital audio services	40	49	40	30	29	36	41	40	30	39

Question: For the below technologies, sites and services, how much do you agree or disagree that each provides enough end user control over what information you share? Please select a response for each row.

Table 24: Reasons for disagreeing that certain technologies, sites, or services provide enough end user control, by country and generation

% selecting each option

Reasons	% Agree, by country						% Agree, by generation			% of total
	Brazil	China	Egypt	Germany	South Africa	USA	Generation Z / Millennials	Generation X	Baby Boomers	
They don't provide any control	14	18	20	16	11	18	16	16	15	16
They provide some control but not enough	32	29	27	29	36	33	30	32	32	31
Their controls are not flexible enough	17	23	22	18	23	20	23	19	17	20
Their controls are difficult to understand or use	26	27	27	26	28	21	27	24	26	26
I don't trust that the controls work the way they are supposed to	38	31	34	48	33	41	35	39	45	38
I don't know what controls they provide	32	43	30	26	36	40	33	33	38	34
I'm not sure how much control I want	9	27	29	9	16	18	21	16	13	18
I don't know what end user control means	6	23	19	7	12	13	14	12	11	13
Other	1	0	1	0	1	1	1	1	0	1

Question: In what ways do you feel service providers do not provide you enough control over how your personal is data stored, shared or used? Please select all that apply.

Table 25: Importance of encryption to instant messaging users, by country and generation

% agreeing with each statement

Statement	% Agree, by country						% Agree, by generation			% of total
	Brazil	China	Egypt	Germany	South Africa	USA	Genera- tion Z / Millennials	Genera- tion X	Baby Boomers	
A main reason for me to use instant messaging services is because all message content is data encrypted.	65	58	58	34	53	44	54	54	49	53

Question: How much do you agree or disagree with the following statement?

Trust and other areas of tension

Table 26: Areas of tension around personal data policies and end user agreements, by country and generation

% agreeing with each statement

Statement	% Agree, by country						% Agree, by generation			% of total
	Brazil	China	Egypt	Germany	South Africa	USA	Genera- tion Z / Millennials	Genera- tion X	Baby Boomers	
I make an effort to find and read the personal data policy of the ones I use	48	53	48	42	35	37	43	46	44	44
I find personal data related end user agreements, and terms and conditions of use, reasonably easy to find, read and understand	36	50	48	19	31	32	39	38	25	36
I feel that they are fair and flexible in providing a choice to end users about how their personal data is tracked, managed, stored, and used	36	47	38	19	25	31	36	33	23	33
I find it reasonably easy to keep up with changes to the personal data policy, personal data-related end user agreements, and privacy settings of each that I use	37	47	40	19	28	33	38	35	25	34

Question: How much do you agree or disagree with each of the following statements about internet-connected products, services and platforms? Please select a response for each row.

Table 27: Perception that providers value privacy and are reasonable in their use of personal data, by service, country and generation

% agreeing with statement for each type of technology, site, or service

Type of technology, site, or service	% Agree, by country						% Agree, by generation			% of total
	Brazil	China	Egypt	Germany	South Africa	USA	Generation Z / Millennials	Generation X	Baby Boomers	
Social media	42	52	48	22	40	37	44	40	30	40
Personal email services	47	53	50	33	46	37	47	44	37	44
Instant messaging services	48	53	49	25	53	39	48	45	37	46
Professional networking	48	54	48	32	45	40	48	46	39	46
Online browsers and search engines	38	49	45	23	31	32	40	35	28	36
Retail sites	40	55	43	33	34	40	43	40	36	41
Digital video/TV services	45	50	36	22	35	44	43	39	27	39
Digital audio services	41	52	38	31	32	47	45	41	30	42
Online communities and forums	37	51	39	25	28	38	42	37	28	38
Free educational sites	45	53	49	32	38	44	46	47	38	46
Digital personal assistants	43	57	42	28	41	46	47	44	31	44
Internet-connected home appliances/monitors	45	64	38	35	39	55	49	46	36	47
Internet-connected in-car technology	43	55	39	27	33	41	43	41	30	41
Internet-connected wearable devices	50	60	41	31	37	48	49	47	36	47
Mobile operating systems	41	52	44	25	38	36	44	38	28	39
Internet-connected media players	40	53	42	21	25	34	40	37	24	36

Question: Thinking about each of the following technologies and services you use, how much do you agree or disagree with the following statement? "I feel that they respect a reasonable and limited use of user personal data (preferences, activity, and behavior) for commercial purposes and that they genuinely value end-user privacy." Please select a response for each row.

Table 28: End user trust of providers to define fair Terms and Conditions around personal data, by service, country and generation

% agreeing with statement for each type of technology, site, or service

Type of technology, site, or service	% Agree, by country						% Agree, by generation			% of total
	Brazil	China	Egypt	Germany	South Africa	USA	Generation Z / Millennials	Generation X	Baby Boomers	
Social media	46	50	49	25	46	37	46	42	35	43
Personal email services	48	54	48	37	51	40	48	46	43	46
Instant messaging services	50	50	47	30	55	43	48	46	40	46
Professional networking	49	55	44	36	49	49	50	46	43	48
Online browsers and search engines	42	48	44	26	39	39	44	37	33	40
Retail sites	42	55	43	36	37	42	44	42	40	43
Digital video/TV services	43	52	37	26	37	43	44	39	30	40
Digital audio services	42	52	38	33	35	45	45	40	36	42
Online communities and forums	39	47	37	27	36	42	41	39	33	39
Free educational sites	46	53	48	37	43	52	49	46	41	47
Digital personal assistants	43	57	42	32	43	54	46	46	39	45
Internet-connected home appliances/monitors	49	63	40	38	41	51	49	48	41	48
Internet-connected in-car technology	46	56	39	34	40	46	47	43	37	44
Internet-connected wearable devices	52	63	43	38	42	51	51	48	44	50
Mobile operating systems	42	48	42	27	46	38	44	39	33	41
Internet-connected media players	40	52	44	29	30	38	42	38	31	39

Question: Thinking about each of the following technologies and services you use, how much do you agree or disagree with the following statement? “I trust my main service or technology provider to define fair terms and conditions that determine the use of my personal data (my preferences, activity and behaviour); e.g. for proposing targeted purchases and advertising, but not for selling my data to third parties without my explicit consent.” Please select a response for each row.

Table 29: Changes that would most improve trust of technology and service providers, by country and generation

% selecting each option

Top changes to improve trust	% by country						% by generation			% of total
	Brazil	China	Egypt	Germany	South Africa	USA	Generation Z / Millennials	Generation X	Baby Boomers	
Easier-to-find and easier-to-understand terms & conditions of use	29	17	26	22	28	20	25	21	23	23
Improved communications after data breaches	15	21	11	13	15	14	15	14	14	15
New or improved privacy-enhancing tools for users to manage their personal data	30	30	27	22	29	22	27	25	29	27
Improved security measures to prevent data breaches	36	51	41	34	37	35	37	39	45	39
Reduced use of personal data for secondary purposes (e.g. targeted advertising)	21	23	26	29	28	22	24	23	28	25
Reduced sharing of personal data with other companies	20	29	24	40	32	27	25	31	34	29
More regulation or government oversight of technology and service providers	15	35	23	22	15	15	20	22	21	21
Improved reputation of my technology and service providers among my friends, family and other contacts	10	16	12	7	8	10	13	9	5	10
Improving my own understanding of how to better manage my online presence	24	19	19	16	27	22	21	20	21	21
Increasing my own level of familiarity or experience with each technology and service provider	17	17	21	13	15	17	17	17	16	17
Transparency on which other companies could access my data	41	16	29	39	32	25	30	31	32	30

Question: Which three of the following changes would most improve your trust towards your technology and service providers?

Willingness to engage in a personal data value exchange

Table 30: End user perspectives on the value of personal data, by country and generation

% agreeing with each statement

Statement	% Agree, by country						% Agree, by generation			% of total
	Brazil	China	Egypt	Germany	South Africa	USA	Generation Z / Millennials	Generation X	Baby Boomers	
I consider my online presence and derived data to be an asset with monetary value	54	69	50	36	51	51	52	54	48	52
I would actively engage in trading or bartering elements of my online presence in return for value added content or services that would be free of charge	51	60	40	28	48	43	48	45	38	45
I feel that I already receive fair value in exchange for my online presence and derived data	28	52	36	20	23	28	35	31	21	31
If I received free content or services for my online presence and derived data, I would be more comfortable with my online activity being tracked, analysed and stored	49	61	46	32	42	39	48	44	37	45

Question: How much do you agree or disagree with each statement as it relates to you? Please select a response for each row.

Table 31: Willingness to share specific elements of online presence, by country and generation

% selecting each option

Element of online presence	% Agree, by country						% Agree, by generation			% of total
	Brazil	China	Egypt	Germany	South Africa	USA	Generation Z / Millennials	Generation X	Baby Boomers	
Website browsing history	28	31	31	19	26	30	26	30	33	28
Online search term history, including voice	21	29	24	22	18	21	22	23	24	23
Online advertisements accessed	39	29	40	36	42	29	34	35	40	36
History of all online purchases	29	27	27	25	33	33	28	28	34	29
Online activity being tracked, analysed and stored as personal data	18	20	24	13	14	18	18	21	16	18
Posts reacted to (e.g. "liked") or commented on social media	34	31	35	21	40	18	32	31	26	30
Content posted on professional networking platforms	25	25	24	17	28	12	23	23	20	23
Online video streamed	21	32	37	26	30	17	29	27	22	27
Online music streamed	37	41	35	32	45	33	41	35	31	38
Online games played or downloaded	35	36	39	29	43	26	40	31	25	35
Voice requests to digital and personal assistants	12	17	11	10	7	10	12	13	7	12
GPS- based location history	21	21	26	16	24	19	21	22	22	21
Personal health data (e.g. heart rate, sleeping patterns, number of steps taken)	18	28	26	20	28	15	24	22	22	23
Home consumption patterns (e.g. electricity, heat)	33	27	28	30	27	18	25	29	32	27
Messaging content (e.g. tone, text and keywords used)	12	24	15	13	10	10	15	16	11	15
Personal address book and related contact info	15	13	13	8	7	7	11	12	9	11
Travel data and history (e.g. traveled where, when and how)	27	25	25	25	24	18	23	25	26	24

Question: You indicated you would be willing to engage in trading elements of your online presence in return for value added services that would be free of charge. Which elements of your online presence would you be willing to share? Please select all that apply.



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