



# Americans Both Optimistic and Concerned about Automation

## Confident as Consumers, but Worried as Workers

**Washington, DC, October 17, 2017** — A new study conducted jointly by Ipsos Public Affairs and the Center for Business Analytics in the McIntire School of Commerce at the University of Virginia shows that U.S. consumers are ambivalent about automation as they express both optimism and concern.

In the study's main survey, conducted among over 2,982 U.S. adults between June 29 and July 3, 2017, large majorities of respondents say they worry about data security when using automated devices (70%), they feel automation isolates people more than it brings them together (69%), and they think it destroys more jobs than it creates (56%). At the same time, most respondents also think that automation has: made products and services more accessible (65%), easier to use (56%) and improved their quality (51%); made life easier (63%) or more interesting (52%); and improved the shopping experience (58%).

As consumers, most adults surveyed are hopeful about the impact on people's lives brought upon by increased automation in most sectors of the economy – especially information (70% say it's been positive), transportation (62%), and manufacturing (also 62%). However, one third of all workers surveyed (35%) worry about losing their job because of automation, including majorities of those employed in the transport/warehousing and the arts/sports/recreation sectors. Four in ten (40%) expect that most of what they do today will be done by machines in 20 years.

More than half of all workers (54%) feel that automation has made their current job totally different from what it was 20 years ago, especially those working in the media/publishing/telecom/data processing, administrative/support services, and financial services industries. While a majority of workers (55%) feel that automation has made the workplace less social and friendly, between half and one third of them say that it's made their job easier, less stressful, and more interesting, it's made them more productive, and it has improved the quality of their work.

Among 12 automation applications that the study focuses on, those that are most widely used by U.S. consumers all serve for commercial transactions and communications: online shopping and banking (currently used by 87% of adults), self-check-out/ordering kiosks (73%), automated voice menus (63%), customer service online chat boxes (58%) and voice recognition assistance (50%). Consumers most commonly describe how they feel about using those applications as "comfortable", except for automated voice menus, with which they are more likely to be "irritated".

The applications showing the widest difference in usage across age groups are wearable electronics and internet-connect appliances and home devices. There is a gap of 50 percentage points between their adoption by 18-24 year-olds and by those aged 65 and older (67% vs. 19% and 61% vs. 9%, respectively).

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For self-driving cars, artificial intelligence, robots, internet-connected medical devices, and drones – all applications that are not yet used widely – consumers most often feel “hesitant” or, to a lesser extent, “worried”.

## Americans’ Attitudes Toward Automation: Detailed Findings

### Automation Applications: Familiarity, Usage, and Favorability

- **Know It, Use It, Love It:** Familiarity with, usage of, and favorability toward automation application are all strongly related.
- **For Your Shopping Convenience:** Automation applications most commonly used are those that facilitate commercial transactions: online shopping and banking (used by 87% of U.S. adults), self-check-out/ordering kiosks (73%), automated voice menus (63%), customer service online chat boxes (58%) and voice recognition assistance (50%).
- **The New Generation Gap:** The applications showing the widest difference in adoption across age groups are wearable electronics and of internet-connect devices. There is a gap of 50 percentage points between their usage among 18-24 year-olds and those aged 65 and older (67% vs. 19% and 61% vs. 9%, respectively).

### Familiarity

While the #1 top-of-mind (i.e., unprompted) association with the word “automation” is robots, the automation applications consumers are most familiar with are those used for commercial transactions.

Among 12 automation applications studied, the two best-known are online shopping and banking (with 81% who say they know them very well or fairly well) and self-checkout/ordering kiosks (66%). The least well-known applications are: self-driving cars (23%), internet-connected medical devices (26%), artificial intelligence or AI (also 26%), and robots (27%).

Familiarity with almost every application is higher among younger, affluent and male consumers. For internet-connected appliances and home devices, wearable electronics, and voice recognition assistance, the gap between the percentage of adults aged 18-24 and of those aged 65 and older who say they know them very well or fairly well is about 50 percentage points.

### Usage

Of all automation applications studied, the five most commonly used all facilitate commercial transactions. Each one of them is used frequently or occasionally by at least half of all consumers: online shopping and banking (by 87%), self-check-out/ordering kiosks (73%), automated voice menus (63%), customer service online chat boxes (58%) and voice recognition assistance (50%).

Adoption is somewhat lower for two consumer product categories: wearable electronics (42%) and internet-connected appliances and home devices (32%). Both applications show a gap of about 50 percentage points between high usage levels among 18-24 year-olds and low usage levels among those aged 65 and older (67% vs. 19% and 61% vs. 9%, respectively).

The relationship between familiarity and usage is virtually linear: the better known an application is, the more widely it is used (and vice versa).

### Favorability

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Just over half of Americans (53%) have a favorable view of automation in general while only 5% have an unfavorable view of it – others are neutral or unsure.

Among specific applications, the most popular ones are online shopping/banking (viewed favorably by 81%), self-checkout/ordering kiosks (67%), and wearable electronics (64%). Self-driving cars are the only application receiving more unfavorable opinions (42%) than favorable ones (32%).

As is the case for adoption, favorable sentiment toward the applications studied is largely a reflection of the public's familiarity with them. The only exception is automated voice menus with as many unfavorable as favorable opinions (37%) although they are the third best-known application (with 56% saying they know it fairly or very well).

Similarly, favorability toward automation tends to be higher among adults who are college-educated, more affluent than average, male, and younger.

### Consumers' Feelings and Opinions about Automation

- **Yay!:** Consumers most commonly describe how they feel about using online shopping/banking, kiosks, customer service chat boxes, wearables, and voice recognition assistance as being “comfortable” and, to a lesser extent, “excited” and/or “happy”.
- **Hmmm...:** In contrast, for self-driving cars, artificial intelligence, robots, internet-connected medical devices, and drones, the feelings cited most are “hesitant” and to a lesser extent, “worried”.
- **Split:** With internet connected appliances and home devices, consumers are almost equally likely to be “comfortable” and “hesitant”.
- **Arggh...:** The most common feeling about using automated voice menus is “irritated”.
- **It's complicated...:** U.S. consumers are ambivalent about automation. On the one hand, large majorities worry about data security when using automated devices (70%), think automation isolates people more than it brings them together (69%), and think it destroys more jobs than it creates (56%). On the other hand, majorities think that automation has: made products and services more accessible (65%), easier to use (56%) and improved their quality (51%); made life easier (63%) or more interesting (52%); and improved the shopping experience (58%).

### Feelings about Automation Applications

Majorities of adults surveyed report feeling “comfortable” about each of online shopping/banking (65%) and self-checkout kiosks (51%), the two most used applications, and pluralities about customer service chat boxes (42%), wearables (40%), and voice recognition assistance (38%). For each one of these applications, about one in five consumers report being “excited” and/or “happy”.

In contrast, “hesitant” is the most common feeling for self-driving cars (reported by 47%), AI (37%), robots (35%), internet-connected medical devices (30%), and drones (29%). Two in five are “worried” about self-driving cars (43%) and about one in five about AI (25%), robots (21%), drones (20%), and smart medical devices (18%).

Internet connected appliances and home devices are the only application for which almost equal proportions describe being comfortable (30%) and hesitant (28%).

“Irritated” is the most common feeling about automated voice menus (reported by 41%).

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## Perceived Benefits and Drawbacks of Increased Automation in People's Lives

The most commonly perceived benefits of automation in people's lives pertain to increased ease, comfort, convenience, speed and time savings, and efficiency. The most negative effects are seen to be loss of diligence and skills, loss of jobs, and loss of human interaction, as well as malfunction, difficulty to use, and concerns about security and privacy.

### Views about Automation

U.S. consumers are ambivalent about automation as majorities express both negative and positive opinions about its impact.

On the negative side, large majorities worry about data security when using automated devices (70%), think automation isolates people more than it brings them together (69%), and think it destroys more jobs than it creates (56%).

On the positive side, majorities think that: automation has made products and services more accessible (65%), easier to use (56%) and improved their quality (51%); has made life easier (63%) or more interesting (52%); and has improved the shopping experience (58%).

Views on automation vary widely across age groups. Younger adults are much more likely than their elders to praise automation for making life more interesting and easier and for improving both the accessibility and the quality of products and services as well as the shopping experience.

### Workers' Views on Automation's Impact on the Workplace

- **Confident Consumers:** As consumers, majorities of Americans are optimistic about the impact on people's lives brought upon by increased automation in most sectors of the economy – especially information, transportation, and manufacturing.
- **Worried Workers:** One third (35%) of all workers worry about losing their job because of automation, including majorities of those employed in the transport/warehousing and the arts/sports/recreation sectors. More than half of all workers (54%) feel that automation has made their current job totally different from what it was 20 years ago, especially those working in the media/publishing/telecom/data processing, administrative/support services, and financial services industries. Four in ten (40%) expect that most of what they do today will be done by machines in 20 years.
- **Easier, Better, More Interesting, Less Friendly:** While a majority of workers (55%) feel that automation has made the workplace less social and friendly, between half and one third of them say that it's made their job easier, less stressful, and more interesting, it's made them more productive, and it has improved the quality of their work.

### Expected Impact of Increased Automation on Economic Sectors

Americans are generally optimistic about the impact on people's lives that increased automation in various sectors of the economy will bring upon. Outright majorities expect a positive social impact from increased automation in 13 of 16 sectors studied. The only exceptions are mining and extraction, arts and entertainment, and government services, for which only pluralities of Americans have this expectation.

The sectors where automation is most expected to have a beneficial impact are information (70%), transportation (62%), and manufacturing (62% as well).

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## Perceptions of Automation in the Workplace

American workers' top-of-mind benefits of automation in the workplace are fairly broad. Recurring themes are: increased productivity and efficiency, speed, lower costs and living/working conditions.

In contrast, when it comes to top-of-mind drawbacks, one outranks all others: the loss of jobs. The next most mentioned drawbacks are the loss of human interaction and malfunctions.

A majority of American workers (54%) agree feel that automation has made their current job totally different from what it was 20 years ago; four in ten (40%) that most of what they do today will be done by machines in 20 years; one third (35%) worry about losing their job to automation.

A majority (55%) also deplore that automation has made the workplace less social and friendly.

However, 49% say it's made their job easier, 45% say it's made them more productive, 44% say it has improved the quality of their work, 38% say it's made their job less stressful, and 37% say it's made their job more interesting.

Decision makers in the workplace are much more likely than non-decision makers to agree that automation has had a beneficial impact on their job.

Views differ widely depending on workers' sector of activity:

- The sectors where employees most report experiencing drastic changes in the past 20 years are media/publishing/telecom/data processing, administrative/support services, and financial services.
- Media/publishing/telecom/data processing and financial services workers are also those who are most likely to say automation has made their job less stressful and has improved the quality of their work.
- Hospitality/food service workers tend to be less likely than those employed in other sectors to say automation has made their job totally different from what it was 20 years ago, and had an impact in terms of greater productivity, interest, or quality or lesser sociability.
- Those most worried about losing their job to automation and are most likely to expect the job they do today will be done by machines in 20 years are transport/warehousing, arts/sports/recreation workers, and extraction/utilities/construction workers.
- Transportation/warehousing workers are also those least likely to say automation has made their job more interesting or easier.
- Those least worried about being expandable are healthcare/social services, government services, and education workers.

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## About the Study

In partnership with the Center for Business Analytics in the McIntire School of Commerce at the University of Virginia, Ipsos conducted a short, two-question online survey on May 24-25, 2017 with a national sample of 1,008 adults aged 18+ and a longer, 13-question online survey between June 29 and July 3, 2017 with a national sample of 2,982 adults aged 18+.

For each survey, the sample was randomly drawn from Ipsos's online panel (see link below for more info on "Access Panels and Recruitment"), partner online panel sources, and "river" sampling (see link below for more info on the Ipsos "Ampario Overview" sample method).

This method does not rely on a population frame in the traditional sense. Ipsos uses fixed sample targets, unique to each study, in drawing the sample. After a sample has been obtained from the Ipsos panel, Ipsos calibrates respondent characteristics to be representative of the general U.S. population using standard procedures such as raking-ratio adjustments. The source of these population targets is the U.S. Census 2013 American Community Survey data. The sample drawn for this study reflects fixed sample targets on demographics. Post-hoc weights were made to the population characteristics on gender, age, race/ethnicity, region, and education.

Statistical margins of error are not applicable to online polls. All sample surveys and polls may be subject to other sources of error, including, but not limited to coverage error and measurement error. Where figures do not sum to 100, this is due to the effects of rounding.

The precision of Ipsos online polls is measured using a credibility interval. For the first and shorter poll, reported on slides 8 and 16-18, the credibility interval around percentages for all respondents is +/- 3.5 points. For the second and longer poll, reported on all other slides, the credibility interval around percentages for all respondents is +/- 2.0 points.

For more information about conducting research intended for public release or Ipsos' online polling methodology, please visit our [Public Opinion Polling and Communication](#) page where you can download our brochure, see our public release protocol, or contact us.

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With offices in 88 countries, Ipsos delivers insightful expertise across five research specializations: brand, advertising and media; customer loyalty; marketing; public affairs research; and survey management.

Ipsos researchers assess market potential and interpret market trends. They develop and build brands. They help clients build long-term relationships with their customers. They test advertising and study audience responses to various media and they measure public opinion around the globe.

Ipsos has been listed on the Paris Stock Exchange since 1999 and generated global revenues of €1,782.7 million in 2016.

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