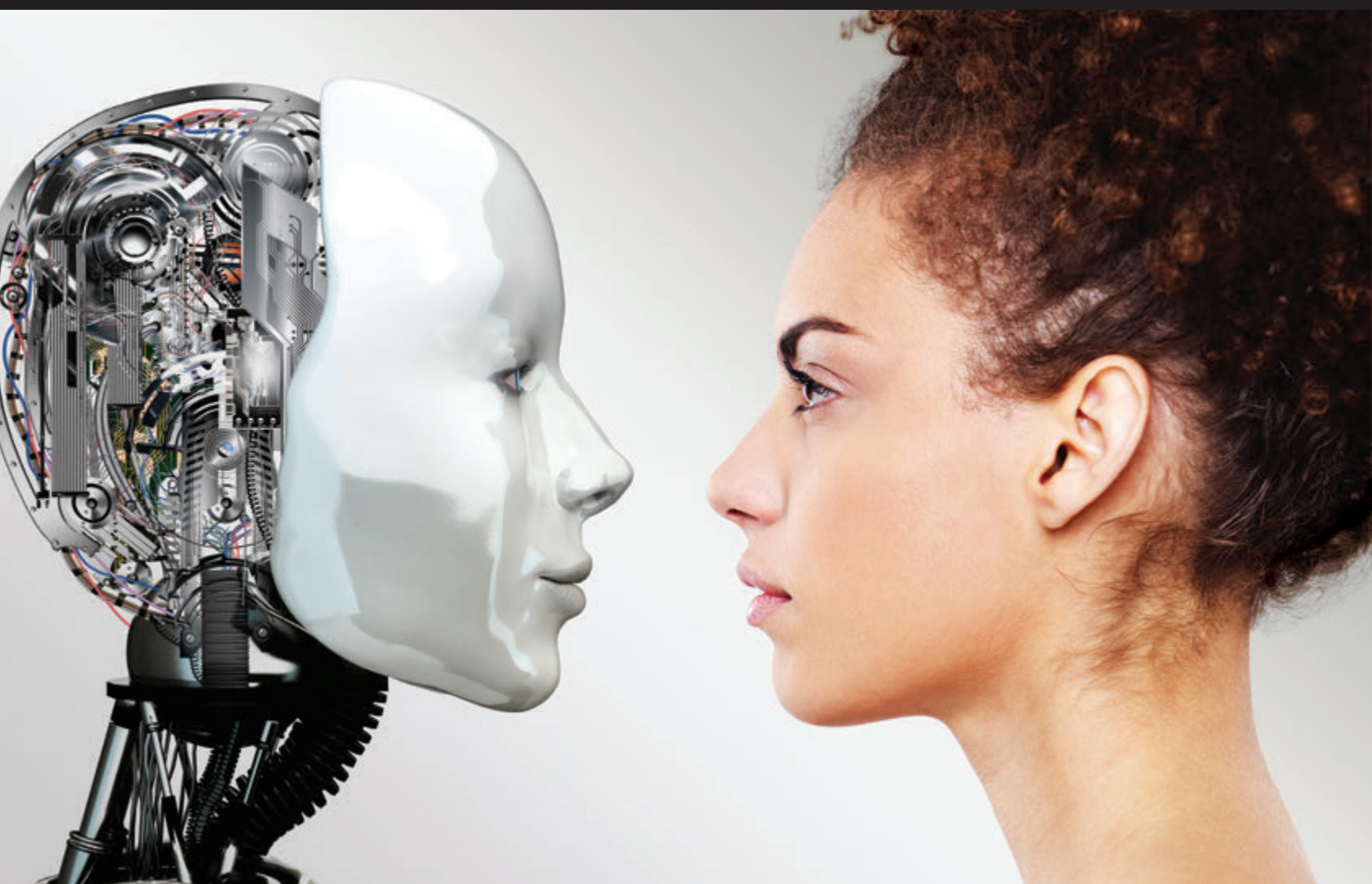


# FACING THE FUTURE

U.S., U.K. and Canadian citizens call for a unified skills strategy for the AI age



Northeastern University

GALLUP®









# FOREWORD

## FROM NORTHEASTERN UNIVERSITY

Northeastern University and Gallup are pleased to present the findings of their second annual survey on artificial intelligence.

This year's effort is the first of its kind to capture and compare the global perceptions of — and responses to — AI among citizens of Canada, the United Kingdom and the United States.

Among its major findings, the survey reveals that few believe major global institutions — industry, governments and academia — are doing enough to address the urgent societal need for lifelong learning.

Moreover, solid majorities in all three countries favor turning to employers over colleges and universities to pay for and provide access to lifelong learning opportunities.

For the first time, we also heard directly from senior talent officers of large Canadian, American and U.K. companies.

Several of these leaders confirmed the general public's belief that the education provided by traditional, four-year universities is failing to deliver the mix of in-demand skills employers need to prepare for widespread AI adoption.

They also signaled a technology-driven sea change in the way global enterprises recruit, evaluate and develop human talent, emphasizing so-called soft skills and experience while de-emphasizing undergraduate degrees.

There is little doubt that the Fourth Industrial Revolution will transcend borders and fundamentally alter the global social and economic landscape.

Colleges and universities with the audacity to change represent humanity's best chance to rise to the challenge of AI and win the jobs of the future.

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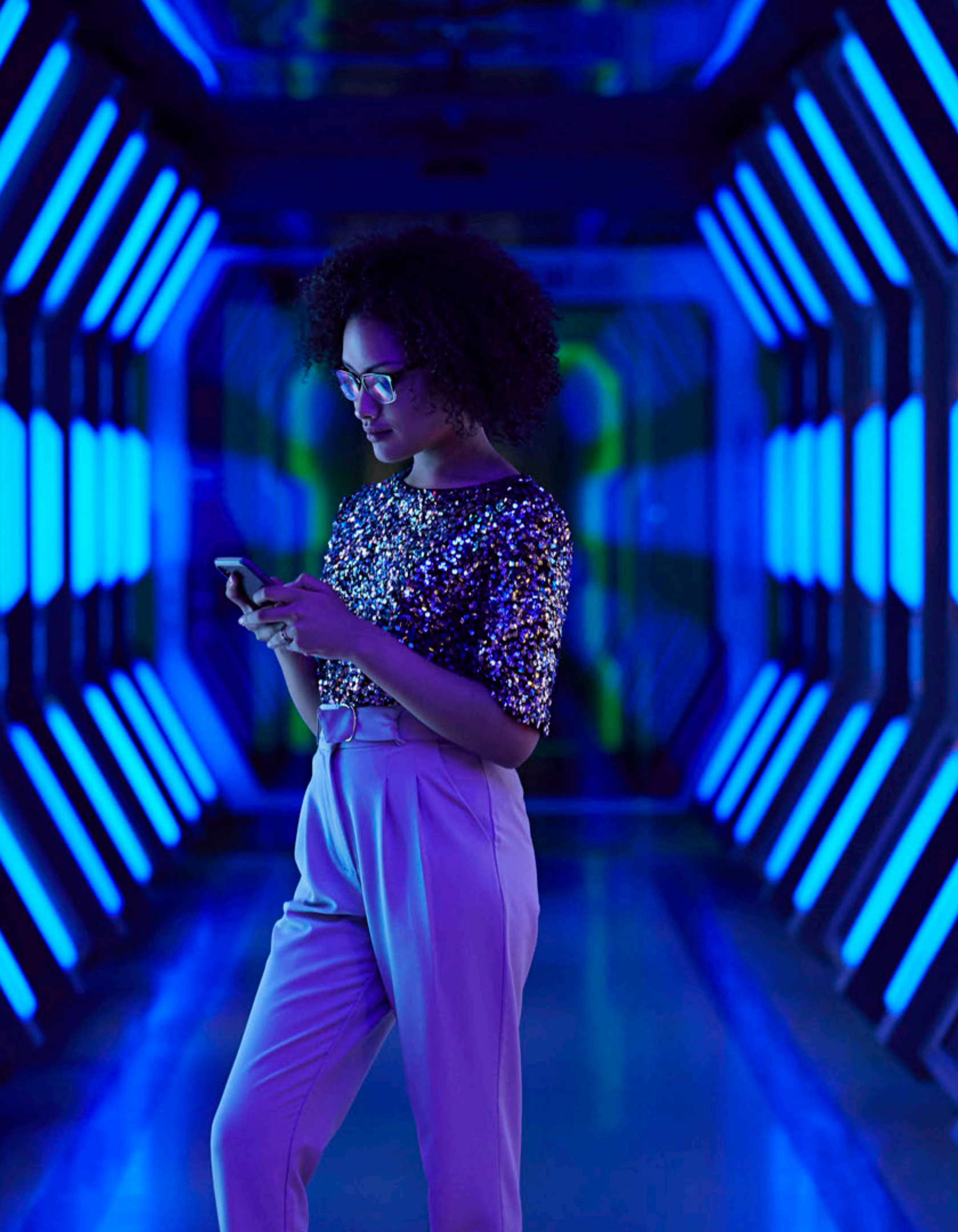
*Gallup*

*Northeastern University*

# SUMMARY OF KEY FINDINGS

This report is the product of a series of more than 10,000 web surveys conducted in Canada, the United States and the United Kingdom between April 25 and June 4, 2019, as well as interviews of chief human resources officers at 10 large corporations based in these countries. The surveys measured perceptions of the impact of artificial intelligence (AI) on jobs, as well as what education choices respondents would make in response and their confidence in higher education, government and business in planning for widespread AI adoption.





In all three countries, adults are pessimistic about the overall impact of AI on jobs, but much more optimistic about its impact on their own jobs. In Canada, 61% say adoption will result in net job loss, compared with 60% in the U.K. and 71% in the U.S. However, when asked if they worry about losing their own jobs to AI, 83% of U.S. workers say they are “not too worried” or “not worried at all”; 64% of Canadian workers and 66% of those in the U.K. say the same.

#### SEVERAL KEY FINDINGS HAVE BEEN IDENTIFIED FROM THESE SURVEYS AND INTERVIEWS:

### 01 FEW SEE HIGHER EDUCATION AS DOING A GOOD JOB PREPARING CURRENT OR FUTURE EMPLOYEES FOR THE WORKFORCE.

In Canada, just 45% of adults say they mostly (33%) or strongly (12%) agree that colleges and universities do a good job preparing graduates, while in the U.K., 34% of the public says they mostly (24%) or strongly (10%) agree. Americans are the most pessimistic, with fewer than one in five, 17%, saying they mostly (14%) or strongly (3%) agree.

Canadians are most optimistic concerning the future, with 48% agreeing (35%) or strongly agreeing (13%) that universities do a good job preparing students for jobs of the future, many of which will require some technological skills and the ability to work with data. In the U.K., 38% say they agree (27%) or strongly agree (11%) that higher education does a good job preparing these graduates. Americans are, again, the least optimistic, with 22% saying they agree (19%) or strongly agree (3%) that colleges and universities are doing a good job preparing students for future jobs involving technology.

### 02 MOST ADULTS WOULD NOT LOOK TO HIGHER EDUCATION AS THE FIRST SOURCE FOR NEW SKILLS AND TRAINING TO RESPOND TO AI ADOPTION.

Across all three countries, the most popular options for additional training and skills are on-the-job programs provided by employers. In the U.S., traditional, in-person programs at universities come in second in terms of popularity, with 34% noting they would look to those institutions. In Canada and the U.K., these programs are third in terms of popularity, with 29% and 24% opting for them, respectively. For both Canada and the U.K., the second-most popular choice is online programs offered by traditional universities.



### **03 NEARLY ALL, IN ALL THREE COUNTRIES, SEE THE VALUE OF LIFELONG LEARNING.**

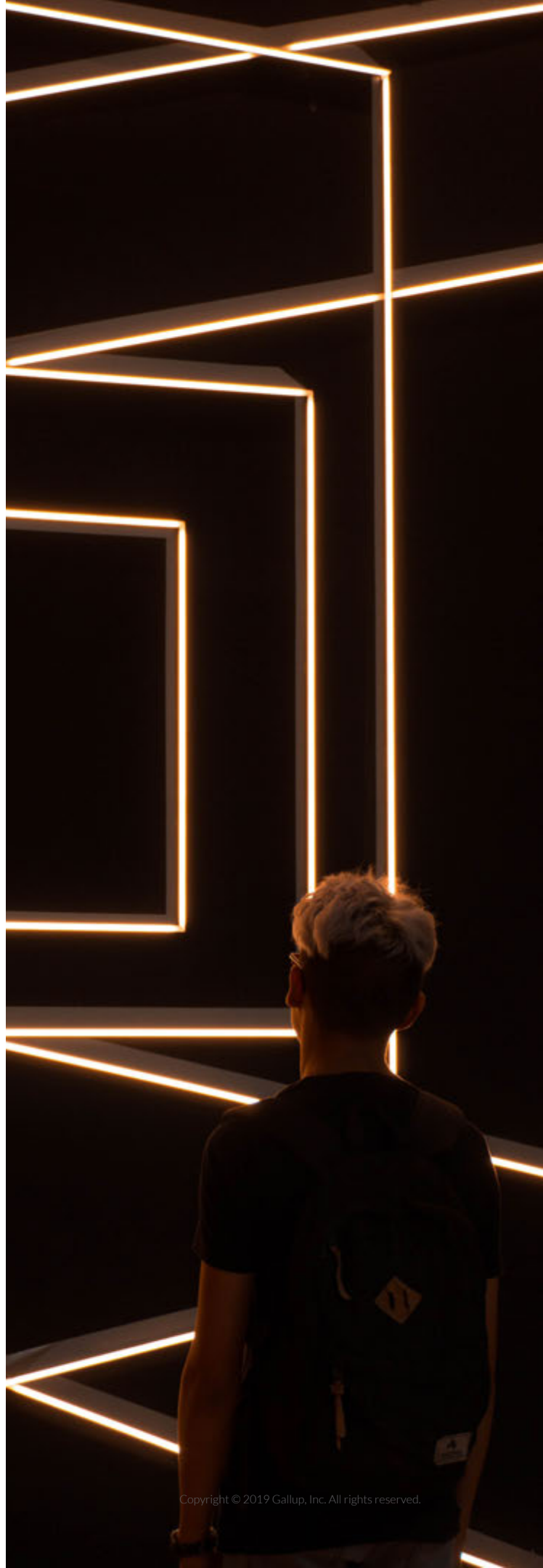
In the U.S., 95% of the public sees the value of career-long learning, compared with 94% in the U.K. and 92% in Canada. However, higher education is not seen as best equipped to provide career-long learning. A quarter or less of adults in all three countries say higher education is best equipped to do so.

### **04 MANY QUESTION THE VALUE OF A DEGREE FROM A TRADITIONAL COLLEGE OR UNIVERSITY.**

In Canada, 46% say a degree from a college or university is more important now than a decade ago, compared with 26% in the U.K. and 35% in the U.S. When asked about the value of a degree a decade in the future, 43% of Canadians say it will be more important, along with 25% in the U.K. and 30% in the U.S.

### **05 COST IS SEEN AS THE PRIMARY BARRIER TO OBTAINING NEW SKILLS AND EDUCATION.**

In the U.S., 65% of the population cites this as the leading barrier to obtaining new skills. In Canada, 59% of the population notes costs as a barrier, while 53% of those in the U.K. agree. In terms of the ability of colleges and universities to provide lifelong learning, perceptions of cost barriers are even starker. A full 80% of Americans cite cost as the reason higher education is not the best equipped to provide this education, compared with 65% of Canadians and 58% of those in the U.K. Lack of time is the second most commonly cited barrier across all three countries, with 44% of Canadians, 42% of those in the U.K. and 61% of Americans noting they lack time to obtain new skills and education.



# INTRO DUC TION







The adoption and integration of artificial intelligence into the global economy is set to impact the lives of hundreds of millions of workers around the globe.<sup>1</sup>

**SOME EXPERTS ESTIMATE THIS  
DISRUPTION COULD RESULT IN THE  
LOSS OF UP TO 50% OF THE WORLD'S  
JOBS AS THESE POSITIONS ARE  
REPLACED BY AI AND AUTOMATION.<sup>2</sup>**

Preparing the global workforce for this disruption and equipping displaced workers with new skills that allow them to succeed in this environment is essential. The challenge posed by preparing the workforce and allowing workers to continue to add to their skills for the future will require coordination on the part of higher education, business and government.

1 <https://www.cnn.com/2017/04/27/kai-fu-lee-robots-will-replace-half-of-all-jobs.html>

2 [https://www.oxfordmartin.ox.ac.uk/downloads/academic/The\\_Future\\_of\\_Employment.pdf](https://www.oxfordmartin.ox.ac.uk/downloads/academic/The_Future_of_Employment.pdf)

Preparing to meet this challenge head-on first requires measuring the perceptions of opportunities and barriers to acquiring the skills workers will need. As part of this effort, Gallup and Northeastern University conducted an online survey of 4,394 Americans from April 25 to May 9, 2019; 3,049 Canadians from May 31 to June 4, 2019; and 3,208 U.K. adults from May 1 to May 10, 2019. In addition, interviews were conducted with chief human resources officers at 10 major companies located in these countries to gain additional insight from those in the industry on the skills workers need to adapt to AI.

Based on these interviews, a consensus emerges: AI is clearly viewed as a transformative innovation by these heads of human resources, in terms of how their companies operate, what skills they are looking for in potential employees and how they select those they intend to hire. They largely indicate they are looking for employees who have both soft skills, such as an ability to work in teams, and hard, technical skills.

Additionally, they note facilitating constant learning and updating of skills is of utmost importance to their employees and their workforce planning for the future. Included throughout this report are quotes from these heads of human resources on key insights they have concerning AI and its impact on the workforce in all three countries.

In addition to the interviews, the survey findings show several strong similarities among adults in Canada, the U.S. and the U.K. These similarities include a general lack of confidence in most major institutions in their societies to adequately plan for the adoption of AI. Perhaps most surprisingly, most of the adults in all three countries would not look to higher education for the additional skills and training they would require in response to AI adoption.

This lack of confidence in any one institution to plan for AI adoption provides a clear opportunity for higher education to take the lead in coordinating between all three sectors and in developing new and more innovative ways to deliver skills training and education.



**I think as AI and automation become more mainstream it is critical for us to have employees who understand how to work with the technology. We look for employees that can work in a high collaborative environment. You're looking for someone who has that digital fluidity. That's a new and different mindset that a lot of different companies don't have."**

**– Chief Human Resources Officer**

Fortune 500 information  
technology company



SURVEY FINDINGS SHOW  
STRONG SIMILARITIES BETWEEN  
ADULTS IN CANADA, THE  
U.S. AND THE U.K. AROUND A  
GENERAL LACK OF CONFIDENCE  
IN MOST MAJOR INSTITUTIONS  
IN THEIR SOCIETIES TO  
ADEQUATELY PLAN FOR THE  
ADOPTION OF AI.

# PERCEPTION OF THE THREAT TO JOBS POSED BY AI

An assessment of worry concerning AI adoption offers a good first step in understanding the current state of public opinion on planning for this economic revolution. Despite frequent media reporting concerning AI in all three countries, adults in these nations are still confused about exactly what the technology is. In addition to this confusion, there is a general, pessimistic attitude about the impact of AI adoption on the overall economy, but adults in the U.S., U.K. and Canada remain optimistic about their own jobs.









## Confusion Over Understanding of AI

Similar percentages in all three countries express that they personally have an excellent or good understanding of AI. In Canada, 54% of adults report that their understanding of AI is excellent or good, while 52% in the U.K. and 55% in the U.S. say the same. Alternatively, 46% of Canadians say they have an only fair or poor understanding of AI, with 48% in the U.K. and 45% in the U.S. voicing similar opinions.

Across all three countries, the youngest members of the public, those aged 18 to 29, tend to express some of the highest levels of understanding of AI. Understanding of AI tends to decline among older groups of the public in all three countries. For instance, in Canada, 67% of those aged 18 to 29 say they have an excellent or good understanding of AI, compared with 62% of those aged 30 to 49, 45% of those aged 50 to 64 and 38% of those aged 65 or older.

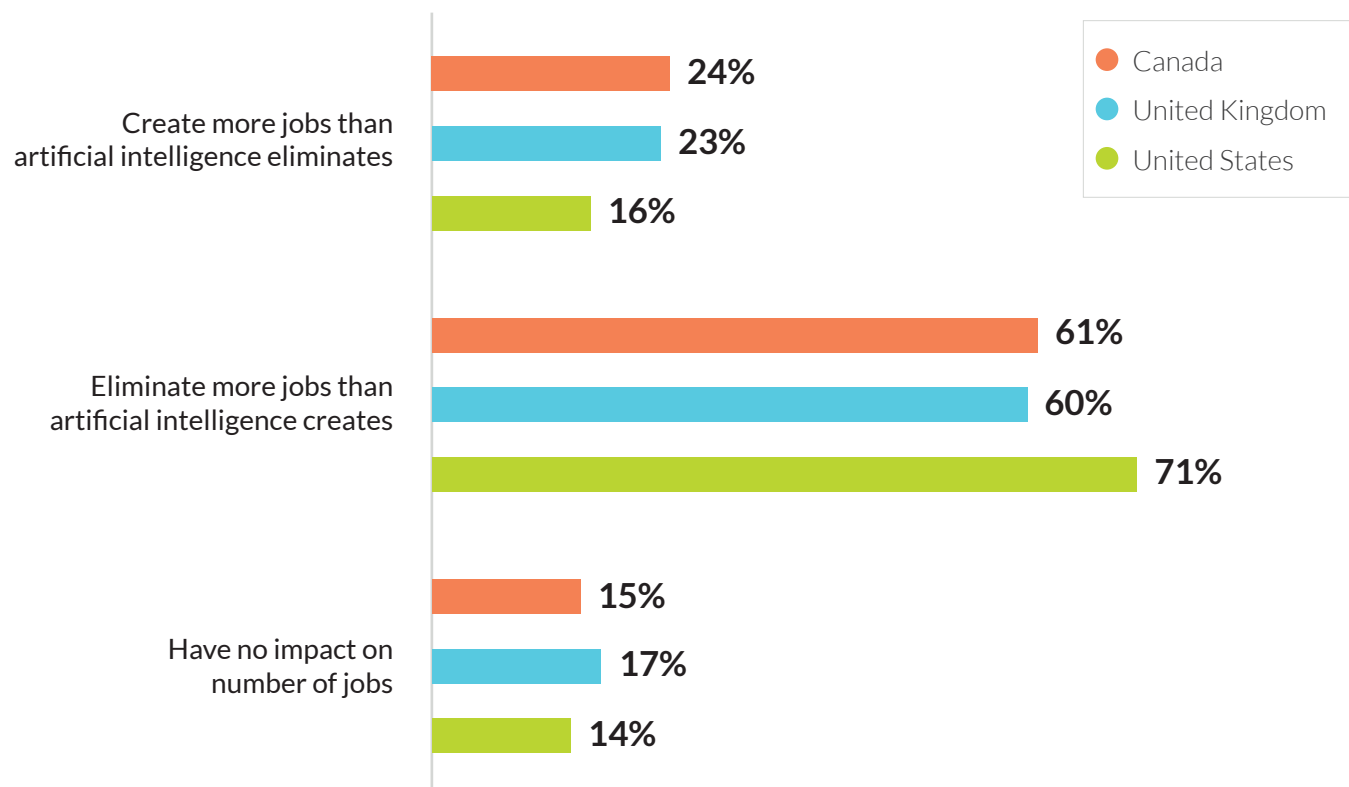
## Pessimism on the Impact of AI on the Overall Economy

When asked about the impact of AI on the overall economy of these countries, adults in the U.S., U.K. and Canada all voice a general pessimism. Clear majorities in all three countries say AI adoption will cost more jobs than it creates. Canadian and U.K. adults have similar levels of pessimism that AI adoption will result in net job loss, with 61% and 60%, respectively, saying so. In the U.S., the public is even more pessimistic, with 71% saying this economic shift will result in more jobs lost than gained.

Americans' beliefs are essentially unchanged from 2017, when Gallup and Northeastern surveyed opinions on AI just in the U.S. At that time, 73% said AI adoption would result in a net job loss.

FIGURE 1

Thinking about the number of jobs in your country, do you believe an increase in the use of artificial intelligence will...





Large percentages of adults in all three countries also foresee AI adoption impacting the number of good jobs available in their countries' economies. When asked if the shift to AI will result in more or fewer quality jobs in their economies, 49% of those in both Canada and the U.K. say this shift will decrease the number of good jobs available to most people. Americans are more pessimistic, with 56% saying AI adoption will result in fewer quality jobs for most people.

### **Overall Pessimism Contrasts With Individual Optimism**

While majorities of adults in all three countries see AI as resulting in an overall loss of jobs, individual workers are much more optimistic about their own jobs. In the U.S., 17% of the employed public is "very worried" or "somewhat worried" that they might lose their jobs due to AI adoption. This is down from 23% who said the same the last time Gallup and Northeastern asked this question in 2017. In Canada and the U.K., workers are twice or more as concerned about losing their jobs to AI, with 37% of Canadian workers and 34% of those in the U.K. saying they are worried about losing their jobs due to AI.

**In Canada and the U.K., workers are twice or more as concerned about losing their jobs to AI as workers in the U.S.**

FIGURE 2

How worried are you about your job being eliminated as a result of new technology, automation, robots, or artificial intelligence, or are you not at all worried?

% Very or Somewhat worried

OVERALL

	CANADA	UNITED KINGDOM	UNITED STATES
	37%	34%	17%

AGE

	CANADA	UNITED KINGDOM	UNITED STATES
18-29	49%	50%	18%
30-49	38%	36%	18%
50-64	29%	21%	14%
65+	12%	8%	16%

In both Canada and the U.K. there is a similar pattern of worry about job loss to new technology: The younger the member of the public, the greater the level of worry. As age increases, though, level of worry decreases, likely due to a belief that the disruption likely to occur in the economy from AI adoption will do so after the respondent has left the workforce. In the U.S., this is not the case, as there is little variation between worry about job loss at any age level.

The exact reason for this difference between the U.S. and Canada and the U.K. is unclear. There is little variation between the three countries in terms of those workers who say their employers have cut jobs in response to new technology.

In the U.S., 14% of workers say their employers have cut jobs due to new technology, while 19% in Canada and 20% in the U.K. say the same.

In general, it is not unusual that public opinion is more optimistic about personal matters than overall national or international matters.<sup>3</sup> The gaps in optimism among U.S., U.K. and Canadian citizens' assessments of the impact of AI on their overall economies and their personal employment situations may be due to this effect.

3 <https://news.gallup.com/poll/103483/Most-Americans-Very-Satisfied-Their-Personal-Lives.aspx>





DESPITE FREQUENT MEDIA  
REPORTING CONCERNING AI  
IN ALL THREE COUNTRIES,  
ADULTS IN THESE  
COUNTRIES ARE STILL  
CONFUSED ABOUT EXACTLY  
WHAT THE TECHNOLOGY IS.

FEW SEE UNIVERSITIES AS

# THE PLACE TO OBTAIN SKILLS

TO RESPOND TO AI





While workers in all three countries hold conflicting attitudes about the threat posed by AI to jobs, they have similar views about obtaining new skills and education from traditional colleges and universities in response to AI. Workers generally do not see traditional higher education institutions as their primary source of additional skills and education. Additionally, they tend to question the value of a degree from these institutions, in general not seeing them as preparing graduates for the current job market or the economy of the future.



### Workers' Willingness to Return to School for Additional Education and Where They Would Prefer to Upskill

In all three countries, no more than four in 10 workers have considered returning to school in response to AI. Canadian workers are the most likely to consider returning to school, with 38% saying they have considered doing so. This compares to 32% in the U.K. and 26% in the U.S.

In Canada (59%), the U.S. (70%) and the U.K. (58%), majorities of workers look to on-the-job training offered by an employer to provide the education and training to upskill. For Americans, traditional, in-person programs at universities come in second in terms of popularity, with 34% noting they would look to those institutions. In Canada and the U.K., these programs are third in terms of popularity, with 29% and 24% opting for them, respectively.



People like to learn in the way that they might interact with social media. They want short, bite-sized learning. They want learning that's in the moment and now."

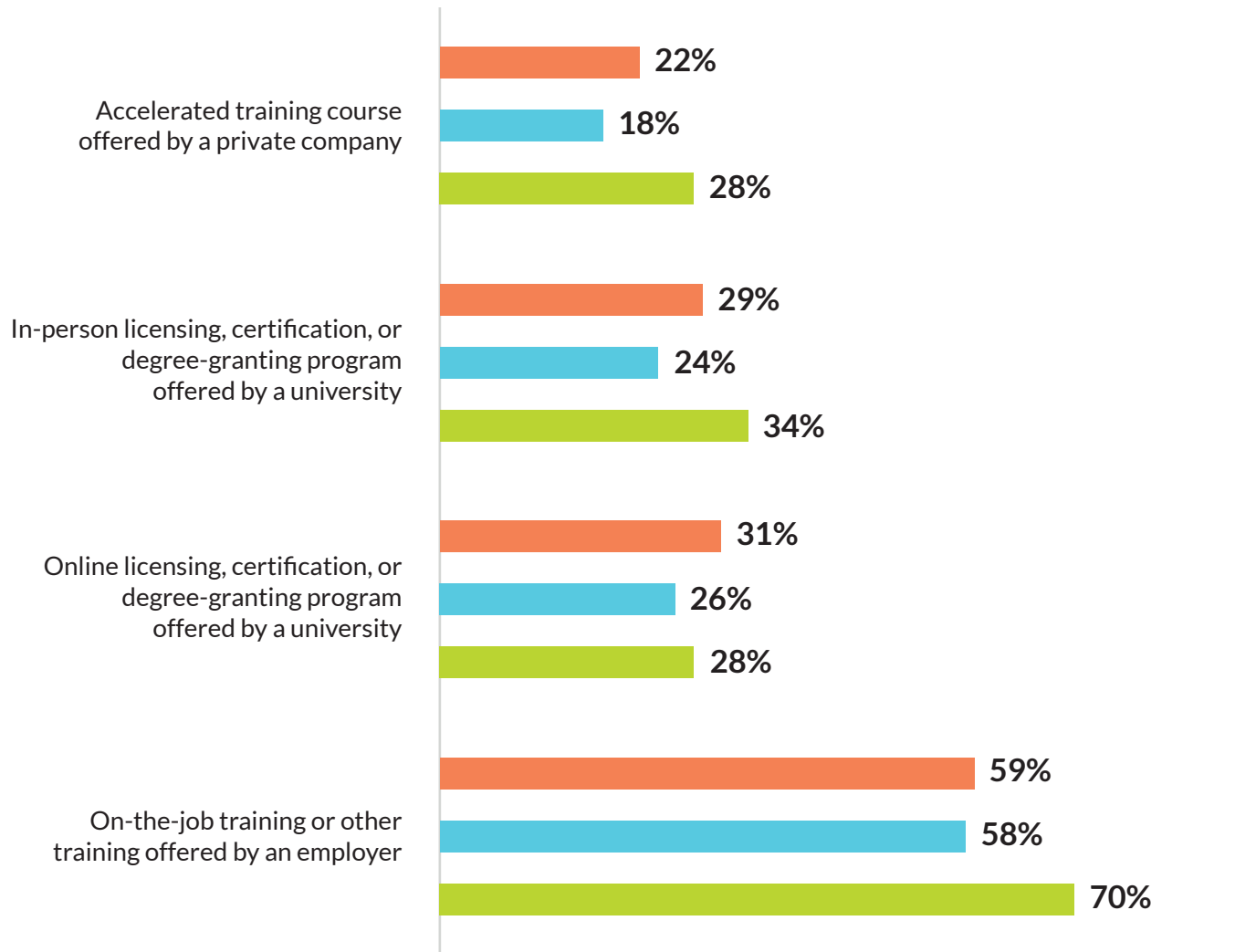
– Chief Human Resources Officer  
Large U.K. financial services group



FIGURE 3

If your current skills and education were to become outdated, which of the following types of training or education would you prefer? Please select up to three.

*Among employed members of the public.*



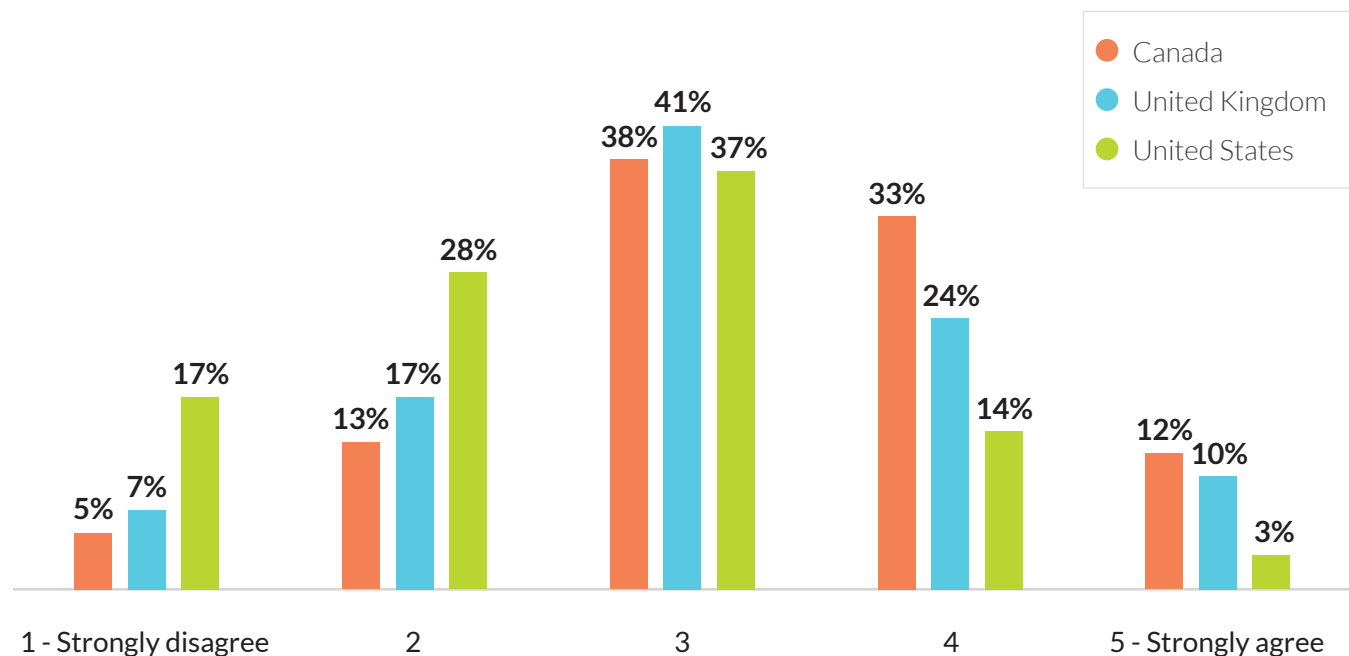
In addition to these survey findings, Gallup used conjoint analysis techniques to better understand how individuals value specific characteristics of retraining programs. Specifically, conjoint analysis was used to uncover the impact of the institution delivering the training, the delivery method of the training and the length of training on an individual's choice of retraining programs.<sup>4</sup> Canadian, U.S. and U.K. respondents prefer that employers deliver the training and that it take the form of a hybrid combination of in-person and online course work. Additionally, people in all three countries prefer the shortest possible training sessions, with short, one-time workshops seen as the most preferable, followed by continuous courses that meet at regular intervals and, finally, a mixture of semester-long courses with shorter intensive courses or one-time training sessions.

## Why Aren't Workers Looking to Higher Education for New Skills

One of the key factors that likely impacts workers' willingness to look to higher education as their first choice for new skills and education is the low level of confidence in how successful these institutions have been preparing graduates for the current workforce. Only in Canada, where 45% of adults say they mostly (33%) or strongly (12%) agree that colleges and universities do a good job preparing graduates for the current economy does confidence begin to approach majority levels. In the U.K., 34% of the public say they mostly (24%) or strongly (10%) agree. And finally, fewer than one in five Americans, 17%, say they mostly (14%) or strongly (3%) agree.

FIGURE 4

Universities in my country do a good job preparing graduates for success in the current workforce.



<sup>4</sup> Respondents were shown a set of two potential retraining programs and asked to choose which they prefer. Each retraining program comprised three attributes: provider, delivery methods and length of training. There were five levels for providers (nonprofit four-year university, nonprofit community or technical colleges, for-profit education provider, employers and government), four levels of delivery method (in-person [physical classroom]; online, through a personal computer; online, through a mobile app; and hybrid of classroom and online), and five levels of training length (traditional semester schedule, month-long intensive courses, short one-time workshops or training sessions, continuous courses that meet at regular intervals, a mixture of semester-long courses with shorter intensive courses or training sessions). Each hypothetical retraining program presented to respondents included randomly selected levels.



When it comes to perception of higher education's ability to prepare students for the jobs of the future, respondents' attitudes are similar to those for current jobs. Canadians are the most optimistic, with 48% agreeing (35%) or strongly agreeing (13%) that colleges and universities do a good job preparing students for jobs of the future, many of which will require some technological skills and the ability to work with data. Thirty-eight percent of U.K. respondents say they agree (27%) or strongly agree (11%) that higher education does a good job preparing these students. Americans, however, are the least optimistic, with 22% saying they agree (19%) or strongly agree (3%) that colleges and universities are doing a good job preparing students for future jobs involving technology.

Another factor impacting the public's views on where to look for additional training and skills is the perception of the quality of colleges and universities within their countries. Canadians are the most optimistic on the quality of their higher education system, with 58% saying their institutions are among the best in the world. This is followed by U.K. citizens, 49% of whom say their colleges and universities are among the best in the world. Americans, by contrast, are the least optimistic, with 33% saying their institutions of higher learning are among the best in the world. This may be due, at least in part, to falling levels of confidence in higher education in the U.S. in general, with the percentage of Americans with "a great deal" or "quite a lot" of confidence in higher education having fallen from 57% in 2015 to 48% in 2018.<sup>5</sup>



**You can provide a great education, but if that education is not getting drafted into future skills, questions will be raised about the value of that education."**

*– Tanuj Kapilashrami,  
Group Head, HR  
Standard Chartered Bank*



**Traditionally, entry into the organization meant you had to have a degree. We've hired graduates straight out of universities all over the world. We are changing that significantly ... we are creating opportunities for people without degrees to join the bank through internships, apprenticeship programs and work experiences."**

*– Tanuj Kapilashrami,  
Group Head, HR  
Standard Chartered Bank*

<sup>5</sup> <https://news.gallup.com/opinion/gallup/242441/confidence-higher-education-down-2015.aspx>

## Perceptions of the Value of Higher Education

Perceptions of the value of higher education are also likely impacting the choices made by Canadian, U.K. and U.S. adults in terms of where to seek out new education and skills. Only in Canada does more of the public, 46%, say degrees from colleges and universities are more important now than they were 10 years ago. This compares with 27% of Canadians who say degrees are less important today than they were a decade ago. In the U.K., 26% say degrees are more important, compared with 46% who say they are less important. And finally, in the U.S., the public is split, with 35% saying degrees are more important today while 36% say they are less important.

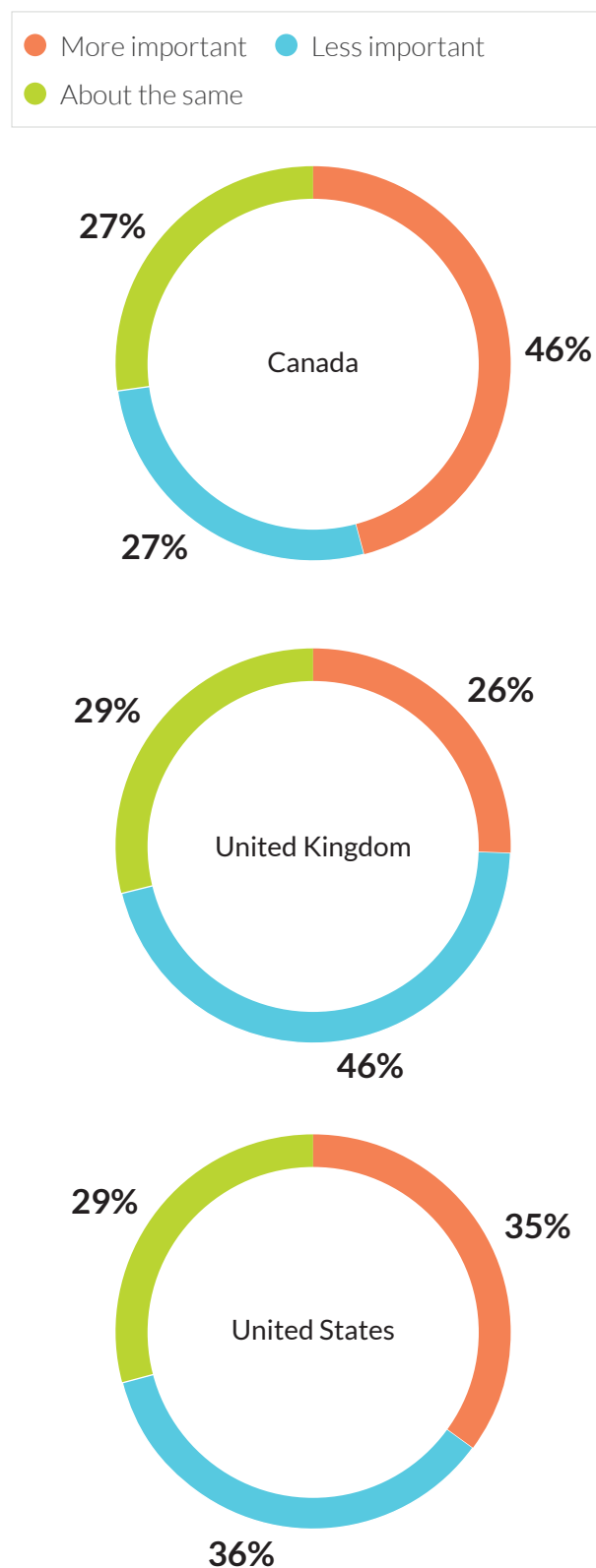


Universities need to rethink higher education. For example, should it still be four years? Is that the best use of people's time? And is this model sufficiently affordable for the vast majority of people?"

– Diane Gherson, Chief Human Resources Officer  
IBM

FIGURE 5

Do you believe earning a university degree is more important, less important, or about the same as it was 10 years ago?



When asked about the value of a college or university degree a decade into the future, public opinion remains quite similar. Canadians are still the most optimistic, with 43% saying degrees will be more important and 26% saying less important. Among the U.K. public, 25% say degrees will be more important 10 years from now, compared with 41% who believe they will be less important. Again, Americans are split, with 30% saying degrees will be more important and 33% reporting they will be less.

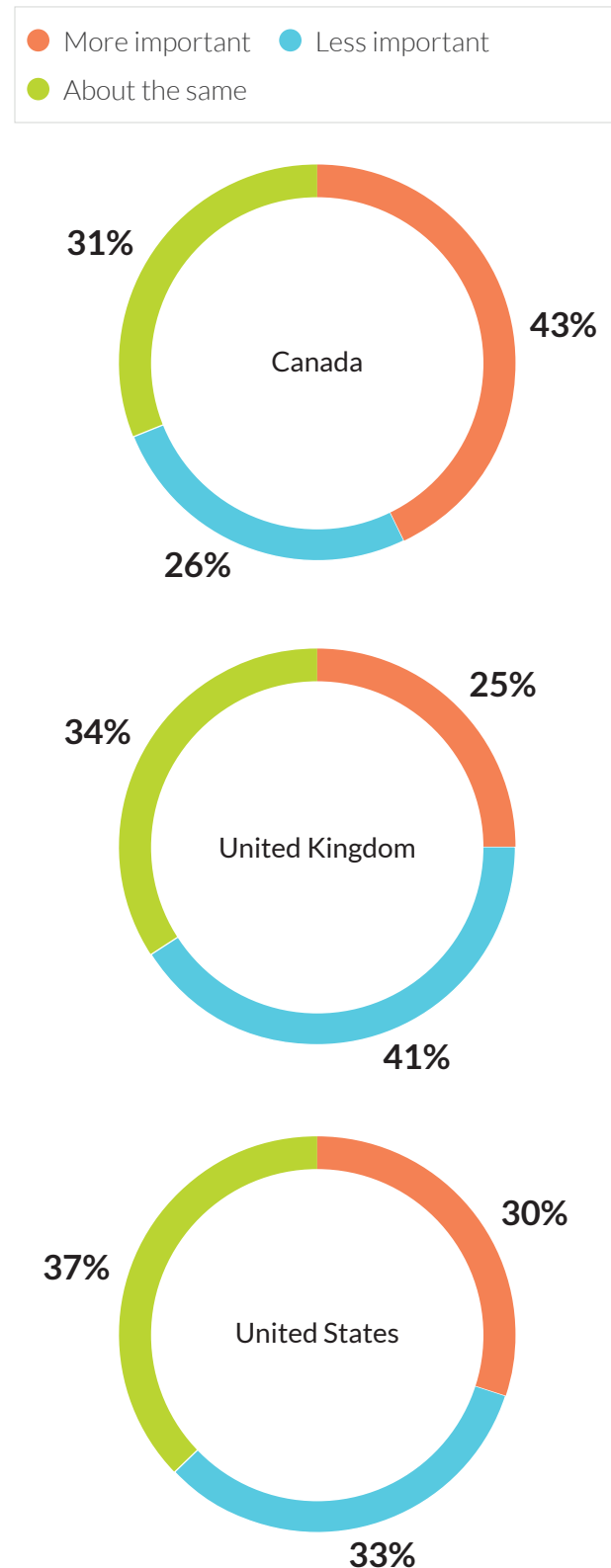


Fifteen percent of our U.S. hires now are without a traditional four-year college degree. We have launched apprenticeships registered with the U.S. Department of Labor which have provided amazing impact for us in a number of areas ... in careers like software development, cybersecurity, blockchain and design. We have had great experience with folks coming right out of high school and community college or from another occupation. They have contemporary tech skills and come from diverse backgrounds. After their first year, they're often outperforming people with college degrees."

– Diane Gherson, Chief Human Resources Officer  
IBM

FIGURE 6

Ten years from now, do you expect earning a university degree to be more important, less important, or about the same as it is now?





Concrete Barriers to Obtaining New Skills

In addition to a lack of confidence in higher education to prepare graduates for their careers or concerns over the value of a college or university degree, the public also noted several concrete barriers to obtaining additional education and new skills. Gallup and Northeastern asked respondents in all three countries to note which of six barriers they would face if they attempted to go back to school to obtain new skills. Across all three countries, cost is the most commonly cited barrier to gaining new skills, with 59% of Canadians citing this, as well as 53% of respondents in the U.K. and 65% in the U.S. Cost is followed by a lack of time, which is the second most cited barrier across all three countries.

In addition to agreement on cost as the primary barrier to obtaining new skills and education, U.S., Canadian and U.K. respondents are in alignment regarding who should pay for retraining. Employers are the most popular of several options offered in each country. They are cited most often in the U.S., where a full 73% say they believe employers should pay for retraining, compared with 60% who say the same in the U.K. and 59% in Canada.

FIGURE 7

Which of the following are major barriers you would face when seeking education or training over the course of your career? Please select all that apply.

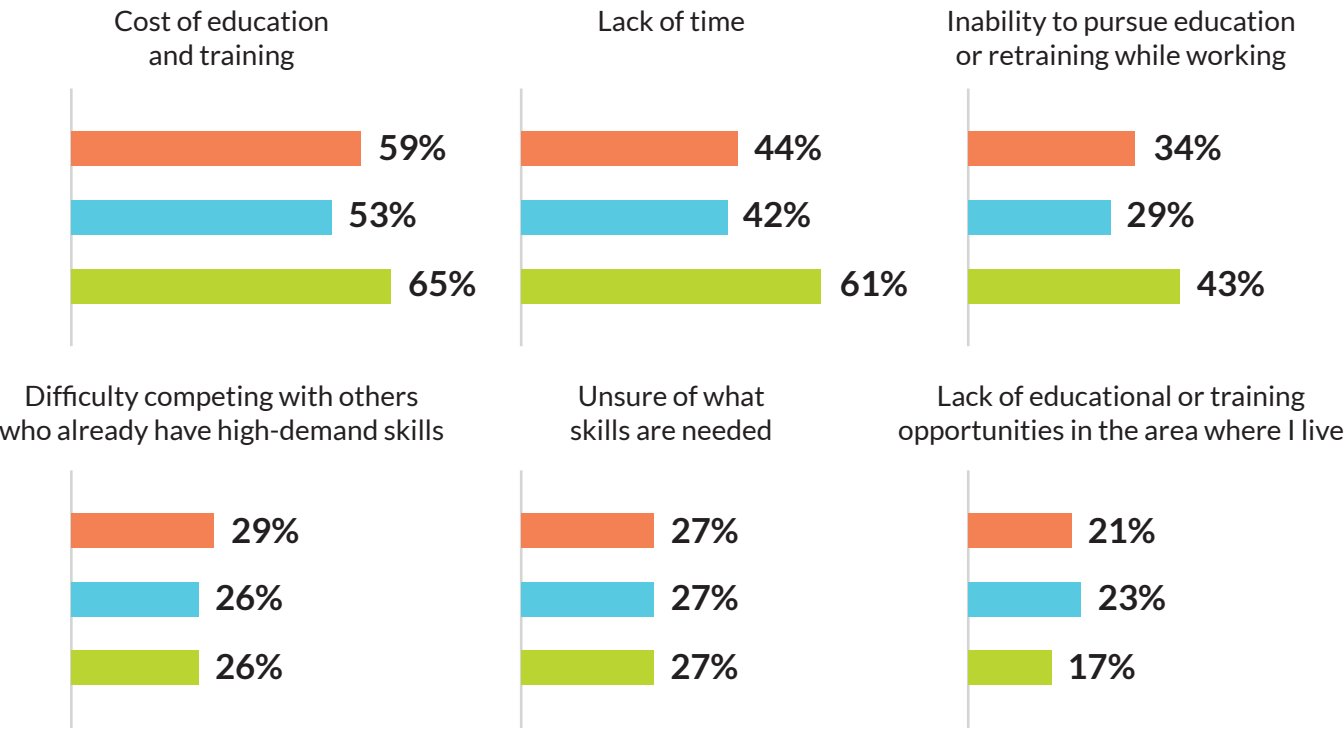
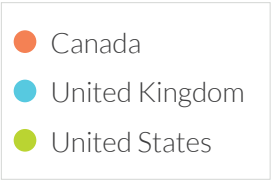


FIGURE 8

Who do you believe should pay for retraining programs for workers who lose their jobs because of new technology, automation, robots or artificial intelligence? Please select all that apply.

	CANADA	UNITED KINGDOM	UNITED STATES
EMPLOYERS	59%	60%	73%
FEDERAL/CENTRAL GOVERNMENT*	56%	56%	44%
PROVINCIAL/STATE GOVERNMENT**	48%	—	36%
UNIONS, INDUSTRY OR TRADE ASSOCIATIONS	30%	16%	46%
LOCAL GOVERNMENT	30%	28%	25%
WORKERS THEMSELVES	22%	16%	37%
COLLEGES AND UNIVERSITIES	9%	8%	17%
EUROPEAN UNION	—	13%	—

— Not asked in this country.

\* Federal government asked in Canada and the U.S. Central government asked in the U.K.

\*\* Provincial government asked in Canada. State government asked in the U.S.

In a separate question, respondents were asked to gauge their confidence in their ability to pay for further education if they needed it to keep up with the adoption of AI. Across all three countries, nearly a third indicate they agree or strongly agree that they could afford this education. In both Canada and the U.K., 35% agree they could afford this education, while 30% in the U.S. say the same.

**In the U.S., 73%  
believe employers  
should pay  
for training.**

The background of the slide is a photograph of a server room. On the right side, there are server racks with bright blue horizontal light strips. On the left side, there are vertical rows of small, glowing orange and green lights. The overall atmosphere is high-tech and digital.

# WHAT NEW SKILLS DO THE PUBLIC PERCEIVE AS NEEDED TO ADAPT TO AI?

Across all three countries, opinion is mixed concerning both certainty of what skills are needed to adapt to AI and the confidence those skills can be obtained. There is also a clear understanding that softer, non-technical skills like teamwork, communication, creativity and critical thinking remain important in the face of AI adoption.





### Understanding What Skills Are Needed and Confidence They Can Be Obtained

In none of the countries do a majority of adults say they are confident that they know what skills are required to adapt to AI. Similar percentages of Canadians and Americans (45%) say they agree or strongly agree that they know what skills are required. U.K. citizens are slightly less confident, with 41% saying they agree or strongly agree they know what skills they need to adapt to AI.

Confidence among adults that they can obtain these skills is similar to their understanding of what the skills are. In Canada, 44% of the population agrees or strongly agrees they could access the higher education and/or training opportunities they need to keep up with AI adoption, followed closely by 43% in America. Again, the U.K. public is slightly less optimistic, with 37% saying the same.

### Perceptions of the Need for Soft Skills vs. Hard Skills

When it comes to general ideas of what types of skills will be required to adapt to AI — softer skills such as teamwork, communication, creativity and critical thinking, or harder skills like math, science, coding and the ability to work with data — adults in all three countries are split. In both Canada (60%) and the U.K. (60%), majorities say softer skills are more important for workers to insulate themselves against disruptions to employment caused by AI adoption. In the U.S., the public is evenly split on the importance of both types of skills.

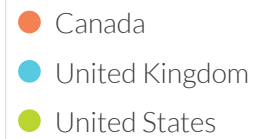


We are trying to influence universities, not just in the U.K. but around the world, to include in their curriculums artificial intelligence ... from year one. Because we find that students in STEM are not really prepared.”

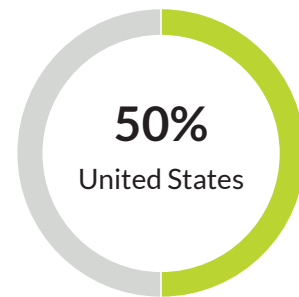
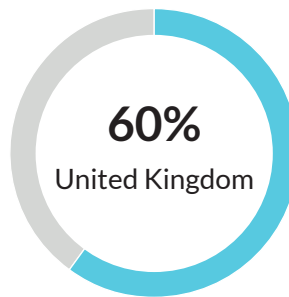
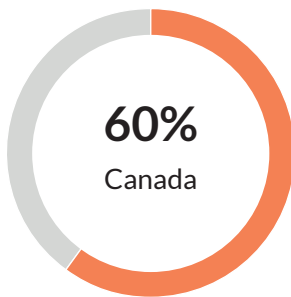
– Fiona Cicconi, Chief Human Resources Officer  
AstraZeneca

FIGURE 9

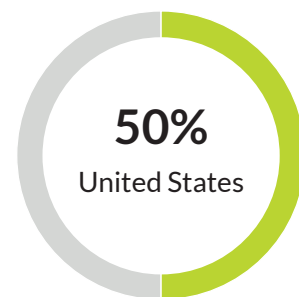
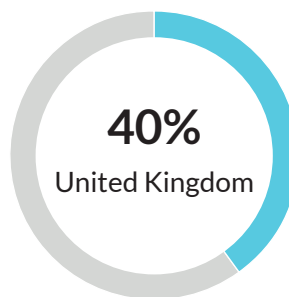
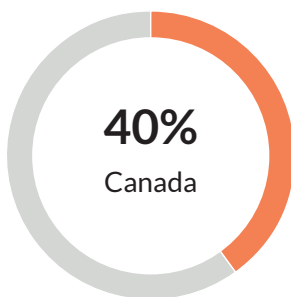
Which of the following types of skills do you believe are more important for workers to have to protect themselves from losing their jobs to new technology, automation, robots, or artificial intelligence?



Skills like teamwork, communication, creativity, and critical thinking



Skills like math, science, coding, and ability to work with data



In all three countries, individuals with bachelor's or advanced degrees tend to favor soft skills over more technical skills. However, there are some exceptions: In the U.K., 61% of those with a secondary education or less favor soft skills, compared with 54% of those with a vocational degree, 56% of those with a bachelor's degree and 68% with an advanced degree.

**In none of the countries do a majority of adults say they are confident that they know what skills are required to adapt to AI.**



Gallup and Northeastern also asked survey-takers in all three countries to assess when their skills will become outdated. In both Canada and the U.K., less than 30% of respondents say their skills will never become outdated. In the U.S., the population is more optimistic, with 42% saying their skills will never become outdated.

While substantial percentages of the populations across all three countries think their skills will never be outdated, large majorities agree that career-long learning is valuable. Ninety-five percent of Americans say career-long learning has value, along with 94% in the U.K. and 92% in Canada.



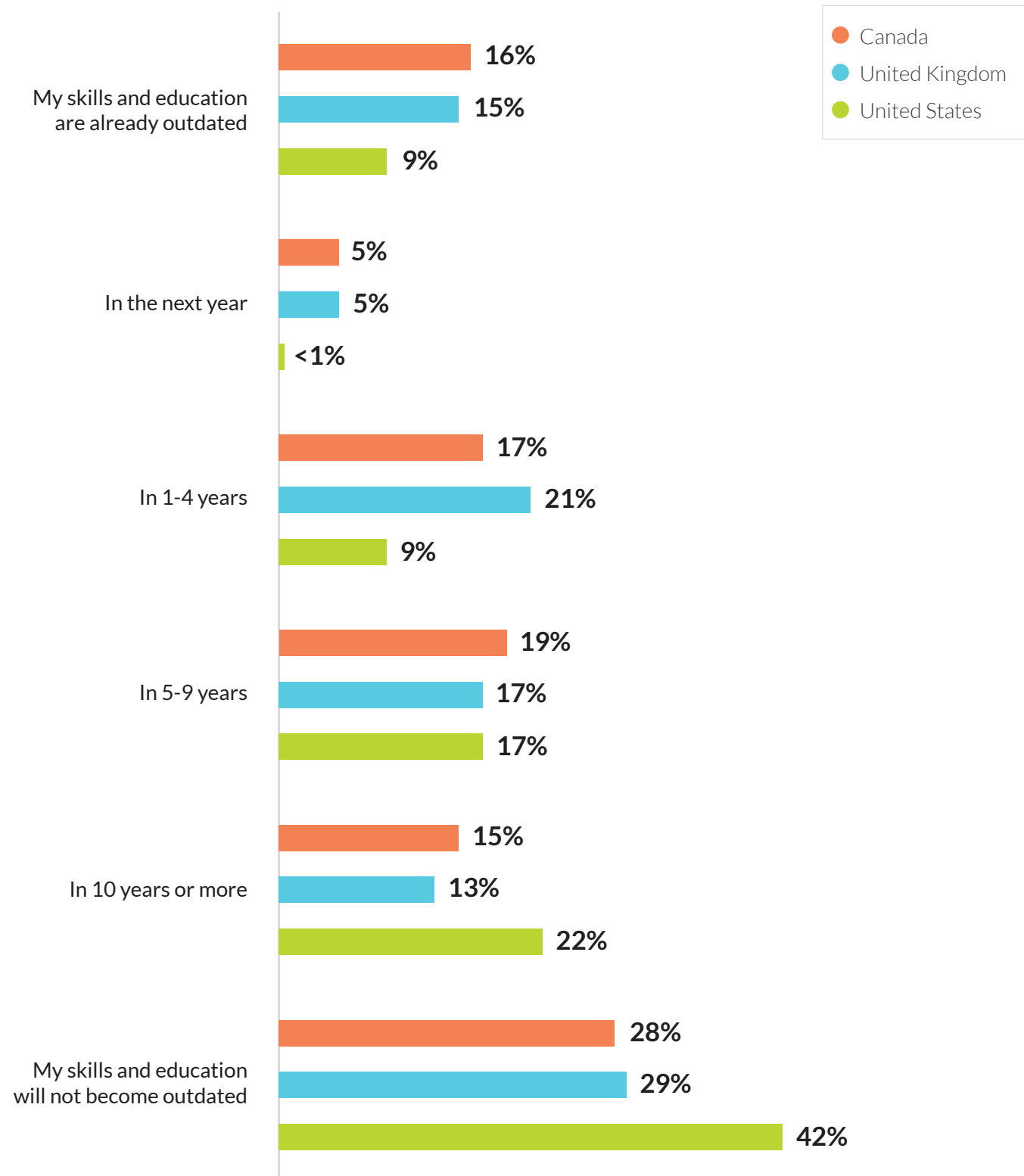
The technical skills shelf life is shorter than what we've dealt with historically, but the human skills shelf life is just as long."

– Helena Gottschling, Chief  
Human Resources Officer  
Royal Bank of Canada



FIGURE 10

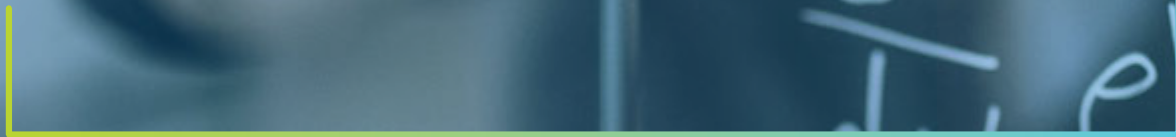
When do you believe your current skills and education will become outdated?



HIGHER EDUCATION

# FAILING IN ITS MISSION

TO PREPARE THE PUBLIC  
FOR AI ADOPTION







Across several key measures, adults in all three countries do not see higher education as succeeding in its mission to prepare their workforces for widespread AI adoption. Additionally, traditional colleges and universities are not seen as the best equipped institutions to provide lifelong learning, largely due to cost barriers.

Little Confidence in Any Institution to Address Need for Lifelong Learning

When respondents are asked if they believe any of four sectors — government, large businesses, small and medium businesses, or higher education — are doing enough to address the need for career-long education, only one sector in one country receives majority confidence. In Canada, 52% of adults say higher education is doing enough to meet this challenge. In the U.K., 45% say the same, and less than half, 25%, of Americans say that higher education is meeting this challenge in the U.S.

FIGURE 11

Do you believe that each of the following is doing enough to address the need for career-long learning and training in your country?

% Yes

GOVERNMENT

CANADA	UNITED KINGDOM	UNITED STATES
35%	30%	22%

LARGE BUSINESSES

CANADA	UNITED KINGDOM	UNITED STATES
38%	41%	29%

SMALL AND MEDIUM-SIZED BUSINESSES

CANADA	UNITED KINGDOM	UNITED STATES
38%	39%	36%

HIGHER EDUCATION

CANADA	UNITED KINGDOM	UNITED STATES
52%	45%	25%



I don't feel like [colleges and universities] are generally focused on teaching people how to learn, which is really what we need right now ... and then the second part of the problem is there's a very significant lack of coordination between government and colleges and universities about where the workforce needs to be retrained, how to do that."

– Eric Severson, Chief People Officer  
DaVita Inc.



Additionally, respondents were asked which of five actors were best equipped to provide career-long education and training. Canadian and U.K. survey-takers were most likely to choose employers, and in the U.S., employers were roughly tied with community colleges. However, it is worth noting that community colleges are only prevalent in the U.S. In none of the three countries did more than a quarter of the population say higher education.

### **Why Aren't People Looking to Higher Education**

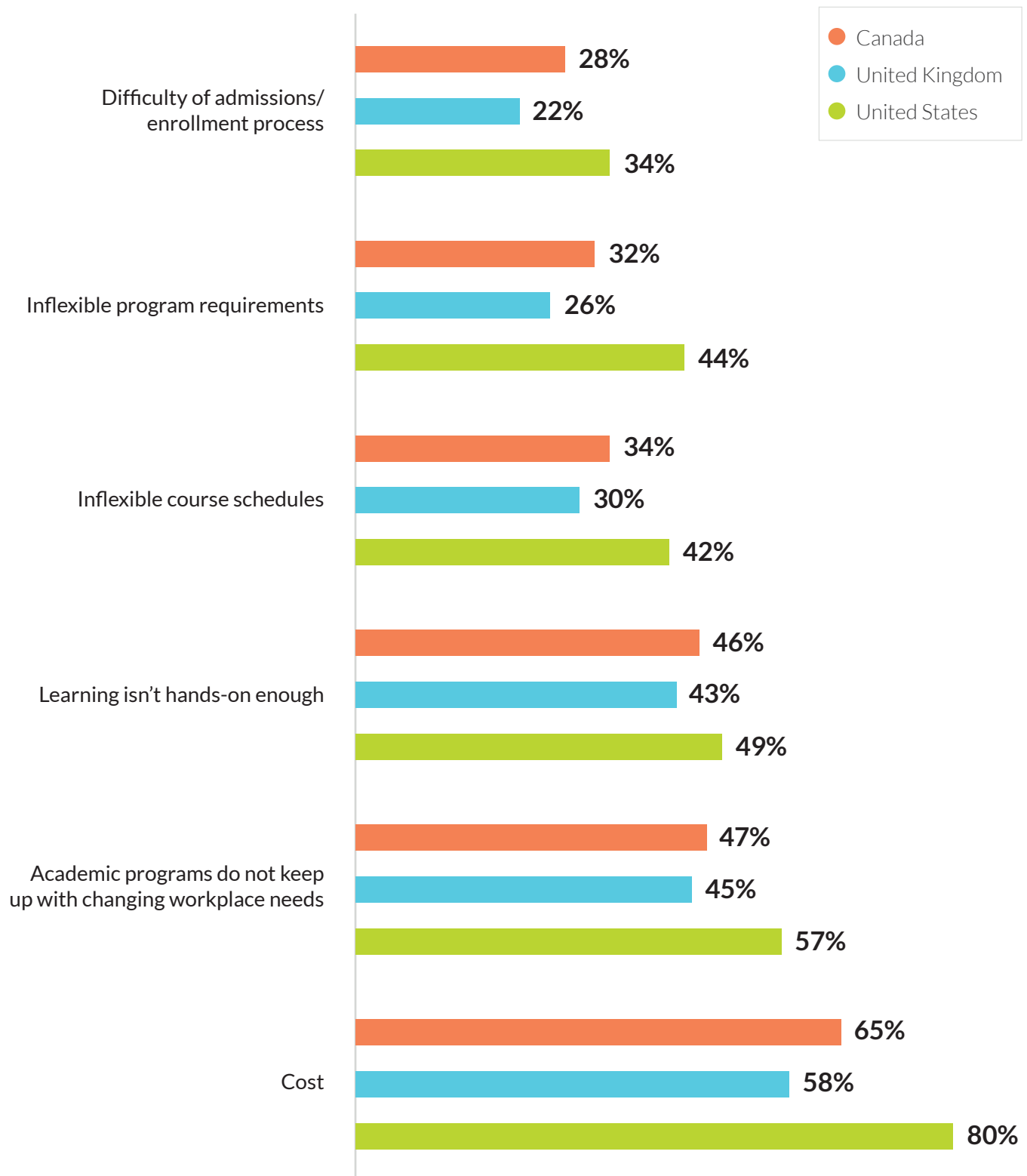
Respondents in all three countries were asked to select from six reasons why traditional four-year universities are not the best equipped institutions for providing career-long education and retraining. The most popular choice in each of the countries was cost. Eight in 10 Americans noted cost as the reason why higher education is not the best equipped, while 65% in Canada and 58% in the U.K. said the same. Beyond cost, academic programs failing to keep up with changing workplace needs, learning that isn't hands-on enough and inflexible course schedules were cited as the top barriers to university-provided lifelong learning.


When asked about potential alternative financing models to address the cost of lifelong learning programs, majorities in each country favor the development of employer-matched and government-matched Lifelong Learning Accounts (81% in Canada, 73% in the U.K. and 74% in the U.S.). In the survey, portable lifelong learning savings accounts were defined as pre-tax/tax-deductible savings accounts which could be matched by an employer or the government to help pay for future education or retraining. Respondents are split about their potential interest in a subscription model of access to lifelong learning. Canadians are very or somewhat interested (54%), while Americans (51%) and U.K. residents (53%) are not too or not at all interested. In the survey, a subscription model of access was explained as a plan under which people would pay a subscription fee to an education provider and have access to some or all of its learning programs.



FIGURE 12

Why are traditional four-year universities not the best equipped to provide career-long education and retraining?





IN ALL THREE COUNTRIES,  
NO MORE THAN FOUR IN 10  
WORKERS HAVE CONSIDERED  
RETURNING TO SCHOOL IN  
RESPONSE TO AI.

# CON CLU SION




In all three countries — Canada, the U.K. and the U.S. — majorities of the populations say AI adoption will result in net job loss. However, when it comes to the impact of AI on their individual jobs, they are substantially more optimistic. In terms of where they would look for additional education should they need to refresh their skills in response to AI, they largely look to employers rather than to higher education. The primary barrier to these respondents seeing higher education as a source of new skills and education is cost. Additionally, concerns about academic programs not keeping up with changing workplace needs also play a key role in why adults in these three countries are not looking to higher education for additional skills.

Additionally, in all but Canada, no institution is seen by a majority as having done enough to prepare the public for AI adoption. A slight majority, 52%, of Canadians see higher education as having done enough to prepare for this disruption. But there is a clear crisis of confidence with business at all levels as well as with government in each of the three countries.

However, adults in these countries are still primarily looking to business to provide the education and new skills they would require to adapt to AI.

When it comes to the skills required to succeed in an economy after AI adoption, the populations of all three countries value both soft and hard skills. All respondents also largely see the value of lifelong learning. The importance of both types of skills is confirmed by the interviews conducted with the chiefs of human resources. However, populations are not looking to higher education to provide this lifelong education.

The current lack of confidence in institutions and the acceptance of the value of lifelong learning provides a clear opportunity for leaders in higher education. Partnering with governments and businesses to provide affordable, relevant, bite-sized, lifelong education to workers in all three countries could restore confidence, not just for higher education, but for the other institutions as well.

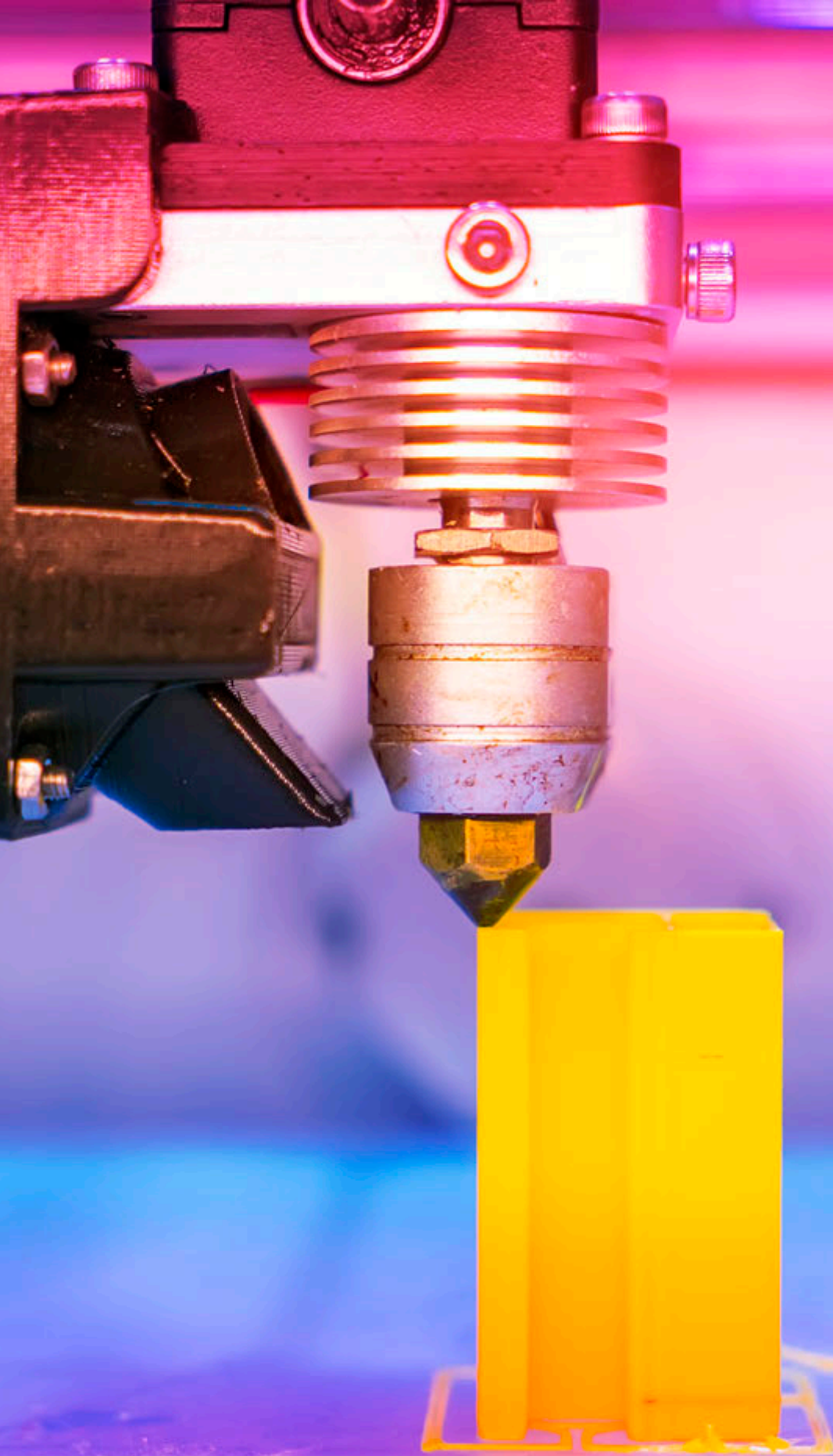
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THE CURRENT LACK  
OF CONFIDENCE IN  
INSTITUTIONS AND THE  
ACCEPTANCE OF THE VALUE  
OF LIFELONG LEARNING  
PROVIDES A CLEAR  
OPPORTUNITY FOR LEADERS  
IN HIGHER EDUCATION.





# METHODS



Results from the United States are based on self-administered web surveys with a random sample of 4,394 U.S. adults, aged 18 and older. Sample was drawn from the Gallup Panel, a probability-based panel that is representative of the U.S. adult population. For more information on the Gallup Panel, see <https://www.gallup.com/174158/gallup-panel-methodology.aspx>.

The U.S. survey was conducted between April 25 and May 9, 2019. Gallup sent survey invitations and reminders to panel members who were selected into the sample. The response rate among panel members sampled for this study is 37%.

Sample data were weighted to minimize bias in survey-based estimates. The weighting started with the panel base weight as the initial weight. Base weights took into account the probability of selection into the panel for all stages of selection. Next, post-stratification weights were created to adjust for nonresponse bias. Nonresponse adjustments were made by adjusting the sample to match the national demographics of gender, age, race, Hispanic ethnicity, education and region. Demographic weighting targets were based on the 2017 Current Population Survey figures for the aged-18-and-older U.S. population.

For results based on this sample of U.S. adults, the margin of sampling error is  $\pm 1.93$  percentage points at the 95% confidence level. Margins of error for subgroups are higher. All reported margins of sampling error include the computed design effects for weighting.

In addition to sampling error, question wording and practical difficulties in conducting surveys can introduce error or bias into the findings of public opinion polls.

Results from Canada and the United Kingdom are based on self-administered web surveys from an opt-in sample provided by Dynata of 3,049 Canadian and 3,208 U.K. adults, aged 18 or older. For details about how Dynata recruits respondents in Canada and the United Kingdom, please see [http://info.dynata.com/rs/105-ZDT-791/images/Dynata\\_Panel%20Book\\_2.19.pdf](http://info.dynata.com/rs/105-ZDT-791/images/Dynata_Panel%20Book_2.19.pdf).

The Canada survey was conducted between May 31 and June 4, 2019. The U.K. survey was conducted between May 1 and May 10, 2019.

Gallup weighted the obtained Canada and U.K. samples to correct for nonresponse. Nonresponse adjustments were made by adjusting the sample to match the national demographics of gender, age and region. Demographic weighting targets in Canada were based on the Annual Demographic Estimates: Canada, Provinces and Territories, 2018. Demographic weighting targets in the U.K. were based on Office for National Statistics: Population Estimates for U.K., England and Wales, Scotland and Northern Ireland: Mid-2017.

The statistical basis for a survey to have a margin of sampling error is that it must be based on a probability sample, where everyone in the survey population has a chance of being selected and the respondents are selected randomly. The Canada and U.K. surveys are nonprobability opt-in surveys. Therefore, estimates for these countries are subject to unknown error that cannot be measured.



# ABOUT



## About Gallup

Gallup delivers forward-thinking research, analytics and advice to help leaders solve their most pressing problems. Combining more than 75 years of experience with its global reach, Gallup knows more about the attitudes and behaviors of the world's constituents, employees and customers than any other organization. Gallup consultants help private and public sector organizations boost organic growth through measurement tools, strategic advice and education. Gallup's 2,000 professionals deliver services at client organizations through the web and in nearly 40 offices around the world.

## About Northeastern University

Founded in 1898, Northeastern is a global research university and the recognized leader in experience-powered lifelong learning. Our world-renowned experiential approach empowers our students, faculty, alumni, and partners to create impact far beyond the confines of discipline, degree, and campus.

We offer students opportunities for professional work, research, service, and global learning with nearly 3,000 employers in more than 100 countries. This integration of classroom study and professional experience has drawn an outstanding pool of high-talent students from around the world. More than three-quarters of our fall 2018 freshmen graduated in the top 10 percent of their high school class.

The same spirit of engagement guides a use-inspired research enterprise that integrates faculty across disciplines to solve global challenges. We focus on research with maximum impact, in fields including physical and cybersecurity, drug discovery and delivery, coastal sustainability, human-centered robotics, and global resilience. External funding for faculty research exceeded \$162 million last year, growing by 229 percent since 2006.

Northeastern's entrepreneurial ecosystem — the university is ranked among the top institutions nationally for undergraduate and graduate entrepreneurship programs — includes the student-run venture accelerator IDEA, and strong connections to the VC communities in Boston and Silicon Valley.

Our locations — in Boston; Charlotte, North Carolina; London; the San Francisco Bay Area; Seattle; Toronto; Vancouver; and the Massachusetts communities of Burlington and Nahant — are nodes in our growing global university system. Through this network, we expand opportunities for flexible, student-centered learning and collaborative, solutions-focused research.

Northeastern's comprehensive array of undergraduate and graduate programs — in on-campus, online, and hybrid formats — lead to degrees through the doctorate in nine colleges and schools. Among these, we offer more than 140 multidiscipline majors and degrees designed to prepare students for purposeful lives and careers.

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