

## 2020 RELX Emerging Tech Study – Executive Summary

Findings from the 2020 RELX Emerging Tech Study show an acceleration in the adoption of new artificial intelligence (AI) technologies and further investment in existing AI technologies during the COVID-19 pandemic. The survey also reveals that overall implementation of AI technologies across the business landscape increased for the third consecutive year.

This year’s study marks the third edition of the survey and provides a three-year overview of AI adoption. For this research, more than 1,000 US senior executives were interviewed across eight industries: government, healthcare, insurance, legal, science/medical, banking and agriculture on their position on AI technologies.

This executive summary includes overall survey highlights, along with three years of trended data, industry comparisons and a deeper dive into survey findings for the industries represented.

### Survey Highlights

Highlights from this year’s survey include:

- 81% of executives say their businesses use AI technologies, up 33 percentage points since 2018
- AI investment and adoption accelerated during COVID-19 pandemic
- 86% of survey respondents believe that ethical considerations are a strategic priority in the design and implementation of their AI systems
- AI is more likely to be used to increase efficiencies and worker productivity than to replace labor
- US competitiveness in AI on the world stage remains a concern

### COVID-19 and AI Technology:

AI technologies are seen to have had a positive impact on business throughout COVID-19, with most executives saying they have increased their investments in AI technologies during this time.

- 77% of executives believe AI technologies played a role in slowing the spread of COVID-19.
- 63% of executives say artificial intelligence technologies positively impacted their business’ resilience to COVID-19; though 15% report a negative impact on business resilience.
- Most executives say the pandemic has impacted their views on how AI technologies and resources are managed across countries, including nearly eight in ten who believe countries should share technologies and resources (79% versus only 8% who think they should not).

### 3-Year Trending Data

TREND	2018	2019	2020
Artificial intelligence (AI) technologies are being utilized by my business	48%	72%	81%
I am somewhat or very concerned about other countries being more advanced than the US in AI technology development and implementation	70%	72%	82%

I believe US companies should invest in the future AI workforce through educational initiatives such as university partnerships	92%	93%	95%
My company currently offers training on AI technologies	46%	62%	75%
The US government should develop programs to help employees stay competitive as AI becomes more integrated in the business world	45%	52%	59%
The US government should leave the promotion of AI technologies to the private sector	30%	34%	36%

### Industry Comparisons

**Ethical Considerations:** Nearly nine in ten say that AI ethics considerations have been made a strategic priority in the design and implementation of AI technologies into the internal processes of their business. Those working in government are least likely to say this is the case.

86% of survey respondents believe that ethical considerations are a strategic priority in the design and implementation of their AI systems.							
	Government	Healthcare	Insurance	Legal	Science / Medical	Banking	Agriculture
Believe ethical considerations are a strategic priority in the design and implementation of their AI systems	77%	88%	94%	80%	86%	93%	91%

**The Impact of COVID-19:** The pandemic has had a positive impact on companies' investments in AI technologies, with most executives saying that they have increased investment. Insurance executives are most likely to report having invested in artificial intelligence technologies, while those in the government industry are least likely.

68% of respondents state they increased investment in AI technologies. This includes 48% of respondents who say they invested in new AI technologies and 46% who say they invested further in existing technologies in light of the pandemic.							
	Government	Healthcare	Insurance	Legal	Science / Medical	Banking	Agriculture
Invested in artificial technologies in light of the pandemic	56%	72%	78%	64%	71%	75%	76%

**Uses of AI:** Across most industries, artificial intelligence technologies are most likely to be used for increasing efficiencies/worker productivity rather than to replace human labor.

82% of respondents currently utilizing AI say these technologies are currently used to increase efficiencies/worker productivities. 26% report AI technologies are being used to replace human labor.							
	Government	Healthcare	Insurance	Legal	Science / Medical	Banking	Agriculture
Use AI to increase efficiencies or worker productivity	81%	83%	87%	80%	88%	81%	79%
Use AI to replace human labor	26%	26%	30%	29%	29%	34%	21%

**The Importance of AI Training:** A vast majority believe US companies should invest in the future artificial intelligence workforce through educational initiatives such as university partnerships and this remains steady across all industries.

75% say their company offers training on AI technologies – up by more than 10 percent since 2019 and 30 percent compared to 2018.			
% Offering Training			
	2018	2019	2020
Total	46%	62%	75%
Government	38%	46%	58%
Healthcare	45%	58%	76%
Insurance	60%	69%	85%
Legal	50%	71%	78%
Science / Medical	63%	71%	80%
Banking	54%	74%	83%
Agriculture	n/a	81%	87%

**Global AI Competitiveness:** International competition remains a concern for US businesses.

82% say they are concerned about other countries being more advanced than the US in AI technology development and implementation – a sentiment that has increased steadily since 2018.			
% Concerned			
	2018	2019	2020
Total	70%	72%	82%
Government	68%	77%	84%
Healthcare	70%	71%	79%
Insurance	69%	72%	86%
Legal	74%	73%	87%

Science / Medical	75%	68%	81%
Banking	70%	66%	84%
Agriculture	n/a	82%	83%

### Industry Breakout

The survey revealed executives view AI technologies in a very favorable light: there is consensus that artificial intelligence technologies are important to businesses and nearly all executives believe AI has had a positive impact on their industry. A majority also see these technologies as helping businesses to be more competitive. Government executives consistently fall below those in other industries when it comes to agreement with such statements. Usage of artificial intelligence technologies is also lowest in government.

In most industries, the use of artificial intelligence technology today is being used in a variety of new ways compared to a year ago. Only in the government, healthcare, and science/medical industries does one particular area stand out more than the others (61% of government executives have expanded the areas of their business touched by AI technologies; 70% of healthcare and 64% of science/medical executives have increased data scientist or other technologist headcount to support the use of AI technologies). Those working in insurance and banking are among those most likely to say that they are using AI the same way as last year.

Artificial intelligence technologies help to solve different challenges across different industries. For instance, resolving issues around optimizing systems and reducing costs is most prevalent in government, healthcare, science/medical and banking. This is also important for those working in agriculture, though using AI to solve supply chain issues is just as important among this group. In the insurance and legal sectors, AI is most often used by teams to help personalize customer service.

Most executives say that artificial intelligence technologies positively impacted their business's resilience to COVID-19, though 15% report these technologies had a negative impact on business resilience. Three quarters of executives believe that AI technologies played a role in slowing the spread of COVID-19. This is especially true for those working in agriculture and banking, while those in government are least likely to agree.

Below are key findings broken out by industry.

#### **Legal Industry:**

- 87% of legal industry executives report AI technologies are being utilized by their businesses, up dramatically from 65% last year and 54% in 2018.
- When asked what challenges AI technologies are helping to solve, more than half (57%) of legal industry experts reported using AI technologies to personalize customer service.
- A majority (96%) of legal industry experts strongly agree that AI technologies help their businesses be more competitive, up from 91% a year ago.
- 76% of legal executives believe national regulations are needed for AI technologies.
- 71% of legal executives report that research and development are the most important areas for the US to invest in to encourage the development and implementation of AI technologies.

- 88% of legal respondents at companies offering training on AI believe their companies are making it a priority to train employees in developing AI models that do not contain or replicate bias.
- More than half (57%) of legal respondents say that AI technologies positively impacted their companies' resilience to COVID-19.
- More than three-quarters (76%) believe AI technologies had a role in slowing the spread of COVID-19.

#### **Healthcare:**

- 85% of executives working in the healthcare industry report their business is currently utilizing AI, up from 46% in 2018 and 68% in 2019.
- 96% of healthcare executives surveyed believe emerging technologies have a positive impact on their industry (66% say very positively and 29% say somewhat positively), up from 92% in 2019.
- 96% of healthcare executives surveyed agree that emerging technologies are helping their business be more competitive (70% very much agree, 26% agree somewhat), up from 92% in 2019.
- 76% of healthcare respondents believe that AI technologies played a role in slowing the spread of COVID-19.
- Most healthcare executives say that the pandemic has had an impact on how AI technologies and resources are managed, including nearly eight in ten (77%) who believe countries should share technologies and resources (versus 9% who think they should not).
- 66% of executives working in the healthcare industry report AI technologies are most likely to impact hiring by increasing the fairness of the application/interview phase and 59% say AI technologies are boosting the overall efficiency of the hiring process.
- Nine in ten (92%) healthcare executives at companies offering training on AI believe their company is making it a priority to train employees in developing AI models that do not contain or replicate bias, as well as other AI ethics good practices.
- 64% of healthcare executives state that the US government should provide more training opportunities for individuals interested in working with machine learning and AI.

#### **Science/Medical Industry:**

- 87% of science/medical industry executives report utilizing AI technologies, which is unchanged from last year's study but up from 68% in 2018.
- 64% of science/medical industry executives at companies that use AI say they have increased their data scientist or other technologist headcount to support using AI technologies.
- A majority (95%) of science/medical industry executives see the US as a leader in AI technology development and implementation, an increase from only 79% last year.
- 67% of science/medical industry executives report that AI technologies are changing their hiring processes by increasing the fairness of the application and interview phases.
- 70% of medical/science executives say that AI technologies positively impacted their businesses' resilience to COVID-19.
- 81% believe the use of AI technologies played a role in slowing the spread of COVID-19.
- A majority (97%) of science/medical respondents at companies offering training on AI believe their companies are making it a priority to train employees in developing AI models that do not contain or replicate bias, as well as other AI ethics good practices.
- 67% of science/medical executives believe international regulations are needed for AI technologies.

**Government:**

- 63% of executives working in government report their business is currently utilizing AI, up from 58% in 2019 and 37% in 2018.
- 58% of government respondents state that their company offers training on AI technologies, up from 46% in 2019 and 38% in 2018.
- 91% of government executives surveyed believe emerging technologies are having a positive impact on their industry (53% say very positively and 38% say somewhat positively), up from 83% in 2019.
- 91% of government executives surveyed agree that emerging technologies are helping their business be more competitive (56% very much agree, 34% agree somewhat), up from 83% in 2019.
- 66% of government respondents believe that AI technologies played a role in slowing the spread of COVID-19.
- The majority of government executives say that the pandemic has had an impact on how AI technologies and resources are managed, including 66% who believe countries should share technologies and resources (versus 10% who think they should not).
- 49% of executives working in government report AI technologies are most likely to impact hiring by increasing the fairness of the application/interview phase and 46% say AI technologies are boosting the overall efficiency of the hiring process.
- 86% of government executives at companies offering training on AI believe their organization is making it a priority to train employees in developing AI models that do not contain or replicate bias, as well as other AI ethics good practices.
- 56% of government executives state that the US government should provide more training opportunities for individuals interested in working with machine learning and AI.
- 84% of government executives say they are concerned about other countries being more advanced than the US in artificial intelligence technology development and implementation (44% very concerned, 40% somewhat concerned), up from 77% in 2019.

**Banking Industry:**

- 85% of executives working in the banking industry report their business is currently utilizing AI, up from 83% in 2019 and 63% in 2018.
- 83% of banking respondents state that their company offers training on AI technologies, up from 74% in 2019 and 54% in 2018.
- 99% of banking executives surveyed believe emerging technologies are having a positive impact on their industry (84% say very positively and 15% say somewhat positively), up from 94% in 2019.
- 99% of banking executives surveyed agree that emerging technologies are helping their business be more competitive (77% very much agree, 21% agree somewhat), up from 94% in 2019.
- 86% of banking respondents believe that AI technologies played a role in slowing the spread of COVID-19.
- Most banking executives say that the pandemic has had an impact on how AI technologies and resources are managed, including 87% who believe countries should share technologies and resources (versus 5% who think they should not).

- 66% of executives working in the banking industry report AI technologies are most likely to impact hiring by increasing the fairness of the application/interview phase and 64% say AI technologies are boosting the overall efficiency of the hiring process.
- Nine in ten (90%) banking executives believe their company is making it a priority to train employees in developing AI models that do not contain or replicate bias, as well as other AI ethics good practices.
- 65% of banking executives state that the US government should develop programs to help employees stay competitive as AI technologies become more integrated in the business world.
- 84% of banking executives say they are concerned about other countries being more advanced than the US in artificial intelligence technology development and implementation (53% very concerned, 30% somewhat concerned), up from 66% in 2019.

#### **Insurance Industry:**

- 89% of executives working in the insurance industry report their business is currently utilizing AI, up from 79% in 2019 and 69% in 2018.
- 85% of insurance respondents state that their company offers training on AI technologies, up from 69% in 2019 and 60% in 2018.
- 100% of insurance executives surveyed believe emerging technologies are having a positive impact on their industry (76% say very positively and 24% say somewhat positively), up from 97% in 2019.
- 98% of insurance executives surveyed agree that emerging technologies are helping their business be more competitive (78% very much agree, 20% agree somewhat), up from 97% in 2019.
- 83% of insurance respondents believe that AI technologies played a role in slowing the spread of COVID-19.
- Most insurance executives say that the pandemic has had an impact on how AI technologies and resources are managed, including 87% who believe countries should share technologies and resources (versus 5% who think they should not).
- 69% of executives working in the insurance industry report AI technologies are most likely to impact hiring by increasing the fairness of the application/interview phase and 70% say AI technologies are boosting the overall efficiency of the hiring process.
- 94% of insurance executives believe their company is making it a priority to train employees in developing AI models that do not contain or replicate bias, as well as other AI ethics good practices.
- 66% of insurance executives state that the US government should develop programs to help employees stay competitive as AI technologies become more integrated in the business world.
- 86% of insurance executives say they are concerned about other countries being more advanced than the US in artificial intelligence technology development and implementation (44% very concerned, 42% somewhat concerned), up from 72% in 2019.

#### **Agricultural Industry:**

- 74% of executives working in the agricultural industry report their business is currently utilizing AI, down from 84% in 2019.
- 87% of agricultural respondents state that their company offers training on AI technologies, up from 81% in 2019.

- 100% of agricultural executives surveyed believe emerging technologies are having a positive impact on their industry (77% say very positively and 23% say somewhat positively), up from 97% in 2019.
- 100% of agricultural executives surveyed agree that emerging technologies are helping their business be more competitive (76% very much agree, 23% agree somewhat), up from 97% in 2019.
- 87% of agricultural respondents believe that AI technologies played a role in slowing the spread of COVID-19.
- Most agricultural executives say that the pandemic has had an impact on how AI technologies and resources are managed, including 88% who believe countries should share technologies and resources (versus 6% who think they should not).
- 60% of executives working in the agricultural industry report AI technologies are most likely to impact hiring by increasing the fairness of the application/interview phase and 71% say AI technologies are boosting the overall efficiency of the hiring process.
- 88% of agricultural executives believe their company is making it a priority to train employees in developing AI models that do not contain or replicate bias, as well as other AI ethics good practices.
- 64% of agricultural executives state that the US government should develop programs to help employees stay competitive as AI technologies become more integrated in the business world.
- 83% of agricultural executives say they are concerned about other countries being more advanced than the US in artificial intelligence technology development and implementation (50% very concerned, 33% somewhat concerned), up from 82% in 2019.

## Methodology

With Ipsos, RELX surveyed 1,014 adults in the United States between the ages of 30 – 74. To qualify, respondents had to be employed full-time, have a household income of at least \$50,000, work at a company with more than 50 employees, and currently be a business executive or business decision maker/leader at their company. Respondents also had to be employed in one of eight industries featured in this report to qualify, and they had to either use AI technology at their business or be aware of it. The qualifications were consistent to those used in 2019 though new definitions were included in this survey to describe each industry.

The 2019 data included in this report is from an Ipsos poll conducted July 17-30, 2019. A sample of 1,028 adults was interviewed online, in English. The 2018 data included in this report is from an Ipsos poll conducted September 11 – 17, 2018, on behalf of RELX. A sample of 1,000 adults was interviewed online, in English. The qualifications were consistent to those used in the 2019 poll, but the agriculture industry was not included, and people were not required to be aware of AI technologies.

###