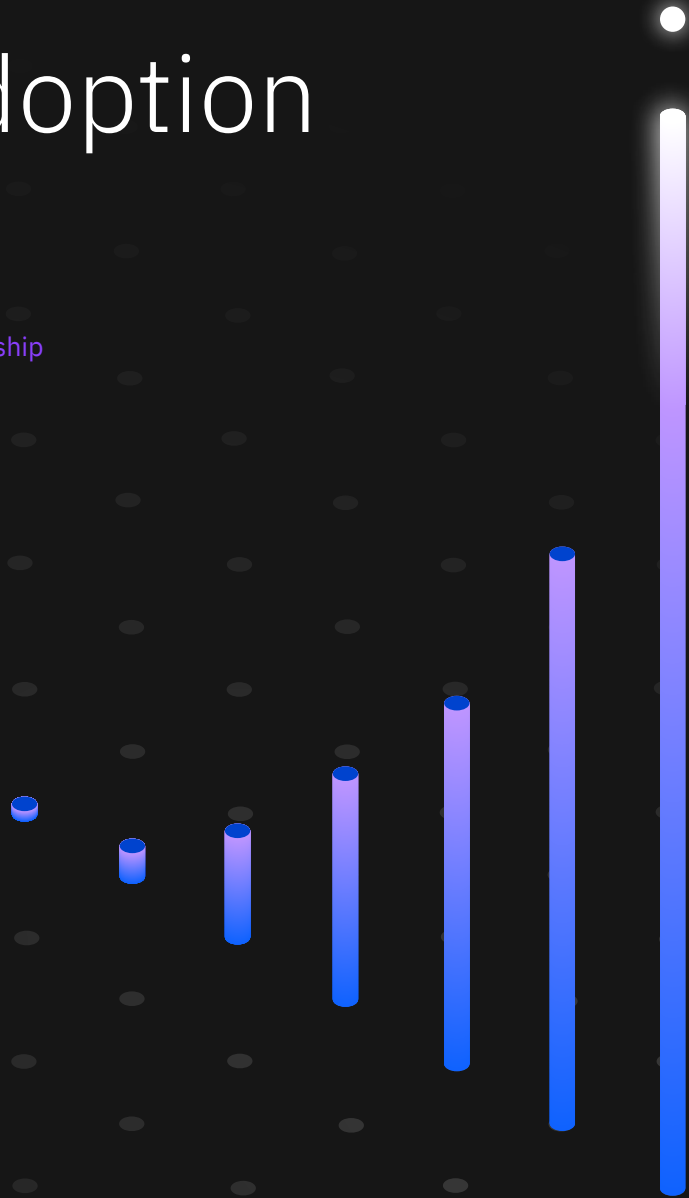# Global AI Adoption Index 2021

New research commissioned by IBM in partnership with Morning Consult

Introduction

Artificial Intelligence (AI) today is changing the way businesses operate in fundamental ways, from how they communicate with their customers through virtual assistants, to automating key workflows and even managing network security.

Almost a third of the IT professionals surveyed in IBM's Global AI Adoption Index 2021, conducted by Morning Consult, say their business is using AI, similar to IBM's 2020 findings. 43 percent of businesses reported that their company accelerated its rollout of AI as a result of the COVID-19 pandemic. However, lack of AI skills and increasing data complexity were mentioned as top challenges.

The past year amplified a host of new strategic priorities for businesses as they had to work to meet the needs of their customers while still finding ways to be more cost efficient, more responsive and make faster, more informed decisions. Companies that can overcome adoption and deployment barriers and tap AI and automation tools to tackle these challenges will be able to deliver value from AI in 2021.

The data sheds new light on the deployment of AI across 5,501 businesses in China (500), France (500), Germany (500), India (500), Italy (500), Latin America (1,000 across Brazil, Mexico, Colombia, Argentina, Chile, Peru), Singapore (500), Spain (500), the United Kingdom (500), and United States (501). The polling was conducted online through Morning Consult's proprietary network of online providers in April 2021. All respondents were required to have significant insight or input into their firm's IT decision-making. See full details on the methodology at the end of the summary.

Key Findings

Global AI Adoption

Today, almost one-third of IT professionals say their firm is using AI technology and almost half say their companies are exploring AI, similar to findings in IBM's report *From Roadblock to Scale: The Global Sprint Towards AI*. The adoption of AI is being driven by the continuing repercussions of the COVID-19 crisis, general business needs, and the technology being more accessible.

Larger companies are almost 70% more likely (a difference of 18 percentage points) than smaller companies to have actively deployed AI as part of their business operations.

Over one-third (34%) of global IT professionals reported that their company has not deployed any AI projects.

AI adoption rates around the world

● Deployed AI   ● Exploring AI
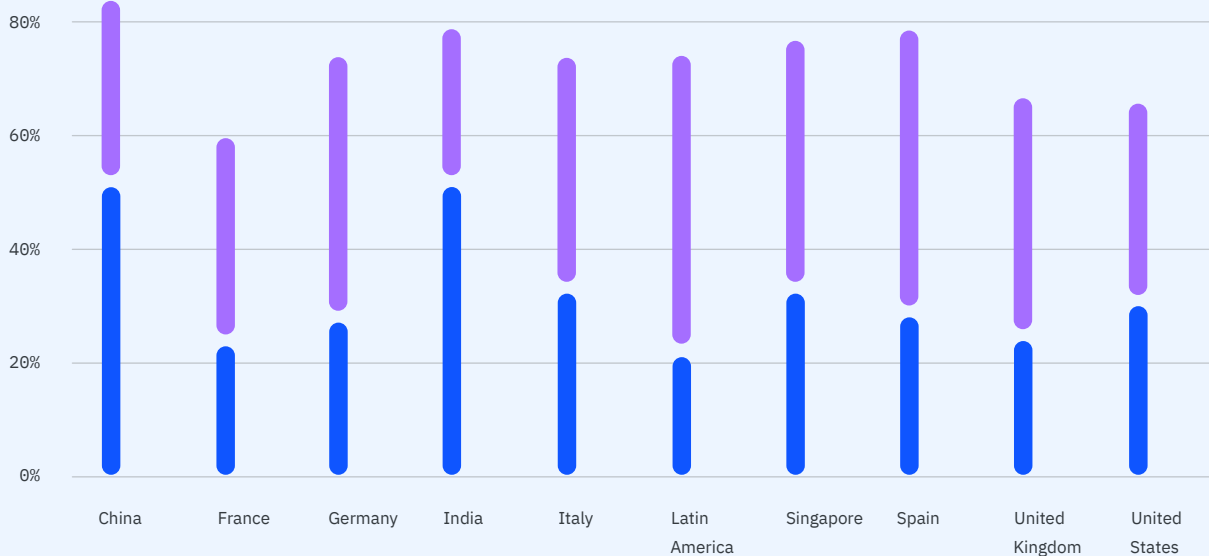
The top drivers of AI adoption in organizations are:

1. **Advances in AI that make it more accessible (46%)**

2. **Business needs (46%)**

3. **Changing business needs due to COVID-19 (44%)**

Half of global IT professionals report that compared to 2-3 years ago, AI solutions are now better designed to fit the needs of businesses and almost half say AI solutions are now more accessible and easier to deploy.

**The top three factors a company considers when evaluating AI providers are:**

1. **Automates processes to empower higher value work (47%)**

2. **Provides trust in business outcomes (40%)**

3. **Ability to deploy anywhere—on any public cloud, private cloud or on-premises (40%)**

Where are businesses on their AI journeys?

IT professionals have taken the following steps to explore or deploy AI in their business operations:

- 34% - My company is analyzing data to build and scale AI, but has not rolled out any AI projects

- 31% - My company is currently using pre-built AI applications such as chatbots

- 27% - My company is developing proofs of concept for specific AI-based or AI-assisted projects

- 24% - My company is exploring AI solutions, but we have not purchased any tools or apps

- 21% - My company is deploying AI across the business

74% of companies are exploring or deploying AI

43%
are exploring AI

31%
have deployed AI
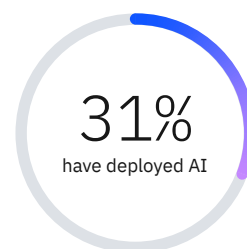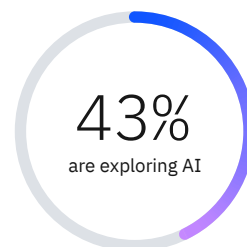
Barriers to AI Adoption

Similar to our 2020 findings, global business leaders worry most about lack of AI skills and expertise as barriers to adoption. Increasing data complexity and data silos is are concerns for one-third of companies, but these barriers are noted significantly more often at larger organizations.

What are the top three barriers to AI adoption?

1. **Limited AI expertise or knowledge (39%)**

2. **Increasing data complexity and data silos (32%)**

3. **Lack of tools or platforms for developing AI models (28%)**

Increasing data complexity and data silos comprise the largest barrier to AI adoption at larger companies, 11% higher than at smaller ones. Limited AI expertise is the largest barrier at smaller organizations.

More than one in three businesses cite difficulties in steps along their organization's journey to AI:

- Analyzing data to build and scale trusted AI (39%)

- Infusing AI throughout their business (37%)

- Organizing data to create a business-ready analytics foundation (37%)

- Collecting data to make it simple and accessible (37%)

IT professionals at larger companies were more likely to report that their biggest difficulties involve data analysis and infusing AI throughout their organization. IT professionals at smaller companies were more likely to report that their biggest difficulty is data collection.

AI Investments and Use Case Trends

Companies around the world have accelerated their rollout of AI as a result of the COVID-19 pandemic, a trend that was especially pronounced at larger companies. In the next 12 months, businesses plan to invest in all areas of AI, from skills and workforce development to buying AI tools and embedding those into their business processes.

43% of global IT professionals reported that their company has accelerated their rollout of AI as a result of the COVID-19 pandemic.

Larger companies were 31% more likely than smaller companies (a difference of 12 percentage points) to report that their company had accelerated their rollout of AI as a result of the COVID-19 pandemic.

Over a third of global IT professionals report that making employees more productive (38%) and needing a better way to interact with customers (36%) influenced their decision to use automation software or tools as a result of the COVID-19 pandemic.

One-third of global IT professionals report their company plans to invest in:

- Embedding AI into current AI applications and processes (34%)

- Reskilling and workforce development (34%)

- Off-the-shelf AI applications (34%)

- Proprietary AI solutions (33%)

- Off-the-shelf tools to build their own applications and models (33%)

IT professionals in China and India were more likely to report their company plans to invest in each area of AI, especially in proprietary AI solutions, embedding AI into current applications and processes, and off-the-shelf tools to build their own applications and models.

Where companies are allocating AI investment in the next 12 months

31%	Data security
25%	Automation of processes
25%	Customer care
20%	Virtual assistants/smart chatbots
19%	Business process optimization
16%	Fraud detection
15%	Sensor data analysis (Internet of Things)
14%	AI monitoring and governance
14%	Marketing
11%	Supply chain
11%	Personal security
10%	Predictive decision making
9%	Image recognition
8%	Financial trading
7%	Natural language processing (NLP)
7%	Search
6%	Recommendations
6%	Healthcare diagnostics

Approaches to Trustworthy AI

A majority of respondents say that trusted, explainable AI is crucial to widespread adoption of the technology and to the success of their business, including maintaining brand integrity and meeting regulatory compliance. Trust is now clearly top of mind for businesses as they think about their consumers, with a majority of businesses believing that consumers are more likely to choose services of a company that offers transparency and an ethical framework on how its data and AI models are built, managed, and used. But while global businesses are now acutely aware of the importance of trustworthy AI, more than half of survey respondents cite significant barriers in getting there.

84% of IT professionals report that the ability to explain how their AI arrived at a decision is important to their business. The issue is 14% more critical for those using AI compared to those exploring AI, with over 90% of businesses using AI today saying their ability to explain how it arrived at a decision is critical.

Over three-quarters of global IT professionals report that it is critical to their business that they can trust the AI's output is fair, safe and reliable.

IT professionals at larger companies were almost 32% more likely (a difference of 10 percentage points) to say it's critical that they can trust the AI's output is fair, safe and reliable.

IT professionals in India (95%), China (85%), Latin America (82%), and US (80%) were more likely to report that it is important to their business that they can trust the AI's output is fair, safe and reliable.

86% of global IT professionals strongly or somewhat agree that consumers are more likely to choose services of a company that offers transparency and an ethical framework on how its data and AI models are built, managed, and used.

90%
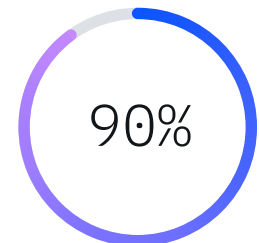
Do you trust your AI?
More than 90% of companies using AI say their ability to explain how it arrived at a decision is critical

Most important aspects of AI trust and explainability[1]

90%	Maintaining brand integrity and customer trust
89%	Meeting external regulatory and compliance obligations
89%	Meeting internal reporting obligations
88%	Ability to monitor and govern data and AI across its lifecycle
87%	Ensuring applications and services minimize bias

Biggest barriers to developing trusted AI[2]

65%	Lack of skills or training to develop and manage trustworthy AI
62%	AI governance and management tools that don't work across all data environments
58%	AI outcomes that are not explainable
58%	Lack of regulatory guidance from governments or industry
58%	Lack of company guidelines for developing trustworthy, ethical AI
58%	Building models on data that has inherent bias (social, economic, and so on)

Biggest AI modeling and management issues businesses are mitigating[3]

66%	Lack of clarity on provenance of training data
64%	Lack of collaboration across roles involved in AI model development and deployment
63%	Lack of AI policies
63%	Monitoring AI across cloud and AI environments
62%	Unexpected performance variations or model drift
62%	Speed to value
62%	Ability to capture metadata from models/compliance reporting
61%	Tracking changes in data and model versions
61%	Unintended bias
60%	Ability to explain AI-powered decisions

[1] Cited as very or somewhat important by >50% of respondents

[2] Cited as large or medium barriers by >50% of respondents

[3] Cited as very or somewhat concerning by ~65% of respondents

AI Understands the Language of Business

One of the foundational technologies for AI models, natural language processing (NLP), has steadily become one of the most important and commonplace tools for organizations to communicate with customers and empower their employees. Over the last year, a large number of organizations, from small ventures to massive enterprises, were either motivated to adopt this technology to create more efficient, personalized experiences for their customers during the pandemic, or recognized the value it could bring to their organization in the future.

Almost half of respondents report that their company is currently using NLP and one-quarter plan to use NLP in the next 12 months.

Over half of IT professionals in India or China report their companies are currently using NLP applications.

Increasing the level of adoption for NLP technology in the future will hinge upon how businesses make use of new tools that automate many of the common barriers to entry, for instance, lowering the requisite skillset for training and deploying language models. Professionals at companies considering the use of NLP report the top five barriers to entry for adopting this technology as:

- Technology is too expensive (29%)

- Requiring too much training to be relevant (26%)

- Difficult to keep up-to-date (24%)

- Technology is too complex to use (22%)

- Lacking requisite skillset in organization (22%)

Cost is the greatest barrier to adopting NLP technologies in the US, Latin America and Europe, however, training requirements are a greater barrier in India, while complexities and lack of customization are barriers in China.

Over half (52%) of global IT professionals report that their company is using or considering using NLP solutions to improve customer experience, with 43% using NLP to increase cost efficiency.

Regardless of industry, half of businesses deploying AI are using NLP to improve customer experience.

Most popular uses for NLP

35%	Email or text classification
34%	Machine translation
34%	Virtual agents for customer service
33%	Call center automation
31%	Survey analysis
29%	Targeted advertising
27%	Automate analysis of complex documents
25%	Text summarization
24%	Complex document search
23%	Virtual assistants for employee engagement
18%	Sentiment analysis

42%

are currently using NLP

26%
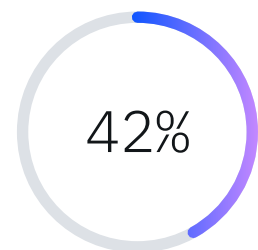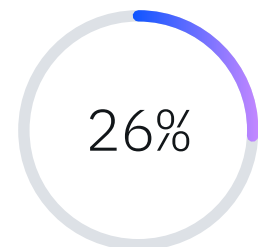
plan to use NLP in the next 12 months

Intensifying and Expanding the Use of Automation

As businesses become more familiar with the potential of AI, automation technologies are becoming more deeply embedded into day-to-day operations in order to drive greater efficiencies, save costs, and more. Automation is also being utilized by businesses today for increasingly complex use cases, such as automating the response and resolution to IT incidents.

80% of companies are already using automation software and tools, or plan to use this technology in the next 12 months.

The top three reasons a majority of businesses are currently using or considering using automation tools are:

1. **Driving greater efficiencies (58%)**

2. **Saving costs (58%)**

3. **Giving valuable time back to employees (42%)**

Over a third of global IT professionals report that making employees more productive (38%) and needing a better way to interact with customers (36%) influenced their decision to use automation software or tools as a result of the COVID-19 pandemic.

During the COVID-19 pandemic, only 18% of companies were influenced by the demand for products to adopt automation technologies, while the majority (38%) cited the need to make employees more productive.

The UK has the lowest adoption of automation tools (32% not using, 49% already using, 19% in next 12 months), while China has the highest adoption (8% not using, 71% already using, 21% in next 12 months).

Only 8% of companies in China have no plans to use automation technologies. 92% are already using, or plan to in the next 12 months.

38%
of companies used automation to make employees more productive during the COVID-19 pandemic

80% of companies are using automation software and tools or planning to use them in the next 12 months

61%
using

19%
planning to use
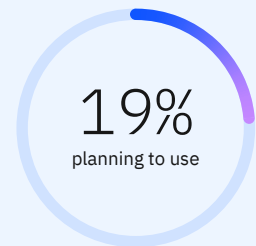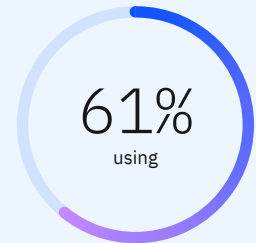
Most popular uses for automation software and tools

	Using	Interested in using	Total
Network performance	**56%**	**32%**	**88%**
Integration of apps and data	**54%**	**35%**	**89%**
Business process management (BPM)	**45%**	**40%**	**85%**
Application performance management (APM)	**40%**	**43%**	**83%**
Observability	**38%**	**43%**	**81%**
Process and task mining	**37%**	**43%**	**80%**
Robotic process automation (RPA)	**33%**	**44%**	**77%**

A majority of IT professionals across all demographics report that their company is currently using automation software or tools.

39% of global businesses are currently using automation to preempt potential downtime or technical issues.

Of those companies using automation tools, respondents in China were the most likely of any country to focus on driving greater efficiencies (75%) while the European countries all rank among the lowest (France, 45%; Germany, 41%; Italy, 51%; Spain, 58%; UK, 49%).

Companies who have already deployed AI technologies are more than twice as likely to be using RPA as those companies who are exploring AI (exploring, 25%; deployed, 54%).

Companies in China are more likely to be using or considering using AI to personalize customer experiences and automate business workflow, while those in the US and India are most likely to be using AI to automate IT operations.

For smaller companies, activity monitoring is the largest use case for automation technologies (36%) while larger companies are placing a greater focus on automating IT operations (48%).

Automating IT operations is the top use case for automation cited by respondents, whether in use or in exploration.

Improving Access to Data Anywhere in an Organization

As remote work practices become more widely adopted, and new applications, IoT, and edge computing become more common, businesses are increasingly overwhelmed by the enormous volume of data generated each day—the "data sprawl." Organizations are also burdened by the prospect of making sure this information is accessible, secure, accurately informing their business intelligence, and complying with emerging privacy regulations. This vast amount of data is often spread across extensive IT estates, including traditional data centers, as well as multiple clouds in many locations, with multiple vendors.

87% of global IT professionals report it is very or somewhat important to their company that they can build and run their AI projects wherever the data resides.

A majority of IT professionals in Latin America (60%), India (78%), Spain (55%), and the US (52%) report it is very important to their company that they can build and run AI projects wherever the data resides.

Though 83% of IT professionals feel confident they have the right tools to find data across their business wherever it resides, only 51% report that their platform offers a single, unified view of their organization's data.

72% of IT professionals in India, compared with only 23% in China, are very confident that their company has the right tools in place to find data across their business, no matter where it resides, so it can be organized, analyzed and turned into useful insights. In the US, this figure is 44%.

Over two-thirds (67%) of global IT professionals report their company is drawing from over 20 different data sources to inform their AI, BI, and analytics systems.

75% of larger companies report drawing from over 20 different data sources in inform their, AI, BI and analytics systems

	Company ≤ 1000	Company > 1000
Less than 20	22%	8%
20-50	21%	15%
51-100	19%	15%
101-500	14%	14%
501-1000	9%	14%
More than 1000	1%	17%
Don't know/Not sure	15%	18%

67%
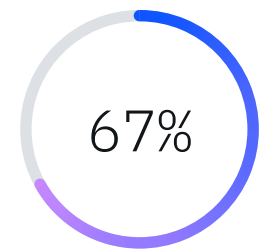
of companies draw from more than 20 data sources for their AI

Methodology

The polling was conducted online through Morning Consult's proprietary network of online providers in April 2021. All respondents were required to have significant insight or input into their firm's IT decision-making.

Representative Sample of Business Decision-makers in 15 Markets

- 501 in United States

- 500 in China

- 500 in India

- 500 in Singapore

- 2,500 in European Union countries
  (UK, Italy, Spain, France, Germany)

- 1,000 in Latin America
  (Brazil, Mexico, Colombia, Argentina, Chile, Peru)

- Conducted online through Morning Consult's proprietary network of online providers

Respondents Represented a Mix of Small and Large Firms

- 28% of respondents came from firms with more than 1,000 employees

- 29% of respondents came from firms with between 251 and 1,000 employees

- 18% came from firms with 51-250 employees

- 25% came from smaller businesses
  (50 employees or less)

- Sole proprietorships were not sampled

Respondents Represented a Mix of Seniority

- All respondents were required to have significant insight or input into their firm's IT decision-making

- One-quarter of the sample was at a VP level or above
  (including C-suite executives)

- The remainder of the sample represented a mix of directors and senior manager-level employees with close knowledge or authority in their firm's IT/AI practices