Artificial Intelligence is the fastest growing advanced technology category in education. AI is being deployed across all parts of the education value chain, with the greatest value being delivered in learning processes, student support and identity/security. Greatest potential for AI is predicted in assessment and language learning.
WHO WE ARE

We are building the world's smartest source of global education intelligence to power decisions that matter.

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This report is an executive briefing on innovation and technology in the global education market.

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Core AI Applications

AI applications have been categorised into five areas that help map the underlying technology to specific use-cases. Generally, uses of artificial intelligence will deploy in one or more of the following categories.

**Vision**
Vision-base AI is being used in learning and administrative contexts. Emotion recognition can assist in detecting learners’ confusion or engagement while face detection can be used for attendance management, parent/carer access or identity management for testing.

**Voice**
Campuses and classrooms are starting to use speech to text and voice interface to support campus life and learning activities. Applications for literacy development and language learning are some of the first to use voice recognition in education settings.

**Natural Language**
Deciphering human language is still one of the most difficult AI problems due to its complexity. However, advances over the past few years have seen applications of NLP into educational contexts such as assessing levels of understanding, providing feedback and plagiarism detection.

**Algorithms**
Deep learning and machine learning are most prevalent in ‘personalized learning’ systems. Content intelligence and automation, behavioural recommendations provide notifications, intelligent content delivery and personalized learning pathways.

**Hardware**
At the intersection of AI, Robotics and IoT, hardware-based AI is being deployed on a variety of devices to reduce latency and lower networking costs. Smart devices on campus, in labs and classrooms connect software systems, data for learning and the physical environment in new and smart ways.
How is adoption of AI progressing?

1 in 10 organizations have invested in and deployed artificial intelligence. 1 in 5 are conducting a pilot, and 1 in 3 have no current plans for AI.

<table>
<thead>
<tr>
<th>Category</th>
<th>Institutions n = 103</th>
<th>EdTech n = 140</th>
<th>Services n = 91</th>
<th>Enablers n = 39</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Interest</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>On the radar, no action planned</td>
<td>39%</td>
<td>13%</td>
<td>20%</td>
<td>34%</td>
</tr>
<tr>
<td>In medium or long-term planning</td>
<td>20%</td>
<td>26%</td>
<td>20%</td>
<td>26%</td>
</tr>
<tr>
<td>In short-term planning</td>
<td>14%</td>
<td>19%</td>
<td>20%</td>
<td>18%</td>
</tr>
<tr>
<td>Pilot in progress or complete</td>
<td>17%</td>
<td>21%</td>
<td>18%</td>
<td>16%</td>
</tr>
<tr>
<td>Have already invested and deployed</td>
<td>7%</td>
<td>20%</td>
<td>16%</td>
<td>5%</td>
</tr>
</tbody>
</table>

Source: HolonIQ Global Executive Panel, April 2019. n = 377
AI adoption intensity in education

AI adoption spans the global learning landscape. Use in language, testing knowledge, experiential, tutoring and talent acquisition the most intense.
AI papers in China are more focused on Engineering, Technology and Agricultural Sciences, while AI papers in the U.S. and Europe tend to focus on Humanities and Medical and Health Sciences.

Source: Elsevier. The graphs above show the Relative Activity Index (RAI) of the U.S., Europe, and China. RAI approximates a region’s specialization by comparing it to global research activity in AI. RAI is defined as the share of a country’s publication output in AI relative to the global share of publications in AI. A value of 1.0 indicates that a country’s research activity in AI corresponds exactly with the global activity in AI. A value higher than 1.0 implies a greater emphasis, while a value lower than 1.0 suggests a lesser focus.
AI & ML International Enrolments

Combined AI + ML 2017 course enrolment at Tsinghua University was 16x that of 2010. Across the schools studied, growth in AI course enrolment was found to be relatively school dependent, and not particularly influenced by geography. The first graph shows relative growth for international schools that provided data for academic years 2010 – 2017. The second graph shows relative growth for international schools that provided data for academic years 2016 – 2018.

Source: AIIndex, University Provided Data
Global AI Strategy Landscape

Australia. ‘Prosperity Through Innovation’
Four-year, $21m investment from national budget to support development of AI.

Austria. ‘Robot Council’
Established a Robot Council in August 2017, with a one million euros working budget from the Ministry of Infrastructure.

Azerbaijan. ‘Digital Strategy’
E-Digital Strategy addresses digital transformation including AI

Bahrain. ‘AI Initiative’
Funding announced in 2018 to support AI development.

Bangladesh.

Bhutan. ‘AI Strategy’
Initiation expected very soon.

Brazil. ‘E-Digital Strategy’
E-Digital Strategy addresses digital transformation including AI.

Brunei. ‘AI Strategy’
Five-year, $125m plan announced in 2017 federal budget. Led by CIFAR. Research and talent focus.

Canada. ‘Pan-Canadian AI Strategy’
Five-year, $125m plan announced in 2017 federal budget. Led by CIFAR. Research and talent focus.

Finland. Steering Group
Steering Group appointed May 17 releasing two interim reports. Full strategy expected very soon.

Indonesia
Leading Asia-Pacific market in the adoption of and plans for AI however no dedicated AI strategy as yet

Japan. ‘Society 5.0’
Strategy launched in 2017 to create sustainable solutions for better human life in Japan.

Mexico. ‘Towards an AI Strategy’
Commissioned by the British Embassy in Mexico and released in June 2018. Sets foundations for a national AI strategy.

Russia. Mar 18 Conference

South Korea
Five-year AI development plan launched May 2018 with $1.95B budget.

Tunisia
AI Task Force and Steering Committee appointed in April 2018. Strategy expected very soon.

Ukraine.

United Kingdom. ‘AI Sector Deal’
Announced in April 2018. $1.24B funding as part of the UK’s larger industrial strategy.

United States. ‘American AI Initiative’

Source: HolonIQ, Government Publications and Announcements
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Why HolonIQ

HolonIQ helps governments, institutions, firms and investors answer strategic questions across four key areas.
HolonIQ Value

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3. SELL YOUR IDEA
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  - Blockchain
  - OPM Market
  - Artificial Intelligence
  - Global Stocks
  - International Education
  - Learning, Work and Skills
  - Assessment and Testing
On-Demand Research

Company profile, competitor set, key trends, specific data point. Sometimes you just need that one question answered or one piece of information to finish that report, prepare for a meeting or profile a competitor.
Executive Immersion Programs

Intensive, 4–6 day courses bringing together education leaders from around the world to explore learning innovation and gain in-depth understanding of emerging and high velocity education markets.

China Summer Immersion.
Format: In Person – Full-Time Intensive
Dates: Sun 30 June – Wed 3 July
Location: Beijing
Cohort: Maximum 30
Applications: Applications Now Open.
Program Fee: USD$4,800

India. September 2019
Format: In Person – Full-Time Intensive
Dates: Monday 30 – Friday 4 October 2019
Location: Bengaluru/Bangalore
Cohort: Maximum 30
Applications: Applications Now Open.
Program Fee: USD$4,800

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