U.S. COMMERCIAL SERVICE
United States of America
Department of Commerce

Top Global Artificial Intelligence Markets

About the Report

Artificial Intelligence is a top emerging technology with applications across industries and implications for our society. It has been reshaping the global economy and national security.

The global AI industry is thriving. In 2021, AI global funding doubled to $66.8 billion, and a record 65 AI companies reached $1B+ valuations, up 442% from the previous year. Each year, more and more companies and governments worldwide adopt AI solutions.

This report presents a brief overview of top AI global hubs outside the United States. Each country includes an AI ecosystem overview, government incentives & policies, education & research institutions, leading events, and industry groups.

The initial markets for this report were selected based on global rankings, the highest number of AI companies concentrated there, venture capital, and related research institutions.

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AI Market Section Links
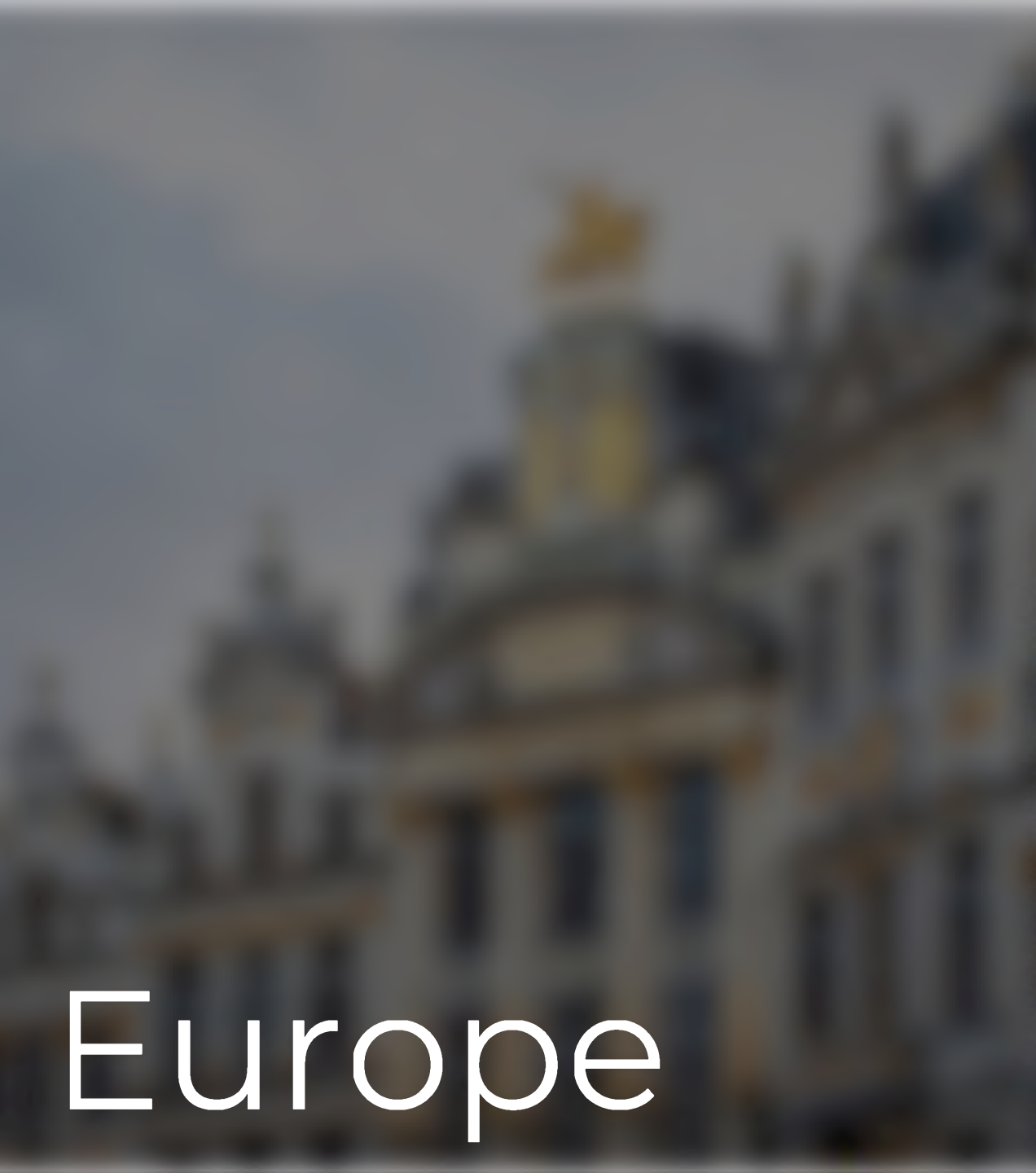
Europe

1 | **United Kingdom**

2 | **France**

3 | **Germany**

Asia Pacific

4 | **Singapore**

5 | **South Korea**

Europe

Overview

- According to CB Insights, venture funding in Europe reached an all time high of $93.3 billion in 2021, a 142% increase YOY, with 7,051 deals. Venture funding for AI rose 81% to $5.6 billion with 501 deals in Europe in 2021.

- Major AI hubs: United Kingdom (Global 4th Largest), France (7th), Germany (8th), and Sweden (10th).

- By funding, company count, and overall investment Europe ranks behind the United States and China.

- The European Union's top advantage is its large educated workforce with open access between international hubs.

- The EU's regulatory framework is one of the world's first. By pioneering standards and regulations, the EU hopes to provide some advantage to local companies.

AI Funding & Regulations

- National governments work in collaboration with EU wide initiatives to coordinate funding.

- AI data handling is currently adhering to the General Data Protection Regulation (GDPR).
  - Imposes regulation on saving personal data and what data is allowed to be collected.

- EU regulators proposed rules on specifically regulating AI risk and oversight/funding implications.
  - Divides AI applications into unacceptable risk, high risk, limited risk, and minimal risk.
  - Although not binding and vague on specific language, a common framework allows for bloc-wide cooperation.

- Existing multinational research agreements and free communication between universities aids in research speed.

- Proposed programs like the Digital Europe Program allocated a several billion euros for AI funding.
  - Few existing EU wide programs directly focus funding on AI, most initiatives are driven by national governments

- Europe's focus on "Human-centric ethical AI" broadly prioritizes questions of regulation before funding.

European Commission | White Paper on AI

Overview

- Proposed May 2020 detailing a possible EU wide AI funding project.
- Though not binding, the proposal helps coordinate funding and regulation between major hubs.
- The UK is not a participant.

Cooperation

- Proposed possible data sharing agreements for open source data for AI.
- Proposed private-public partnership with contracts and projects.

Regulation

- Categorization of AI into the 4 discrete risk categories of unacceptable risk, high risk, limited risk, and minimal risk
- General focus on setting acceptable privacy and ethical standards internationally.

Enforcement

- Voluntary enforcement by national governments.
- Possible punishments for noncompliance include exclusion from data sharing.

Link to full report here

United Kingdom

Overview

- The UK serves as the primary AI center in Europe and remains its largest tech hub. It's also the largest tech hub outside the US and China.

- London is the country's largest AI cluster, with AI companies employing approximately 23.8K people.

- The UK government has announced a National AI Strategy with a focus on establishing future regulations and a public-private data sharing framework.

- DeepMind (Google subsidiary) is a major player in the UK AI environment, and many former DeepMind employees and researchers have spun off a significant number of AI startups.

Growth

UK is home to 758 AI startups, 645 of which are based in London.

Crunchbase

Total venture funding for all technology reached a record of $29 billion in 2021, with 1,955 deals.

CB Insights

AI startups received $1.5 billion in funding in 2021, up from $1.3. billion in 2020. There have been 9 major AI IPOs since 2000.

Cruncbase

Strong overall tech R&D investment growth at 17%.

Total AI VC funding amounted to $9.4B. Major VC funding for AI is coming from the following sources:

- Innovate UK (UK/51)
- Entrepreneur First (UK/47)
- Amadeus Capital (UK/41)
- Techstars (CO/39)
- Crowdcube (UK/26)
- MMC Ventures (UK/25)

Leading UK AI Companies
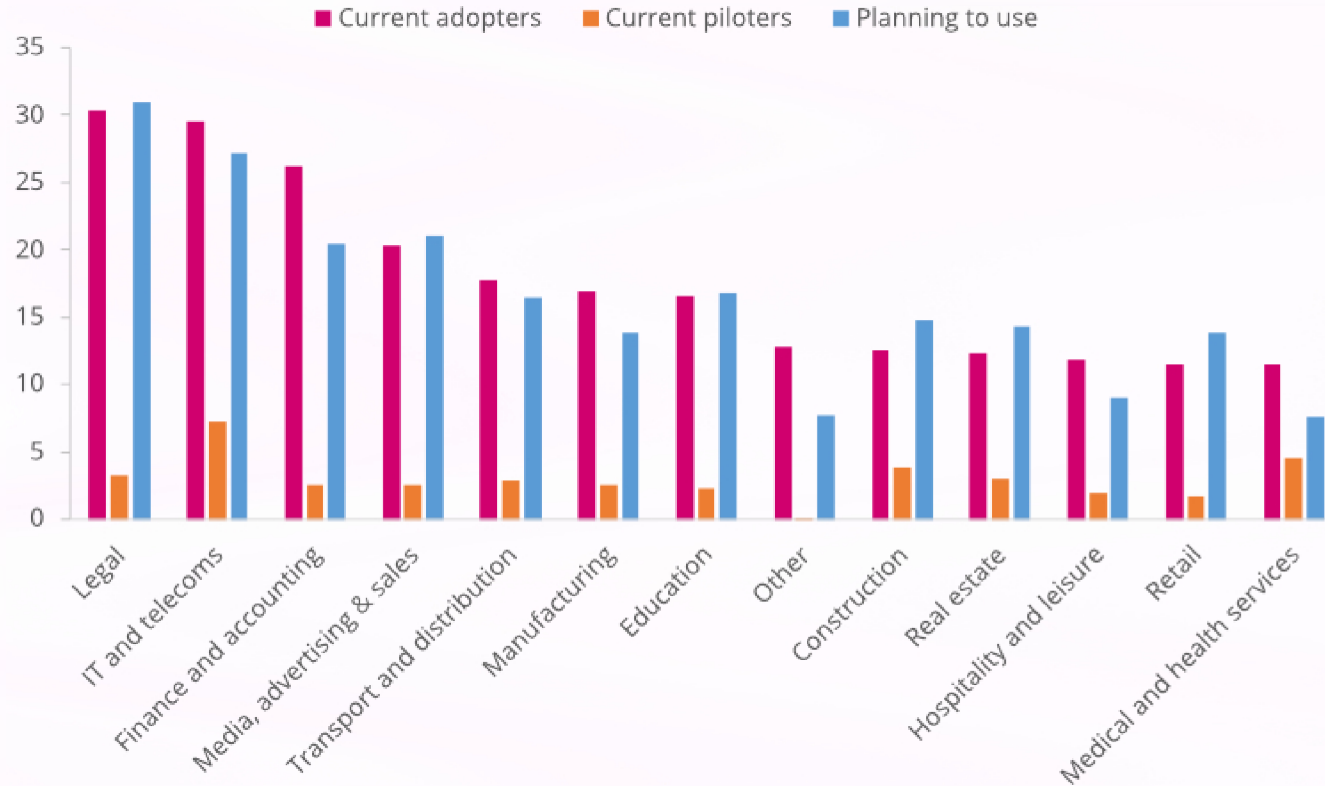
Share of businesses adopting by sector, 2020 (per cent)

Legend: ■ Current adopters ■ Current piloters ■ Planning to use

Source: Capital Economics and DCMS (2022)
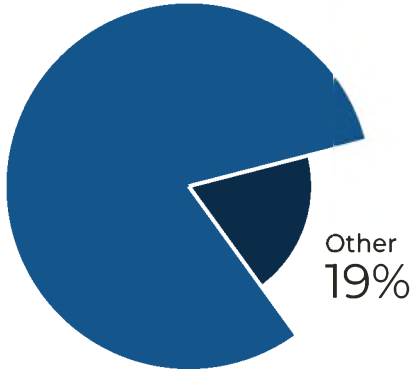
AI Adoption in the UK by Sector
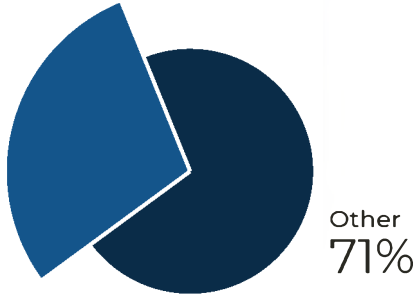
Source: UK Gov AI Activity in the UK Report

Link HERE

Turing Institute AI Environment Report Results

Believe there are Barriers
to Recruiting AI Talent
81%

Other
19%

Believe there is Sufficient
Investment
29%

Other
71%

Believe their Respective
Sector has Low Adoption
of AI
80%

Other
20%
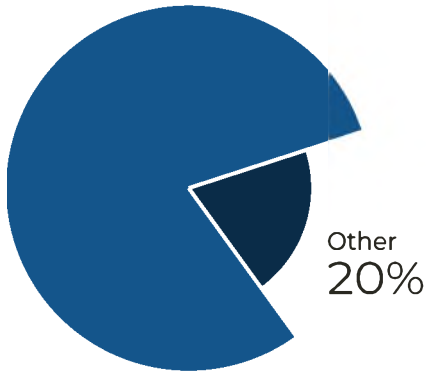
Want Increased Public
Investment
74%

Other
26%

413

RESPONDENTS

413 respondents, 43% industry, 32% academia, 15% public sector, 8% other
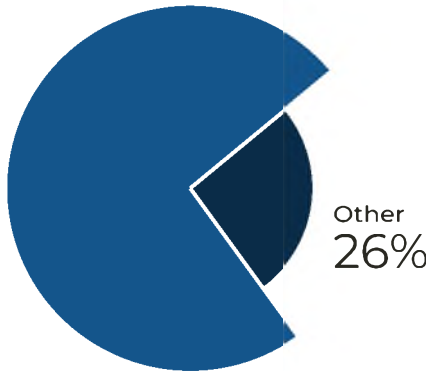
Link to full report
HERE

Education & Research

University College London

- Founding member of the Alan Turing Institute.
- University's center for AI is sponsored by DeepMind, Adobe, and Cisco.
- Known for their Centre for Doctoral Training in Financial Computing & Analytics.

University of Oxford

- The Google DeepMind program has strong links with the local faculty.
- University research focuses on deep learning development.
- Phil Blunsom (DeepMind) is a major contributor to university research.

University of Cambridge

- Major lab lead by Zoubin Ghahramani, Cambridge ML. The lab is affiliated with Uber.
- Steve Young leads the Speech and dialogue group at Cambridge. He is a senior member of Apple Siri Development.
- University research has a focus on machine learning.

The Alan Turing Institute

- A joint non-profit foundation founded by leading UK universities for AI.
- 2015 foundation, based on research grants given by Parliament.
- Holds regular virtual and in person events about AI.
- Hosts joint research initiatives between many UK universities.

Government Policy & Entities

Regulatory Environment

- Currently no comprehensive AI regulatory framework has been implemented.
- Presently the UK government adheres to a version of the GDPR but has expressed interest in diverging.
- The Government announced the release of a "White Paper" on possible regulation proposals by 2022.

Public Investments

- The UK government recognizes the importance of AI and designates it as 1 of 4 Grand Challenges.
- The 2019 AI Sector Deal directly allocates £0.95 billion directly to the sector, with a new £2.5 billion Investment Fund and various investments in infrastructure tangentially beneficial to AI.
- The UK gov increased it's R&D tax credit to 12%.
- The government provides indirect funding of research through support for universities.

Mayor of London

- Mayor Sadiq Khan is promoting local AI growth initiatives.
- He hired CognitionX to evaluate and grow the ecosystem.
- He has supported the establishment of tech funds and publicly backs the expansion of AI entrepreneurship in London.

UK AI Council (private/public organization)

- An independent expert advisory committee to the UK government composed of industry members, researchers, advocate groups.
- Important advisory to the government on issues related to AI policy. Provides regular research on AI development and functions as a private-public dialogue avenue.

National AI Strategy

In 2021, the UK Government released a 10-year plan to boost AI development and commercialization.

- **Increased support for AI research in education and research.**
  - Streamlining of visas for AI researchers.
  - Increase financial and policy support for universities and organizations like the Alan Turing Institute.

- **Creation of a specific consultation office for AI patents to expedite AI development.**

- **Increase and publish standardized regulatory environment for AI (forthcoming).**
  - The EU has proposed AI standards and also enacted the GDPR. Although the UK currently adheres to a local version of the GDPR, the government has expressed interest in diverging.

- **Creating official legal mechanisms for public data sharing with private companies (creating availability of AI) - 12th month period.**
  - NHS and other British agencies collect massive amounts of data, if data sharing is possible this would be valuable.

- **As part of the 2019 AI Sector Deal, the UK government aims to directly invest $1.3 billion into the industry, with $2.5 billion invested since 2014.**

Link to full report HERE

Events

The AI Summit London

- Flagship event of London Tech Week 2021
- Sponsors: British Government, major tech companies (Google, Amazon, IBM, etc.)
- 2022 (no specific date yet)
- Link HERE

AI & Big Data Expo

- Sponsors: Dell, BMC, Metageni
- 1st – 2nd December 2022 at Olympia in London
- Current Speakers: UK CTO for Dell, BBC lead for AI strategy, researcher at Spotify
- Link HERE

CogX (Not AI focused)

- Tech general conference with AI Partners: Shell, Accenture, Visa, NHS, BT
- Speakers: CEO of British Airways, CTO of Amazon, Chairman of AstraZeneca
- Tech general rather than AI only
- Link HERE

AI World Congress London (online)

- 11/15-16/2021 | Unable to confirm if first time or repeated event
- Independent of any parent organization, some AI major company CTO and AI directors
- Link HERE

Applied Artificial Intelligence Conference In Vienna

- Discussion of AI use cases
- Organized by AI Austria and WKO
- 2300+ participants from 77 nations
- Sponsors: HP, Leftshift One, Montreal International
- Link HERE

Industry & Research Groups

Tech London Advocates

- "Volunteer" Advocates for tech
- Sponsors: HP, Shoosmith, Credit Suisse, KPMG
- Russ Shaw, Founder
- Link HERE

Royal Society

- Inducting professors and industry leaders for AI
- Many professors at leading universities are members
- Link HERE

TechNation

- Industry group for tech companies
- Networking for specific industry verticals and resources for entrepreneurs
- Publishes annual tech report for the UK
- Link HERE

techUK

- Technology Trade Association
- Organizes conferences and events between tech companies
- Link HERE

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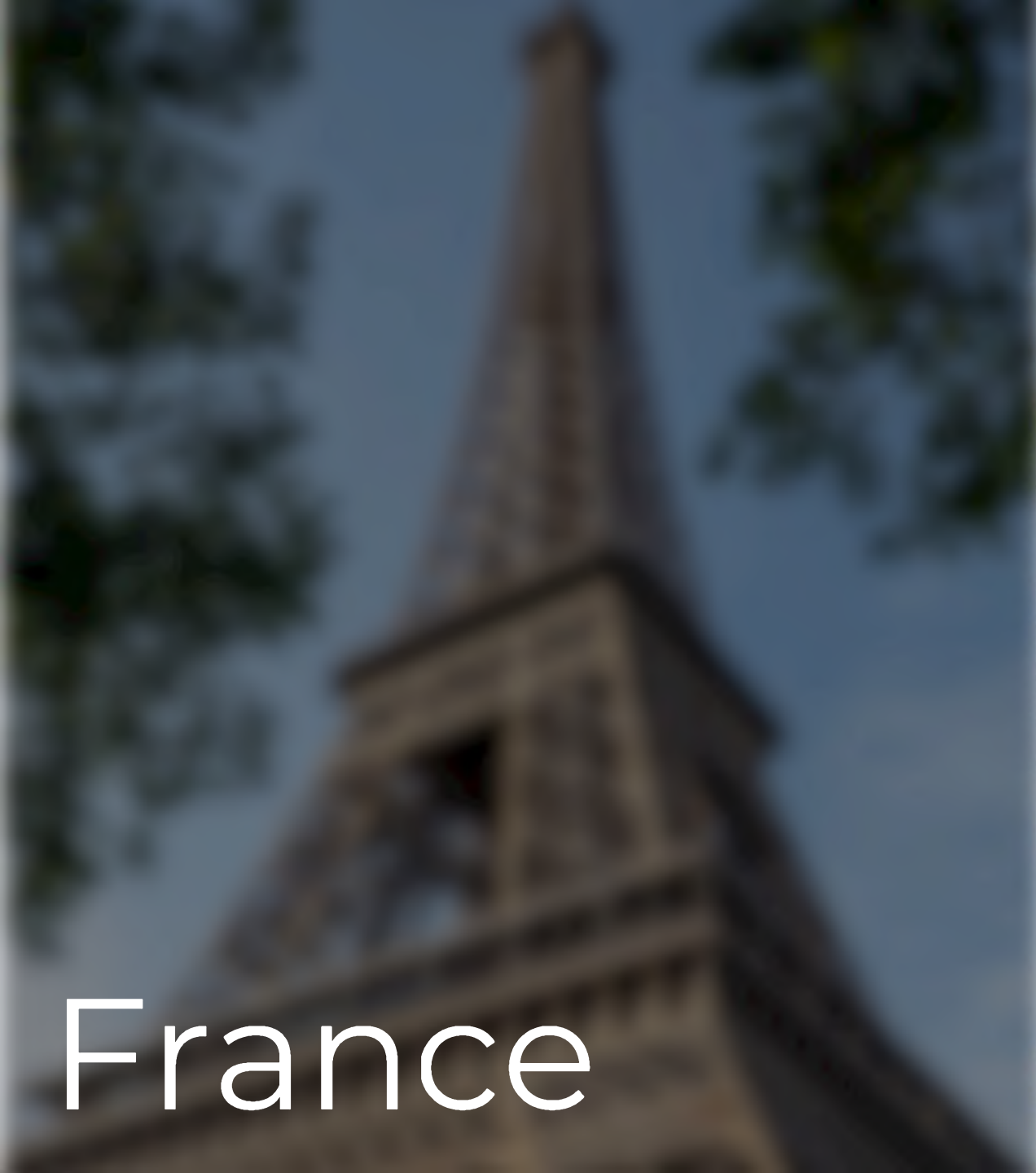Claudia.Colombo@trade.gov
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France

Overview

- France is the 7th largest AI market globally, and the largest in the EU.

- Paris is the major tech hub. Lyon and Montpellier are some of the fastest growing tech cities in the country.

- There is strong government support to further develop AI companies.
  - €1.5 billion was commitment to further AI development by end of 2022.
  - The national government collaborates with the EU on AI investment.

- There are joint research sharing and employment agreements across the EU.

- According to the country's leading startup association, France Digitale, French AI startups employ 13,459 (compared to 10,008 in 2020) and are responsible for 70,000 indirect jobs.

Growth

France is home to around 670 AI startups.
Crunchbase

Total technology VC funding reached a record $12.2 billion in 2021.
CB Insights

$1.4 billion raised in 2021 for AI companies in France, reaching a cumulative $3.1 billion in private investments.
Crunchbase

AI growth is heavily centered around Paris and aided by increasing government interest.

Major VC funding for AI is coming from the following sources:
- Agoranov (France/34)
- BPIFrance (France/29)
- Wilco (France/16)
- Elaia (France/14)

Leading French AI Companies

CONTENTSQUARE

Shift

meero

DentalMonitoring

CARMAT

luko

AB Tasty

PROPHESEE
METAVISION FOR MACHINES

Artur in

INDY

METRON

Ranked by amount of capital raised. Link to full report HERE

Education & Research

Ecole Polytechnique

- Constituent member of the Polytechnic Institute of Paris
- Artificial Intelligence Masters with LIX Research Lab
- Partnerships with local startup community and national government for research

Sorbonne Universite

- Leading university in Paris
- Sorbonne Center for Artificial Intelligence (SCAI) studies Machine Learning and Data Analysis
- Focus on AI Medicine, Mathematics-Robotics, Climate Science, and Humanities

National AI Report | Top Recommendations

1 **Developing an aggressive data policy.**

   Encourage company data pooling and sharing while also providing better potability of data.

2 **Targeting the four strategic sectors.**

   Health, transport, the environment, and defense & security.

3 **Boosting the potential of French research.**

   Crease interdisciplinary AI institutes (3IA) and fund further research.

4 **Planning for the impact of AI on labor.**

5 **Using AI to solve environmental problems.**

   Utilize AI in trying to address climate change.

6 **Shining light into the AI black box.**

   Introduce oversight into algorithms and audit possible biases.

7 **Ensuring diversity and inclusion for AI research, businesses, and implementation.**

Link to the National AI Report (Villani AI Report) HERE

National AI Strategy

- 45% of the National AI Strategy dedicated budget is devoted to the National AI Research Program (INRIA).

  - Creating the Polytechnic Institute of Paris and increased funding for Paris-Saclay. Improves the transfer of tech between research and industry.

  - Support for AI vocational training program under Grande Ecole du Numérique.

- Overall expenses total to about €2 billion on Macron's initiatives.

  - €1.5 billion from public funding, remaining coming from private partnerships.

  - Focus on funding research and luring startups to France.

3IAs for Artificial Intelligence

Paris-PR[AI]RIE

- Research focuses on: (1) core AI methodological research, and (2) interdisciplinary work at the interface with sciences and applications.
- Founded in collaboration with academia and industry.

Nice-Côte d'Azur 3IA

- Artificial Intelligence research for Health and Smart Territories
- Funds research for medicine related AI and hosts many annual conferences.

Toulouse-Artificial and Natural Intelligence Toulouse Institute

- Research collective funded by the national government located in Toulouse.
- Hosts regular conferences about AI research and implementation.

Grenoble-MIAI

- Healthcare focused AI research collective with strong links to the Grenoble university system.
- Expanded research into Industry 4.0 and finding AI applications for urban development.

Created by Macron under the National French AI initiative of 2018, the research programs are based in various French cities and partners with existing universities

Events

Paris AI Week

- Series of annual conferences
- Sponsors: PR[AI]RIE, Actuai, namR
- General AI conference with many sub-events hosted by companies
- Link HERE

France is AI

- Repeating conference part of the Paris AI Week
- Conference of entrepreneurs and corporate leaders
- Link HERE

PR[AI]RIE Day

- Organization hosting many AI events
- Sponsored by the French government
- PR[AI]RIE Day during Paris AI Week, annual conferences
- Link HERE

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Germany

Overview

- Germany is the 8th largest AI market globally, and the second largest in the EU.

- Berlin is the leading AI tech hub. Munich is another major tech hub.

- The German government is increasing investment in AI.
  - €5 billion commitment to AI initiatives by the end of 2025.
  - Collaboration with EU on coordinated AI investment.

- German research is split between universities and major institutions.
  - Large research institutions like the Max Planck institute uniquely conduct independent research and compete with universities for talent and funding.

Growth

Germany is home to around 645 AI startups.

Crunchbase

Total AI VC funding in Germany reached a record $17.5 billion in 2021.

CB Insights

~$700 billion Raised in 2021 for AI companies in Germany, reaching a cumulative $2.2 billion in private startup investments.

Crunchbase

Startup culture is has been growing in Germany. Most industry work for AI is conducted by major corporations.

Major VC funding for AI in Germany is coming from the following sources:

- High-Tech Grunderfonds (Germany/22)
- Plug and Play Tech Center (CA/13)
- HV Capital (Germany/12)
- 42Cap (Germany/11)
- Techstars (CO/10)

AI Adoption

German companies see the USA as the leading AI pioneer both now and in the next decade.

69% of German companies think of AI as the most important technological innovation.*

38% of German companies that buy or rent AI applications chose US vendors.**

Leading German AI Companies

Monedo

AGILE ROBOTS

Atheneum

ada

KONUX

wandelbots

Helsing

scoutbee

BlueYonder

arago

acrolinx
Better Content. Faster.

IDnow.

Education & Research

German Research Center for Artificial Intelligence (DFKI)

- Large research collective across Germany focused on AI development.
- Diversified fields of research ranging from industry, medicine, and autonomous robots.
- Locations in Berlin, Oldenburg, Bremen, Osnabruck, and Kaiserslautern.
- One of the largest AI research organizations globally.

Max Planck Institute

- Large research collective headquartered in Munich with 86 research institutions.
- The division focuses on intelligent systems is centered around the Stuttgart and Tübingen campuses.
- Focus on AI development and intelligent robotics.
- Partnership with Amazon and other major tech companies.

Technical University of Munich

- Major research university in Germany focused on AI development.
- Focus on developing machine learning algorithms and computer vision.
- Partners with/competes with national research institutes for talent and funding.

AI Strategy

- Franco-German Research and Development Network.
  - Research, travel, and information cooperation between the two allies.

- The government provides some funding and financial incentives:
  - Direct funding for university startups under EXIST.
  - Aid in new startups through the Gruender platform.

- Launched the Commission on Competition Law 4.0 to develop competition and copyright law.
  - Adoption of Competition and Digitalization Act in 2020.

- Regulations and Standards Setting.
  - Creation of a German observatory for artificial intelligence.
  - The Federal Data Protection Act provides data protection and privacy, and is compliant with the EU law.

- Commitment to funding AI research and investment.
  - Funding for KfW capital equity investment firm with €200 million.
  - Increased AI specific funding for existing research institutes and universities.

- Funding for an "Industrie 4.0" initiative.
  - Strong government focus in transitioning AI to manufacturing and other traditional sectors.

Public AI Infrastructure

mCloud

- Open source offering free access to weather forecast data and other raw information.
- Easy access meant for companies to train data and perfect algorithms.

Mobility Data Marketplace

- A neutral B2B platform to share relevant data regarding traffic and logistics.
- Offers information on parking, accidents, roadworks, etc.

Smart Data Innovation Lab

- Offers researchers free computing power and memory for AI projects.
- Projects are meant to focus on industry 4.0, energy, smart cities, and personalized medicine.

Research Data Centre

- Offering researchers data on healthcare claims and data about average German citizens.
- With specific permissions, researchers, and companies can access data on macro health information.

Events

Hub Berlin

General Tech Conference in Berlin

Organized by bitkom e.V.

Partnered with Keylight, Norway, Tableau, Huawei

Speakers include a variety of startup founders

Link HERE

Hannover Messe

Repeating annual conference focused on Industrial Applications of Technology

AI subsection with focus on Industry 4.0

Industry, research, and startup conference

Link HERE

Big Data & AI World Frankfurt

Conference & Show Focused on AI

Focus on AI startup and information technology

May 11-12, 2022

Link HERE

Big-Data.AI Summit

Conference on AI and big data in business
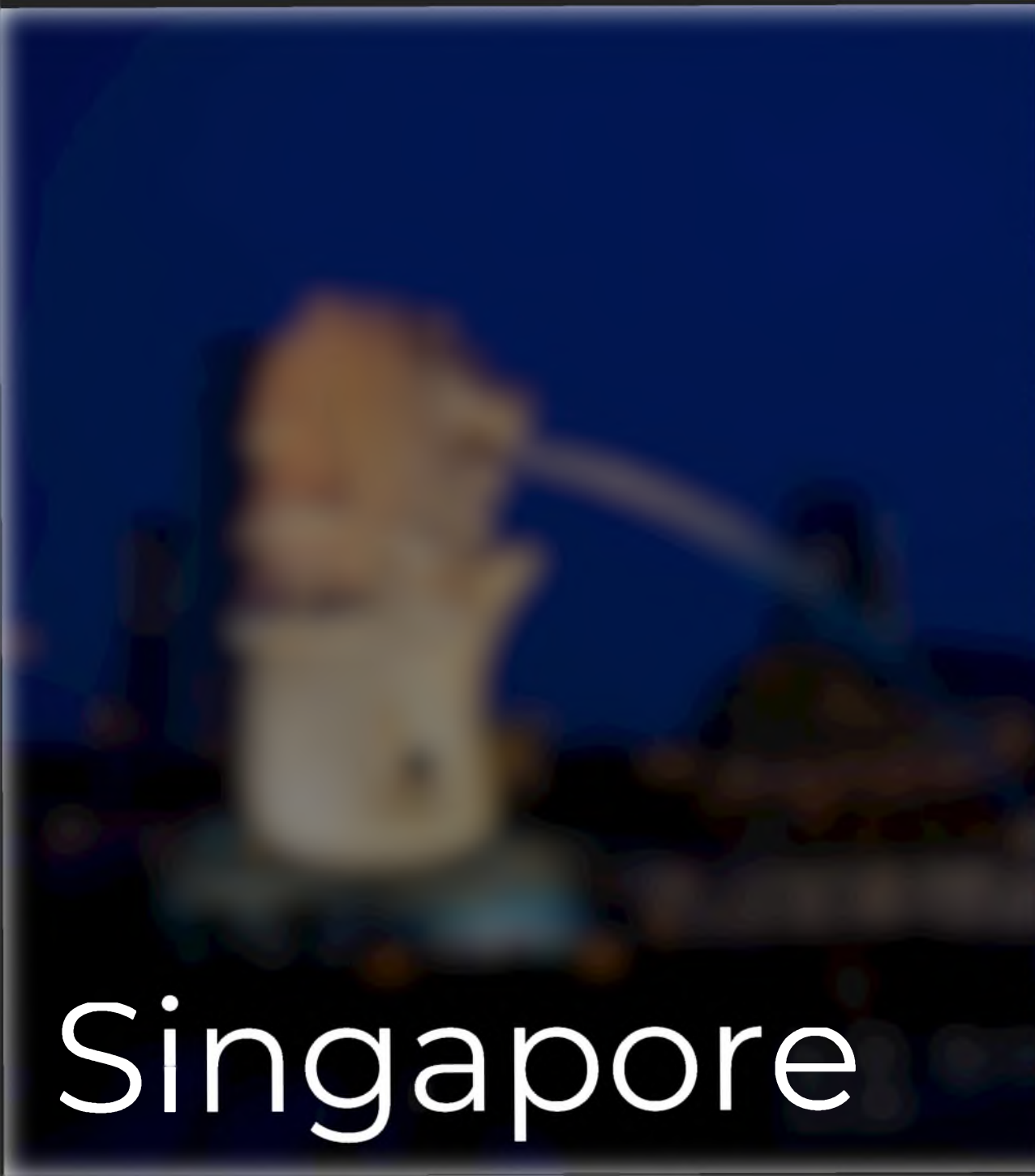
September 14–15, 2022, Berlin

Link HERE

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Singapore

Overview

- Estimated $960 million AI market with an annual CAGR of 42.2% (2022).

- The government invested S$200 million in 2019 to upgrade supercomputing capabilities.

- Major US tech companies in Singapore.
  - Google, Meta, Amazon, Microsoft, among others.

- There is strong government support to further develop AI companies.
  - Detailed National AI Strategy with policy in place.
  - $500 million+ of allocated government funding.

- Singapore is often used as the launchpad for foreign companies to Asia.

Growth

Singapore is home to roughly 350 AI startups.

Crunchbase

AI startups will receive around $960 million in 2022, with an annual CAGR of 42% (Singaporean government).

Crunchbase estimates an aggregate 10-year funding total of $2.8 billion, with more than half of the money coming from the last two years.

Strong government investment with national funding helping serve as early stage VC investments.

Major VC funding in Singapore coming from the following sources:

- Entrepreneur First (UK/29)
- Wavemaker Partners (CA/25)
- SGInnovate (Singapore/17)
- 500 Global (CA/16)

Singaporean government agencies offer a gateway for investors to enter the market.

The Economic Development Board (EDB) and the Enterprise Singapore (ESG) are specialized agencies meant to help foreign investors enter the Singaporean market.

Leading Singaporean AI Companies

Education & Research

National University of Singapore

- NUS computing department leads the AI efforts.
- AI Singapore based on campus (more details in Industry/Research Groups).
- NUS AI lab performs research on most areas of AI development.

Nanyang Technological University

- AI Research lab headed by Prof Ong Yew Soon.
- Strong partnership with government funding in AI development
- The university has private partnership with Singtel and other corporations.
- The University participates in the AI Singapore program.

Singapore Management University

- The school is modeled off of the Wharton School of Business.
- The university contains a competitive School of Computing and Information Systems.
- Focuses research on AI governance and data policy.

Singapore University of Technology and Design

- SUTD is a public autonomous university with a focus on logistics and design.
- The university offers a degree in Design and Artificial Intelligence.
- The school focuses on practical industry use for AI.

U.S.-Singapore Partnership for Growth and Innovation

Overview

- General technology partnership between the United States and Singapore.
- Promotes easier access to small businesses between the two countries.

Digital Economy Pillar

- Commitment to setting common technical standards and systems.
- Agreeing to cross border AI governance frameworks and consistent regulations.

Joint Events

- US support and promotion of the Singapore World Cities Summit, Singapore International Energy Week, and SelectUSA Investment Summit.
- Conducting a ASEAN-US Business Council.

Furthering Singapore-US pipeline

- Development and construction of new tech products in Singapore to then scale in the US market.
- Allows US companies to test out products in the Asia market first in the "Singapore Sandbox."

National AI Strategy

- S$500 million ($371.45 million) to AI research and development with more likely to come.

  - Recent S$180 million fund for healthcare and education.

- Government invested S$200 million into super computing.

- Government encourages startups to partner with state enterprises.

- Official support for public-private data sharing with accompanying regulatory frameworks.

  - There is a public-private partnership for data sharing and cross company open source outlets.

  - Regulatory policy is relatively relaxed on privacy laws.

- Expedited patent approval for AI developed in Singapore.

  - Case Study: Alibaba received an AI patent after 3 months compared to the normal year(s) long process.

National AI Strategy

The Singaporean government categorizes public investments for AI into 7 major areas with funds allocated for each.

1 **Logistics**

Freight shipping and truck transportation planning.

2 **Smart City**

Public infrastructure contracts for municipal services

3 **Healthcare**

Chronic disease prevention and diagnosis.

4 **Education**

Personalized education for each student.

5 **Safety and security**

Streamlined border control and clearance.

6 **Finance**

Growing Singapore's smart AI solutions.

7 **Government**

Implementing government solutions for citizens and businesses.

Model AI Governance Framework

Voluntary corporate governance model and standards proposed by the Singaporean government | Link Here

Internal Governance Structures and Measures

- Establishes internal governing norms for private companies.
- Risk management standards against data leaks and failures.
- Recommendation of rules for ethical AI deployment and methods of creating internal risk review.

Determining Level of Human Involvement in AI Decision Making

- Setting boundaries for what tasks can and should be automated.
- Establishing norms on appropriate oversights for AI products.
- Weighing the probability of harm from mistakes to determine amount of risk mitigation and review.

Operations Management

- Modeling what raw data is appropriate to use, how algorithms should be designed, and which model is appropriate.
- The Personal Data Protection Commission helps regulate what public data can be shared with to private sector companies.
- Promoting periodic updating and review of training data.

Stakeholder Interaction and Communication

- Strategies for communication with stakeholders.
- Promotion of general disclosure of how AI is being utilized.
- Allowing for transparent communication with other businesses for increasing cross platform compatibility.

AI Singapore

AI SINGAPORE

- **Academic and government partnership to coordinate research, industry, and AI investment.**
  - Lead by professor Ho Teck Hua, Senior Deputy President and Provost at NUS.

- **All research universities in Singapore participate.**

- **100 Problems Initiative**
  - Listing 100 problems the Singapore AI wants to solve and asking AI teams to solve them.
  - Provide public funding to companies/teams solving the problems, S$250,000.

- **AI Makerspace**
  - Open Source research data and databases for training data.
  - Free to use APIs and other platforms.

- **$150 million of public funds over course of 5 years since establishment in 2017.**

- **Startup incubator division helps transition research to industry.**

Events

Asia Tech X SG

Conference & Exhibition

May 31 – June 3, 2022

Sponsors: Singtel, Huawei, NetAppTech Ecosystem development with some keynote speakers

Not geared specifically for AI

Link HERE

Singapore Fintech Festival

Conference & Exhibition

November 07-11, 2022

Sponsors: Mastercard, Ant, Prudential, Accenture, Australian Government

Not geared specifically for AI

Link HERE

Singapore Week of Innovation and Technology

Repeating conference

Sponsors: Unilever, P&G, Cargill, Astech, Philips

Focus on technology growth and venture capital partnerships

Link HERE

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South Korea

Overview

- In 2020, the South Korea's AI market was worth an estimated $602 million, a 16% growth from the previous year.

  Source: The Ministry of Science and ICT

- Seoul and Pangyo are the major AI clusters with growing hubs in cities like Gwangju and Busan.

- The Korean government strongly supports the development national AI infrastructure and companies.

  National Strategy for AI (2019) is in place.

- Korean IT companies are leading the country's AI R&D effort while more AI startups are emerging.

 - Samsung, LG, SK, Naver, Kakao, among other.

Top AI Clusters in Korea

Seoul

- The capital of South Korea is home to leading AI companies. Most Korean conglomerates are operating their AI R&D labs in the city.

- Seoul is the center of the country's startup ecosystem with more than 4,000 startups and 650 investors/accelerators are located in the city.

Gwangju

- The city was selected as location for the Korea's first AI industrial complex, according to the national strategy for AI.

- The development will include AI focused infrastructure, AI data centers, R&D labs and space for startups.
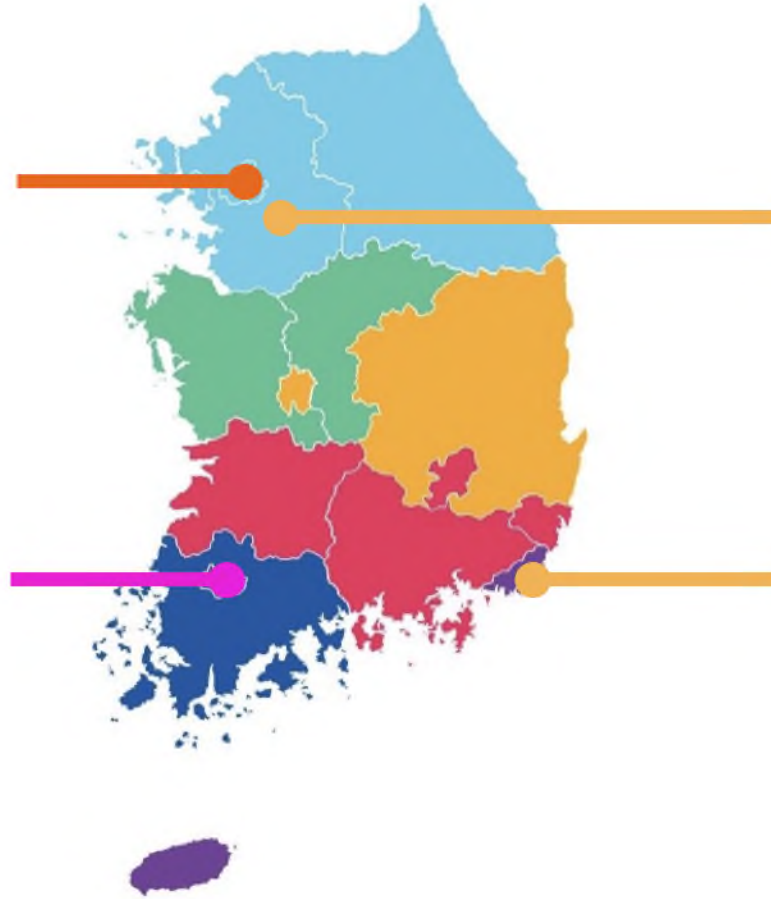
Pangyo

- Know as the Silicon Valley of South Korea, Pangyo Techno Valley is an industrial complex in the city of Seongnam, Gyeonggi Province.

- Home to more than 1,700 companies (most of them are startups), the technology cluster focuses on ICT and biotech industries.

Busan

- Busan is the largest port metropolis in Korea. The city government is focused on promoting an AI ecosystem.

Growth

South Korea is home to approximately 400 AI startups. The number of AI startups in Korea is rapidly increasing. More than 100 new AI startups were founded in 2021.
Source: Korea AI Association

Strong government investment with national funding helping serve as AI startup investment.
- Up to $1 billion funding to AI/bug data companies in 2020.

The South Korea's thriving VC ecosystem leads the AI startups investment.
- There are 197 local VCs in Korea, 38 of them were newly founded in 2021.
- $700 million funding from private investors to AI companies ('16-'20).

Major VC funding in South Korea coming from the following sources:
- Kakao Ventures (South Korea/17)
- DSC Investments (South Korea/9)
- Softbank Ventures (Japan/7)
- Stonebridge Capital (MN/6)

Leading Korean AI Companies

Education & Research

Incheon

Inha Univ.

Gyeonggi

Sung Kyun Kwan Univ.

Hanyang Univ. – ERICA

Daejeon

KAIST

Chungnam Natl. Univ.

Gwangju

GIST

Seoul

Korea Univ.
Seoul Natl. Univ.
Yonsei Univ.
Chung-Ang Univ.
Hanyang Univ

Pohang

Postech

Ulsan

UNIST

Busan

Busan Natl. Univ.
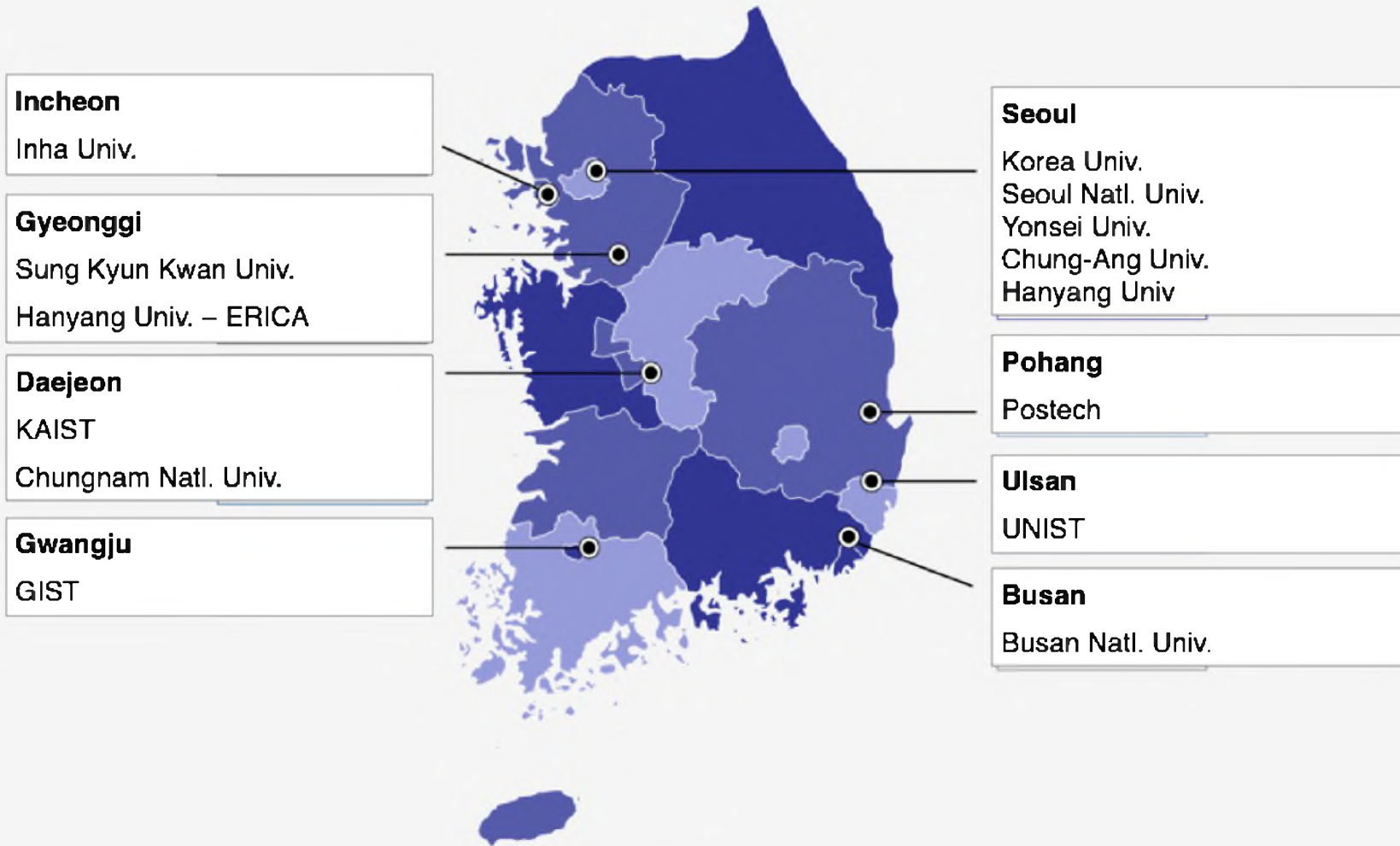
Education | Graduate Schools

South Korea designated 14 AI universities to widen the domestic talent pool in the area of AI

Korea University
Focuses on AI for healthcare, automotive and energy.

UNIST
Focuses on core AI such as trusted AI, efficient AI and etc.

KAIST
Focuses on AI for healthcare, Automotive, manufacturing, security, and emerging tech.

GIST
Focuses on AI for healthcare, automotive and energy.

POSTECH
Focuses research on NLP, computer vision, data processing and core algorithms.

Seoul National University
Focuses on core AI, semiconductor, bio, autonomous driving, robotics and ethics.

Sung Kyun Kwan University
Emphasizes AI for manufacturing, healthcare and business.

Hanyang University
Performs research on most areas of AI development.

Chung-Ang University
Emphasizes the areas such as explainable AI, automated ML, robust AI and their applications

Yonsei University
Performs areas from SW dev. to to AI applications (bio, finance, etc.)

AI Research Centers

4 government designated convergent AI research centers based at national universities

Inha University

Focuses on AI for manufacturing, logistics, and transportation.

Pusan National University

Known for its emphasis on the convergence with computer engineering and healthcare.

Hanyang University -ERICA

Focuses on AI for bio & healthcare.

Chungnam National University

Focuses on AI for bio & healthcare.

National R&D Labs

ETRI's AI Research Laboratory

- Established in 2019 as a sub-laboratory of ETRI, Korean government funded IT research institute.
- Developing technologies such as complex AI, robotics, autonomous driving, AI SoC and AI supercomputers.
- Employing more than 450 researchers in the field of AI and ICT.

KIST's Center for AI

- Established in 80s, KIST's center for AI was one of the first Korean research institutions dedicated to AI research.
- Focusing on core AI algorithms and their application to healthcare, security, contents, next-gen display and big data processing.

Policy & Regulation

AI R&D Strategy (May 2018)

- Established by the Ministry of Science and ICT.
- Aimed to reach the global top four AI county by 2022.
- Included three strategic priorities: reinforcing human resources, launching state-led AI R&D projects and establishing AI infrastructure.
- Committed $2 billion to strengthen the country's AI research capability by 2022.

National Strategy for AI (Dec 2019)

- Established by multiple ministries of the Korean government as a part of the presidential initiative for AI.
- Identified three major areas: AI ecosystem, utilization (application) and people-centered.
- Included nine key strategies and 100 major tasks.

AI Ethics Standard (Dec 2020)

- Established by the Ministry of Science and ICT and the Korea Information Society Development Institute.
- Set the principal value and requirements to purse as "Humanity" and presented three principles - protecting human dignity, achieving the common good for society, and fulfilling the intended purpose of technology.

Roadmap for AI laws, systems and regulations (Dec 2020)

- Established by the Ministry of Science and ICT. Consisted of 30 tasks in 11 areas.
- Establishes legal grounds for creating data economy, securing transparent AI algorithm, establishing AI responsibility system and AI ethics etc.

National AI Strategy

- Promotion of full opening of public data and support for data utilization.

- Expansion of high-performance computing power and development of AI innovation clusters.

- Reinforcement of AI semiconductor competitiveness and national AI R&D capabilities.

- Creation of AI startup ecosystem.
  - Expansion of investment and funding for AI startups.
  - Reinforcement of AI startup accelerators and events.

- Strengthening AI talent and education system.

- Expansion of AI technology across traditional industries.
  - Manufacturing, bio, smart city, energy, agriculture, among others.

- Government investment from the "Fund of the Fund."
  - $200 billion fund with a partial focus on AI and IT development.

National AI Strategy | Sector Focuses

- **Manufacturing**
  - Advancing Smart Factories, Industry 4.0
  - Commercializing AI convergence products (robot, etc.)
- **Biomedical**
  - Leveraging medical data to build a dataset and AI development ecosystem
  - Implementing AI for new drug development
- **Smart City/Construction**
- **Transportation/Construction**
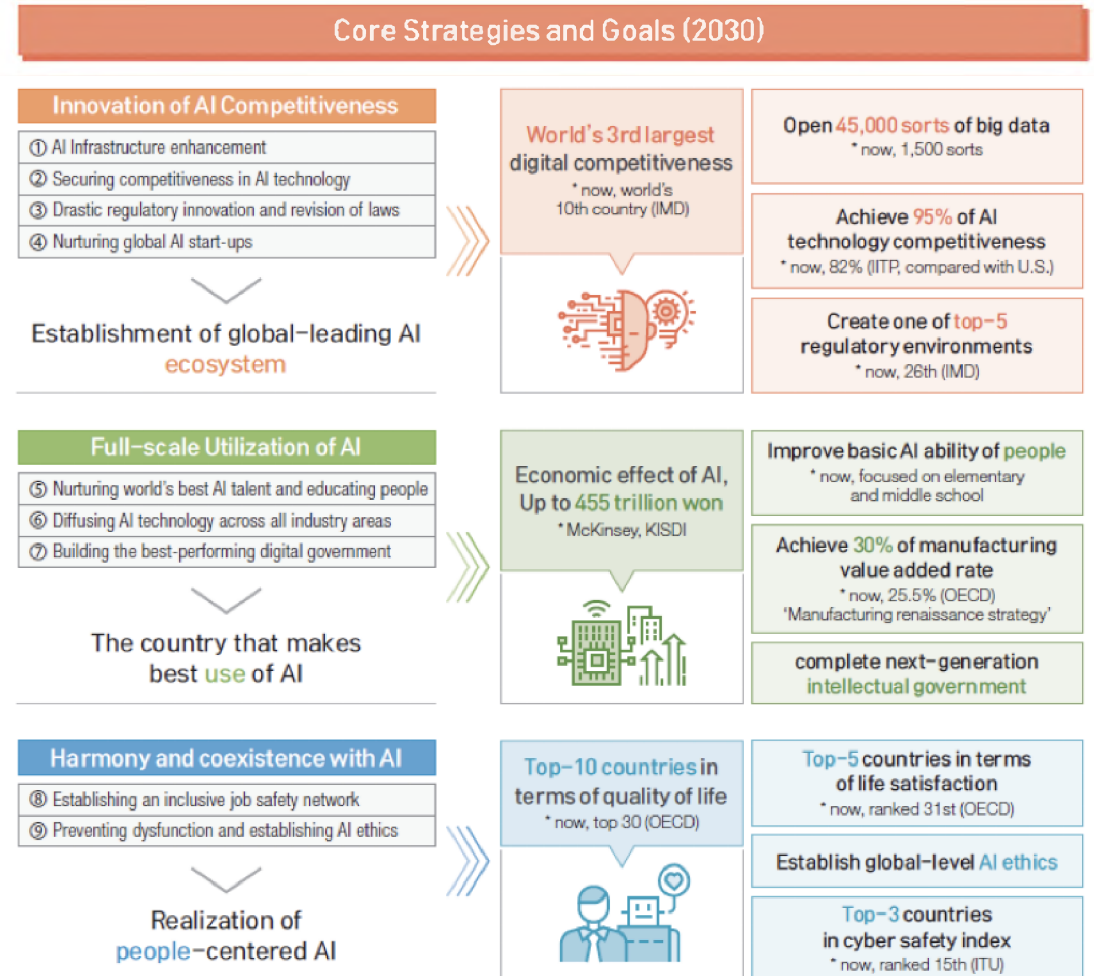 - Autonomous Vehicles
- **Energy**
- **Enviroment**
- **Networks**
- **Agriculture/Fisheries**

  Culture/Art

  National Defense

Core Strategies and Goals (2030)

Government Agencies

Presidential Committee on the Fourth Industrial Revolution

- Established in 2017, PCFIR is a presidential policy coordination body.
- PCFIR develops and reviews policies related to the fourth industrial revolution such as data, network and AI.

Ministry of Science and ICT

- MSIT sets, manages and evaluates science and technology related policy.
- MSIT supports national scientific R&D and overseas the domestic ICT industry.

Ministry of Trade, Industry, and Energy

- MOTIE manages and regulates industrial and energy policy.
- MOTIE supports the implementation of AI technologies to industries.

Ministry of SMEs and Startups

- MSS supports competitiveness of small and medium sized enterprises and startups.
- MSS is responsible for providing investment and funding to AI related startup in Korea.

Events

AI Expo Korea

- Annual exhibition (APR)
- Covers all AI related topics including core AI, AI applications and AI infrastructures.
- Organized by Korea AI Association, the event is the largest AI specialized exhibition in Korea.
- In 2021, 138 Korean and global companies and 23,263 participants attended the event.
- Link HERE

NextRise Seoul

- Annual exhibition/conference (JUN)
- Hosted by the Korea Development Bank, a state-owned policy development bank in Korea.
- Focus on technology growth and venture capital partnerships.
- Link HERE

AI Korea/AI World Congress

- Annual exhibition/conference (SEP)
- Hosted by Busan Metropolitan City.
- The event includes technology conferences: AI applications, Cybersecurity, and AI Ethics Expo
- In 2021, AWC covers AI application for smart city, mobility, healthcare, manufacturing, and government policy in AI.
- Link HERE

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