الإستثمارات فى الذكاء الإصطناعى والتكنولوجيات الرائدة

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المدير التنفيذى لمركز تميز الدراسات المتقدمة والمستقبلية

مدينة الأبحاث العلمية والتطبيقات التكنولوجية – جمهورية مصر العربية

ندوة حول:

الذكاء الاصطناعي والإستشراف التكنولوجى العربى فى ضوء الثورة الصناعية الرابعة

بيروت – الجمهورية اللبنانية1 - 2 / 7 /2019

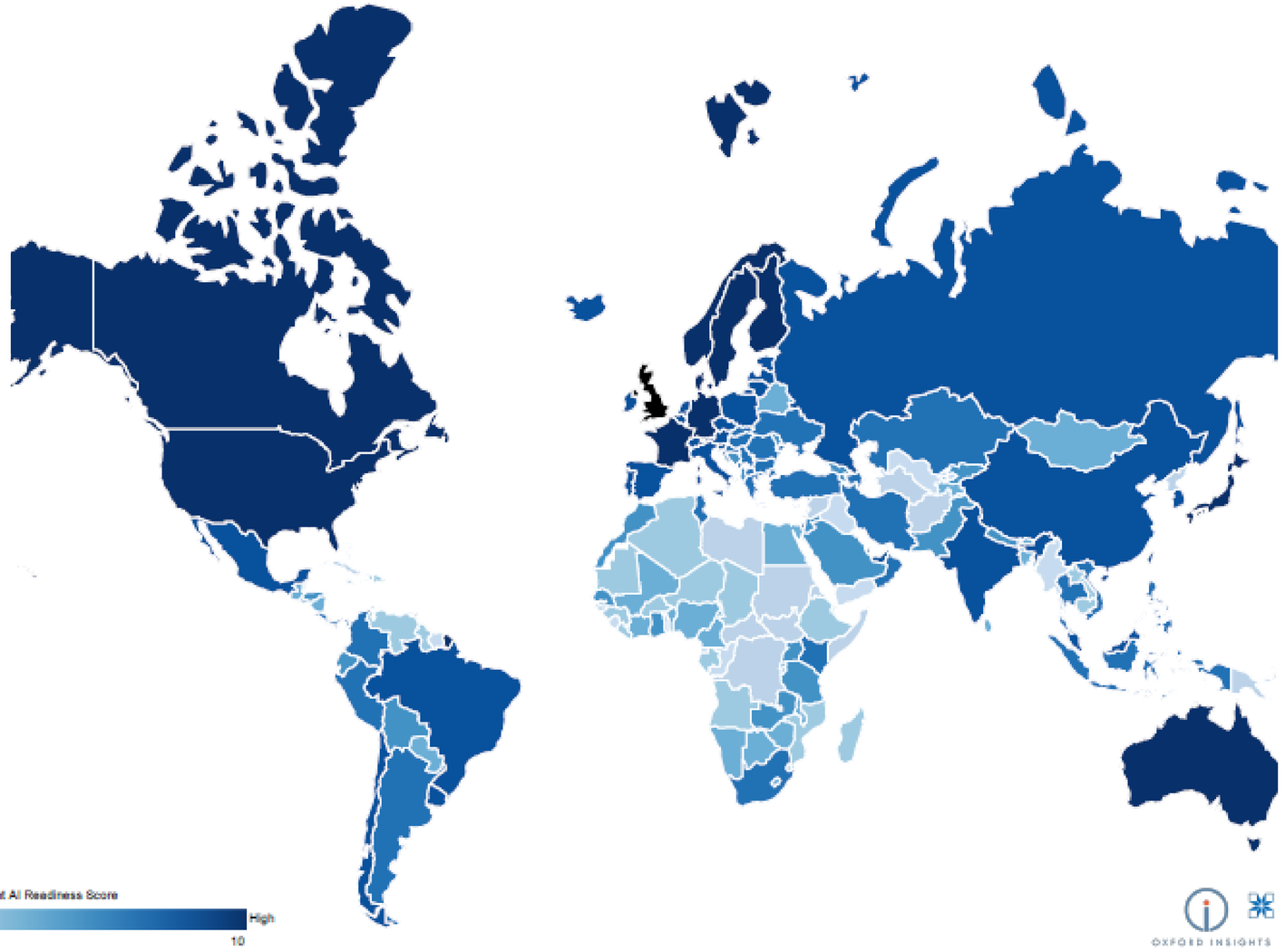
الأجندة

1. المؤشر الحكومى لجاهزية تطبيقات الذكاء الإصطناعى
2. الرؤية المستقبلية لحجم الأعمال لتطبيقات الذكاء الإصطناعى
3. تطوير أدوات الإستثمار ونمو الشركات البادئة
4. قصص نجاح من الواقع العالمى والعربى
5. الخلاصة والتوصيات

Government Artificial Intelligence Readiness Index 2019

TOP 10 RANKINGS FOR GOVERNMENT AI READINESS
2018/19

Rank	Country	Score
1	Singapore	9.186
2	United Kingdom	9.069
3	Germany	8.810
4	United States of America	8.804
5	Finland	8.772
6	Sweden	8.674
6	Canada	8.674
8	France	8.608
9	Denmark	8.601
10	Japan	8.582
19	**UAE**	**7.445**
42	**Qatar**	**6.035**
54	**Tunisia**	**5.652**
59	**Oman**	**5.321**
74	**Jordan**	**4.927**
78	**Saudi Arabia**	**4.779**
79	**Kuwait**	**4.725**
80	**Morocco**	**4.717**
100	**Bahrain**	**3.962**
111	**Egypt**	**3.492**
112	**Lebanon**	**3.487**



https://www.oxfordinsights.com/ai-readiness2019

Government Artificial Intelligence Readiness Index 2019

- Artificial intelligence (AI) technologies are forecast to add US$15 trillion to the global economy by 2030.
- According to the findings of the Index and as might be expected, the governments of countries in the Global North are better placed to take advantage of these gains than those in the Global South.
- There is a risk, therefore, that countries in the Global South could be left behind by the so-called fourth industrial revolution. Not only will they not reap the potential benefits of AI, but there is also the danger that unequal implementation widens global inequalities.

Government Artificial Intelligence Readiness Index 2019

- AI has the power to transform the way that governments around the world deliver public services. In turn, this could greatly improve citizens' experiences of government.
- Governments are already implementing AI in their operations and service delivery, to improve efficiency, save time and money, and deliver better quality public services.
- The overall score is comprised of 11 input metrics, grouped under four high-level clusters: governance; infrastructure and data; skills and education; and government and public services. The data is derived from a variety of resources in databases such as the number of registered AI startups on Crunchbase, to indices such as the UN eGovernment Development Index.

Government Artificial Intelligence Readiness Index 2019

Governance

- Data protection/privacy laws–yes/no
- National AI strategy–yes/no/pending

Infrastructure and Data

- Data availability
- Government procurement of advanced technology products
- Data/AI capability (in government)

Skills and Education

- Technology skills
- Private sector innovation capability
- Number of AI startups

Government and Public Services

- Digital public services
- Effectiveness of government
- Importance of IT to government's vision of the future

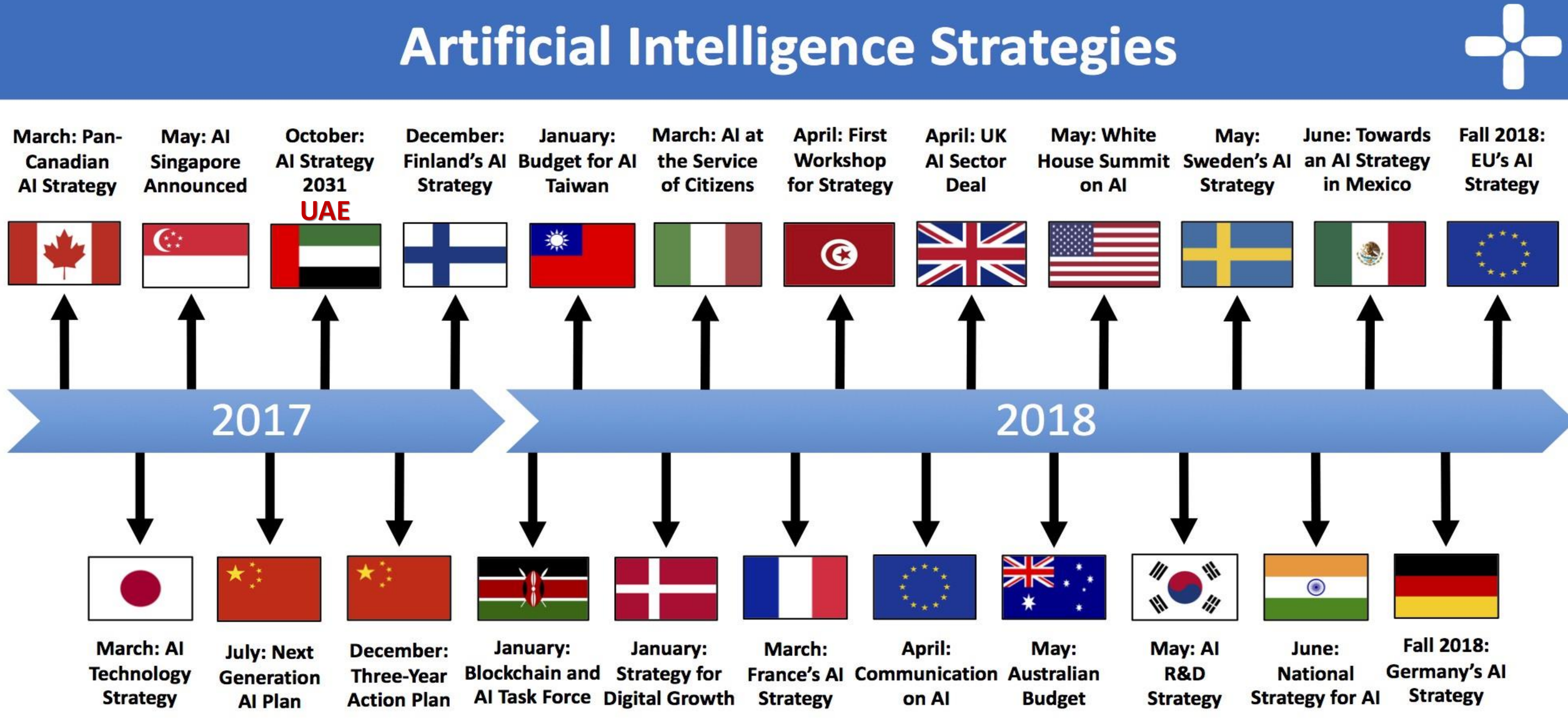
Government Artificial Intelligence Readiness Index 2019

INDICATOR	SOURCE	WHAT SOURCE SHOWS
National AI strategy– yes/no/pending	Desk research, consulting: Gartner paper, Medium article, Nesta article	Existence (or otherwise) of a comprehensive national AI strategy which shows a concerted policy effort by a national government to make the most of AI, and mitigate the associated challenges
Technology skills	Sub-indicator in WEF Global Competitiveness Report 2018	Score out of seven for perceptions of the extent of digital skills among the active population from the WEF Executive Opinion Survey. This measure is included as a proxy of AI skills in the general population, which is important both as an indication of skills in the public sector, and the available pool of local talent

Government Artificial Intelligence Readiness Index 2019

INDICATOR	SOURCE	WHAT SOURCE SHOWS
Private sector innovation capability	Pillar in WEF Global Competitiveness Report 2018	Combined measure of: diversity of workforce, state of cluster development, international co-inventions, multi-stakeholder collaboration, scientific publications, patent applications, R&D expenditures, research institutions prominence, buyer sophistication, and trademark applications. This is a measure of private sector innovation capability, which is a proxy for how ready the private sector is to develop the AI tools needed by government
Number of AI startups	Crunchbase	Number of AI startups per country as registered on Crunchbase, as a proxy for the size of a country's AI sector. Similarly to the previous indicator, this is included to measure how ready the private sector is to develop AI tools and solutions for government

Artificial Intelligence Strategies



Artificial Intelligent Strategy in Japan 2017

[Attachment 1]

(1-1) Artificial Intelligence (AI) Development Phases

Phase 1
Utilization and application of data-driven AI developed in various domains

Utilization of AI and data will increase together with new seeds of growth in related service industries.

Approx. 2020

Phase 2
Public use of AI and data developed across various domains

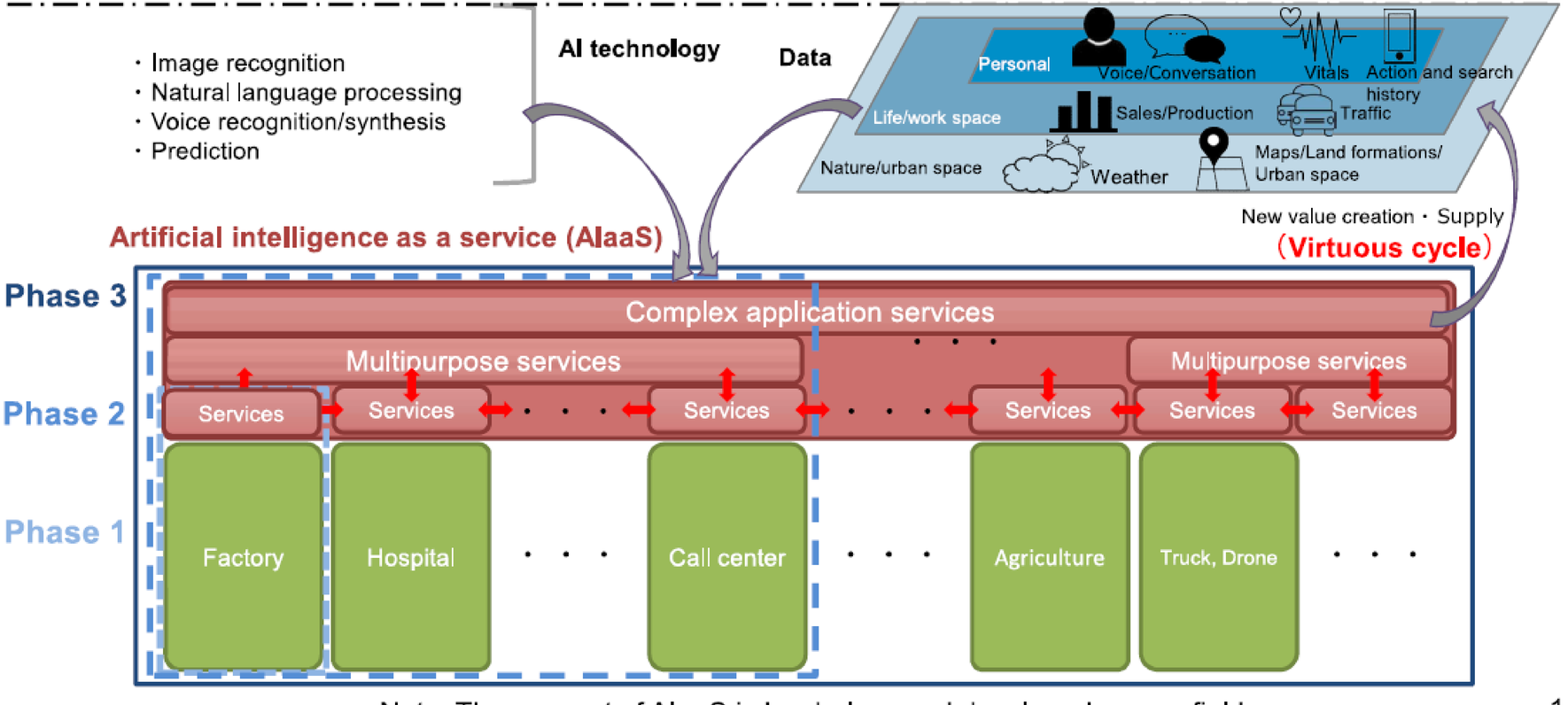
Public use of AI and data is developed and new industries, such as service industries, will expand.

Approx. 2025~2030

Phase 3
Ecosystem is built by connecting multiplying domains

An ecosystem is established as various multiplying domains are connected and merged.

* The duration of each phase is not indicated because the current situation and future development differs depending on the field.



Note: The concept of AIaaS is borderless and developed across fields.

https://www.nedo.go.jp/content/100865202.pdf

Image of Research Objectives Based on Collaboration Among the 3 Centers [Attachment 2]

* Research issues, used data, and so on will be continuously examined in the future.
* Establishment of project leader for each issue will be examined in the future.

Legend: NICT / RIKEN / AIST / Other / Three centers

FY2016 FY2017 FY2018 FY2019 FY2020 and onwards

Implementation of research and development based on open innovation
(towards coordination among three centers/ three institutions & industry-academia-government collaboration)

Image of Planning of Joint Projects by the 3 Centers

Image of linkage of data platforms of three centers

Data infrastructure development

- Skilled engineer data
- Life phenomenon data
- Geospatial data
- Language processing data
- Brain activity data
- AI security infrastructure data
- Remote sensing data and so on
- Health/medical data (FY2017 data platform business)

Common platform development

- Advanced module development
- AI middleware development
- General-purpose infrastructure technology development (Theoretical study/algorithm development)

• Implementation of smart mobility that realizes safe and efficient transportation means/valuable mobility

Three-dimensional environment construction, development of automatic traveling technology based on inexpensive sensors
Development of high-accuracy markers for personal mobility → Construction of positioning system

Development of universal communication technology that contributes to smart mobility
Research and development of dialogue technology in which valuable information and knowledge can be communicated in order to realize adding of value to travel space

Linkage with SIP "automatic travel system" (to a semantic map)

→ Feasibility evaluation (Three centers/three institutions & industry-academia-government collaboration)

Collaboration with automobile manufacturers and the like

- Data used: Map data, dynamic maps (SIP) Web data, SNS data, and so on
- Demonstration environment used: Road environment

Mobility

• Realization of next-generation production technology that enables for small lot production of many products at proper timings and in proper amounts, that reflects consumer demand

Research related to high functionality of human-friendly factories
Collection/analysis/modeling of big data on manufacturing processes → Abnormality detection/failure prediction/maintenance efficiency
Construction of CPS at human-friendly factories → Development of a variable product and variable quantity production system based on integration among factories

Construction of infrastructure technology for a manufacturing revolution based on manufacture informatics
Streamlining based on cutting back on the shortening process for the lead time for searching for the optimal process and manufacturing time, through developing data acquisition technology and combining acquired data with high-accuracy simulations

→ Feasibility evaluation (Three centers/three institutions & industry-academia-government collaboration)

Collaboration with relevant companies

- Data used: Various product data, anthropometry data, and so on
- Demonstration environment used: Factory simulation environment (AIST) Structure simulation environment

• Realization of increased productivity of service industries (transportation, tourism, retail, and so on) and high-quality services

Construction of customer behavior prediction/intervention system based on collection/analysis/modeling of big data on customer behavior

Development of universal communication technology that contributes to improved productivity and quality
Research and development of multilingual speech translation systems

Construction of a platform that links environmental information that changes with each passing moment to people's intentions and preferences in real time, which contributes to provide tourism information for inbound based on new IoT to Human technology
Construction of a framework (competition-type cloud sourcing data analysis platform) for cooperative data analysis by an unspecified large number of people to seek optimal solutions in a tolerance manner for unstable/inaccurate elements

→ Feasibility evaluation (Three centers/three institutions & industry-academia-government collaboration)

Collaboration with relevant companies, facilities, and local governments

- Data used: Service site data, dialogue data, speech data, and so on
- Demonstration environment used: Convenience store simulation environment (AIST)

Productivity

Infrastructure Technology Sectors That Support the Above

- AI security technology (secret technology/secret search technology/privacy protection technology, strengthening of cyber security, and so on)
- Large-scale AI development environment (middleware for applying advanced machine learning techniques such as deep learning to big data in a prompt manner with low delays, parallel computation, cluster construction technology, and so on)
- Research and development of schemes and the like for acquiring necessary data (annotation technology, applicability of AI to meta technology for data (semantic technology), noise cancelation technology for cleansing, and so on)
- Research and development of next-generation AI architecture (neuromorphic architecture, neuromorphic devices, and so on)
- General-purpose questions and answers/dialogues, research and development of general-purpose technology related to multilingual speech recognition/automatic translation/speech synthesis
- Research and development of brain information communication technology
- Acceleration of science and technology research (analysis of literature on science and technology, construction of a knowledge base, optimization of experimental designs, hypothesis generation/verification)
- Development of general-purpose infrastructure technology (incomplete information learning, optimization, causal inference, deep learning, search, mathematical science, and so on)
- Research of artificial intelligence related to humanities and social sciences (social impacts, legislation, social systems, ethics, privacy, and so on)

Further Advancement of Collaboration Among the 3 Centers

- Data sharing (Example: To avoid Copyright Act related problems, such as not being able to share Web data and the like, in other words, researchers who don't have the right to use Web data have to virtually share the data through concurrent posts, cross-appointments, and so on with the institution that own the data)
- Sharing of computer resources, middleware, and so on (Example: Joint use of AI bridge cloud infrastructure (ABCI: AIST)), sharing of tacit knowledge and know-how for data creation

Table 1. Forecast of Global AI-Derived Business Value (Billions of U.S. Dollars)

	2017	2018	2019	2020	2021	2022
Business Value	692	1,175	1,901	2,649	3,346	3,923
Growth (%)		70	62	39	26	17

Source: Gartner (April 2018)

- **AI and machine learning have the potential to create an additional $2.6T in value by 2020 in Marketing and Sales, and up to $2T in manufacturing and supply chain planning.**
- **Gartner predicts the business value created by AI will reach $3.9T in 2022.**

https://blogs-images.forbes.com/louiscolumbus/files/2019/03/Roundup-of-Machine-Learning-Forecasts-And-Market-Estimates-2019-image.jpg

Tractica

Artificial Intelligence Revenue by Region, World Markets: 2015-2024

($ Millions)

$12,000
$10,000
$8,000
$6,000
$4,000
$2,000
$-

North America
Western Europe
Eastern Europe
Asia Pacific
Latin America
Middle East
Africa

2015 2016 2017 2018 2019 2020 2021 2022 2023 2024

Source: Tractica

The number of American lives AI-powered autonomous vehicles could save on the road per decade.

COMPANIES & COUNTRIES WINNING THE AI RACE

TOP 10 COMPANIES

1	DEEPMIND	#1 right now, in terms of AI research.
2	GOOGLE	Google Brain teams focus on long-term AI research in every imaginable subfield.
3	FACEBOOK	Their focus is language-domain problems like question answering and dynamic memory.
4	OPENAI	They have a small all-star team of AI experts.
5	BAIDU	The strongest player in AI in China.
6	MICROSOFT	Years of experience in the field, late adopters of deep learning now focusing on real-time translation through Skype.
7	APPLE	They're developing facial recognition technology that focuses on customers' reactions to ads, as well as improving Siri.
8	IBM	The IT giant aims to use AI to extract meaning from photos, videos, text, and speech.
9	AMAZON	Most areas within Amazon's business will lean on AI in some form, as a part of Alexa, their checkout-less store in Seattle, or automated drone deliveries.
10	NVIDIA	Nvidia and Nuance announced a partnership aiming to bring AI into healthcare.

TOP 10 COUNTRIES

1 UNITED STATES
$10 billion in venture capital is being invested into AI.

2 CHINA
The amount of Chinese AI patents grew by **190%** in a five-year period.

3 JAPAN
The automation potential of the Japanese manufacturing sector is **71%**.

4 UNITED KINGDOM
The UK government is financially supporting **1,000** AI PhDs.

5 GERMANY
Berlin has the fourth largest number of startup AI companies.

6 FRANCE
The French government will invest **$1.8 billion** in AI by 2022.

7 CANADA
The country is building a **$127 million** research facility dedicated to AI.

8 RUSSIA
30% of the country's military equipment will be robotic by 2025.

9 ISRAEL
The number of AI startups has tripled since 2014.

10 ESTONIA
Leader in addressing legal questions related to AI.

https://techjury.net/stats-about/ai/

THE FUTURE OF AI

AUTOMATED TRANSPORTATION
The goal is for all transportation to become automated in the future.

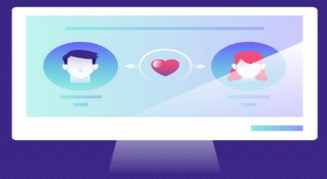
CYBORG TECHNOLOGY
AI and robotics will help us overcome our cognitive and physical limitations, including robotic limbs capable of communicating with our brains.

TAKING OVER DANGEROUS JOBS
Robots and drones will take over hazardous jobs, like bomb defusing, eliminating the need of people to risk their lives in extreme conditions.

SOLVING CLIMATE CHANGE
Using big data, AI could one day identify trends and use that information to present solutions to the world's biggest problems like climate change.

ROBOTS AS COMPANIONS
Japan has made the first big steps toward robotic pets and humanoids that can understand and feel emotions.

EXPLORING NEW FRONTIERS
Robotics will also help us explore new frontiers such as unexplored oceans and space.



PREDICTING THE FUTURE
Machine learning uses the past to make predictions about the future. It will be able to predict things as intimate as who will start dating or who will get divorced.

A. The race for leadership

Global distribution of AI startups

Top countries and cities by number of startups

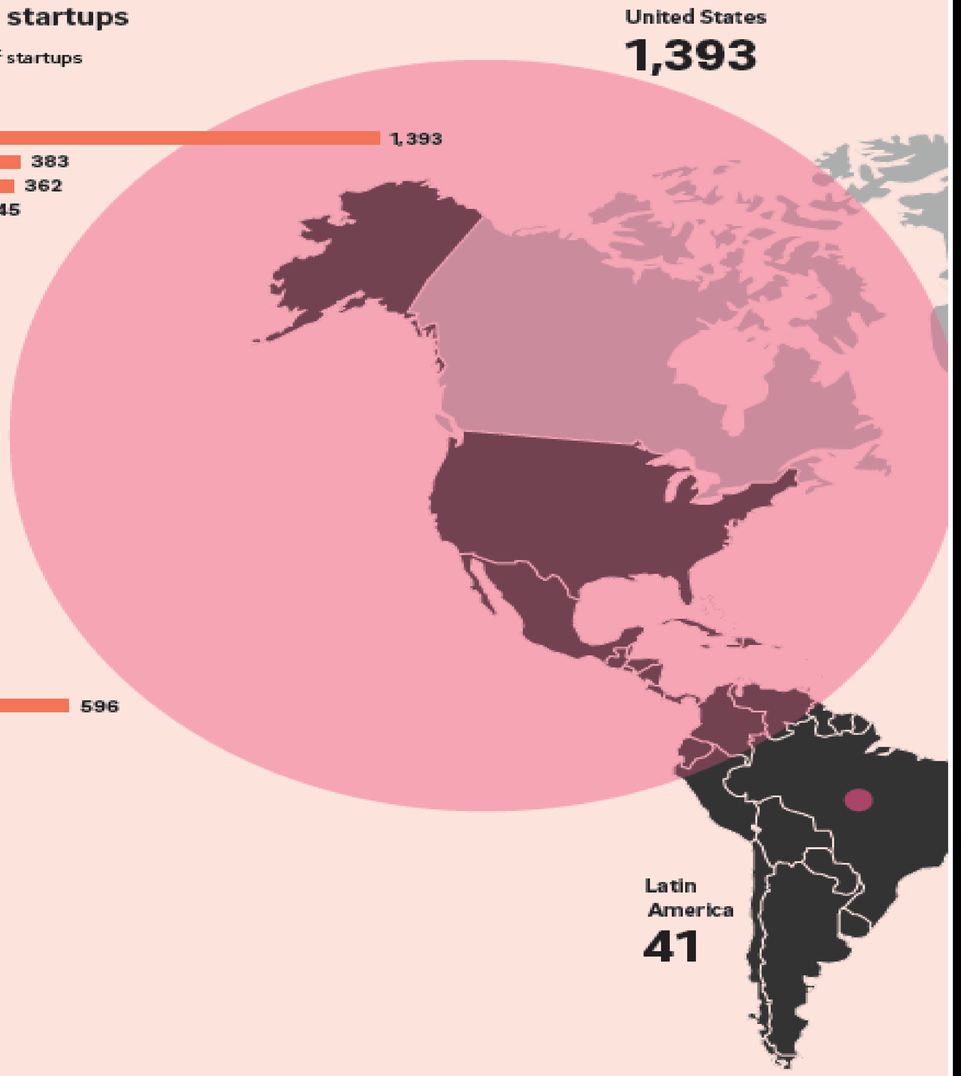
Top countries

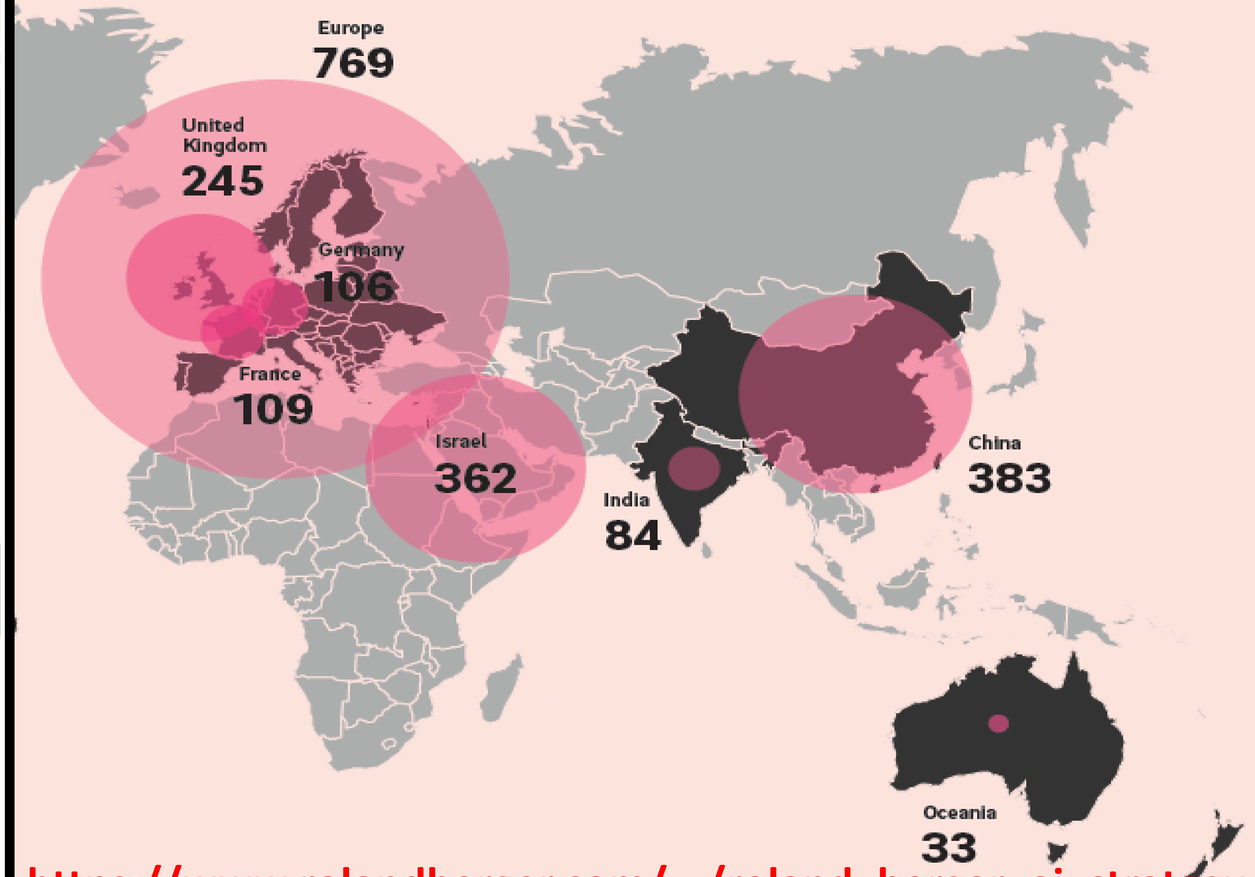
1	United States	1,393
2	China	383
3	Israel	362
4	United Kingdom	245
5	Canada	131
6	Japan	113
7	France	109
8	Germany	106
9	India	82
10	Sweden	55
11	Finland	45
12	South Korea	42
13	Spain	39
14	Singapore	35
15	Switzerland	28
16	Australia	27
17	Brazil	26
18	Netherlands	26
19	Italy	22
20	Russia	19

Top regional hubs

Cities' extended urban areas[1][2]

1	San Francisco	596
2	London	211
3	Tel Aviv	189
4	New York	180
5	Beijing	150
6	Boston	102
7	Tokyo	99
8	Shanghai	77
9	Los Angeles	73
10	Paris	73
11	Shenzhen	66
12	Berlin	56
13	Toronto	47
14	Seoul	42
15	Austin	36
16	Washington	36
17	Seattle	35
18	Singapore	35
19	Bangalore	32
20	Helsinki	32





1 Regional hubs comprise a core city plus its extended urban area and wider agglomeration e.g. San Francisco plus Bay Area, London plus Oxford & Cambridge et al., Beijing plus Tianjin, Shenzhen plus Guangzhou et al., etc.

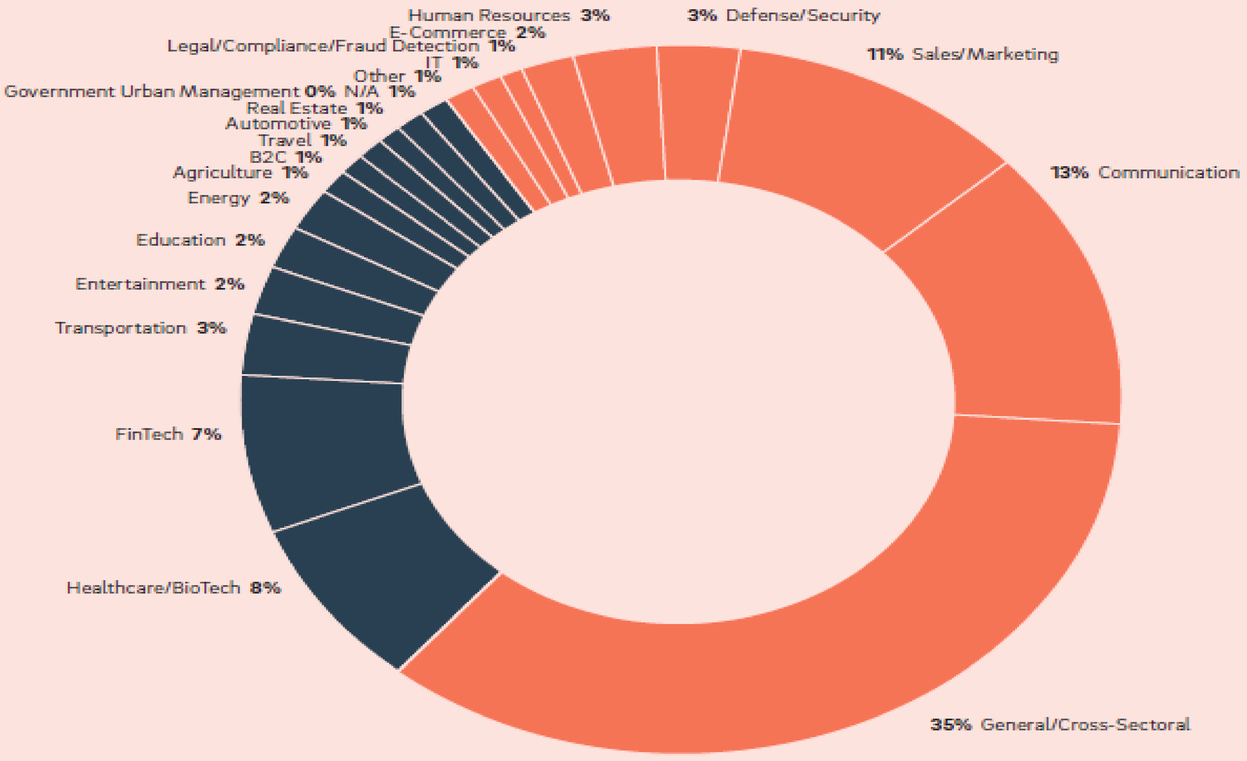
2 Ranking excluding 190 startups for which information on city was not available – Among them, 130 are located in Israel

https://www.rolandberger.com/.../roland_berger_ai_strategy_for_european_startups.p...

B. Uneven disruption

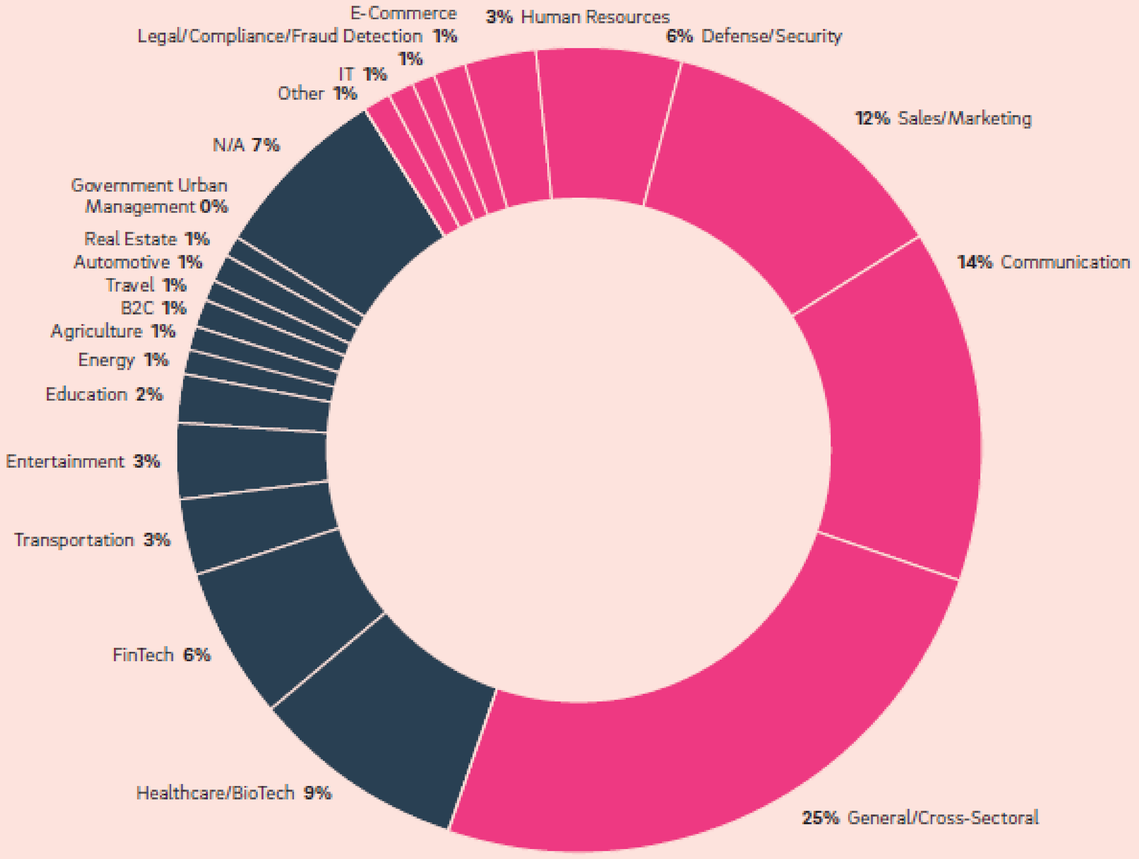
Distribution of AI startups by industry

Europe



70% B2B Services[1]

Worldwide



64% B2B Services[1]

Source: Asgard, CB Insights, Crunchbase, Israeli startups shortlist, AI list Nordics and Baltic, Machine Intelligence 2.0, Chinese AI list, European AI landscape, German AI landscape, Israeli AI startup map, Japanese AI list, UK AI list, French AI ecosystem, Korean AI list, own research.

1 Services include those applicable in all sectors for [illegible] functions (Communications, Marketing, Security, HR, E-Commerce, Legal, etc.)

https://www.rolandberger.com/.../roland_berger_ai_strategy_for_european_startups.p...

Global Investment Mechanisms in Artificial Intelligence

Corporate Venture Capital

Angel Investors

Private Equity

Accelerators

There has been a lot of activity lately in this category as well with many new VC funds and angel groups being launched. Algebra Ventures, the largest Egyptian fund ($50 million) that was announced made few investments last year and has been active this year as well, investing in La Reina & POSRocket. Algebra's average ticket-size is $500K or more, larger than most of the VCs currently active in Egypt.

https://www.menabytes.com/egypt-tech-startup-ecosystem-guide/

تصدرت ثلاث شركات مصرية قائمة أهم 12 شركة ناشئة أفريقية يجب متابعتها فى عام 2019 المقدمة بواسطة بوابة ديسرابت أفريكا [Disrupt Africa]والتي تهتم بأخبار ريادة الأعمال والتكنولوجيا والاستثمار في أفريقيا.

جاءت على رأس القائمة وفي المركز الأول شركة إلفز [[Elves - Your Personal Little Helperوهي منصة دردشة تسمح للمستخدمين بالتحدث من خلالها الى مساعد بشرى يستطيع القيام بأى شئ مجاناً وتقوم باستخدام تقنية " "Human in loopلدفع عجلة التعلم الآلي وبناء الذكاء الاصطناعي. حصلت الشركة على تمويل أولى بقيمة 2 مليون دولار بنهاية عام 2017، وساعدها ذلك فى النمو والتوسع فى عام 2018.

جاء بالمركز الثاني شركة شيزلونج [[Shezlongوهي منصة للعلاج النفسي عن طريق الأنترنت، يستطيع المريض النفسى من خلالها التحدث مع الطبيب المختص عن طريق الفيديو على الجوال او الويب. كانت انطلاقة شيزلونج الحقيقية فى 2018 لأنها حصلت على استثمارات قدرها 350.000 دولار وتم قبولها في مسرعة أعمال 500 Startupsوتم اختيارها للمشاركة في قمة مستثمرين أفريقيا.

وآخر شركة مصرية فى القائمة والتي جاءت بالمركز الثالث هي شركة حالاً- [[Halanوهي شركة مواصلات مختصة فقط بالتوك توك والموتوسيكل. تقدر تطلب حالاً توك توك وموتوسيكل عن طريق تطبيق على الهاتف. تم تأسيس شركة حالاً في 2017 ووصل عدد رحلاتها لثلاث مليون رحلة فى 2018. استطاعت حالاً أن تحصل على استثمار بعدة ملايين فى 2018 ومتوقع لها أن تنافس بشدة في سوق المواصلات فى مصر في 2019https://egyptinnovate.com

APPLY NOW TO UNICEF'S INNOVATION FUND AND RECEIVE UP TO $100,000 IN SEED FUNDING

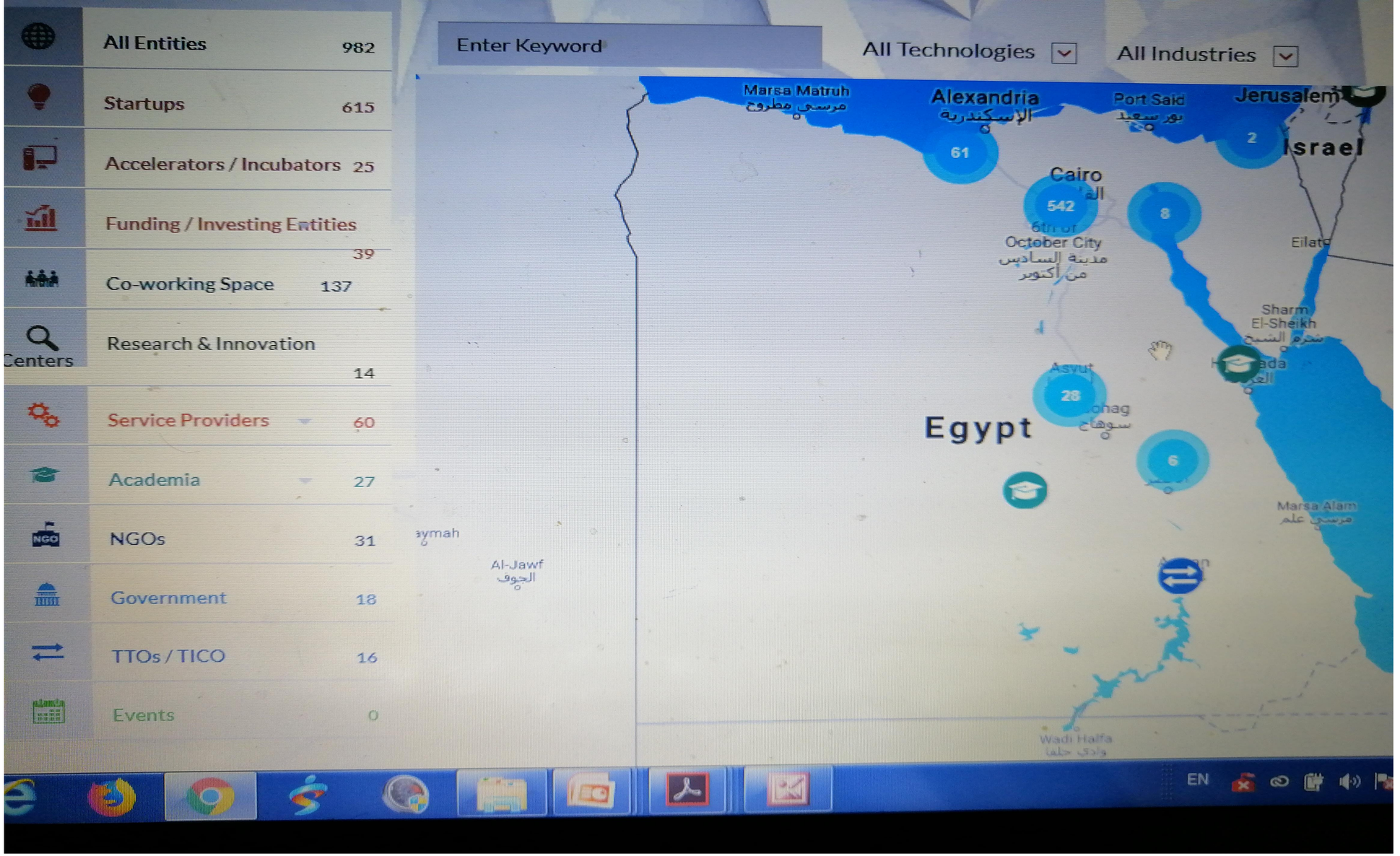
Digitization, artificial intelligence, Startups, fund

The United Nations International Children's Emergency Fund (UNICEF) is looking to fund early-stage startups that have an open source prototype and use data science, machine learning, artificial intelligence (AI) or similar technology to apply to its innovation fund program. Companies that are registered in UNICEF's programme countries can apply here before February 28.

Companies that use Data science and AI to understand the digital world, such as using Natural Language Processing (NLP) or similar techniques to analyze large amounts of text, or are encouraged to apply.

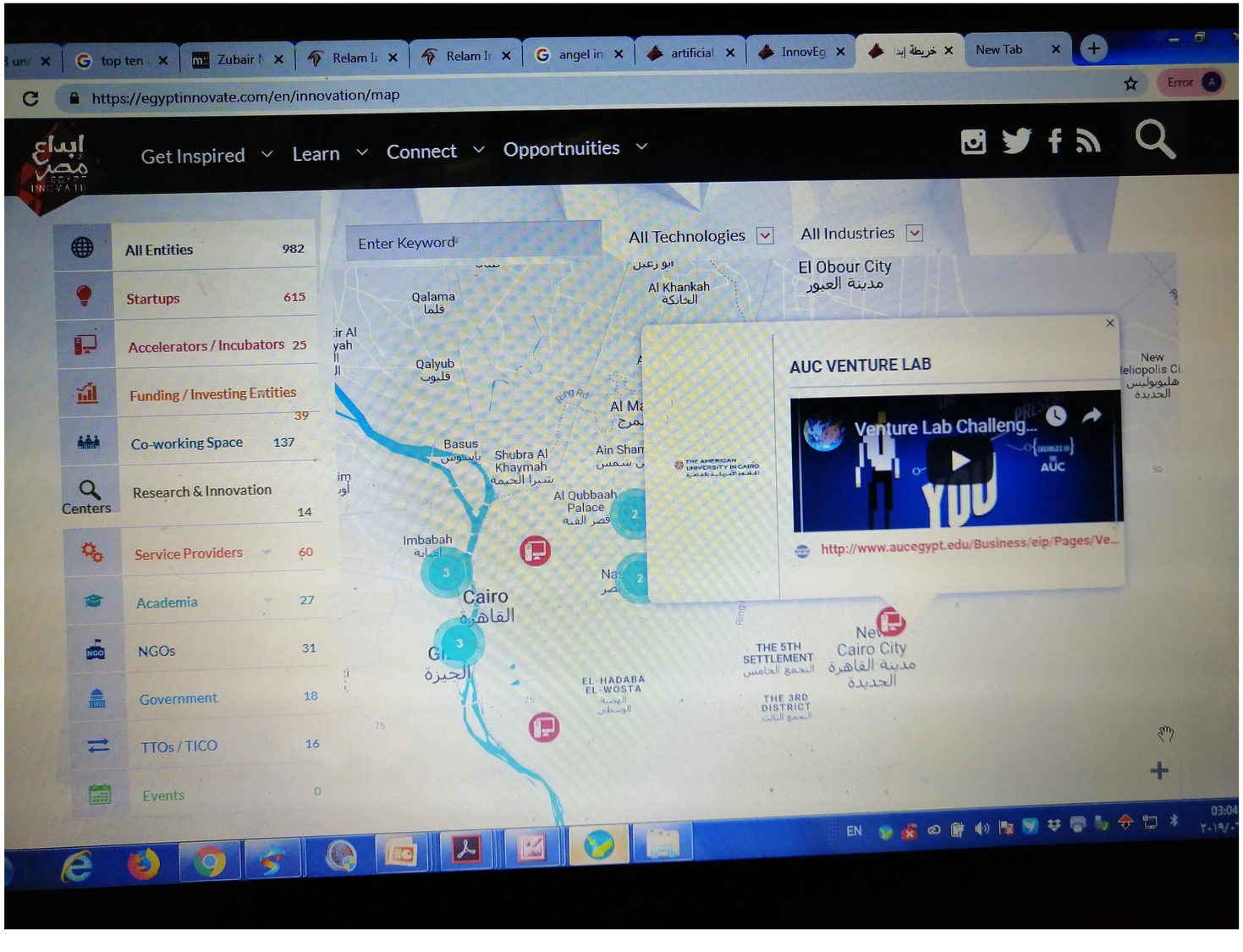
This innovation fund will provide up to $100,000 equity-free seed funding, technical assistance from the UNICEF in product and technology development, and mentors to help startup teams develop their business model among other services.

Companies that can apply for this program aren't restricted to a specific description. UNICEF is interested in companies that apply data-science in new, groundbreaking, ways that are scalable, globally applicable, and can be



خريطة تفاعلية لحظية توضح عدد وأنشطة الشركات المصرية البادئة وجهات التمويل والدعم العلمى والإبتكارى

https://egyptinnovate.com/en/innovation/map



THE AMERICAN UNIVERSITY IN CAIRO
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Profile (/en/user/4831/) Jobs (/en/user/4831/jobs) Events (/en/user/4831/events)

AUC Venture Lab

Category: Accelerators / Incubators

Governorate: Cairo

City: Cairo

About Entity: AUC V-Lab is incubator based at AUC New Cairo. It enables startups to capitalize on AUC's world-class facilities and knowledge base, connecting innovative startups with AUC's alumni network and fostering a thriving ecosystem of innovation, education and business.

Video: https://www.youtube.com/watch?v=nklv0dSxB8g (https://www.youtube.com/watch?v=nklv0dSxB8g)

Website: http://www.aucegypt.edu/Business/eip/Pages/Venture%20Lab.aspx (http://www.aucegypt.edu/Business/eip/Pages/Venture%20Lab.aspx)

Industry / Domain: ICT

Interests: Innovation, Commercialization

Technology of Interest: Mobile Development [Android,iOS,BB,Windows,J2ME]

شكراً لحضراتكم