



ARTIFICIAL INTELLIGENCE (AI) QUARTERLY EXECUTIVE BRIEFING – Q3 2021



Maria Abou-Sakr

Berlin, Germany



Luca Sambucci

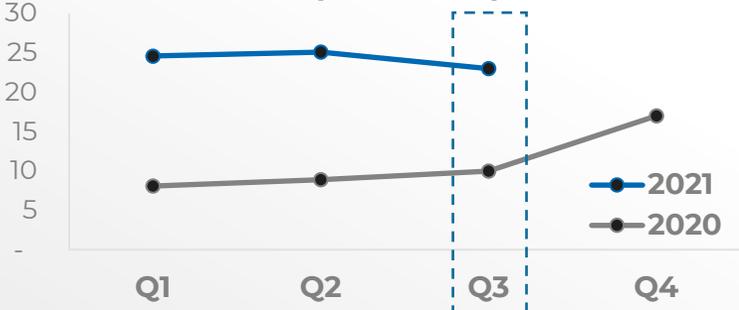
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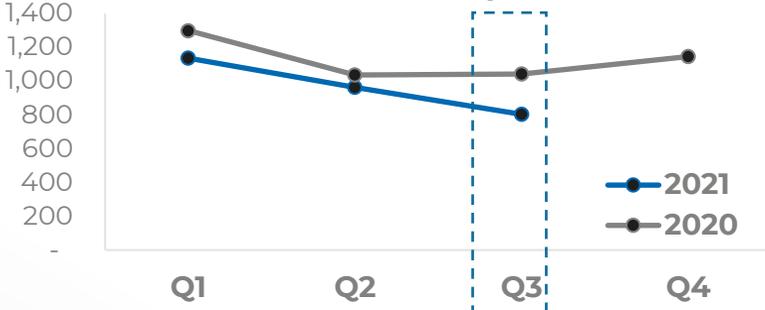
OCTOBER 2021

INVESTMENTS IN AI – AI FUNDING IN Q3 2021 REMAINS STRONG AT USD 20BN+

Private Investments in AI Companies (in USD Bn)



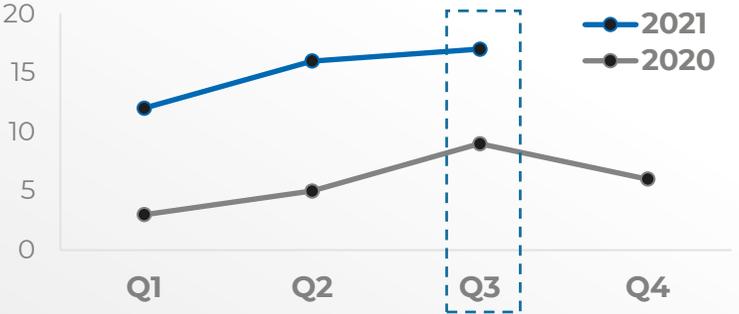
of Private Investments' Funding Rounds of AI Companies



of M&A Activities of AI Companies



of IPOs of AI Companies

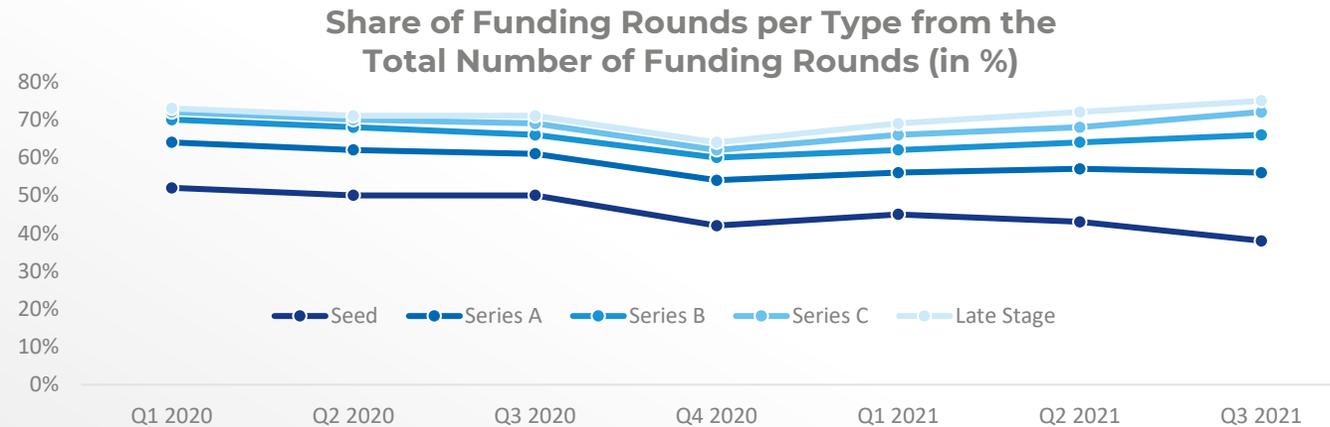


- AI funding in Q3 2021 has slightly dropped compared to Q2 2021 but remains above USD 20Bn for a lower number of funding rounds. This is driven mainly by mega rounds of funding (i.e., deals above USD 100Mn) whereby around 5% of the Q3 funding rounds contributed more than 65% of the Q3 funding amount

- AI M&A and IPO activities continue to increase. The highlight of this quarter is the IPO of Lucid Motors, an automotive company that specializes in electric cars, that was valued at USD 24 Bn at IPO

Source: Crunchbase, Literature search, SNGLR Group analysis

INVESTMENTS IN AI – INVESTMENTS IN LATE-STAGE VENTURES ACROSS SECTORS ARE GETTING MORE TRACTION



- The share of Seed¹⁾ and Series A funding rounds has slightly decreased compared to the previous quarter whereas the share of Series B, Series C and Later Stage funding rounds has increased as the AI industry is becoming more mature

Snapshot of Some Selected AI Companies Funded in Q3 2021

Company	Head-quarter	Description	Last Funding		
			Amount (in Mn USD)	Type	Date
FLYR Labs	USA	Helps airlines make informed decisions	150	Series C	22-Sep-21
ClosedLoop.ai	USA	Identifies at-risk patients and recommends the best interventions	34	Series B	17-Aug-21
XtalPi	USA	Accelerates the development of new drugs	400	Series D	11-Aug-21
Fernride	EU (Germany)	Enables driverless logistics through teleoperation	8	Series A	06-Jul-21

- AI start-ups from various industries, as well as start-ups from cross-industries are attracting funding
- The healthcare and mobility sectors continue to be important sectors that appeal to investors

¹⁾ includes Angel, Seed, and Pre-Seed funding rounds
Source: Crunchbase, Literature search, SNGLR Group analysis

Q3 HOT TOPIC – UK RELEASED ITS NATIONAL AI STRATEGY, OUTLINING A PLAN TO BECOME AN AI SUPERPOWER

- This Quarter, the United Kingdom has released its National Artificial Intelligence strategy, which aims at making the UK an AI superpower to “lead the world over the next decade” on artificial intelligence research and innovation.
- The strategy is based on three pillars:
 1. investing and planning for the long-term needs of the AI ecosystem in order to maintain the UK's leadership as an AI and science superpower;
 2. supporting the transition to an AI facilitated economy, harnessing the benefits of innovation in the UK and ensuring that AI transmits benefits to all sectors and regions;
 3. ensuring that the UK achieves the right national and international governance of AI technologies to encourage innovation, investment and protect the public and its core values.
- The document includes a timeline of actions. Among the activities to be done immediately: interventions in education, a focus on data governance and a three-pronged action to explore AI in key sectors such as health, defence and patents.
- Lack of new funding is a noticeable gap, as the UK did not pledge new money to this initiative. Some more info might come by the already scheduled end of October spending review.
- The strategy is more concerned with defence and national security issues rather than AI ethics and social matters.



INDUSTRY AI USE CASES – NEW USE CASES ARE BEING DEPLOYED IN VARIOUS INDUSTRIES

HEALTHCARE



Brain-Inspired AI Will Enable Future Medical Implants

Researchers from TU Dresden created a system made from networks of tiny polymer fibers that, when submerged in a solution replicating the inside of the human body, function as organic transistors. In the future, implantable devices using more specialized versions of this technology might be able to **detect unusual electrical signals and medical concerns from within a person's body.**

DEFENCE



Japan Coast Guard's AI will detect and track suspicious ships

Japan will test an AI-assisted system to **automatically detect and track suspicious foreign vessels in its territorial waters.**

The AI-based integrated system will monitor satellite data, enabling early detection and prediction of intrusions by analysing ships' navigation data such as speed, location and direction.

ART



Swiss company's AI says a famous painting is not authentic

London's National Gallery **Samson and Delilah is probably not authentic**, says an AI system trained to evaluate the authenticity of the artwork. The algorithm has returned a **91% probability** for the painting not being the work of famed artist Peter Paul Rubens.

The AI analysis was carried out by a system designed by Swiss company Art Recognition.

AIR TRAVEL



Alaska Airlines uses deep learning for more efficient flights

Alaska Airlines will use an AI system that **finds the most fuel-efficient routes** to reduce carbon emissions and - of course - save fuel.

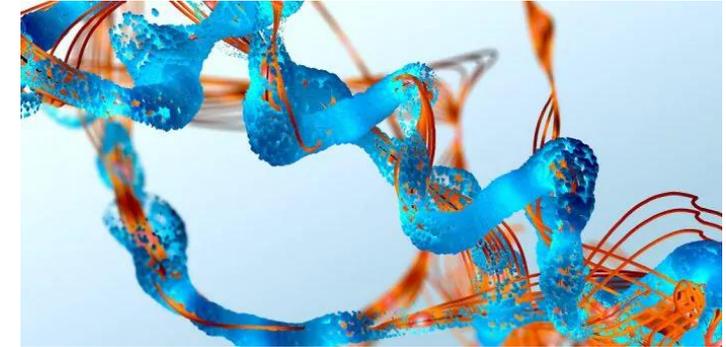
The system could pave the way for a **revolution in commercial aviation**: an "open skies" air traffic system (aka "trajectory-based operations") that allows planes to follow the most direct route to their destination.

AI RESEARCH – LATEST INSIGHTS FOCUS ON PROTEIN FOLDING, SELF-CODING AI AND PROTECTING DATASETS

AlphaFold2 database offered to the scientific community

In July DeepMind unveiled the AlphaFold Protein Structure Database, which offers the most complete and accurate picture of the human proteome, doubling the knowledge that researchers had so far managed to accumulate about human protein structures.

The Database was generated by AlphaFold2, the artificial intelligence system that predicts protein folding. The protein structure database, which in the future is also expected to contain proteins from non-human organisms, up to more than 100 million structures, is offered free of charge to enable researchers worldwide to pursue their medical and biological research.



Helping human developers write better code

Microsoft announced GitHub Copilot, an artificial intelligence system that can generate code for software developers to use as they write software. The tool, based on OpenAI's GPT-3, looks at existing code and comments in the current file and the location of the cursor, and it offers up one or more lines to add.

As programmers accept or reject suggestions, the model learns and becomes more sophisticated over time. The system draws on source code uploaded to code-sharing service GitHub, which Microsoft acquired in 2018, as well as other websites.



Protecting copyrighted datasets from public use

Chinese researchers have devised a system to protect datasets against unauthorised use. The method consists in inserting disturbances (imagine a watermark) that make them worthless for training tasks. These disturbances can be eliminated through a procedure involving the use of a secret key.

Unauthorised users who came into possession of the data would not be able to use it to train AI models because of the perturbations that would irreparably compromise the accuracy. Only authorised users would be granted the key.



original

protected

restored

AI GOVERNANCE & ETHICS – LATEST PRESSING ISSUES

AI-based diagnostic algorithms for medical imaging merit their own, new regulatory framework

In a recent policy brief for Stanford University's Institute for Human-Centered Artificial Intelligence, a new path forward was proposed in building **an appropriate testing framework for medical AI** and show how medical societies should be doing more to build trust in these systems. Changes were suggested for diagnostic AI to reach its full potential, drawing on proposals from the Food and Drug Administration in the United States, the European Union, and the International Medical Device Regulators Forum to regulate the burgeoning "software as a medical device" (SaMD) market. Authors recommended that policymakers and medical societies **adopt stronger regulatory guidance on testing and performance standards** for these algorithms.

UN human rights commissioner calls for moratorium on facial recognition

The UN High Commissioner for Human Rights, Michelle Bachelet, has called for **an urgent moratorium on the sale and use of artificial intelligence systems that pose a serious risk to human rights**, at least until proven otherwise. Among these technologies, the Commissioner explicitly mentioned **facial recognition**, which she had already harshly criticised last year because it was used by the police forces of some countries to monitor participants in peaceful demonstrations.

US and UK courts say that AI can't be inventors (nor get patents)

The Artificial Inventor Project, run by University of Surrey Law Professor Ryan Abbott, has launched a global effort to get **an AI listed as an inventor**. Courts in South Africa and Australia have favoured this argument, but judges in the US and in the UK denied the privilege for non-humans.





AI can help your business too.
Let's talk.



Zug, Rome, Dubai, Boston, Berlin



+41 79 488 88 52



ai@snglr.group



www.snglr.group



[Linkedin.com/company/snglr-group](https://www.linkedin.com/company/snglr-group)

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