AI Will Lead Startups to Renewed Glory as the Unicorn Boom Fades

"In 2023, startups globally experienced a depressing restructuring period, marked by the downfall of numerous unicorns. Now, as we move into 2024, investors and entrepreneurs within the startup community are shifting their focus to artificial intelligence (AI), recognizing it as the most exciting and promising technology."

The startup landscape last year could be likened to a “pandemic” of sorts, devastating numerous unicorns. According to the available data, the total funding of startups that ceased operations in 2023 surpassed USD 41 billion, a sum equivalent to the combined total of startup funding from 2019 to 2022. Noteworthy and high-valued startups that closed down in 2023 include Olive, a medical insurance startup valued at USD 4 billion; Convoy, a smart truck fleet developer valued at USD 3.8 billion; and Zume, a textile company focused on reducing plastic waste, valued at USD 2.3 billion.

Additionally, over 20 unicorns, including Notion, , AirTable, and Grammarly that are well-known in Taiwan, have not launched a new fundraising round for two consecutive years. Amid this downturn, AI, particularly generative AI technologies and enterprises, has emerged as the brightest beacon in the gloomy global startup environment.

According to CB Insights, since the second quarter of 2023, startups incorporating AI-related technologies have seen at least a 20% increase in funding. For more advanced startups that have progressed to Series B funding and beyond, those focusing on AI have received a remarkable 59% increase in investment. A report from Startup Genome highlights that AI and big data were the most sought-after sectors by investors in 2023, comprising 28% of the total global startup investment for that year. Interestingly, at the 2023 Consumer Electronics Show in the United States, the largest share of participants from Taiwan (28%) was involved in AI and robotics. Furthermore, digital healthcare and

smart cities/environmental sustainability, fields closely intertwined with AI, accounted for 20% and 18%, respectively, of the Taiwan-based participants.

The recent developments underscore a clear trend: AI has become a core technology across industries. Microsoft has not just invested a substantial USD 10 billion in OpenAI but is also comprehensively integrating AI into its products, workforce, and data management strategies to establish an early lead in this domain. Amazon and Google are closely following suit, each launching a series of AI application services. What has particularly stunned the industry is Apple's recent decision to discontinue its electric vehicle project, which was a decade in the making. Instead, Apple is shifting its strategic focus, reallocating resources to accelerate the development of generative AI projects.

In summary, AI is undeniably the most significant trend within the startup ecosystem in 2024. While tech giants utilize their extensive resources to advance AI technologies, startups are concentrating on practical applications of AI in various fields. According to TrendForce analysts, three areas particularly warrant attention in 2024: cybersecurity, smart healthcare, and retail services.

Rapid Advances in AI Represent a Double-Edged Sword for Cybersecurity

On the frontline of cybersecurity, AI has emerged as a formidable tool for both attack and defense. Hackers use AI to simplify their attacks, whereas cybersecurity professionals use AI to identify vulnerabilities. Nevertheless, the reality of the cybersecurity sector is complex. The unpredictability of attacks, combined with the often passive approach of many companies towards data protection, means that the primary advantage of AI lies in its ability to mitigate rather than prevent incidents. TrendForce analyst P. K. Tseng notes that IT staff can employ AI tools to swiftly analyze attack vectors following a cybersecurity incident, thereby enabling them to promptly patch vulnerabilities and lower the risk of subsequent attacks.

Furthermore, owing to the shortage of cybersecurity talent, many IT personnel are also tasked with cybersecurity responsibilities. With the advent of generative AI, leading tech firms like Cisco and Palo Alto Network have started leveraging these technologies to streamline operations. As a result, IT staff in these companies can now execute previously complex and unfamiliar cybersecurity tasks through conversations in natural language.

Despite these advancements, deploying comprehensive and effective cybersecurity measures remains a costly endeavor for many small and medium-sized enterprises and end-users, often with benefits that are not immediately apparent. To bolster data protection efforts, numerous manufacturers are now focusing on enhancing security measures at the upstream of their supply chains. For instance, Taiwan's crucial semiconductor industry has seen the emergence of innovative startups like Jmem Tek. This company has revolutionized chip programming by incorporating fuse and anti-fuse technologies to transition from traditional single-bit to multi-bit methods. The innovative approach scrambles bit arrangements, thwarting hackers' attempts at reverse engineering. Solutions like ones offered by Jmem Tek find applications in various fields, including IoT, automotive electronics, and electronic hardware protection. Leading chip manufacturers such as Infineon, ARM, and NXP are increasingly adopting hardware protection strategies at the

NVIDIA CEO Mr. Jensen Huang to Deliver COMPUTEX 2023 Opening Keynote.

upstream, significantly contributing to the rapid growth of the cybersecurity market.

As cyber-attacks and data breaches become increasingly common, cybersecurity startups are facing significant growth opportunities. Global Information estimates that the IoT security market alone will reach USD 6.6 billion by 2024, with projections suggesting it could grow to USD 28.01 billion by 2029, at a CAGR of 33.53% between the two years. IDC predicts that by 2026, 30% of large enterprises worldwide will improve the efficiency their cybersecurity incident remediation, management, and response by investing in autonomous security solutions. Analysts, however, warn that cybersecurity is a highly sensitive area. Typically, businesses prefer to work with established cybersecurity firms rather than startups, and this poses a considerable entry barrier for new players. Hence, this scenario represents both a potential risk and an opportunity in the market.

As Foreign Healthcare Giants Pioneers the Use of AI in Precision Medicine, Taiwan-based Startups Follow Closely

Healthcare and pharmaceuticals rank among the industries with the highest investment in smart technology, particularly in drug research and development. Over the last decade, two-thirds of the drugs approved by the U.S. Food and Drug Administration have been small-molecule drugs. The development of these drugs has increasingly relied on AI technologies. Leading companies in this space include Recursion, Benevolent, and notably, Insilico Medicine. In 2023, ISM5411, the world's first cancer drug developed entirely through AI, advanced to Phase II clinical trials. This breakthrough serves as a remarkable milestone, showcasing the remarkable speed at which AI can innovate and produce new, lifesaving medications.

While the aforementioned drug startups may not be widely recognized, their influence within the pharmaceutical industry is profound. Insilico Medicine's principal investor is Janssen Pharmaceuticals, a subsidiary of Bayer. Moreover, Roche Pharmaceuticals has partnered with several AI drug startups to accurately identify potential participants for drug trials, thus speeding up the development process.

"Smart healthcare," seemingly lifted from a sci-fi movie, is gradually becoming a reality, thanks in part to AI.

This is particularly evident with the development of the brain-computer interface technology, which involves implanting minuscule processors in the brains of patients with limb paralysis. This enables them to control digital devices, such as smartphones and computer mice, using their thoughts. Currently, two startups have initiated human trials for this technology: Neuralink led by Elon Musk and Synchron, the latter of which has received investments from Jeff Bezos and Bill Gates.

TrendForce forecasts that the global smart healthcare market is expected to surpass USD 360 billion by 2025. In Taiwan, the revenue from digital healthcare products and services reached TWD 50 billion in 2022. With advancements in AI, Taiwan-based startups related to smart healthcare have come under the spotlight, with 14% of local entrepreneurs venturing into this field.

Tailored for Individual Consumers: Smart Retail Unleashes Huge Business Opportunities

AI has long been anticipated to revolutionize the retail industry, yet its adoption has encountered setbacks, particularly with growing concerns over privacy. Furthermore, the once highly popular unmanned stores have seen their growth stall due to a range of factors. However, the emergence of generative AI holds the potential to usher in significant new changes.

"Retail technology is advancing towards greater customization, akin to a personal shopping consultant for each consumer," stated TrendForce analyst Tseng. For example, the latest shopping service introduced by global retail giant Walmart leverages generative AI. Customers only need to make a general request, and Walmart's AI system generates a comprehensive

shopping list, giving them the freedom to choose which items to buy.

Today, when people shop online, they are accustomed to searching for the desired products, but this process still takes a lot of time, and it is easy to get distracted and browse for other items. However, with an AI-powered virtual shopping assistant, if someone wants to organize a barbecue for his family, the assistant will compile all the necessary items automatically.

Walmart's AI shopping service is provided by Microsoft, with the underlying technology coming from OpenAI. Meanwhile, Google is set to integrate generative AI into its business-to-business (B2B) services. The e-commerce behemoth Amazon has also started testing a shopping assistant named Rufus AI, positioning itself to once again transform the retail landscape.

Beyond major corporations, Taiwan is fostering startups that use AI to expand smart retail across diverse markets. Carmi Technology, a local startup, targets health supplements, which are in high demand in the domestic market. The company introduced a one-stop customization service, enabling customers to tailor health supplements to their specific needs and avoid the clutter of numerous bottles and jars. This innovative approach positions Carmi Technology to capture more opportunities in this niche market.

AI Is Everywhere

Besides the rapid progress of startups in integrating AI in the aforementioned sectors, the presence of AI is ubiquitous in the startup scene of Taiwan and worldwide. While this trend is very apparent this year, AI should not be regarded as the ultimate solution for everything. Taking the highly popular ChatGPT as an example, many users have started to notice a decline in the quality of responses. This issue could be due partly to users' increased expectations, but it could also have to do with limited computational resources. In order to shorten response time and save on computing power, chatbot platforms might reduce the number of parameters in their machine learning systems.

The final and most important point is that regardless of the application markets where AI is adopted, the possibility of errors must be taken into consideration. Therefore, core decision-making ultimately needs to be handled by humans in order to prevent irreversible harm.

COMPUTEX 2024 is scheduled to take place from **June 4th to 7th at the Taipei Nangang Exhibition Center Halls 1 and 2**. With the theme "Connecting AI," this year's exhibition will focus on showcasing the latest global AI technologies and industry trends. The event is expected to attract **1,500** international and local exhibitors, utilizing **4,500** booths across six major areas: AI Computing, Advanced Connectivity, Future Mobility, Immersive Reality, Sustainability, and Innovations. International **visitor registration opens in March**. Visitors from all industries are welcome to participate and experience Taiwan's exceptional AI strength.

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