ASX Announcement
23 October 2024

PROPOSED ACQUISITION OF 2D GENERATION AND CAPITAL RAISE

The progression of the collaboration to bring forward enormous opportunities with 2D Generation and the Connecting Chips European Union Joint Undertaking, which includes partners NVIDIA, Valeo, and Applied Materials.

Highlights:

- Adisyn has entered into formal negotiations to acquire 100% of semiconductor IP business, 2D Generation
- Adisyn will leverage 2D Generation's innovative semiconductor solution to generate opportunities in AI1's target markets including defence applications, data centres and cybersecurity
- 2D Generation's semiconductor IP is a critical advancement in semiconductor technology that will enable the next generation of generative AI and semiconductor solutions for data centres and beyond
- The semiconductor market is thriving as the data and computing power required for generative AI continues to grow exponentially – with the acquisition of 2D Generation, Adisyn will be well positioned to benefit from this significant technological opportunity
- 2D Generation is a partner in the EU's Connecting Chips Joint Undertaking with research and innovation partners including NVIDIA, IMEC, Valeo, Applied Minerals, NXP, and Unity
- Firm commitments received to raise $3m (before costs), subject to execution of the Proposed Acquisition Agreement

Adisyn Ltd **(ASX: AI1)** ("**Adisyn**" or the "**Company**") is pleased to announce the proposed acquisition of 100% of the issued share capital of 2D Generation Ltd ("**2DG**") ("**Proposed Acquisition**") and associated capital raise ("**Capital Raise**").

AI1 entered into a Collaboration Agreement with 2DG, a semiconductor IP business, as announced on 15 July 2024. The companies have since continued to work together and identified significant opportunities to leverage 2D Generation's semiconductor solutions and industry relationships to enhance AI1's offering in its target markets, as well as leverage each other's business partners to improve market penetration.

Adisyn is delighted to advise that the companies have reached indicative terms for AI1 to acquire 100% of the issued share capital of 2D Generation Ltd which they will now look to finalise into a legally binding agreement. The Company and 2DG are working towards finalising and executing a

binding share purchase agreement (**SPA**), which is expected to be executed within 3 weeks of todays announcement. The key indicative terms of the Proposed Acquisition are included in Annexure A of this announcement (**Indicative Terms**). Should the companies execute a binding Share Purchase Agreement, settlement of the Proposed Acquisition will still remain subject to satisfaction of various Conditions Precedent outlined in Annexure A.

The Proposed Acquisition is a critical move forward for AI1's ever-expanding services businesses for data centres, managed IT, cybersecurity, and generative AI. The Proposed Acquisition will allow AI1 and 2DG to focus on developing capital-light semiconductor IP solutions for the data centre, cybersecurity, and managed IT business segments rather than competing in the high-capital expenditure (capex) infrastructure space. Based on the Indicative Terms of the Proposed Acquisition, Adisyn will be able to control the process in the development of 2D Generation's unique Intellectual Property (IP) and maintain full ownership of the developed IP.
2DG is a partner in the European Union's Joint Undertaking, ConnectingChips, which has been specifically formed and funded to fast-track the next generation of semiconductor chips to cope with generative AI's ever-expanding processing requirements, need for speed, and lower power consumption. 2D Generation's solution has the potential to substantially improve the efficiency of data centres and generative AI solutions, as well a range of other real-world technological applications. It is generally accepted that the current generation of AI chips will reach their useful limits by 2030 or sooner.

This announcement should be read in conjunction with the Indicative Terms. The Company is optimistic about concluding the SPA and the Proposed Acquisition. However, the Indicative Terms remain subject to negotiation by the parties and the execution of the SPA for the Proposed Acquisition. Completion under the SPA will be subject to a number of conditions, including due diligence, as set out in Annexure A. No binding agreement has been reached at this time and there is no certainty that the Proposed Acquisition will eventuate. The Indicative Terms (and this announcement) is preliminary, incomplete and non-binding and does not constitute a commitment to proceed with the Proposed Acquisition.

Capital Raise

The Company has received firm commitments from new and existing sophisticated investors to raise $3 million via an equity capital placement, which is subject to the entering into of the formal share purchase agreement for the Proposed Acquisition. The Capital Raise will raise $3,000,000 (before costs) through the issue of 60,000,000 Shares at an issue price of $0.05 each (**Placement Shares**) together with 1 free attaching Option (exercisable at $0.075 within 3 years of Issue) for every 4 Shares subscribed for and issued, representing 15,000,000 Options (**Placement Options**).

The price for the Placement Shares represents an 9% discount to the Company's last closing price, and a 6% premium to the Company's 5 day VWAP. Completion of the Capital Raise is subject to finalising and executing the binding SPA for the Proposed Acquisition. The Placement Shares will be

issued utilising the Company's existing placement capacity under Listing Rules 7.1 and 7.1A. The 15,000,000 Placement Options will be issued subject to shareholder approval.

Allotment of the Placement Shares is expected to occur on or about 3 days after the Company has successfully executed a binding SPA.

The Company intends to apply its existing cash reserves and funds raised from the Capital Raise to advancing it's existing core businesses, development of the 2D Generation business, costs of Proposed Acquisition and Capital Raise and working capital.

Adisyn's corporate advisor, Sandton Capital Advisory Pty Ltd (Sandton Capital), acted as Sole Lead Manager and Book Runner on the Capital Raising and is entitled to receive a Lead Manager fee of 2% of all funds raised and a Capital Raise fee of 4% of all funds raised under the placement, payable in cash. Sandton Capital will also receive 30,000,000 options (exercisable at $0.075 within 3 years of Issue), subject to shareholder approval.

Background to 2D Generation's Solution

2DG have developed a patented solution allowing graphene coating at sub-300 degrees centigrade, an achievement that has never been successfully completed prior to 2DG. This opens the door to the next generation of semiconductors capable of further miniaturization, lower power consumption, less heat and greater computational power.

2D Generation's innovative technology centres around the aim of improving the performance and capabilities of the interconnect.

- An interconnect in a semiconductor refers to the conductive pathways that connect different components or regions within an integrated circuit (IC).
- These interconnects are crucial for the functionality of the IC as they facilitate the flow of electrical signals between transistors, capacitors, resistors, and other elements on the chip.
- Interconnects can be made of various materials, typically metals like aluminium or copper, and they can be implemented in different layers within the semiconductor structure.
- As ICs have become more complex, with smaller and more densely packed features, the design and materials used for interconnects have evolved to address issues such as resistance, capacitance, and signal integrity but have reached scalability limitations.

The interconnect field has emerged as a critical technological barrier hindering industry progress. Overcoming this challenge is perceived as the "Holy Grail" within the industry, promising accelerated rates and continued miniaturisation. Industry giants recognise that the entity with a viable solution stands to gain a substantial competitive advantage.

Despite large scale investment from major companies such as ASM International NV (ASMI), Tokyo Electron Limited (TEL), Lam Research Corporation and Veeco Instruments, a significant breakthrough in this domain is still elusive.

Enter 2D Generation. With its groundbreaking innovation enabling in-situ ALD graphene deposition on the interconnect at below 300 degrees Celsius. An achievement that has never been done successfully prior to 2DG. This focus on graphene integration sets 2D Generation apart, presenting a disruptive technology that has the potential to reshape the landscape of semiconductor manufacturing.

2D Generation has demonstrated the deposition of graphene using an Atomic Layer Deposition (ALD) machine. This technological breakthrough holds the potential to revolutionise production devices, enabling faster and more advanced chip manufacturing compared to competitors.

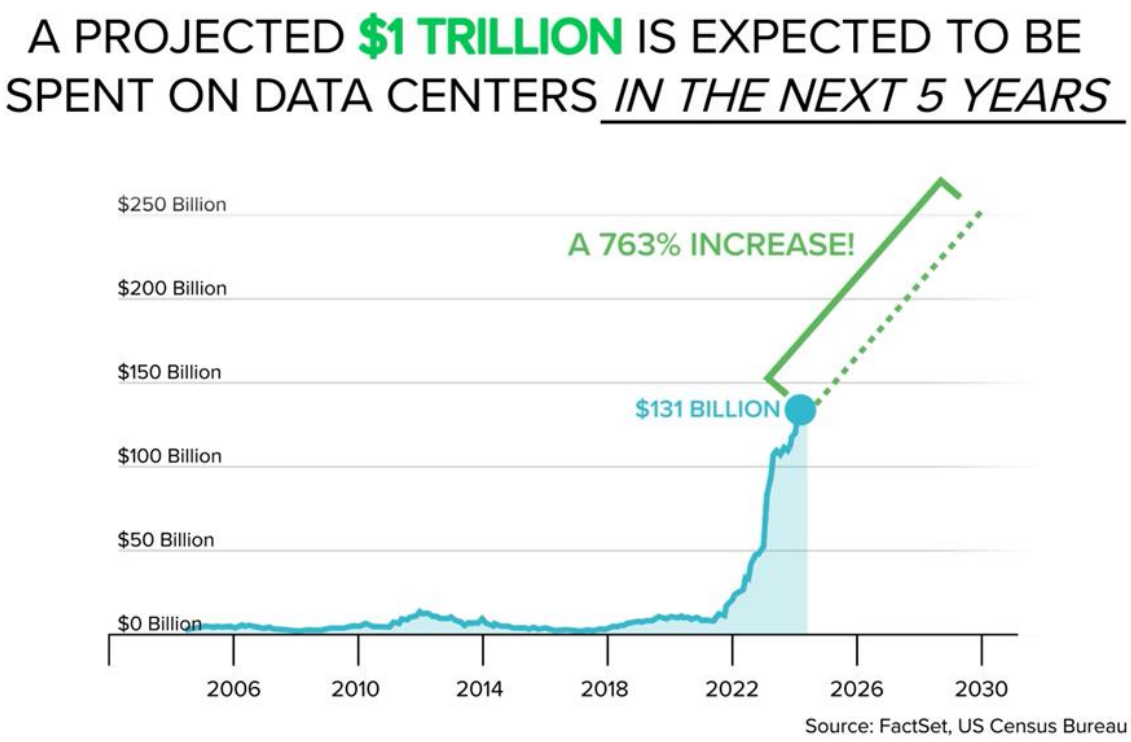
2D Generation is continuing to develop the technology with the aim of commercialising via licences with one or multiple major semiconductor manufacturers. In doing so, the jointly developed technologies will aim to align with AI1's dual track strategy of AI enablement and advanced data centre and cyber security solutions including:

1. **Innovative AI Chips:** The partnership will focus on creating intellectual property for electronic photonic power and systems on chips (SoC) and their integration into systems in package (SiP) modules.
2. **High-Performance Computing:** Applications will target AI, data centres, high-performance computing, and other digital industries, including cybersecurity.
3. **Environmental Impact:** Addressing the scalability limitations and massive energy demands of semiconductors to reduce societal and environmental costs.

Why do we need the next generation of semiconductor technology?

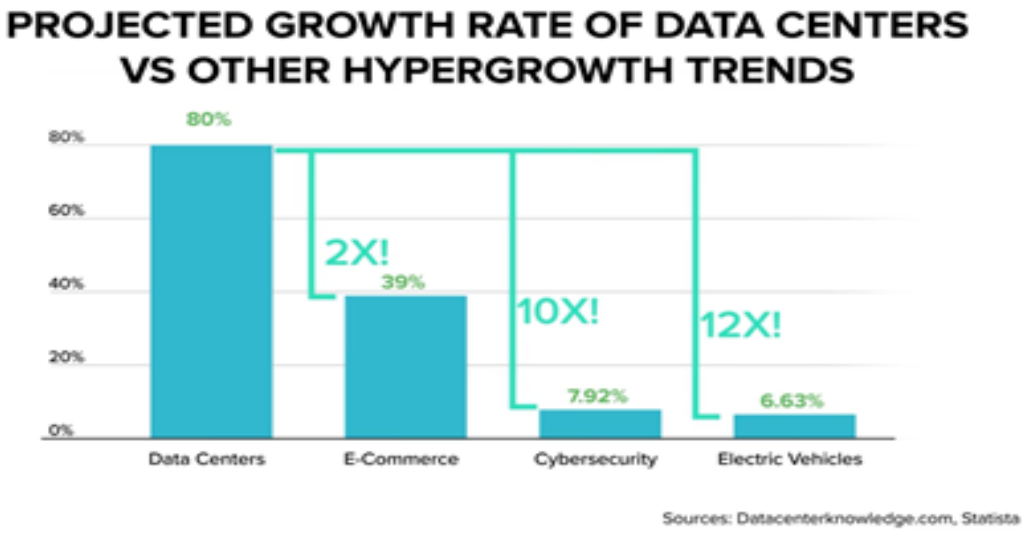
Data Centre spend is increasing exponentially and is predicted by the US Census bureau to reach US$131B by the end of 2024. 5 years from now it will increase 763% to over US$1T.[1]

[1] Source: FactSet US Census Bureau



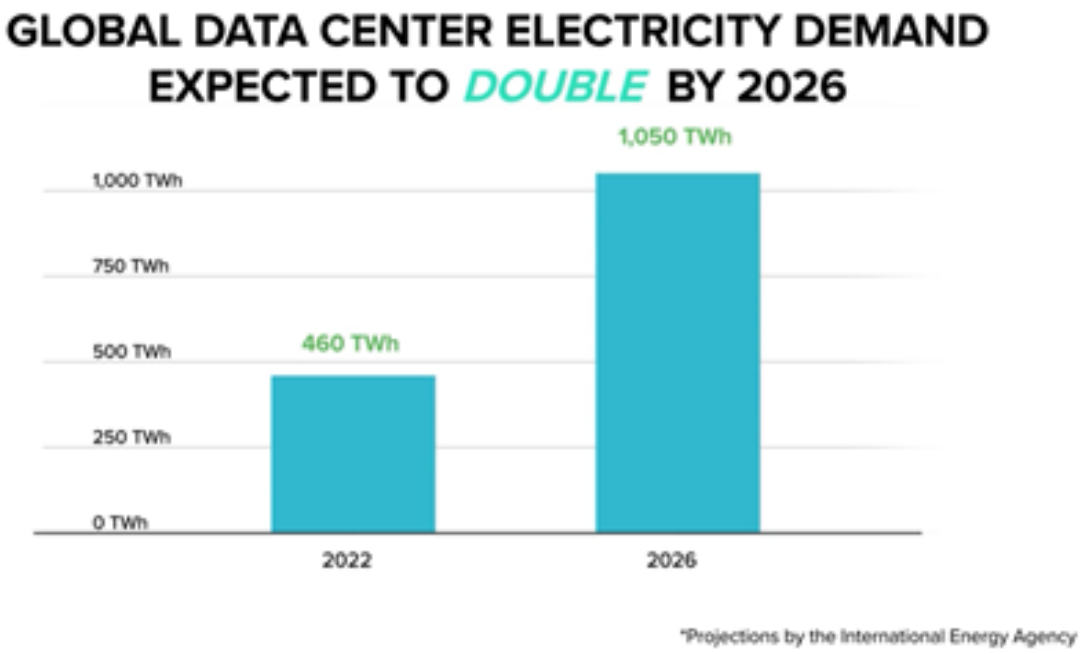
Global data creation as at 2023 was 120ZB and will be 2142ZB by 2035 (Statista) an 18X increase. In 2030 more data will be created in 1 year than the sum total of data created since 1AD.[2]

In 2020 there were 601 data-driven interactions per connected person per day. Next year this will be 4785. The projected growth rate of data centers vs. other hyper growth opportunities is detailed below.



[2] Source: Statista

Global data centre demand is growing rapidly. In 2020 data centers globally consumed 460 TWh and this is expected to reach 1050 TWh in 2026[3]. Generative AI is having a significant impact on energy consumption in the U.S., primarily through its use in data centers. By 2030, electricity consumption at U.S. data centers is projected to triple from 2022 levels, potentially reaching 390 terawatt-hours (TWh), which would represent about 7.5% of the nation's total electricity demand. This surge is driven largely by the immense computational power required for training and running generative AI models, which use specialised hardware like Nvidia accelerators.[4]



The growth of generative AI's energy needs is expected to continue rising at an annual rate of 70% through 2027, creating significant demand for new energy infrastructure and posing challenges for the power grid.[5] Despite efforts to integrate more renewable energy sources, some regions are even delaying the closure of fossil fuel plants to meet the increased energy needs. This growing demand underscores the need for more energy-efficient AI technologies, as well as significant investments in both renewable energy and grid infrastructure

[3] International Energy Agency
[4] Boston Consulting Group as sited in "AI sparks huge increase in U.S. energy consumption and is straining the power grid; transmission/distribution as a major problem", March 16, 2024, Alan Weissberger https://techblog.comsoc.org/2024/03/16/ai-sparks-huge-increase-in-u-s-energy-consumption-and-is-straining-the-power-grid-transmission-distribution-as-a-major-problem/#:~:text=According%20to%20Boston%20Consulting%20Group,U.S.%20homes%2C%20the%20firm%20says.
[5] Morgan Stanley, Powering the AI Revolution, Mar 8, 2024. https://www.morganstanley.com/ideas/ai-energy-demand-infrastructure#:~:text=Key%20Takeaways,projects%20to%20meet%20this%20demand.

This explosion of data and the learning data sets being applied to it means more efficient semiconductors are critical for industry growth.

2DG have been invited to the ConnectingChips Consortium to assist in dealing with these issues. Interconnects in semiconductors are becoming a bottleneck for further increasing the processing power due to several critical factors:

1. **Signal Delay and Resistance-Capacitance (RC) Effects:** As semiconductors scale down to smaller nodes, the interconnects that link transistors face increased resistance and capacitance. The increased resistance causes slower signal transmission, while higher capacitance adds more delay in switching. These RC effects create significant latency and limit the overall speed of the circuit.

2. **Power Consumption and Heat:** The energy required to drive signals through the interconnects increases as their dimensions shrink, leading to higher power consumption and excess heat. Managing this power density is difficult, and the heat generated can negatively impact performance, further limiting processing power.

3. **Electromigration:** As interconnects shrink, the current density increases, making them more susceptible to electromigration, a phenomenon where atoms in the metal (commonly copper or aluminum) move due to high current, degrading the interconnect over time. This can cause circuit failure or require more conservative design, which limits performance improvements.

4. **Scaling Limits:** Traditional materials like copper are reaching their physical and electrical limits as semiconductor technology moves to sub-5nm processes. The resistance of copper interconnects increases as they become thinner, which cannot keep up with the demands for faster signal transmission required by high-performance processors.

5. **Crosstalk and Noise:** As interconnects are packed closer together, they are more susceptible to crosstalk, where signals in one interconnect affect the neighboring ones. This interference can lead to errors, reduced signal integrity, and lower performance, especially at high frequencies.

6. **Complexity and Manufacturing Costs:** Integrating multiple layers of interconnects in advanced nodes to mitigate some of these effects has made semiconductor manufacturing increasingly complex and costly. This additional complexity poses challenges for continuing Moore's Law.

2DG's patented solution addresses the above challenges in the following ways:

1. **Reduced Signal Delay (RC Delay):** As 2DG's graphene coated interconnects allow further minutarisation, the distance signals need to travel decreases. This reduces resistance and capacitance, lowering the RC delay. With shorter signal travel times, the overall speed of the circuit improves, allowing faster data processing and higher clock speeds.

2. **Lower Power Consumption:** Smaller graphene coated interconnects require less power to drive signals. As a result, there is less energy dissipation as heat, which improves energy efficiency and enables the development of more energy-efficient semiconductor devices, crucial for mobile and embedded systems.

3. **Higher Density of Components:** Shrinking graphene interconnects allows for more transistors and other components to be packed into a given area, enhancing overall device performance. This enables higher levels of integration in chips, promoting the trend of multi-core and heterogeneous architectures that can perform more computations in parallel.

4. **Improved Signal Integrity:** When graphene coated interconnects are scaled down, the risk of signal interference (crosstalk) can be reduced with improved layout designs. This leads to better signal integrity, enabling higher data transfer rates without errors, which is particularly important for high-frequency operations.

5. **Enhanced Thermal Management:** Smaller, more efficient graphene coated interconnects generate less heat, reducing the thermal load on the chip. Better heat management improves the reliability and lifespan of semiconductor devices, allowing for higher performance under demanding workloads.

Scaling interconnects has become a key focus in advanced semiconductor technologies, especially as traditional scaling of transistors approaches its physical limits. This is why 2DG are collaborating with the likes of Nvidia, Valeo, Applied Materials, NXP and IMEC.

About Connecting Chips

The EU ConnectingChips joint undertaking is a key initiative aimed at fostering innovation and collaboration to develop the next generation of semiconductors in Europe. It plays a vital role in boosting Europe's semiconductor ecosystem through several critical actions:

1. **Collaboration Between Industry and Academia:** ConnectingChips brings together semiconductor companies, research institutions, and academic partners to collaborate on cutting-edge technologies. This partnership fosters the exchange of knowledge and resources needed to develop advanced semiconductor solutions, including next-generation materials and manufacturing techniques.

2. **Focus on Advanced Semiconductor Technologies:** The initiative supports the development of technologies like 3D stacking, **new interconnect materials**, and heterogeneous integration. These are essential for creating more powerful, energy-efficient chips, capable of meeting the growing demands of applications such as AI, IoT, and high-performance computing.

3. **Promoting Sovereignty in Semiconductor Manufacturing:** A core goal of ConnectingChips is to reduce Europe's dependence on foreign semiconductor suppliers. By investing in domestic innovation and production capabilities, the EU aims to secure its supply chain for key industries like automotive, telecommunications, and defense.

4. **Sustainability and Energy Efficiency:** The joint undertaking also prioritizes the development of semiconductors that are more energy-efficient. This aligns with the EU's broader environmental goals, particularly in reducing the carbon footprint of data centers and other high-tech industries.

5. **Driving Investment:** By pooling resources from the public and private sectors, ConnectingChips stimulates large-scale investments in semiconductor research and infrastructure. This includes funding for pilot plants, prototyping, and technology transfer, accelerating the time to market for new innovations.

Overall, the ConnectingChips joint undertaking is critical in enabling Europe to remain competitive in the global semiconductor industry, supporting the development of technologies that will power the next generation of AI, data centres, and cybersecurity solutions.

Looking Forward

Shane Wee, Chairperson of AI1, said, "The collaboration with 2DG and Arye's team is a truly transformative partnership. Their access to cutting-edge advancements in AI semiconductor technology positions AI1 at the forefront of the industry, particularly in sectors such as defense, data centers, and all chip-driven applications. This enables us to lead in delivering solutions that are

faster, more compact, and energy-efficient. Moreover, the ability to coat interconnects with graphene at temperatures below 300 degrees is a critical development, one that is indispensable for the future evolution of the industry."

Chairman and CEO of 2D Generation, Arye Kohavi, states “our interactions with the AI1 team to date have been productive and insightful, and we have no doubt that working together on developing cutting edge AI hardware and software will create a huge opportunity in the datacentre and cybersecurity defence industries. We are looking forward to finalising the Proposed Acquisition and strengthening the bond between the two companies.

As the Company moves forward with the formalisation of the Proposed Acquisition, AI1 will be uniquely positioned to capitalise on the increasing global demand for high-performance semiconductors, bolstered by the backing of major industry players like NVIDIA, Valeo, and Applied Materials through the Connecting Chips joint undertaking.”

-ENDS-

This announcement has been approved for release by the board of Adisyn Ltd.

Further Information:

Blake Burton
Managing Director, Adisyn
investors@adisyn.com.au
1300 331 888

About 2D Generation

2D Generation is an high-tech company specialising in graphene-based solutions for the semiconductor industry. Founded by experienced entrepreneurs and scientists, the company is dedicated to overcoming current technological limitations by developing faster, stronger, and more energy-efficient computer processing solutions. These advancements will support the next generation of AI, data storage, telecommunications, cybersecurity, mobile devices, and more.

About Adisyn

Adisyn (ASX: AI1) is a provider of managed technology services and solutions, primarily targeting the SME market. The company aims to be the preferred sovereign provider for SMEs in the Australian defence industry supply chain. Adisyn’s offerings include a range of solutions tailored to this growing market segment, leveraging internal capabilities and strategic partnerships, particularly in cybersecurity and AI.

Forward-looking statements:

Statements contained in this release, particularly those regarding possible or assumed future performance, revenue, costs, dividends, production levels or rates, prices, or potential growth of Adisyn Ltd are, or may be, forward-looking statements. Such statements relate to future events and expectations and as such, involve known and unknown risks and uncertainties. These forward-looking statements are not guarantees or predictions of future performance and involve known and unknown risks, uncertainties, and other factors, many of which are beyond the Company's control, and which may cause actual results to differ materially from those expressed in the statements contained in this release.

The Company cautions shareholders and prospective shareholders not to put undue reliance on forward-looking statements, which reflect the Company's expectations only as of the date of this announcement. The Company disclaims any obligation to update or revise any forward-looking information, whether as a result of new information, future events or otherwise, except as required by law.

ANNEXURE A

Proposed Acquisition – Indicative Terms

The Company and 2D Generation have entered into a Non-Binding Indicative Offer agreement and are currently working towards finalising a formal Share Purchase Agreement on the following key Indicative Terms:

(a) (**Consideration**): It is proposed that the consideration payable by the Company to 2D Generation will comprise (subject to prior shareholder approval):

(i) 300,000,000 fully paid ordinary shares in the capital of the Company (**Consideration Shares**) which will be subject to voluntary escrow for a period of 6 months from the date of issue;

(ii) a total of 300,000,000 performance rights (**Performance Rights**) which will convert into Shares on a one for one basis subject to satisfaction of the milestone in the relevant class before the expiry date, as follows:

(A) (**Class A**): 100,000,000 Class A Performance Rights which convert into Shares upon an independently verified demonstration (by a suitably qualified professor from a recognised technological university in Australia or Israel, as determined by the AI1 board of directors) of the successful deposition of an organic substrate on to a metallic or non-metallic material at below 300 degrees Celsius using an Atomic Lawyer Deposition machine, within 12 months;

(B) (**Class B**): 100,000,000 Class B Performance Rights which convert into Shares upon an independently verified demonstration (by a suitably qualified professor from a recognised technological university in Australia or Israel, as determined by the AI1 board of directors) of the successful deposition of an organic substrate capping layer on Copper (Cu) or Reuthenium (Ru) coupons 1cm by 1cm in size at below 300 degrees Celsius, within 18 months; and

(C) (**Class C**): 100,000,000 Class C Performance Rights which convert into Shares following the signing of a binding agreement with a global semiconductor corporation and AI1 receiving income of more than $AU1M (determined in accordance with applicable accounting standards an as received and confirmed by AI1's auditor), within 36 months.

In addition to the above, a total of 15,000,000 options (with an exercise price of $0.075 and an expiry date of 3 years from the date of the issue) will be issued to advisers of 2D Generation (**Adviser Options**) and a total of 5,000,000 ordinary shares in the Company will be issued to Sandton Capital (and/or it's nominees) as Facilitation Shares (**Facilitation**

Shares). The Advisor Options and Facilitation Shares will be issued subject to shareholder approval.

(b) (**Conditions Precedent**): Settlement of the Proposed Acquisition will be subject to satisfaction of certain conditions precedent, including:

(i) the Company being satisfied with legal, financial and technical due diligence on 2D Generation;

(ii) the Company obtaining the necessary shareholder and regulatory approvals that are required to implement the transactions contemplated by the SPA;

(iii) other standard conditions precedent for a transaction of this nature.

(**Board Appointment**): 2D Generation will have the right to appoint one (1) nominee to the board of directors of the Company (as agreed between the Company and 2D Generation) as a Non-Executive Director (**Proposed Director**).

The Proposed Director will be Arye Kohavi. Arye is an Israeli entrepreneur and innovator. He was the founder, president & Co-CEO of Water-Gen, which develops water-from-air and air dehumidification technologies. Kohavi holds an MBA (Finance) and a BA in Economics and Accounting, both from the Hebrew University in Jerusalem. Arye has been the recipient of a number of awards:

- Arye has been chosen as one of the world's 100 Leading Global Thinkers, and one of the world's top innovators, by "Foreign Policy" magazine.
- Water-Gen, founded by Arye, was chosen as one of the World's 50 Most Innovative Companies, by "Fast Company" magazine.
- As part of Israel's 70th anniversary celebrations, the Israeli Ministry of Economy and Ynet readers chose Water-Gen as one of the "Nine Greatest Israeli Inventions of All Times".
- Water-Gen's Genny was chosen as one of the world's 100 Best Inventions of year 2019, by TIME magazine.

It is anticipated that Justin Thomas will step down as non-executive director upon the appointment of the Proposed Director.

As the final SPA is still the subject of negotiation by the parties based on the Indicative Terms. The Company advises that the final terms of the Proposed Acquisition are still being negotiated and may be subject to change.

ASX has provided confirmation that, based on the Indicative Terms , Listing Rule 11.1.2 and 11.1.3 do not apply to the Proposed Acquisition and will not require re-compliance with the ASX Listing Rules.

Should a final SPA been finalised and executed, the Company intends to convene a general meeting by no later than 31 January 2025 to seek the above shareholder approvals.