



# APPSILON

## ENTERPRISE

GROWING ENGINEERED DIAMOND

STRICTLY CONFIDENTIAL

# APPSILON ENTERPRISE

Established **in 2017**

HQ in Delft **in 2021**

**19.3M\$** Raised Until Today

An overall headcount of **35**

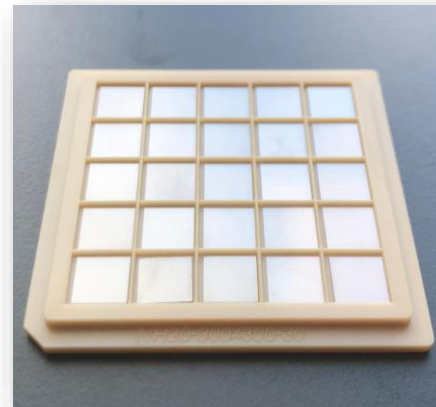
Vertical integration from Diamond Synthesis Equipment to Diamond Product **MRL 10 in 2021**

Project kickoff for Quantum Diamond in **2022** and Semiconductor Technology in **2023**

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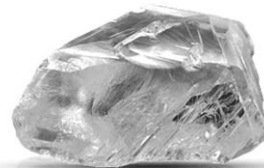


Istanbul, Turkey



Delft, Netherlands

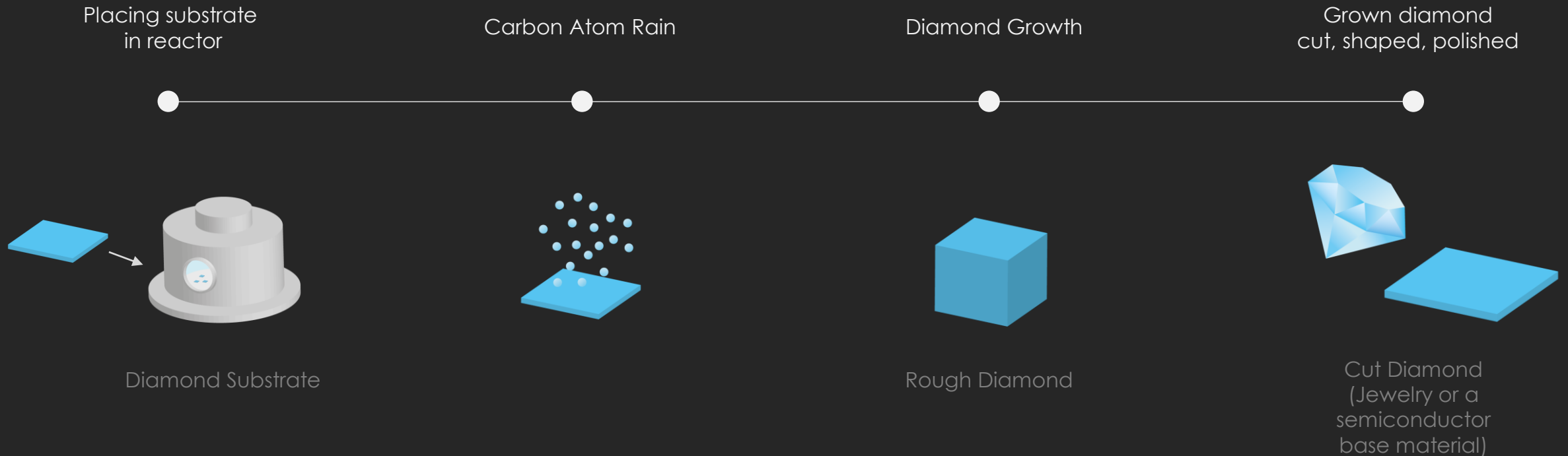
**Our mission is to establish frontier diamond technologies shaping the industries**



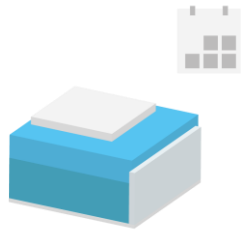
For every lab-grown diamond in the market, you need one substrate to grow.

To produce the **best diamond**, you need **the best substrate**.

DIAMOND GROWTH PROCESS



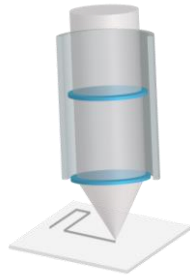
# Appsilon future goes beyond jewelry



## Nuclear Battery

Diamond as key component

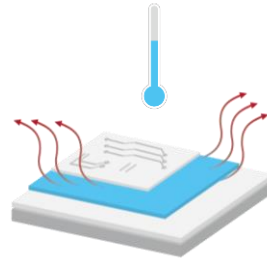
More **durable** and **long** lasting, with the ability to convert nuclear waste into power for **AI, IoT,** and **micro-electronics**



## Laser Systems

Optical component in high power laser systems.

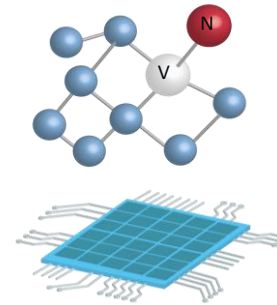
Optic application of diamonds enable chip producers to create **more powerful** and **smaller** chips.



## Thermal management

Efficient heat distributor

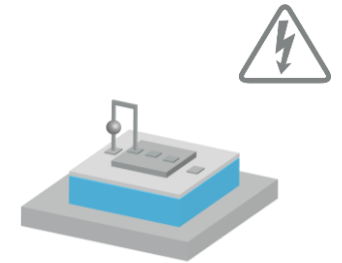
Diamonds are the **best thermal conductor**.  
Diamonds keep the electronic systems **cool** to perform longer.



## Quantum Computers

Room Temperature Quantum Computers

Quantum computers can turn **years-long computation** to be done in **minutes**.  
To create **Quantum Computers that works in room temperature**, chips need to be coded on diamonds.



## High Power Electronics

Substrate for high power electronics

Conventional metal-oxide-silicon transistors are not able to handle high voltage.  
Diamonds have high threshold voltage, enabling it to **transmit higher voltage** by providing optimal mobility of charge carriers at a **higher efficiency**

# Realization of Quantum Internet

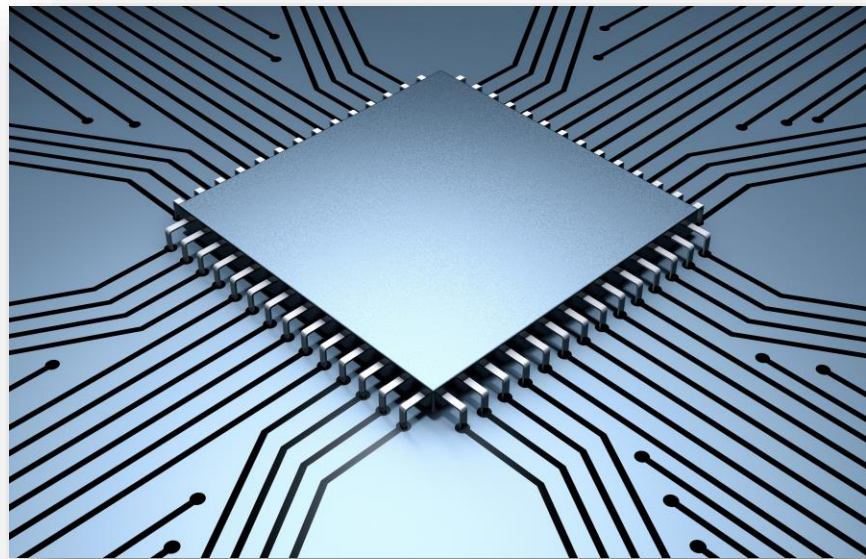


- **Quantum networks** and **computing** will change the communication and computation systems that we know of with faster computing and internet ever.
- Diamond being one of the best semiconductor material play a decisive role in making this technology a reality by being the **brain** of the system.

- In a 3 year plan Appsilon has been awarded **1M Euros**
- Expected results of the project are well-aligned with Horizon 2 (jewelry)goals as **ultra-pure crystals** will be obtained.

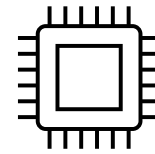
# Unlock the potential with diamond semiconductors

At least 10 times better performance in power, frequency, heat, and losses with large area diamond wafer.



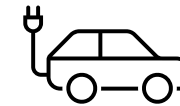
## Potential Market Growth

Semiconductors



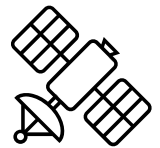
**USD 1,380.79  
billion by 2029**

Electric vehicles



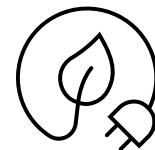
**USD 869.30  
billion by 2027**

Sensors



**USD 37.04  
billion by 2026**

Renewable Energy



**USD 1930.60  
billion by 2030**

Optics



**USD 477.42  
billion by 2028**

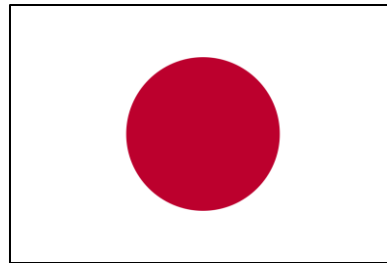
Data (6G)



**USD 340  
billion by 2040**

# Japan Mission

- ✓ Exploring potential business opportunities, knowledge exchange, and collaborations with Japanese partners.
- ✓ Gaining knowledge from the Japanese market.
- ✓ Engaging in substantive cooperation with local partners to bring diamonds integration to semiconductor industry.
- ✓ Making or attracting investments based on innovation
- ✓ Exploring the exchange of human resources to drive progress in the field of semiconductors.



# Come Meet with Us!



## **Taylan Erol**

CEO & CTO

UCLA & Sabanci University

Developed the first graphene-based OLED in the World.

Key researcher of technical department with many publications and experience on materials science.

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## **Mehmet Akalin**

Chief Business Innovator

Sussex & Sabanci University

Associate at Techstars Berlin.

Entrepreneur in Residence at Holland Startup.

Director at BIC Angels, invested into 23 startups, led 3 exits.

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