



HUMMINK

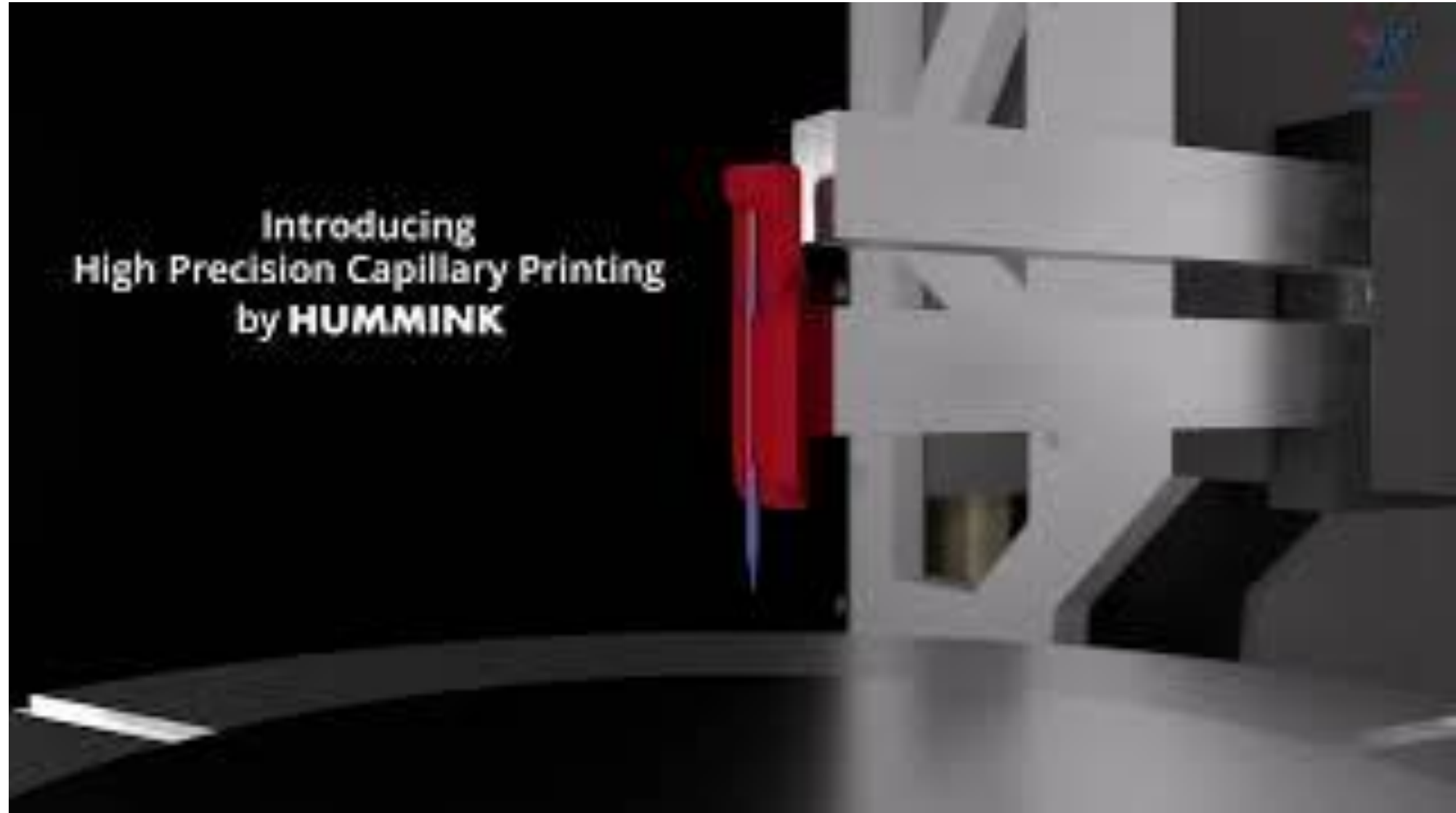
DREAM SMALLER

EPIC Online Tech. Meeting May 15th 2023
Amin M'Barki - CEO

IN BRIEF

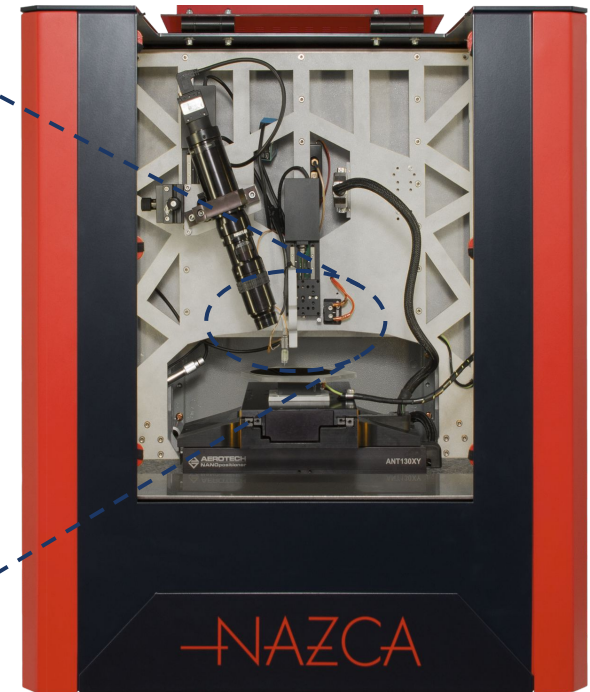
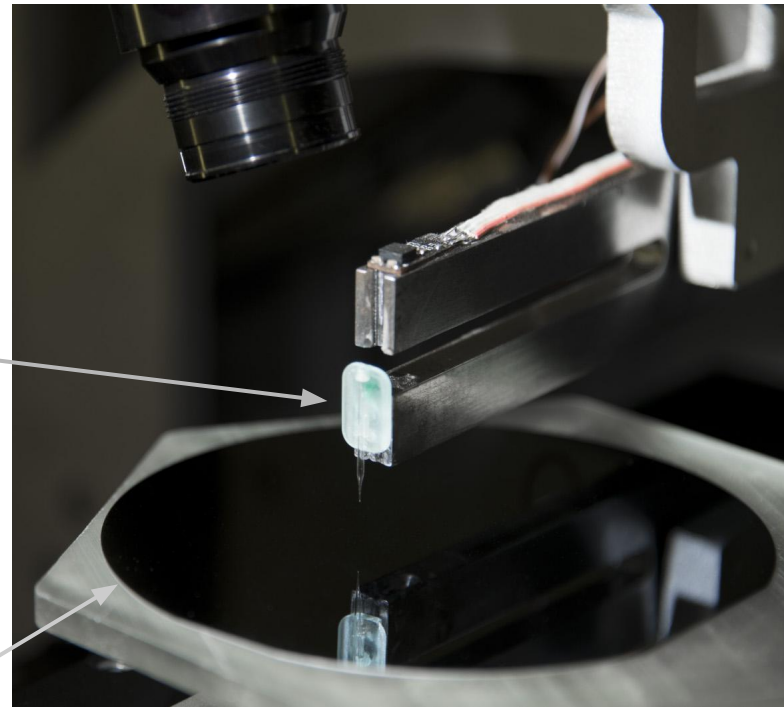
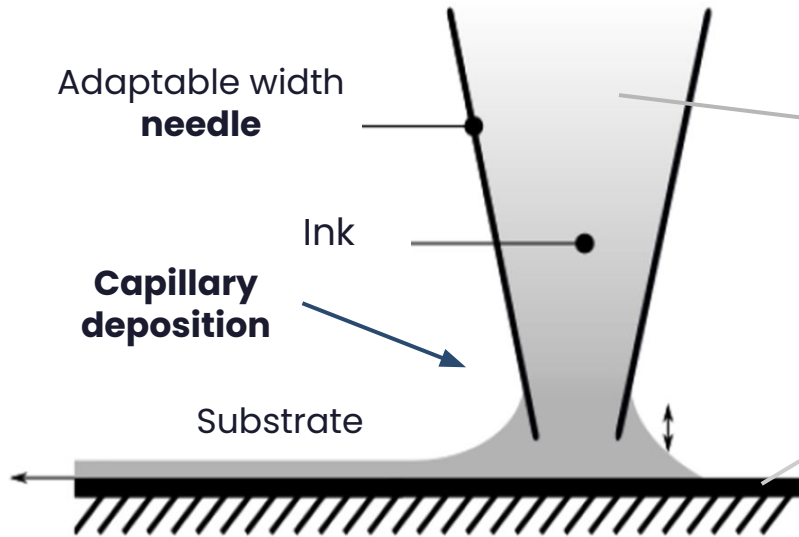
- Hummink is the leading developer and supplier of **High Precision Capillary Printing (HPCAP)**, a revolutionary technology for the display and semiconductor industry.
- Spun-off from world-renowned research institutes, the company is based in Paris, with representatives in key regions (Korea, US, Taiwan, Japan, Europe).
- After less than two years of existence, **Hummink already sold R&D equipments**, and is in advanced discussion with tier-one equipment makers to scale up the technology, and to **reach HVM capability by 2024**.
- Hummink is a **technology provider**, enabling customers to have access to both equipments and inks through a single partnership.

HPCAP



HIGH PRECISION CAPILLARY PRINTING TECHNOLOGY

Spun-off from world-renowned physics labs

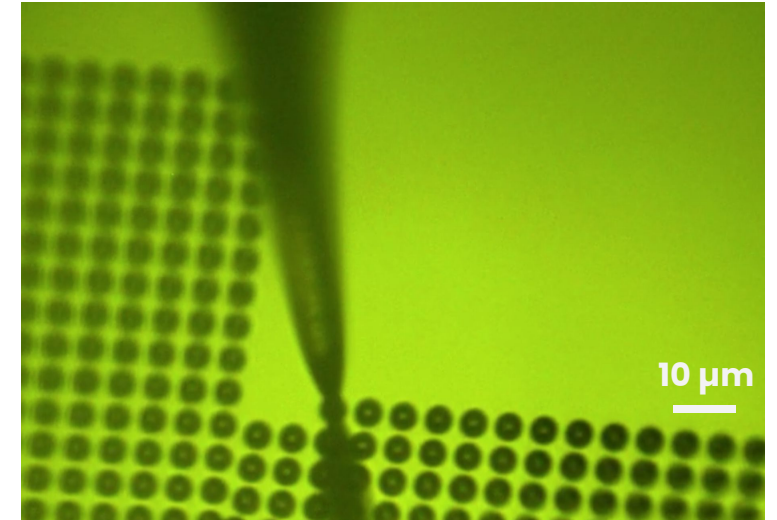
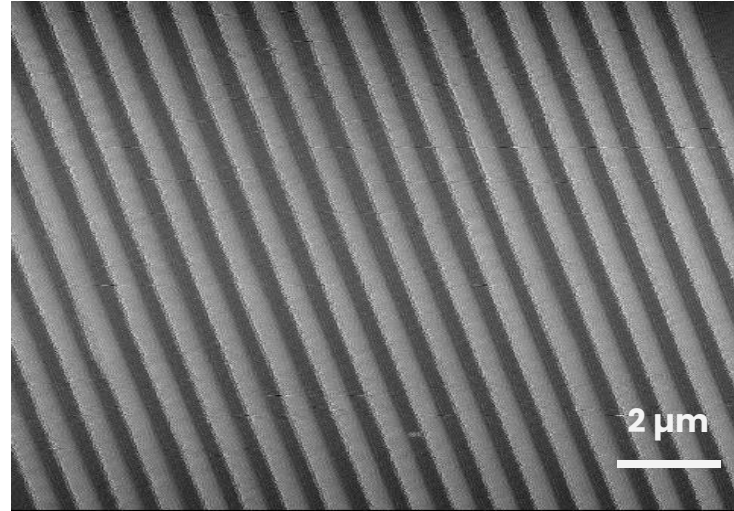


[YouTube Video](#)

UNIQUE FREEDOM OF DESIGN

Any Material

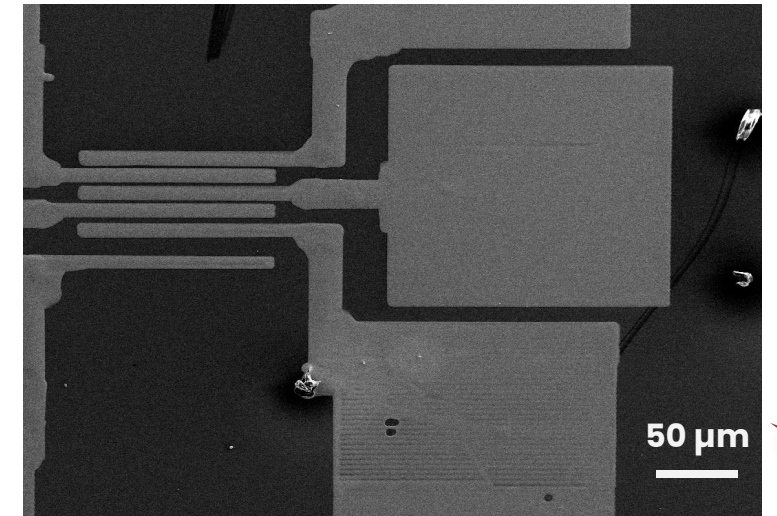
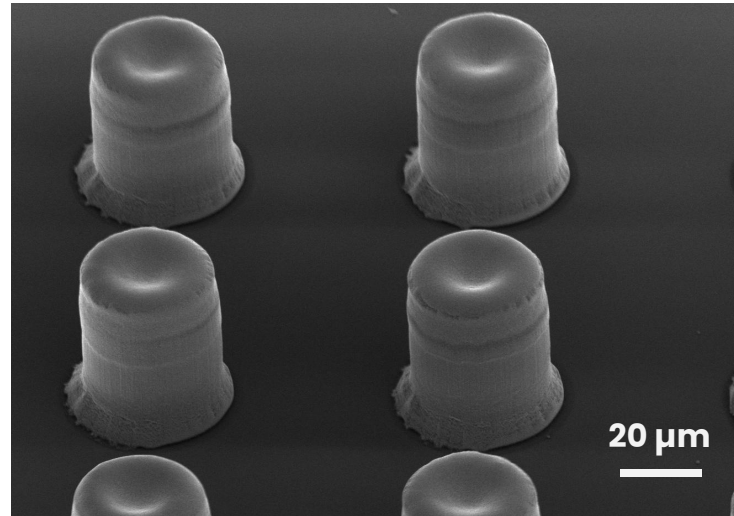
- 👉 Silver
- 👉 Copper
- 👉 Gold
- 👉 Graphene
- 👉 Polymers
- 👉 Quantum Dots
- 👉 Etc.



Any Shape

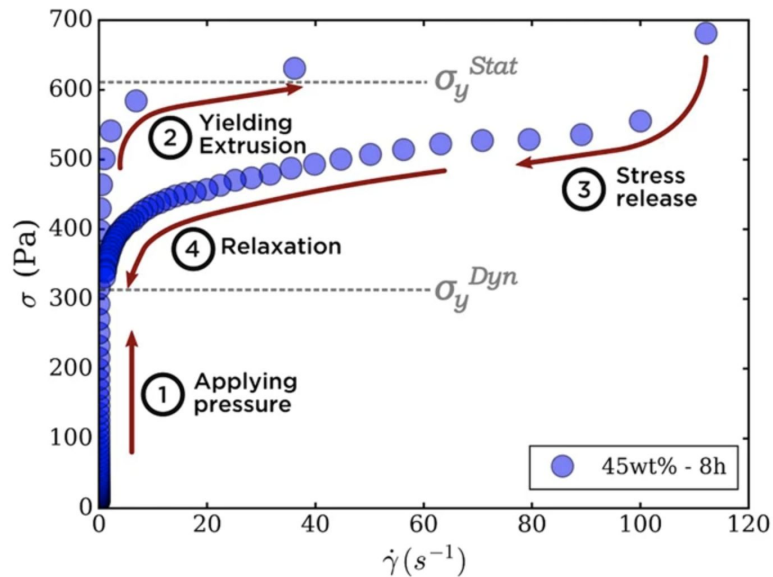
Any Surface

- 👉 SiO₂ Wafers
- 👉 Glass
- 👉 Flexible substrate
- 👉 Etc.



COMMON SENSE PHYSICAL LIMITATIONS

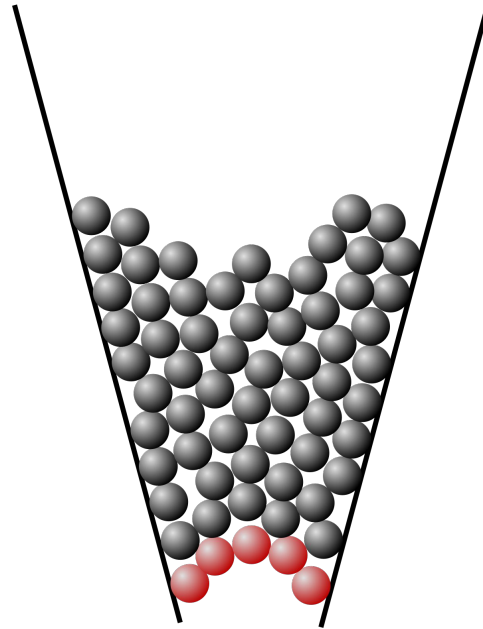
Rheology



Too high viscosity, gelifying solutions (etc.) will impact the liquid flow through the pipette

but Hummink can manage viscosities
up to 100,000 cP

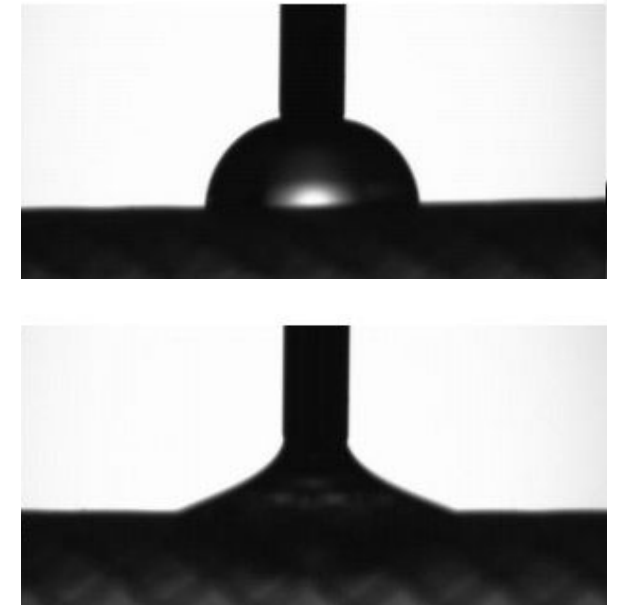
Particle size



Particle size $< 10\%$ of tip diameter
to avoid jamming

Hummink also develops **particle-free inks** to avoid such constraints

Surface energy



Deposition of hydrophilic solutions on
hydrophobic / super-hydrophobic
surfaces will impact resolution

HPCAP TECHNOLOGY APPLICATIONS

Market Size

100B\$

10B\$

1B\$

2022

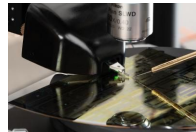
2024

2026

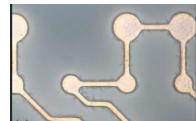
2028

Hummlink Readiness

Display Repair



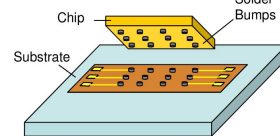
FOWLP Repair



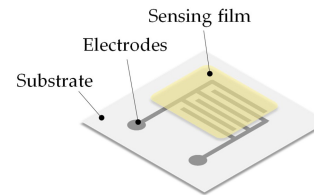
Watchmaking



Flip Chip



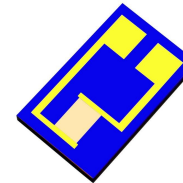
Chemical Sensor



Waveguide



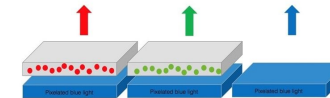
Biosensor



Anti Counterfeiting



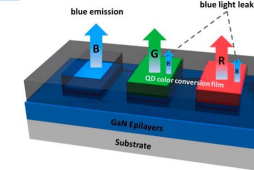
QLED, QNED



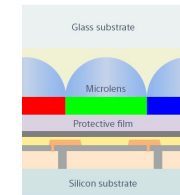
FOLED



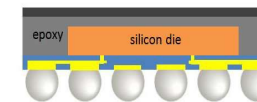
MicroLED



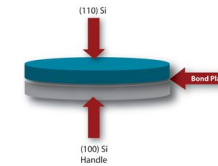
Microlens



FOWLP

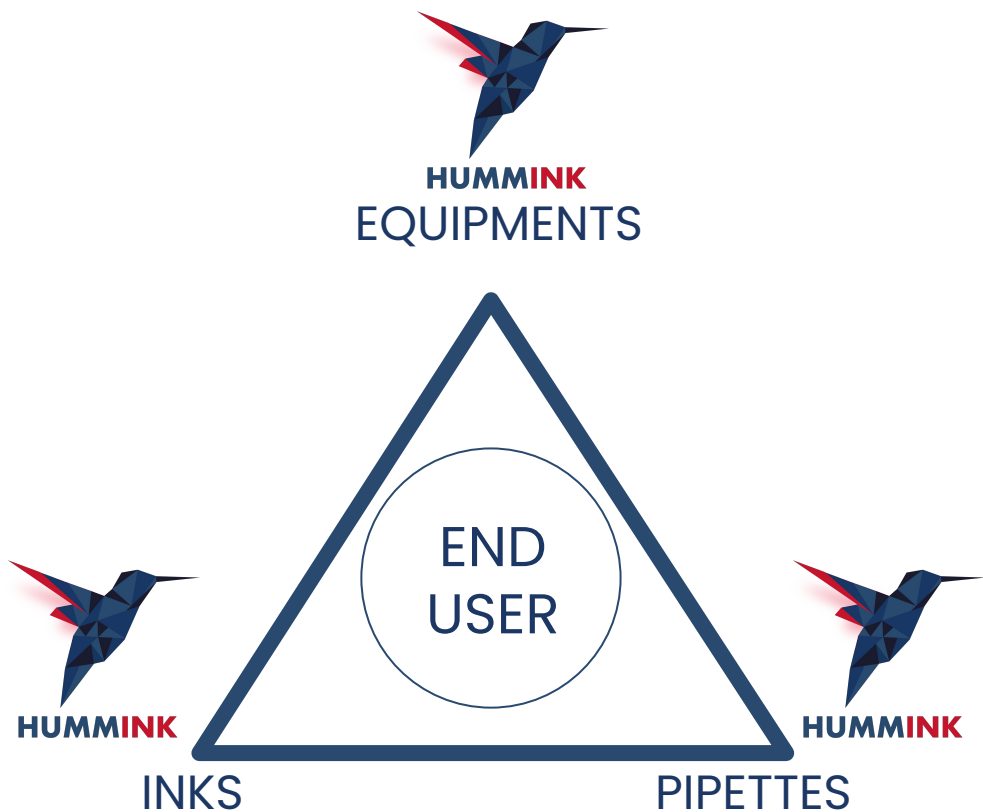


Wafer Bonding

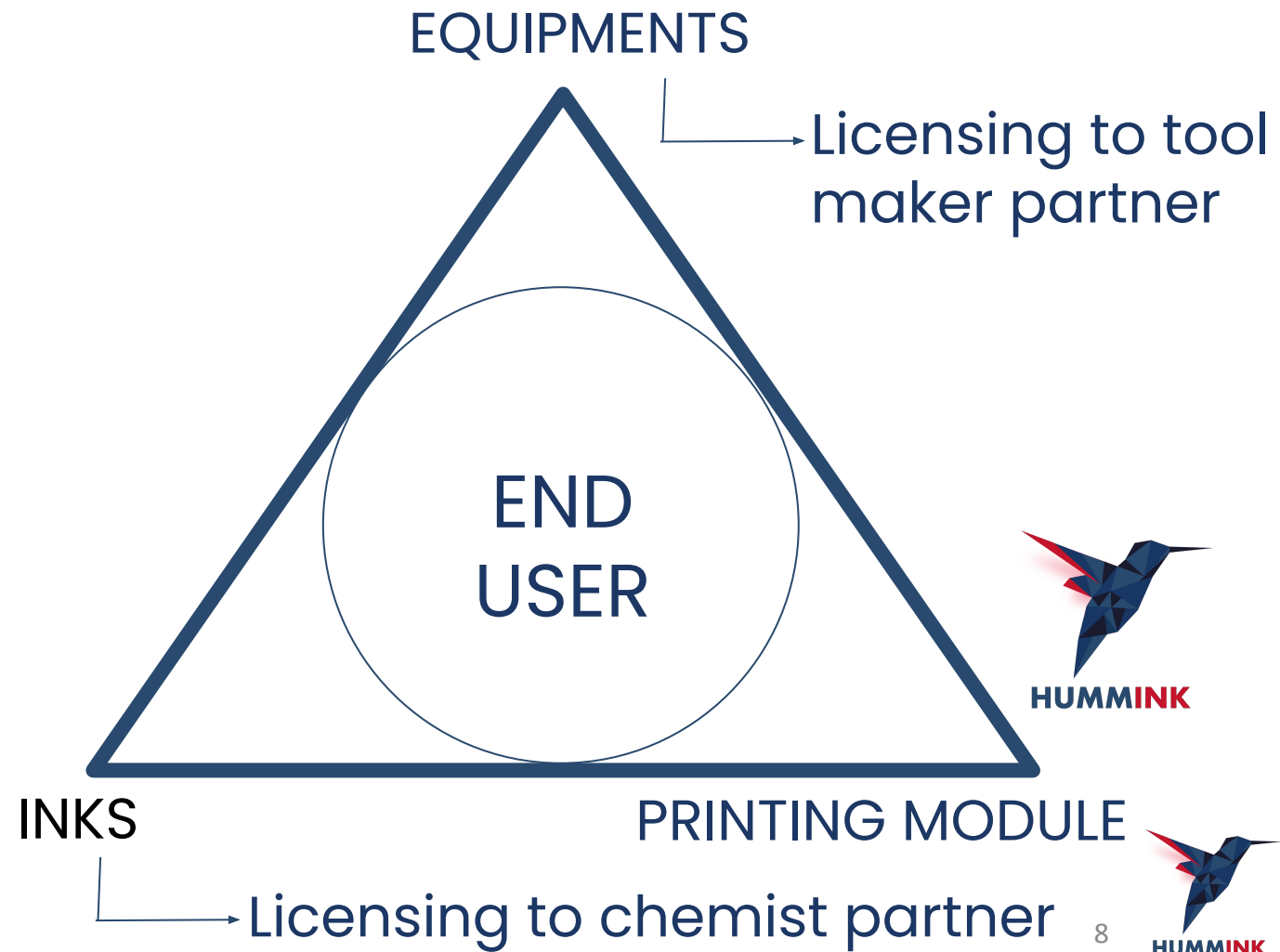


BUSINESS MODEL FOR SELECTED APPLICATION

R&D – Low Volume Production



High Volume Production



ONE TOOL TO RULE THEM ALL



- 👉 16 cm travel range
- 👉 100 nm printing resolution
- 👉 20 nm XY precision
- 👉 **Integrated AFM** for *in situ* characterization
- 👉 High magnification camera for **live feedback**
- 👉 Dedicated **user-friendly software**
- 👉 **Relative positioning assistance**
- 👉 **Compact** (table top machine, 70cm cube)
- 👉 No clean room needed

WE PROVIDE DEDICATED INKS & PIPETTES

Breaking the compromise between agility and miniaturization

THANK YOU!

contact@hummlink.com



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