

shaping global nanofuture

XTPL S.A. FINANCIAL RESULTS FOR 1H2021

XTPL S.A.  
September 28, 2021

# XTPL AT GLANCE



XTPL is a global player, developer and provider of **breakthrough and unprecedented technology** for electronics manufacturers, **enabling effective production of new generation devices**



Founded in **2015**, based in **Poland** and USA



**Interdisciplinary team** of experts, incl. **8 PhDs**



Listed on **WSE** (2019) and **FSE** (2020)



Supported by **stable shareholders**



Operates in the rapidly **growing printed electronics market**: CAGR **9%\***



Targeted and **effective strategy** focused on technology (incl. IP) and commercialization



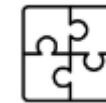
UPD technology **breaks down technological barriers** – current solutions could not be achieved by any other method



**IP regularly secured** by expanding the patent cloud - **23** patent applications



**Begun commercialization** and evaluation of the technology for industrial implementations with global players



**Platform character** of the technology with application in many existing sectors of printed electronics



**Secured financial liquidity**, incl. the ability to obtain grants

# AGENDA



1.  
EXECUTIVE  
SUMMARY

2.  
COMMERCIALIZATION

3.  
TECHNOLOGY

4.  
FINANCIAL RESULTS

5.  
SUMMARY

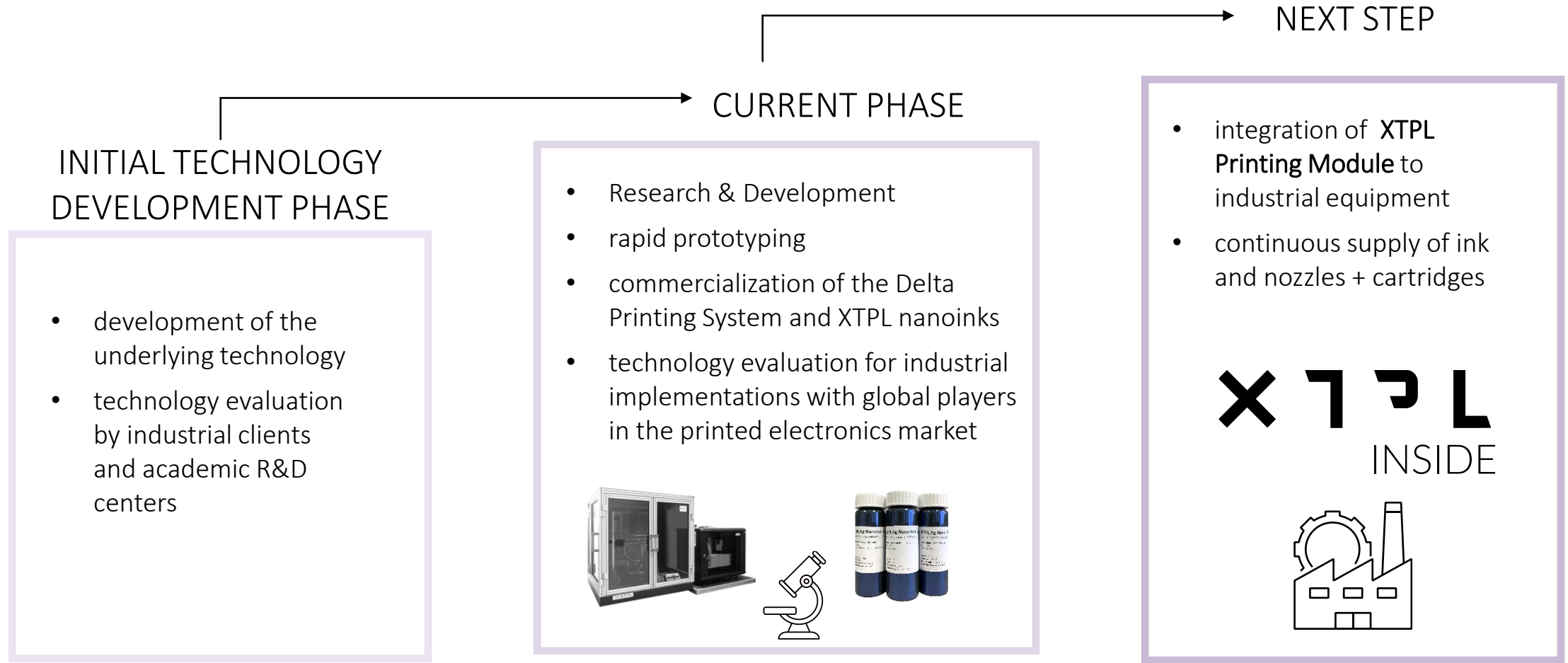
# EXECUTIVE SUMMARY



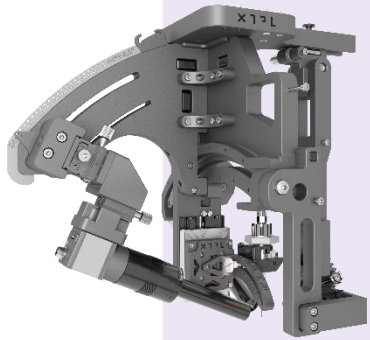
## H1'2021 – summary

- **commencing commercialization of solutions** - delivery of the printing device and sales of 7 nanoinks
- completing **9 technology evaluations** in terms of industrial implementations with global players of the printed electronics sector
- **breaking down further technological barriers** - increasing the competitiveness and uniqueness of UPD technology in terms of resolution ( $1\ \mu\text{m}$ ), width, time and application fields
- **3 new patent applications filed** - 23 patent applications in total - protection of technological solutions
- presence at international industry events and **showcasing solutions to industry leaders**
- **optimization of operating costs**





Microelectronics rapid prototyping possibilities to the feature sizes and applications previously unavailable to other printing techniques



**HIGH-RESOLUTION  
„EPSILON”  
PRINTING MODULE  
FOR INTEGRATION**

- printing module for integration with industrial equipment
- opportunities in the FPD, semicon and PCB areas
- use cases are focused on local high-precision additive jobs



**DELTA  
PRINTING  
SYSTEM**

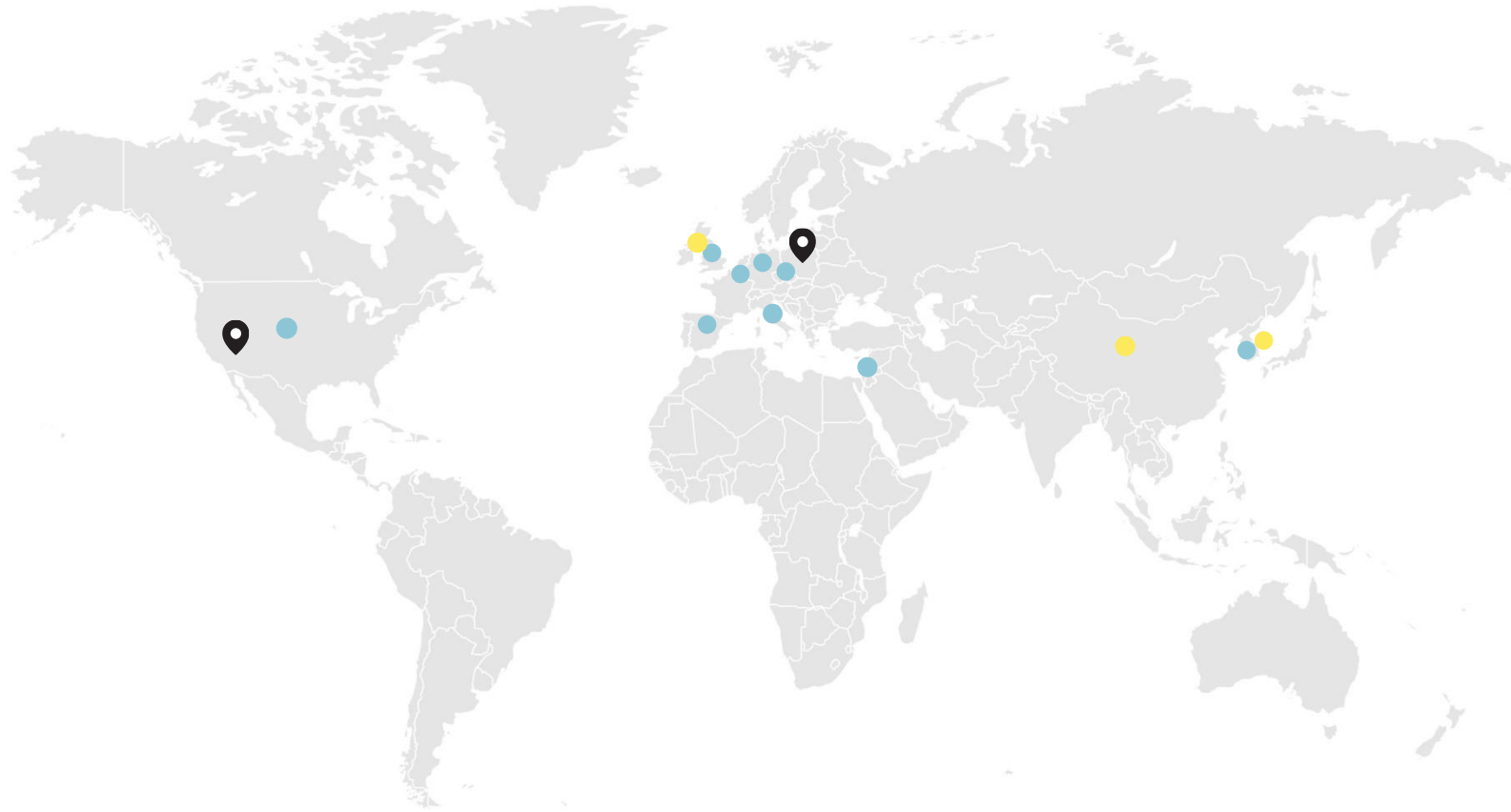
- stand-alone R&D and prototyping system
- first tool delivered to University of Stuttgart, Germany (Q1'2021)
- sale of a second tool to Karlsruhe Institute of Technology „KIT”, Germany (Q3'2021)
- next tools will be delivered to partners in the near future



**HIGHLY-  
CONCENTRATED  
NANOINKS**

- XTPL manufactures conductive inks
- silver products sold to academic and industrial partners globally
- copper and gold products under development

# GLOBAL RANGE OF ACTIVITY



XTPL office locations



Sales of XTPL products



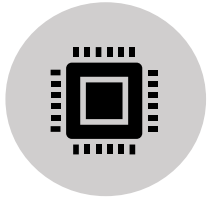
XTPL distributors

XTPL is based in Poland and in the USA (XTPL Incorporated).

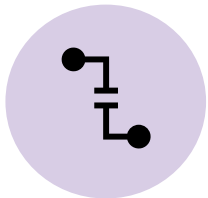
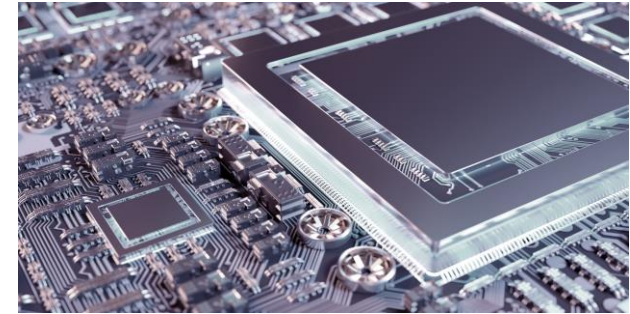
The Company is in talks with global players and is currently commercializing its products on the markets of North America, Europe and Asia.

XTPL acquired business partners in South Korea, China and British Isles.

# MEGA TRENDS OF THE ELECTRONICS MARKETS

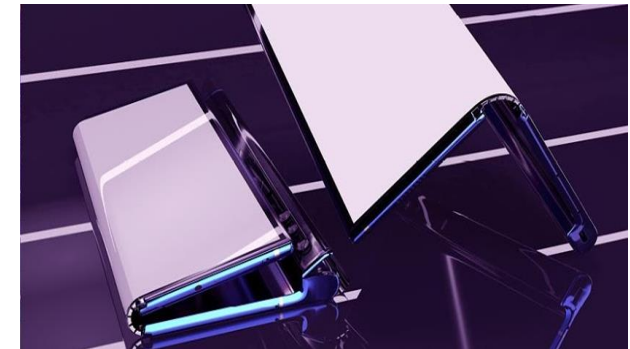


**Miniaturization** of the size and weight of electronic devices while increasing efficiency and speed of operation



**Changing the forms and properties** of consumer electronics :

- flexibility
- new shapes, including three-dimensional forms



**Ecology:**

- saving materials and energy during production processes
- reducing the amount of waste using additive technology



## ADVANCED ELECTRONICS

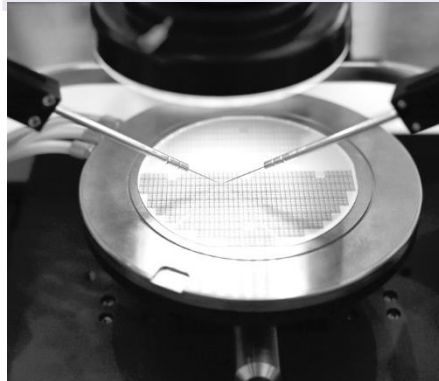
- **USD 41.2bn** - value of the global market of printed, flexible and organic electronics in 2020, up 11.0% YoY
- **USD 63.3bn** - estimated value of this market in 2025, with **USD 74.1bn** estimated in 2030
- **9.0%** - CAGR 2020–2025

### DISPLAYS



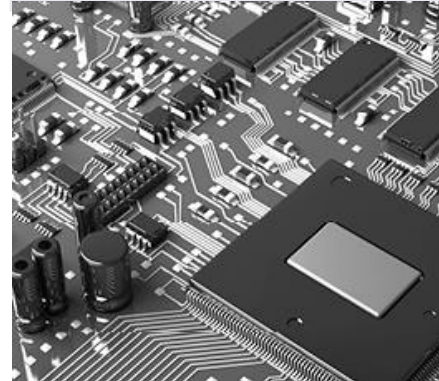
\$34.3 billion  
CAGR 2020-2025 10.2%

### ADVANCED INTEGRATED CIRCUIT



\$14.2 billion  
CAGR 2020-2025 5.8%

### ADVANCED PCBs



\$75.8 billion  
CAGR 2020-2024 4.3%

### SMART GLASS

\$3.8 billion  
CAGR 2020-2025 12.1%

### BIOSENSORS

\$25.5 billion  
CAGR 2020-2025 7.6%

### SECURITY PRINTING

\$106.3 billion  
CAGR 2020-2025 12.1%

### PHOTOVOLTAIC CELLS

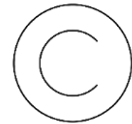
\$9.4 billion  
CAGR 2020-2025 3.7%

# COMMERCIALIZATION MODEL – CHANNELS



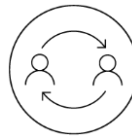
## DISTRIBUTION AGREEMENTS

Agreements with distributors are intended to support XTPL in the introduction of the Delta Printing System, rapid prototyping printer to the regional market and the offer of proprietary nanoinks, and at the same time it will allow reaching a wider group of potential customers in terms of a solution in the form of a printing head with a printing device for implementation industrial



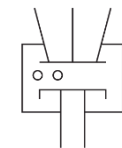
## LICENSING

- the company develops technological solution dedicated to a particular application field and license it to a partner
- on its basis, the partner builds devices that allow the technology to be used in the industry
- the company generates revenues from one-off license fees for providing the license, and recurring license fees (royalties) related to the sale of devices in which the developed technology is implemented; recurring revenues are also achieved from the sale of nanoinks



## STRATEGIC PARTNERSHIP

- the company develops technological solution dedicated to a particular application field; the solution is then commercialized in cooperation with a strategic partner
- the company enters into e.g. a joint venture agreement with the partner
- commercialization tasks are divided between the partners in accordance with their competencies and potential
- the company participates in profits achieved through the joint venture



## SALES OF PROPRIETARY PRODUCTS

Delta Printing System:

- the Company began the process of offering a UPD technology demonstrator for use in prototyping, R&D, and small-scale production
- In the following quarters, demonstration devices are to be supplied to trusted business partners for product evaluation and further improvement to reach commercial maturity

Nanoinks:

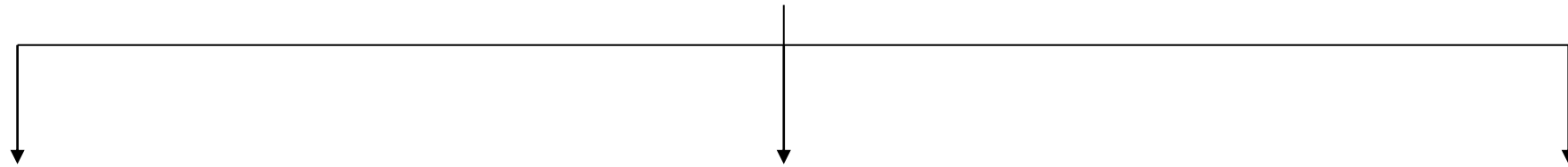
- the Company has developed a unique formulation of conductive ink to achieve the best printing parameters using the UPD technology on its basis, the partner builds devices that allow the technology to be used in the industry
- XTPL began offering this material to the clients using other additive methods in their work.
- the launch of sales of this product will ensure better market exploration, and will introduce the Company to new application areas that are attractive for its proprietary technology



# INTERNATIONAL BUSINESS PARTNERS



## XTPL DISTRIBUTORS



### BANDI CONSORTIA (South Korea)

XTPL has established cooperation with Bandi Consortia to support the commercialization of XTPL technology on the Korean market. The Korean partner will officially represent XTPL and strengthen the introduction of the XTPL technology offering into the FPD (flat panel display) and semiconductor industry on the local market. The companies started their first joint project in 2020. As a result, XTPL is involved in advanced technology evaluation for of the world's leading supplier of industrial tools in the FPD industry.

### YI XIN (China and Hong Kong)

XTPL is expanding its presence in the Chinese market by starting cooperation with Yi Xin Technology, who will distribute the Company's technological solutions in China. The Yi Xin Technology company specializes in additive technologies and the search for innovative solutions dedicated to the printed electronics segment. The new XTPL distributor has an extensive network of relationships with major Chinese research institutes and industrial manufacturers from the display, touch panel and semiconductor sectors.

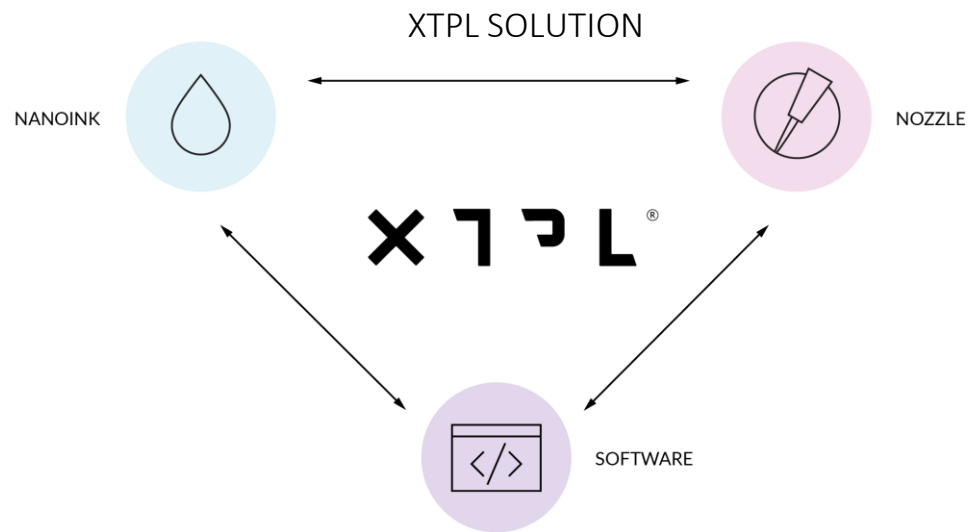
### Semitronics (British Isles)

XTPL intends to introduce its technology to the markets of Great Britain and Ireland. The Company started cooperation with Semitronics Sales Ltd, a highly-specialized distributor in this region. Thanks to the cooperation with Semitronics, XTPL technology and products will continue to gather momentum with innovative customers. The partnership will also increase awareness and visibility of the Company's innovative solutions among global market players.

# XTPL ULTRA-PRECISE DEPOSITION (UPD) MODULE



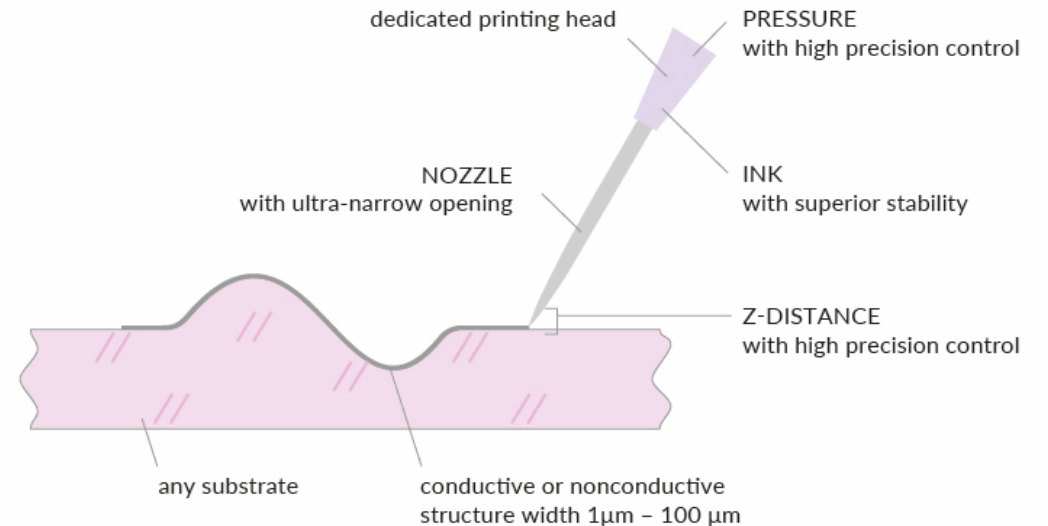
XTPL provides a breakthrough technology of nanoparticle deposition in the form of a head with a printing device and software. Dedicated for use on industrial production lines. It can be adapted to the needs of the customer.



In-house parallel development:

- nano-ink synthesis - dedicated high-viscosity inks
- nozzle preparation - flexible glass nozzle
- process optimisation

## XTPL ULTRA-PRECISE DEPOSITION (UPD) – MICRODISPENSING



- additive method
- no electric field required
- any substrate: conductive and non-conductive, planar and 3D
- **single microns feature sizes**

An innovative print head equipped with a unique (proprietary) algorithm along with dedicated nanoinks enables ultra-precise creation of conductive lines on a selected substrate (application field).

# HIGH-RESOLUTION „EPSILON” PRINTING MODULE FOR INTEGRATION

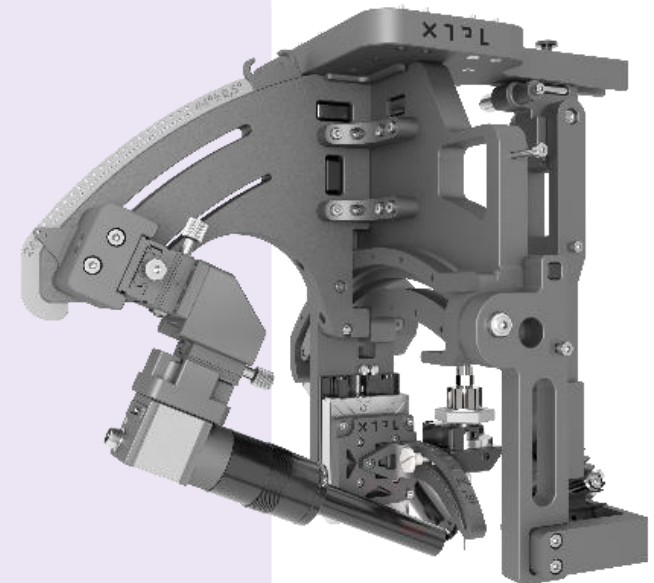


## Goal:

- printing module for integration with industrial equipment
- thanks to the integrability of the Epsilon Printing Module, industrial integrators and end-users can benefit from the new capabilities of printing high-resolution functional structures with ultra-high-density

## Basic information:

- innovative printing head with compatible nanoinks enables ultra-precise creation of conductive lines on the selected substrate (application field)
- opportunities in the FPD (ang. flat panel display), semicon and PCB areas
- use cases are focused on local high-precision additive jobs
- integrates all functionalities required by XTPL® ultra-precise deposition technology, together with electronic control and the proprietary XTPL® UPD Process Control Software suite



# CURRENT INDUSTRIAL PROJECT PIPELINE

(only projects in Stage 2 and above shown)



PROJECT NAME	INDUSTRY AND GEOGRAPHY	PARTNER / END-USER	STAGE 0 Base-technology development at XTPL	STAGE 1 Initial contact and identification of the problem-solution fit	STAGE 2 Technology Evaluation / Development at XTPL site	STAGE 3 Technology Validation at Partner site	STAGE 4 Industrial Prototype Tool	STAGE 5 Industrial "Roll-out"
OLED 1.0 um ODR Repair	FPD Korea	Leading consumer electronic manufacturer				Initial discussions		
TE-OLED	FPD China	Leading electronic components producer				Initial discussions		
microLED Interconnect Repair	FPD China	Global provider of ICT infrastructure and smart devices						
★ microLED In Depo	FPD USA	Multinational technology company						
microLED CCL	FPD USA	Leading semiconductor chip manufacturer						
WLP Precision Via Fill	Semicon Taiwan	Global semiconductor foundry					Initial discussions	
High-resolution Printed RDL	Semicon China	Leading global provider of ICT infrastructure and smart devices						
Prototyping of ICs interconnections	Semicon USA	Microcontroller and integrated circuits manufacturer						
★ Silicon-Through VIA FILL	PCB EU	Leading semiconductor chip maker						

# DELTA PRINTING SYSTEM



## Goal:

- XTPL technology demonstrator
- building the credibility of XTPL in the industry by key opinion leaders (an industry expert) and raising awareness of the XTPL technology
- technology validation at the partner's site
- identifying new application areas for the XTPL technology and discovering new application fields
- reference visits

## Key information:

- an independent R&D system for rapid prototyping using XTPL's® UPD technology
- product developed in 2020
- client groups: industrial R&D units, scientific institutions, integrators\*
- first product delivered to the University of Stuttgart, Germany
- second product sold to Karlsruhe Institute of Technology „KIT“, Germany



## Market size:

Global annual sales of printers for R&D, rapid prototyping and small-lot production in the area of broadly understood printed electronics amount to approx. **250–500** devices.

The price of those printers ranges from **EUR 50 thousand to more than EUR 500 thousand** per device.

# DELTA PRINTING SYSTEM: COMERCIALISATION AND PIPELINE\*



Until the first industrial implementation, the company decided to sell its products in the form of a printer and nanoinks in order to start generate cash flows from operating activities

OFFER MADE TO A POTENTIAL CLIENT	DEMO PROJECTS AND NEGOCIACIONS	SALES CONTRACT SIGNED** AND PRODUCT DELIVERED
15	21	1

Delta Printer price: approx. EUR 150-170 thousand / PLN 675-765 thousand

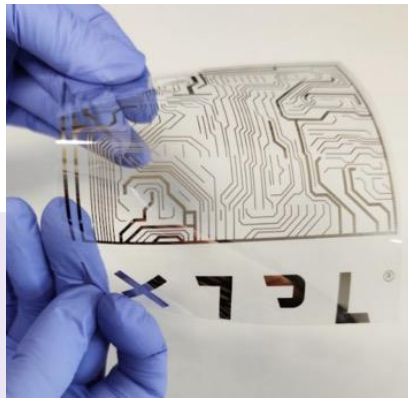
## Key milestones:

- product developed in 2020
- **first device delivered to the University of Stuttgart, Germany**
- **second device sold to Karlsruhe Institute of Technology „KIT“, Germany (Q3’2021)**
- business Development Team formed
- commercialization process in place

Each printer sold should generate monthly revenues from the sale of consumables, as well as system maintenance and upgrades.



# XTPL NANOINKS

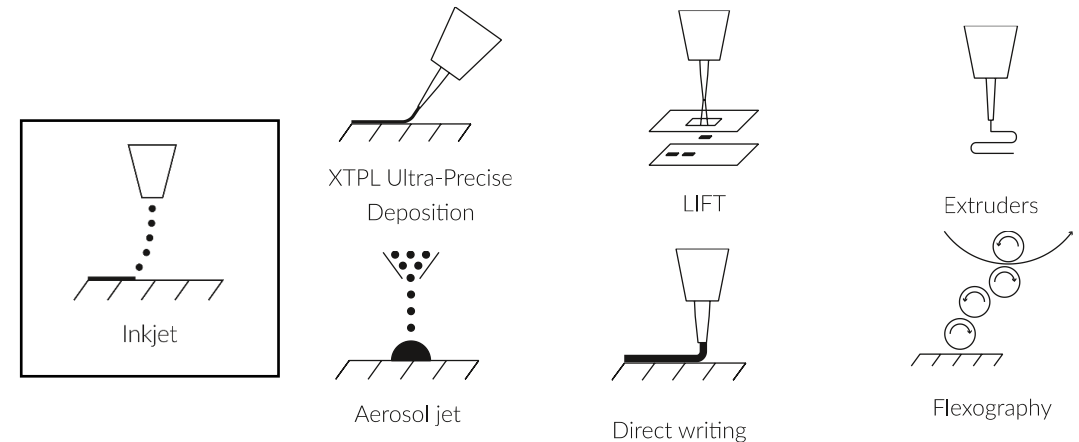


## Key information:

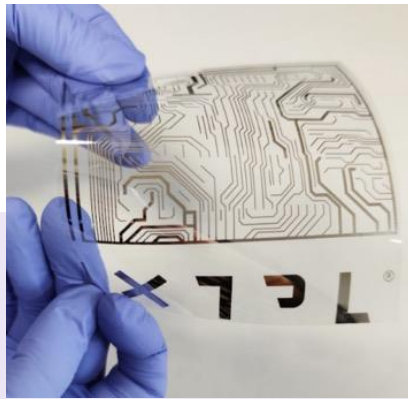
- high-yield, conductive nanoinks with silver content for printed electronics, developed by XTPL's in-house R&D department.
- inks protected by patent applications
- client groups: industrial R&D units, scientific institutions
- XTPL nanoinks are tested by many R&D units in Europe – products delivered to industry and academic centers (50:50)

## Inks dedicated to different technology types:

- they have dedicated physicochemical properties enabling full utilization of the UPD method's potential
- the inks are products that can be commercialized separately
- developed ink formulations dedicated to the most comprehensive printing techniques, such as Ink-jet and Aerosol Jet Printing



# NANOINKS: COMERCIALISATION AND PIPELINE\*

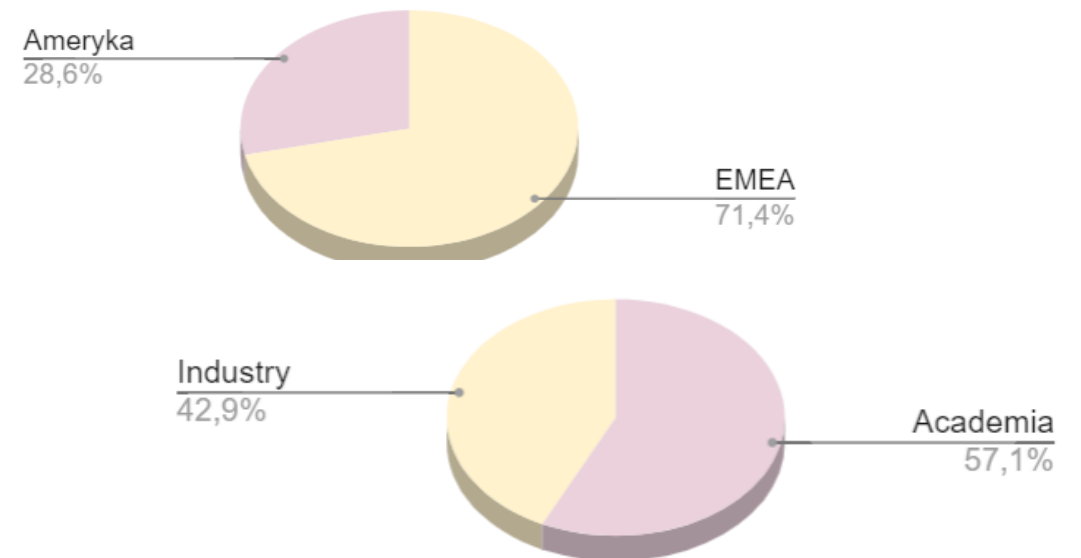


## Key milestones:

- 7 independent orders from the EMEA region and USA
- Business Development Team formed
- commercialization process in place
- enriching the offer with IJ36 ink intended for inkjet printing
- nanoinks sections implemented on the website
- product ads launched

OFFER MADE TO A POTENTIAL CLIENT	SAMPLE SENT TO POTENTIAL CLIENT AND NEGOTIATIONS	SALES CONTRACT SIGNED** AND PRODUCT DELIVERED
17	5	7

## Ink sales 1H 2021



# WHAT OUR CLIENTS SAY ABOUT XTPL NANOINKS



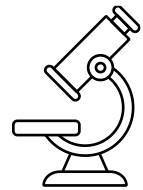
„We are really positively surprised by the high jetting stability and the non-clogging capabilities of your ink formulation, which made printing easy. The performances in terms of electrical conductivity are good as well and in line with what we expected.”

“I printed wonderful narrow tracks with IJ36 and 1 pL cartridge on Polyimide”

„First of all, Ag Nanoink IJ36 doesn't dry in the printhead so we are able to continue printing even after 2 weeks pause. Next, the excellent wettability of this ink on PC foil eliminates the need of substrate pre-treatment. The waveform provided by XTPL is well-optimized.”

“We were impressed with the height of the structures we could achieve with XTPL Ag Nanoink IJ36 after already a single pass printing (even 200 nm high). Importantly, the jetting of the inkjet ink from XTPL is efficient with both 10 pL and 1 pL Dimatix cartridges, so we are now able to obtain high quality patterns of higher resolution with inkjet. With an ink like that, we can concentrate on research, and not on the problems arising around printing itself.”

*Prof. Dr. Gordon Elger*



„We were looking for a high viscosity conductive ink for our microdispensing setup with very small nozzles (<10 µm opening). XTPL Ag Nanopaste CL85 has proven itself perfectly in our applications, where our goal is to print fine conductive features underneath 10 µm size. Normally we can print with other pastes only for a very short time due to nozzle clogging, but with XTPL Ag Nanopaste CL85 we are able to achieve long printing times without any interruptions.,,”

*Additive Manufacturing – Polymers and Multimaterials Group, Laser Zentrum Hannover e.V.*

“With Ag Nanopaste CL85 we are able to improve printing resolution with respect to other inks with high solid content and the surface of the obtained printed patterns is really smooth.”

*Prof. Juan Marcos Fernández-Pradas*

*MIND Research Group (Micro and Nanotechnology and Nanoscopies for Electronic and Electrophotonic Devices), University of Barcelona*

# TECHNOLOGY AND R&D – SUMMARY OF H1'2021



- development of Ag ink formulations dedicated to various printing techniques, notably **XTPL INKJET INK IJ36** technique
- extension of the replaceable nozzle's life to **more than 60 days**
- development of the technique of printing XTPL features up to a **width of 1 µm** on various substrates, including high-resolution OLED displays
- development of the technique of printing XTPL features up to a width of 1 µm on delivery of structures printed with client-supplied material based on **quantum dots** – ink provided by an industrial partner
- **filling openings in semiconductor structures** using a selected material – connections between layers in advanced integrated circuits – TSVs (Through Silicon Vias), and filling gaps in insulating layers created at the production stage.
- printout on a **350 µm** step
- development of the **copper** and **gold** XTPL Nanopastes

In 2021, XTPL actively participated in the following international industry events

- XTPL technology webinar - Poland
- innoLAE 2021 Innovations in Large-Area Electronics - UK
- LOPEC - Germany
- Internano - Poland
- Ceramic Interconnect and Ceramic Microsystems Technologies (CICMT) - USA
- Smart Systems Integration - Germany
- Display & Touch Industry Conference - China
- Printed, Flexible, Hybrid, & InMold Electronics - Germany
- Display Week – USA
- International Conference on Display Technology - China

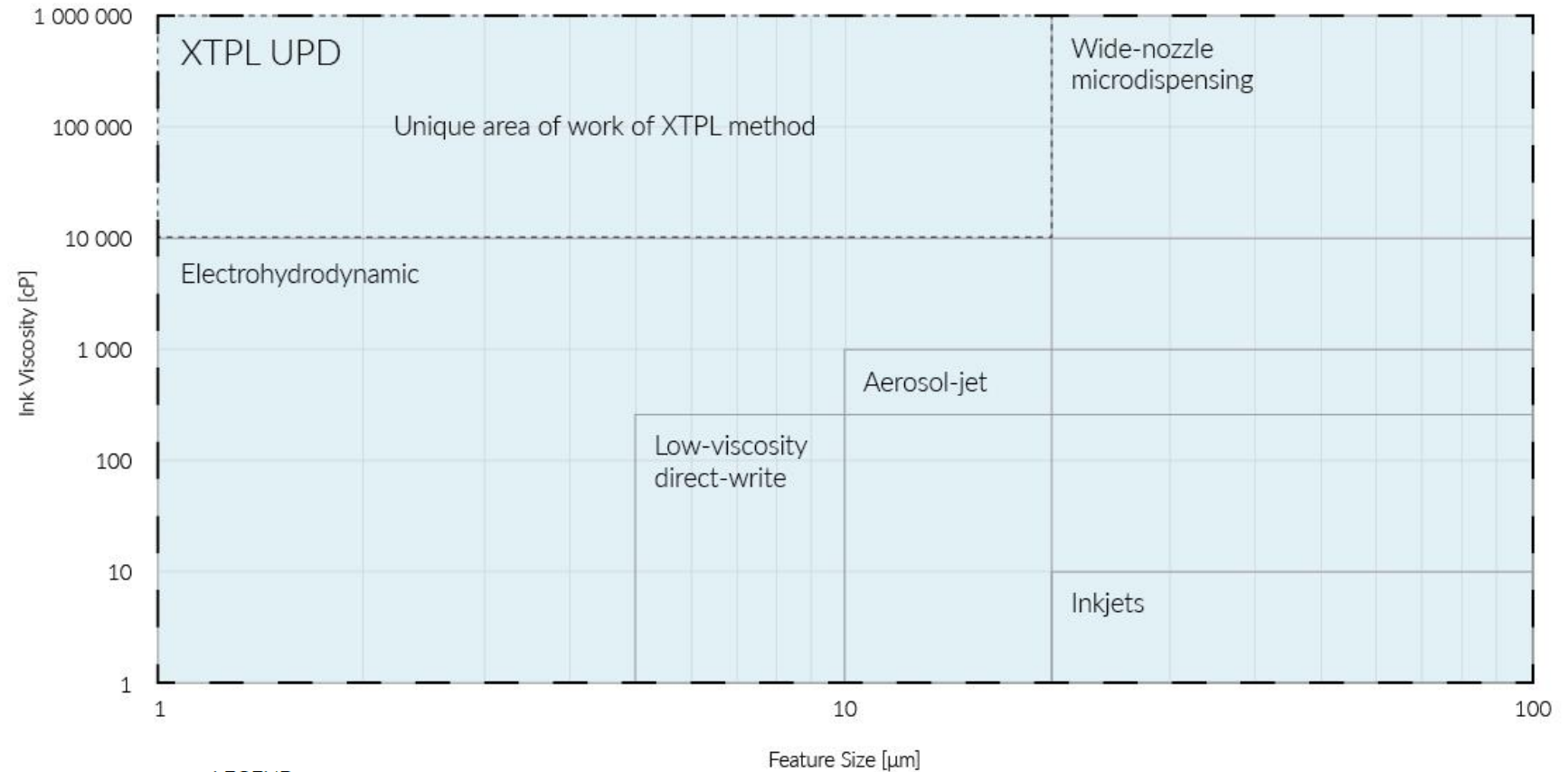
The events are an excellent opportunity to showcase the unique XTPL technology to leading representatives of industry and science from around the globe.

# THE UNIQUENESS OF THE XTPL ULTRA-PRECISE DEPOSITION TECHNOLOGY



The XTPL technology stands out from other methods in terms of both viscosity and structure sizes, which makes it unique on the market

- ability to print high viscous materials along with small feature sizes
- high aspect ratios just after a single pass
- matchless variety of printing different materials
- uninterrupted interconnections on highly complex topographies
- ultra-high-resolution printing on practically any kind of substrate



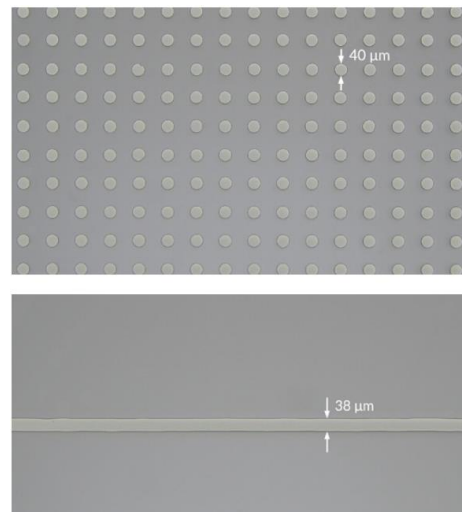
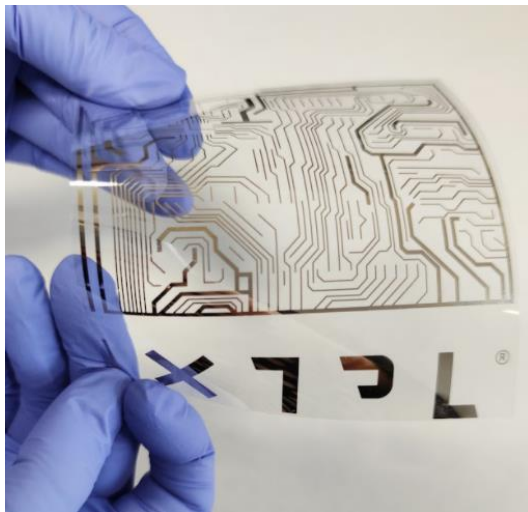
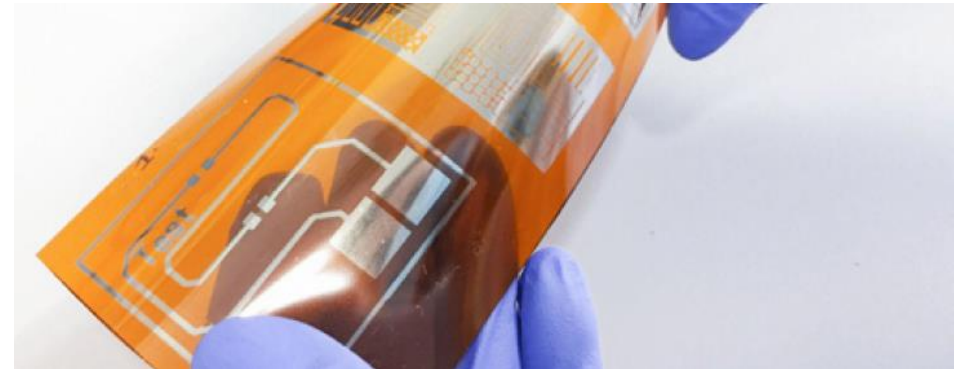
#### LEGEND:

- unique area of work where there are no competitive methods exists
- — general area of work of XTPL

# XTPL INKJET INK IJ36

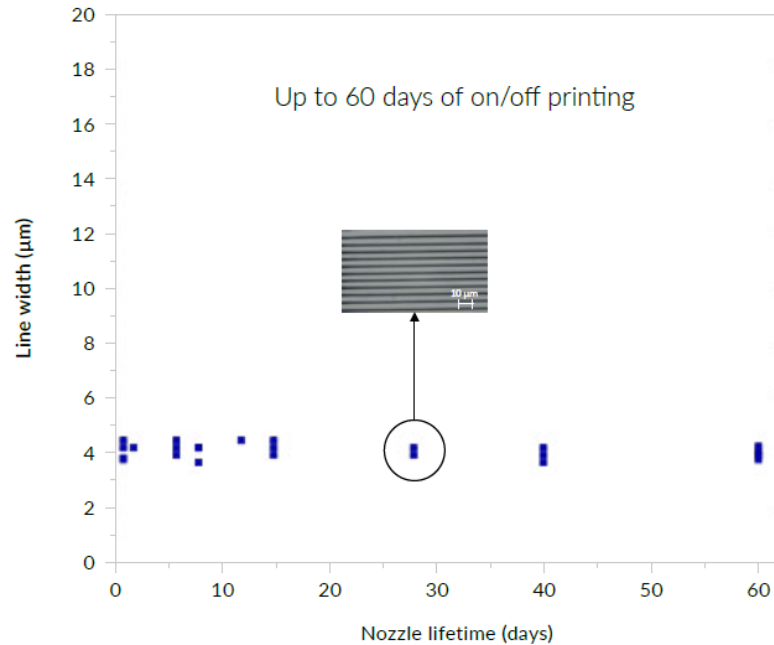
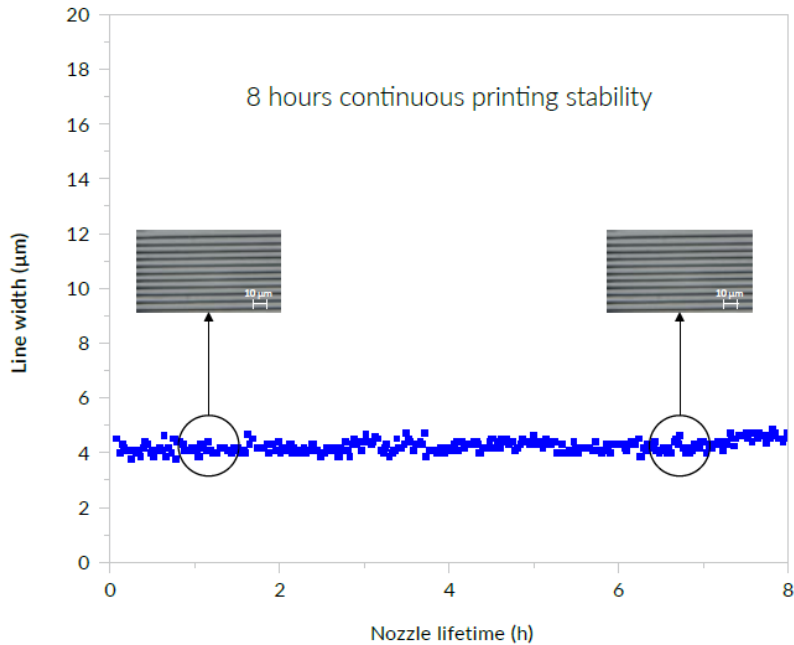


- superior printing stability - over 1 month of continuous work with repeatable results
- reduced clogging of the nozzles - even with the smallest 1 pL cartridges available for Dimatix DMP-2850 Printer
- high electrical conductivity - over 40% of bulk Ag conductivity
- compatibility with various substrates - on e.g. Kapton 500HN, PET, PEN, PEI, Glass substrates



Silver content (wt. %)	32 ± 2
Density [g/cm <sup>3</sup> ]	1.2 - 1.4
Average nanoparticles size [nm] (TEM)	35 – 50
Shape of nanoparticles	Spherical
Electrical resistivity [Ω.m]	3.95 · 10 <sup>-8</sup>
Viscosity (25°C, shear rate = 0.2 s <sup>-1</sup> ) [cP]	26 – 30
Surface tension [mN/m] (25°C)	30
Solvent(s)	Glycol ether

# EXTEND THE LIFETIME OF A REPLACEABLE NOZZLE TO 60 DAYS



## SUPERIOR PRINTING STABILITY

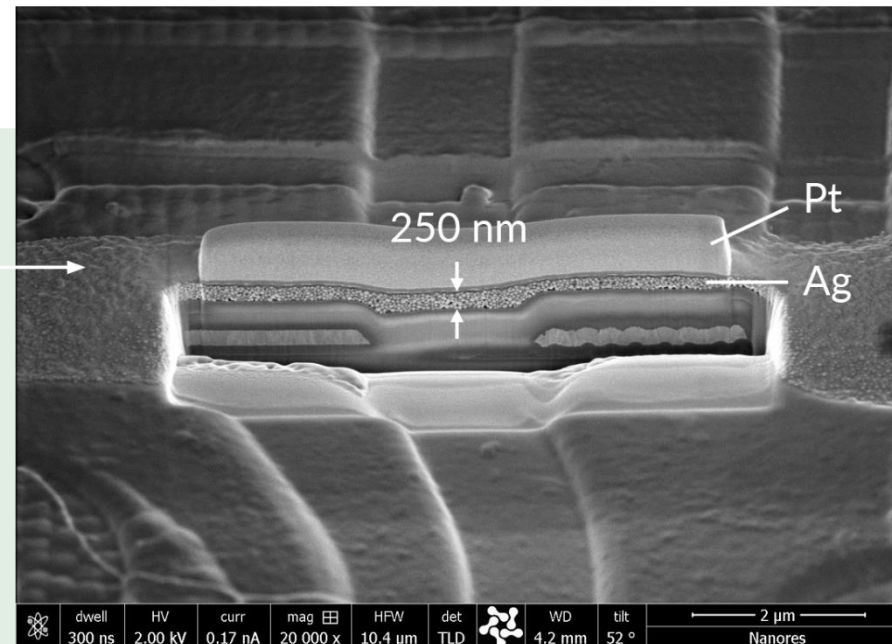
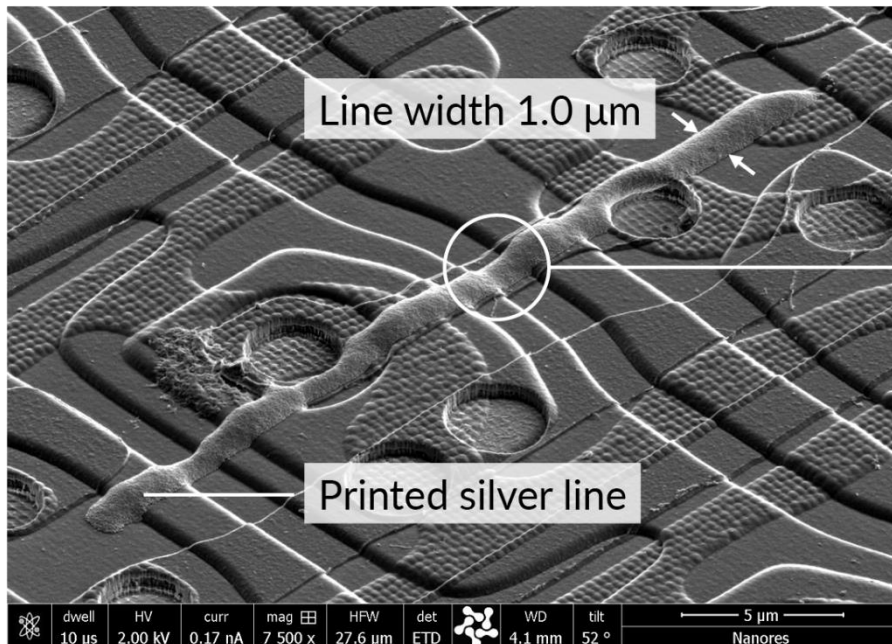
The users of XTPL Printing System benefit from a demonstrated best-in-class printing stability: sustained 8 hours of continuous printing, and up to 60 days of on and off printing with XTPL CL85 conductive silver nanopaste.

# DEVELOPMENT OF THE TECHNIQUE OF PRINTING FEATURES UP TO 1 $\mu\text{m}$ WIDE



Achievement of a very high degree of repeatability of **1  $\mu\text{m}$  wide** conductive lines printed on the electrical layer of high-resolution OLED displays. These substrates have very complex topography due to the high number of layered conductive paths manufactured during the production process.

The confirmed technological capability of depositing 1  $\mu\text{m}$  wide conductive lines, unachievable before by any other method, in a repeatable manner increases technological readiness of the XTPL solution to repair open defects in electrical structures of new generation OLED displays.



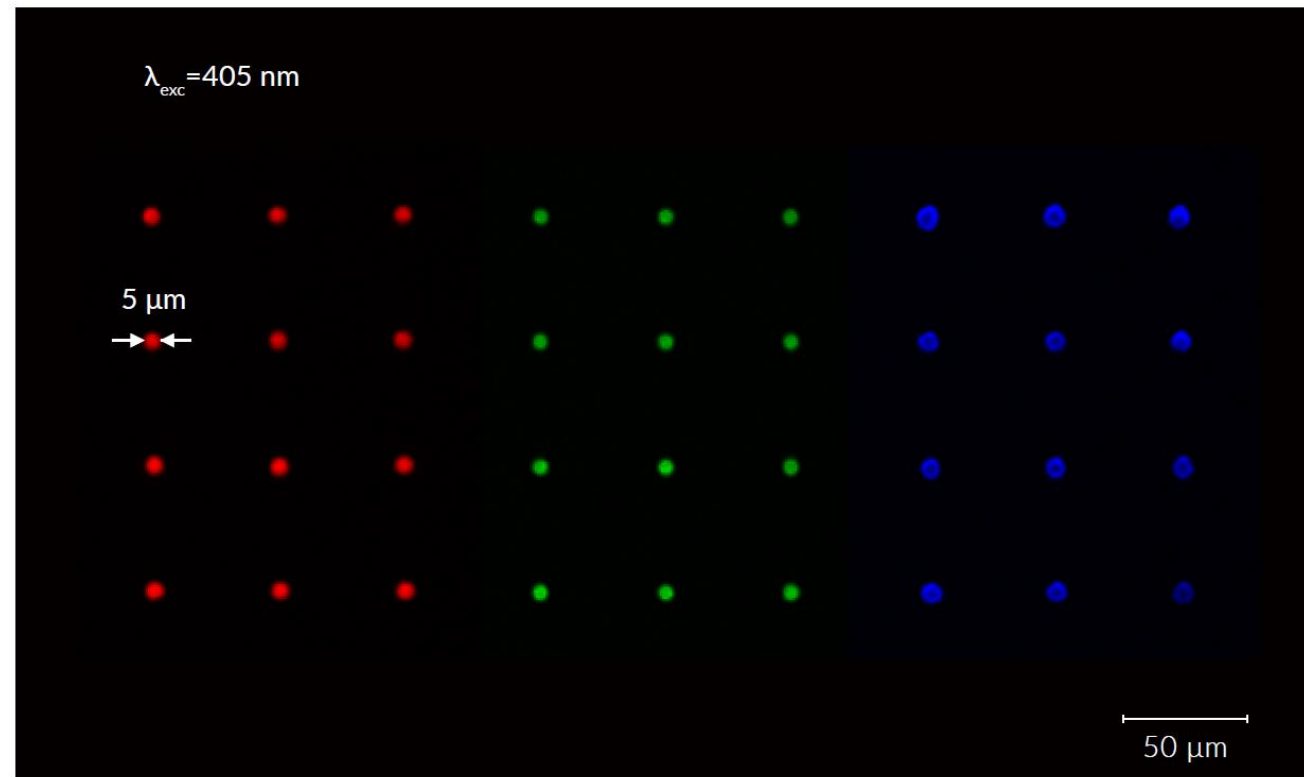
# MICRODOTS PRINTING



Quantum dots: QNA.dots

Viscosity:  $\approx 20$  cP

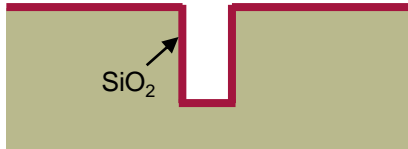
Quantum dots based INK (QD supplied by commercial partner), dispensed with XTPL<sup>®</sup> UPD printing technology and using XTPL<sup>®</sup> Delta printer.



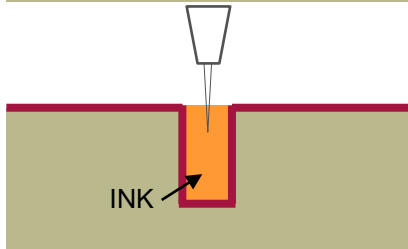
# MICRO VIA FILLING – TSV RDL APPLICATION



## XTPL approach of via filling



No special requirements for preparation the via before filling

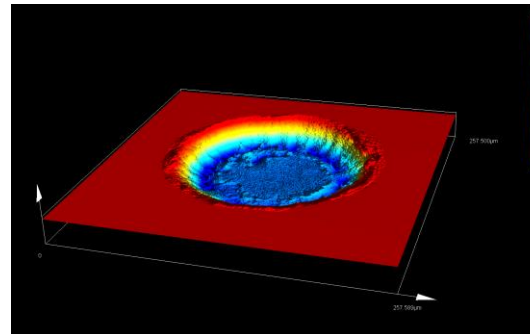


Deposition the ink (conductive or insulating) directly to the via without overflow

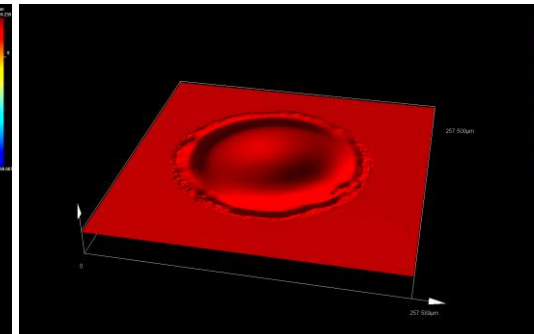


Annealing according to the recipe dedicated to the ink

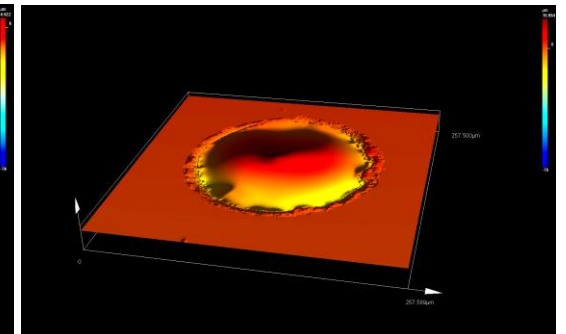
### EMPTY THROUGH SILICON VIA



### VIA FILLED WITH INSULATING INK



### VIA FILLED WITH CONDUCTIVE INK



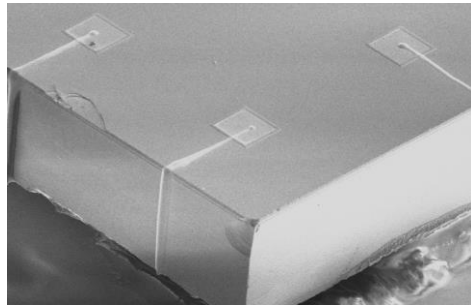
- Via parameters:  
depth: 80  $\mu\text{m}$   
diameter: 150  $\mu\text{m}$

- Via fully filled with insulating ink without overflow and uncontrolled ink flow
- Annealed at 200  $^{\circ}\text{C}$

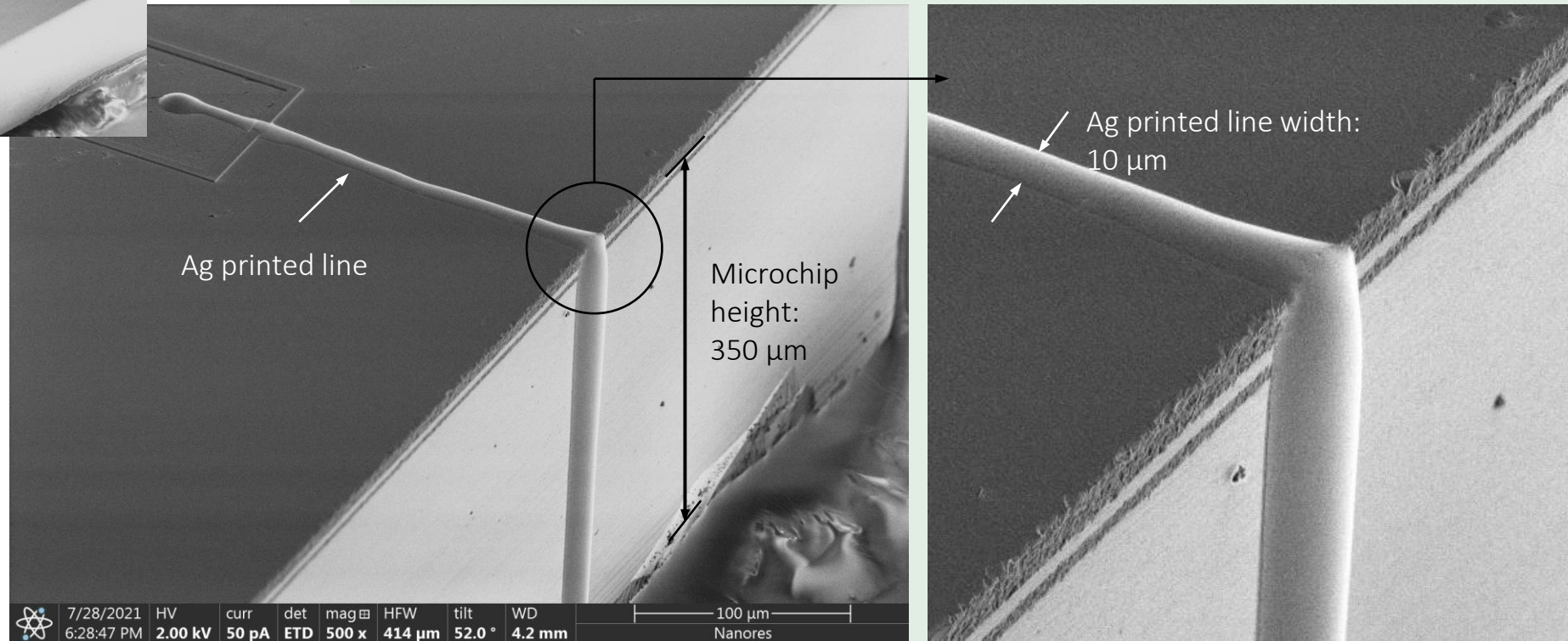
- Via fully filled with conductive silver based XTPL CL85 ink without overflow and uncontrolled ink flow
- Annealed at 225  $^{\circ}\text{C}$

# 3D INTERCONNECTIONS

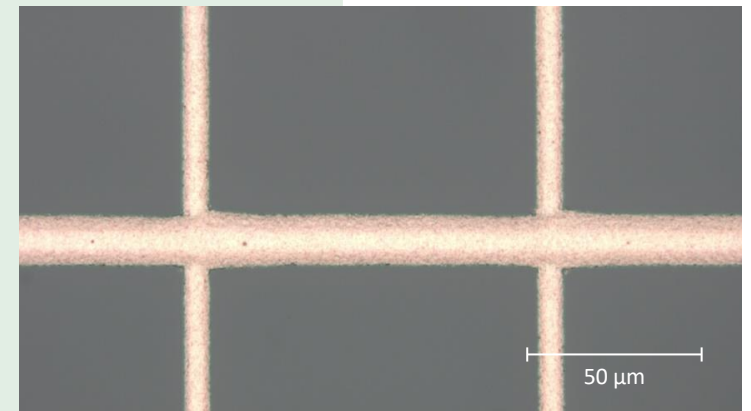
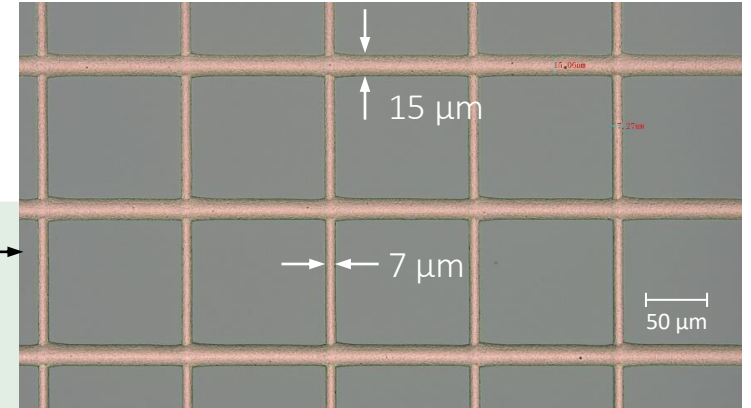
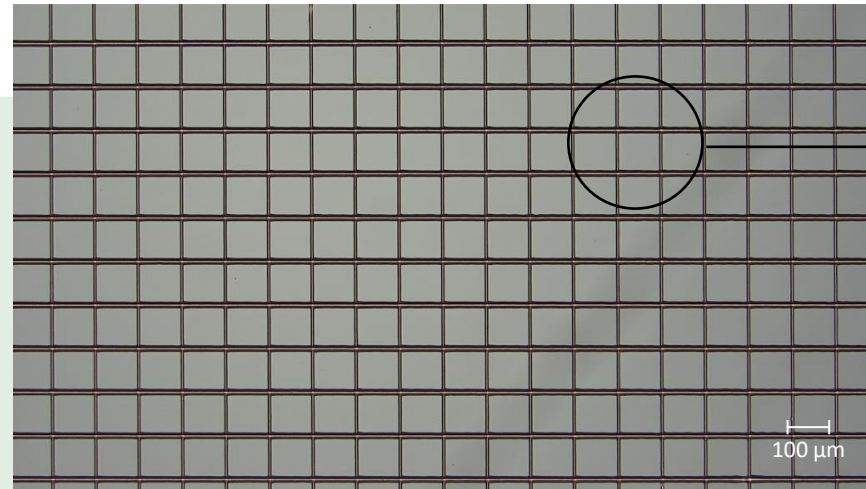
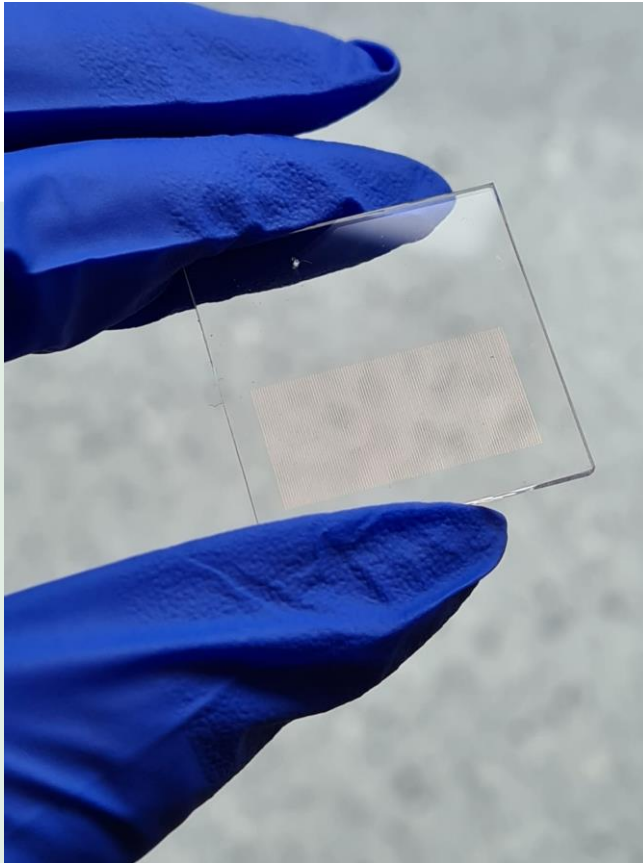
Microchip 350  $\mu\text{m}$



Printout of conductive connections on steep slopes of a step (e.g. microchip) 350  $\mu\text{m}$  high



# XTPL Cu NANOPASTE DEVELOPMENT – PRINTING PROCESS

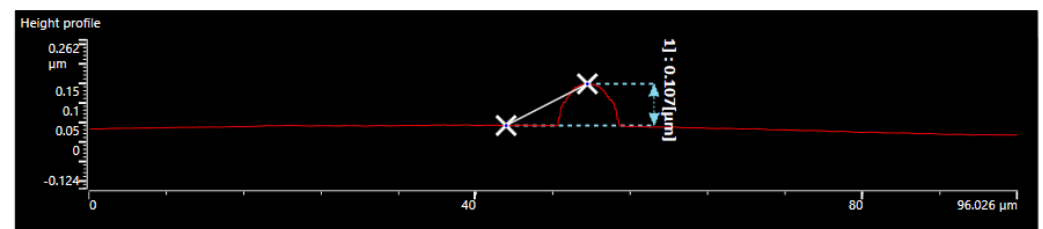
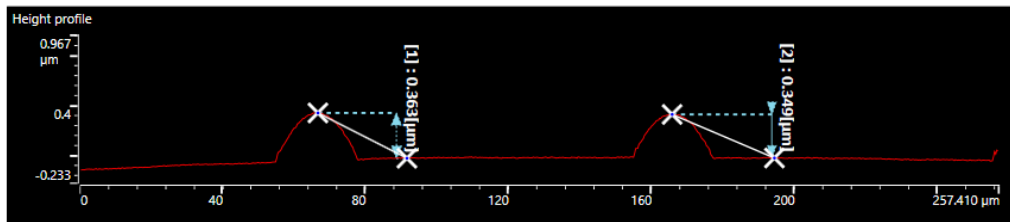
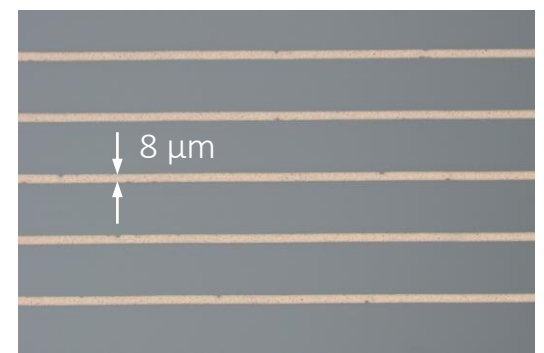
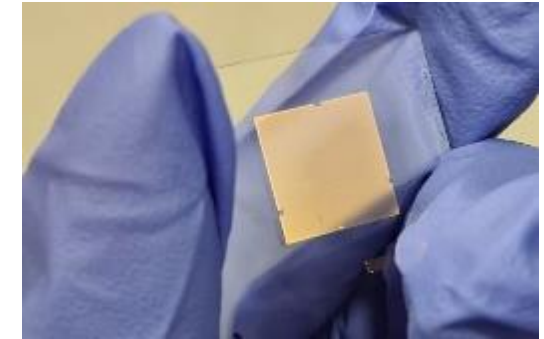
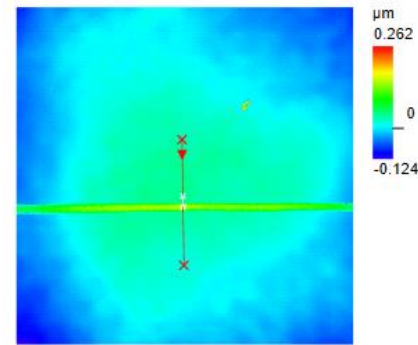
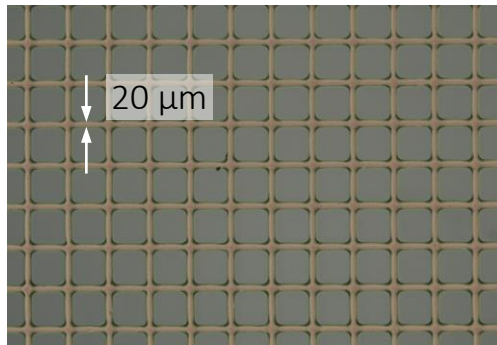
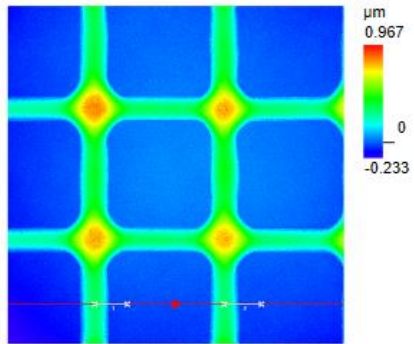


Development of a copper paste formulation dedicated mainly to printing using XTPL® UPD method

# XTPL Au NANOPASTE DEVELOPMENT – PRINTING PROCESS



Development of a gold ink formulation dedicated mainly to printing with the UPD method



# INTELLECTUAL PROPERTY PROTECTION – SUMMARY



XTPL's global solutions are being systematically secured by expansion of the patent cloud. Intellectual property is a product and a competitive advantage, while development of the patent cloud has a major impact on the Company's value – the size and proper protection of the cloud are key to the market position. XTPL solutions are protected as of patent submission with the relevant authority

## PATENT GROUPS OF SUBMITTED APPLICATIONS

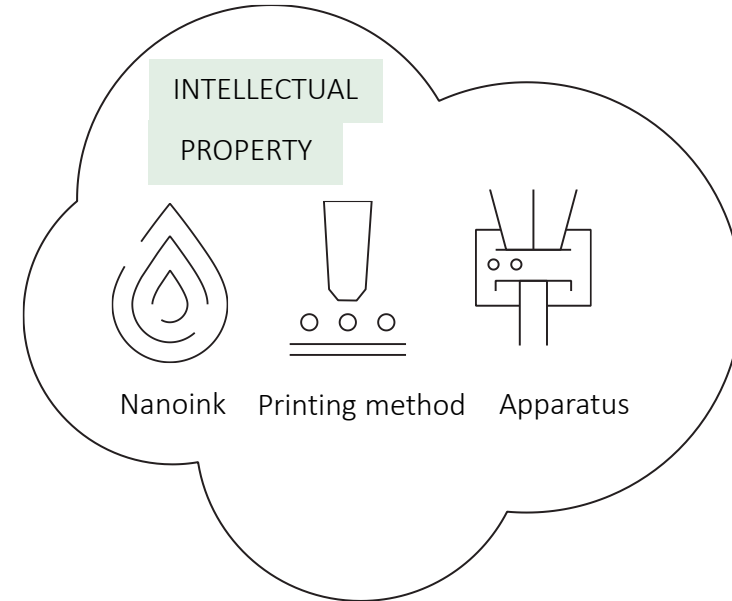
**UPD process** – patents describing the ultra-precise deposition process, or a device used for this process

**Nanoink** – patents protecting various nanoink formulations

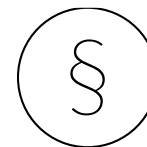
**Software** – patents protecting the solutions implemented in the software that controls the printing devices

**Application fields** – patents describing solutions to specific technological problems using the UPD method

**Characterization and quality control** – patents related to the characterization and quality control of selected components of the printing head



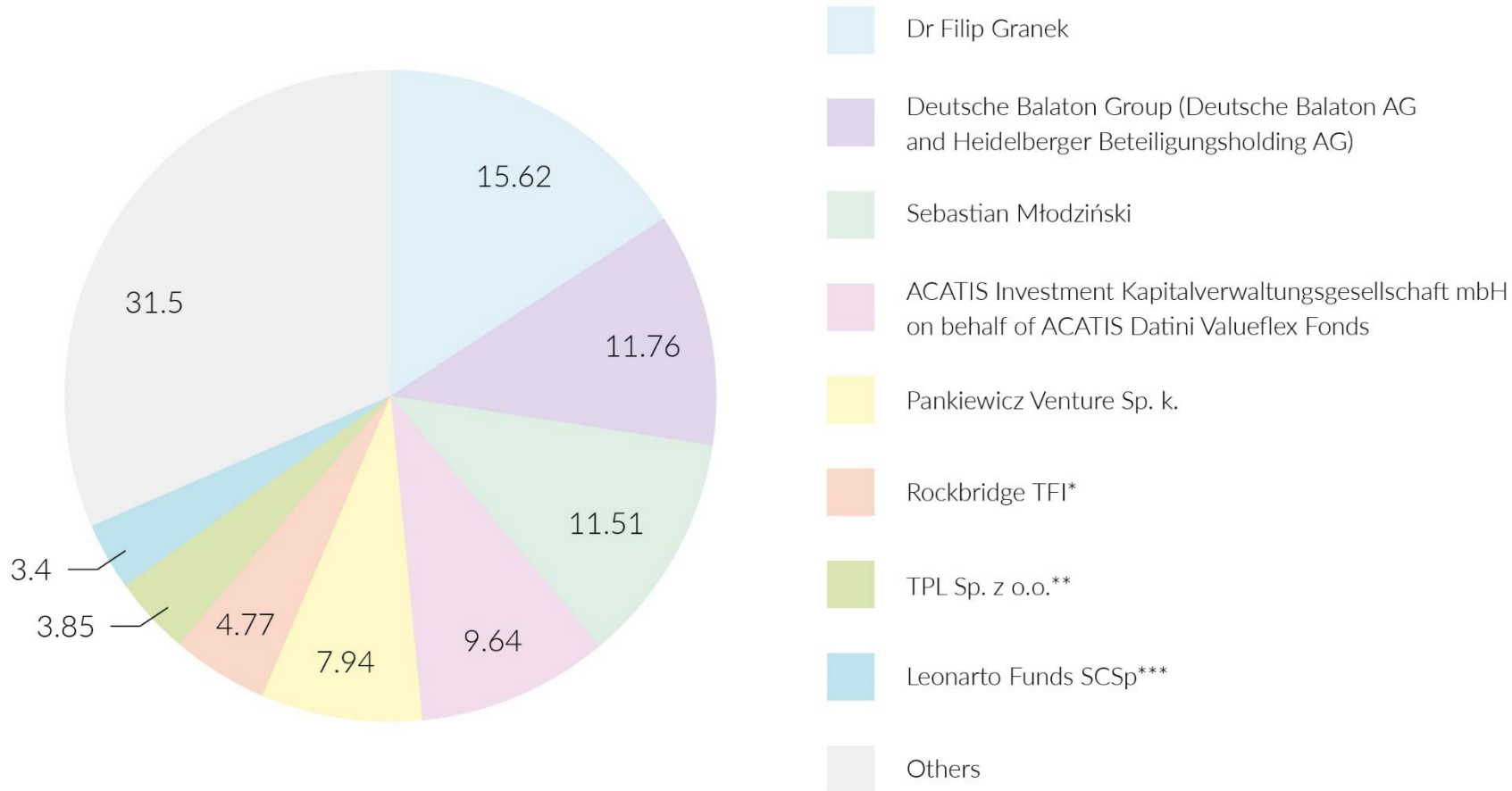
<b>3</b>	<b>23</b>	<b>1</b>
patent applications filed in 2021	patent applications filed in total, including 10 filed in 2020	patent granted



### Support from a international law firm

K&L GATES (Palo Alto, CA, USA)  
Gill Jennings & Every LLP (London, UK)

# XTPL SHAREHOLDING STRUCTURE



Deutsche Balaton  
Aktiengesellschaft

ACATIS

\* According to the information of 7 July 2021 communicated by the Shareholder under Article 69(1) and (4) of the Act of 29 July 2005 on Public Offering, Conditions Governing the Introduction of Financial Instruments to Organized Trading and Public Companies. (Current Report 16/2021)

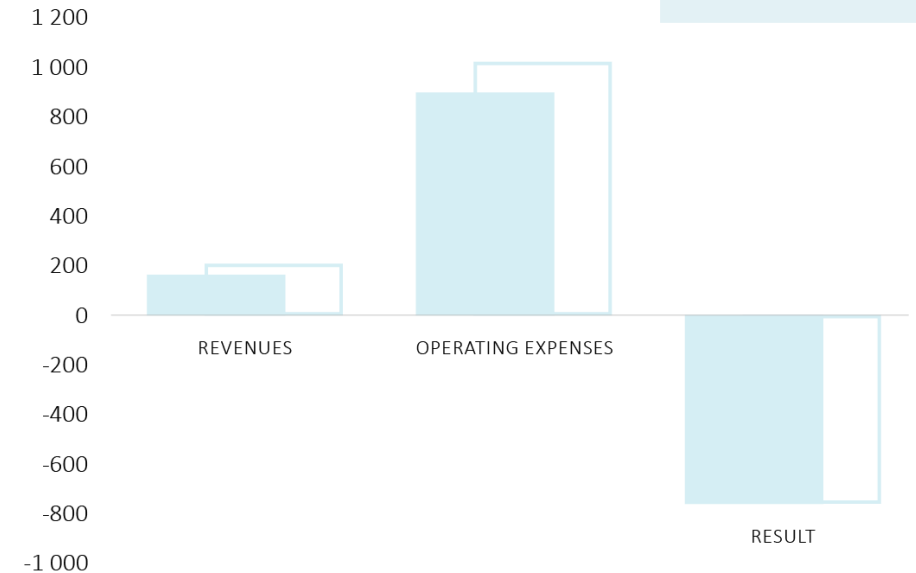
\*\* TPL Sp. z o.o. holds series L and series P shares issued for the purpose of the incentive scheme. The sole shareholder of TPL Sp. z o.o. is XTPL S.A.

\*\*\* Based on the list of shareholders having at least 5% votes at the Annual General Meeting on 30 June 2021 – Current Report 12/2021 prepared and published under Article 70(3) of the Act of 29 July 2005 on Public Offering, Conditions Governing the Introduction of Financial Instruments to Organized Trading and Public Companies (Journal of Laws of 2009, No. 185, item 1439).

# Q12021 FINANCIAL RESULTS – SUMMARY



	1H2021	1H2020
Revenue from sales	31	9
Grants (income + prepayments*)	379	196
Operating costs	895	1.024
Incentive program costs	253	434
EBIT	-983	-1.225
EBIT adjusted by incentive costs	-730	-791
CAPEX	-337	12
CF	-859	1 297
	06.30.2021	12.31.2020
Cash at the end of the reporting period	1.445	2.304



\* figures in EUR thousand

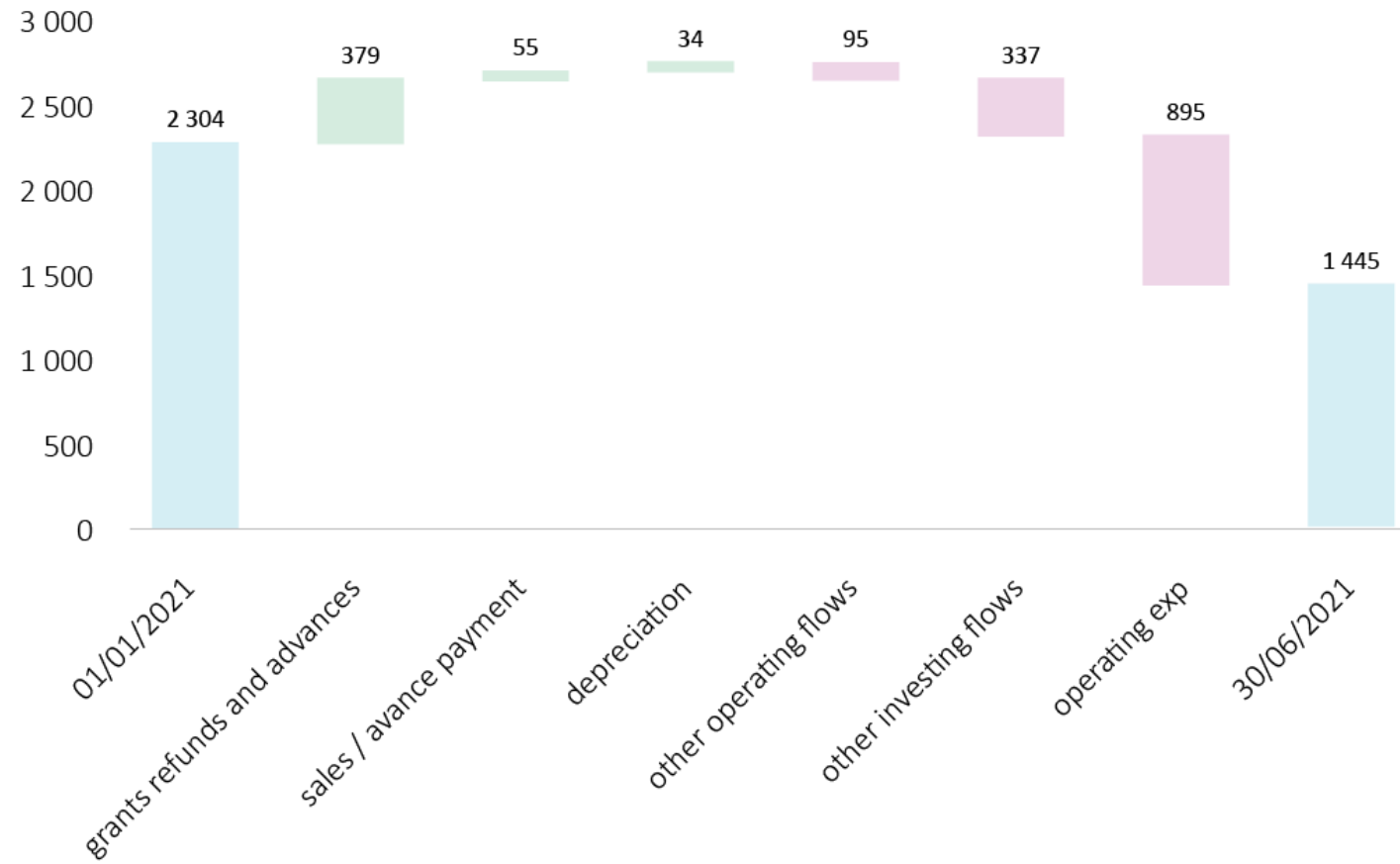
- increasing sales revenues in connection with the development of commercialization
- maintaining a cost discipline
- recognition of the cost of the incentive program in the amount of PLN 1,149 thousand PLN without affecting the company's financial and property standing
- investment expenditure related to the construction of products and further technology development

\*The total value of proceeds from grants during the reporting period was PLN 1,722 thousand. Out of this figure, PLN 579 thousand are advances included in accruals, while PLN 1,143 thousand is the reimbursement of costs incurred for the construction of a tangible asset. In accordance with IFRS 20, such reimbursement constitutes a grant in relation to assets and is also recognized in accruals as deferred income.

# CASH FLOW



\* figures in EUR thousand





- April 9, XTPL S.A. received a recommendation from National Center for Research and Development (NCBR) for funding in the amount of **PLN 7,7 milion** for the project “Development of breakthrough printing technology of 3D micrometric conductive structures using an innovative printhead capable of printing on non-planar substrates and compatible ink for printed electronics applications”
- implementation period : 10.01.2020 – 09.30.2023
- total project value: PLN 11,6 milion

## MARKET IMPACT

- XTPL activities and target markets are not among the ones which are heavily affected by COVID-19
- consumer electronics manufacture and sales have not been significantly impacted by the pandemic. However, the distribution channels will be more dynamically transitioning towards online sales
- COVID-19 does not impact the manufacturing trends related to miniaturization, more efficient use of materials, and desire to deliver more advanced functionalities to the customers
- we are in close contact with our partners and we are monitoring the situation on a continuous basis

## IMPACT ON INTERNAL ACTIVITIES

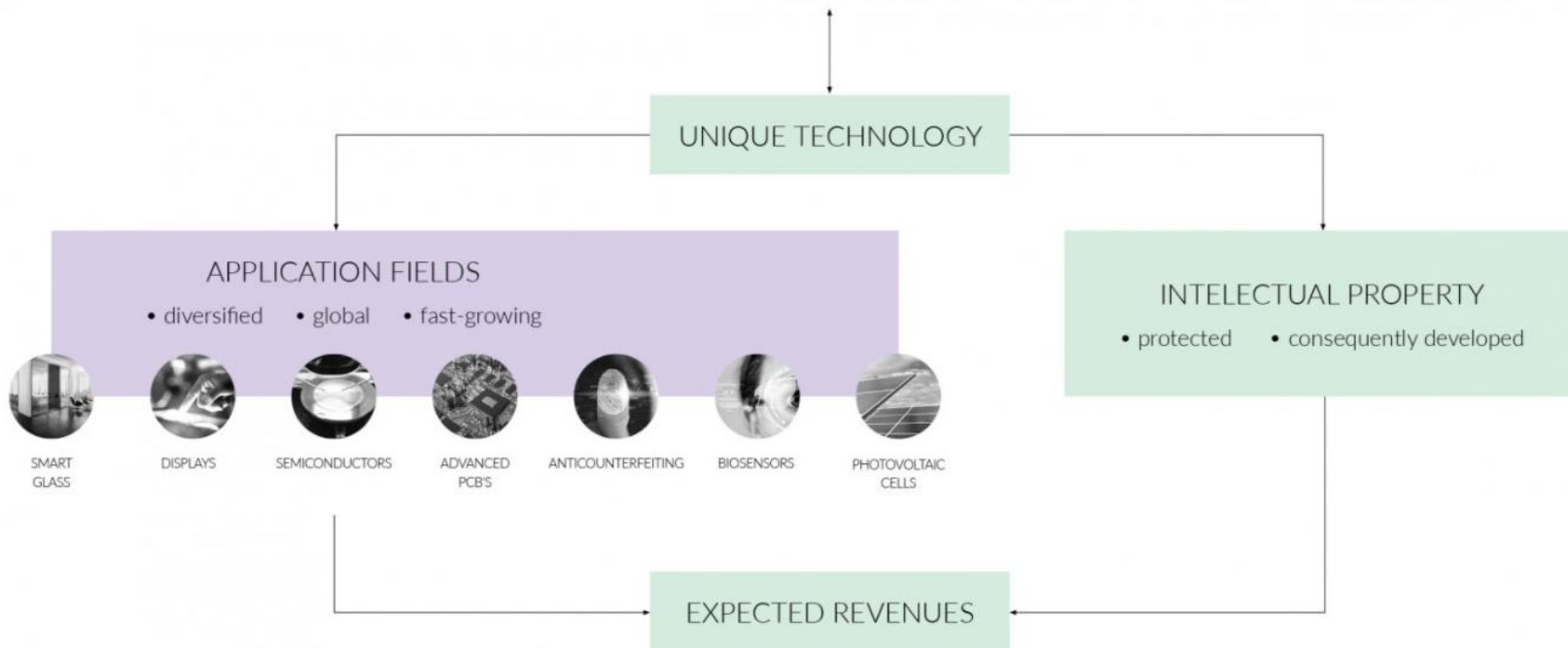
- the Company is well prepared internally for remote work. Technological activities are executed continuously in our labs under appropriate safety restrictions
- XTPL is expanding the network of contacts with distributors on local markets
- the business collaboration with external partners is continued, with frequent e-mail contact, conference calls and experimental evaluation being executed
- however, the collaboration with US-based partners is impacted due to their restrictions related to laboratory work in some of the states. Therefore, some delays in those projects can be expected
- production and delivery of inks and samples which are part of the evaluation programmes were not impacted
- good progress in vaccinating the team - most of the team is fully vaccinated

# XTPL VALUE - SUMMARY



The value of XTPL results from the potential of the **unique technology** developed by the company, **wide possibilities of its application** in the existing and new application fields, and from its **intellectual property** systematically secured by patent applications.

## VALUE DRIVERS XTPL®



The potential of intellectual property is primarily determined by the level of revenues estimated on its basis, expected after the implementation of the company's solution on the market in individual application fields to which the company directs or will direct its offer.

In addition, XTPL's value is also influenced by: the size and predicted growth rate of target markets, the number of application fields and their diversification, and the value proposition dedicated to each of the markets.

Due to the platform nature of the technology, allowing its effective implementation in many application fields, the company's potential is significant.

# WHY XTPL? – SUMMARY



XTPL is a global player in the rapidly growing printed electronics market, with a targeted development strategy, an interdisciplinary team of experts and support from stable shareholders. It offers global business partners the world's most precise, platform printing technology, providing them with competitive edge and technological advantages by enabling effective production of modern, new generation devices.

## ORGANIZATION

- global operations
- a modern business approach thanks to an interdisciplinary team with extensive expertise and experience – **over 30 people in Poland and the USA**
- support and trust of significant investors, with XTPL executives in the shareholding structure

## STRATEGY

- a precisely defined development strategy including: technology and R&D, commercialization of the printing device for industrial implementations as well as Delta printer and nanoinks – diversified business model

## MARKET

- reaching many fast-growing organic and flexible printed electronics sectors – a market which is expected to total USD 63.3 billion in 2025 (**CAGR 2020–2025: 9.0%**), and USD 74.1 billion in 2030 - an increasing number of new applications of printed electronics
  - The existing printing methods do not address the resolution problem, they are complicated, and require a multi-stage resolution process
- xtpl.com

## TECHNOLOGY

- uniqueness – disruptive, proprietary and unique UPD® (Ultra Precise Deposition) technology that breaks down further technological barriers and helps obtain conductive lines that previously could not be achieved by any other method, with resolution of **1 μm**.
- platform character – with application in many existing sectors of printed electronics
- IP regularly secured by expanding the patent cloud –**23 applications filed**

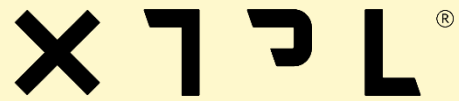
## COMMERCIALIZATION

- a consistent commercialization strategy and the start of sales of finished products as well as **9** technology evaluations for industrial implementations with global players
- revolution – enabling production of complex and complicated devices using efficient, cost-effective and scalable printing methods.

## FUNDING

- secured liquidity thanks to the issue of shares and bonds, and the funding from National Center for Research and Development (NCBR) – ability to obtain grants
- support for CF generation and revenue diversification by starting product commercialization

CONTACT FOR INVESTORS:  
[investors@xtpl.com](mailto:investors@xtpl.com)



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54-066 Wrocław, Poland  
[xtpl.com](http://xtpl.com)

THANK YOU

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