



shaping global nanofuture

## XTPL S.A. FINANCIAL RESULTS FOR 3Q2021

XTPL S.A.

November 25, 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



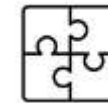
UPD technology **breaks down technological barriers** – current solutions could not be achieved by any other method



**IP regularly secured** by expanding the patent cloud - **24** 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

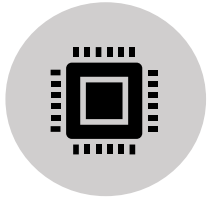


## Q3'2021 – summary

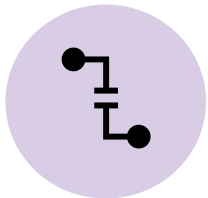
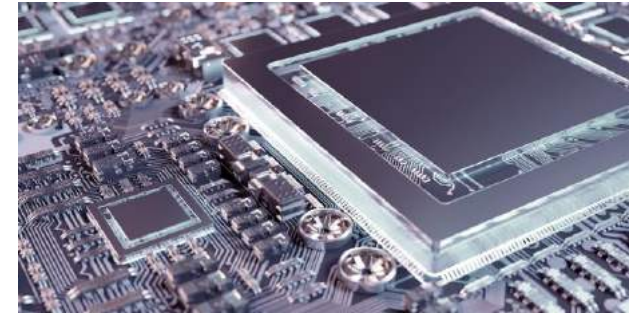
- continuation of commercialization of the solutions - sales of the **Delta Printing System\*** and sales of 6 XTPL nanoinks
- completing **9 technology evaluations** in terms of industrial implementations with global players of the printed electronics sector
- acquiring a new distributor of XTPL solutions in the UK and Ireland (**Semitronics Sales Ltd.**) and intensification of other activities supporting the commercialization of the solutions
- **breaking down further technological barriers** - intensifying efforts on the development of the Delta Printing System as a product
- **extension of the patent cloud with another patent application**- 24 patent applications in total - protection of technological solutions
- presence at 5 international industry events and **showcasing solutions to printed electronics industry leaders** (15 in 2021)
- significant (5 times) **increase in revenues** from the sale of products in connection with the commercialization of XTPL solutions for two (out of three) business lines of the company
- organization of the **XTPL Investor's Day online event** - a response to the wide interest of investors in the company's activities, assets and team



# MEGA TRENDS OF THE ELECTRONICS MARKETS

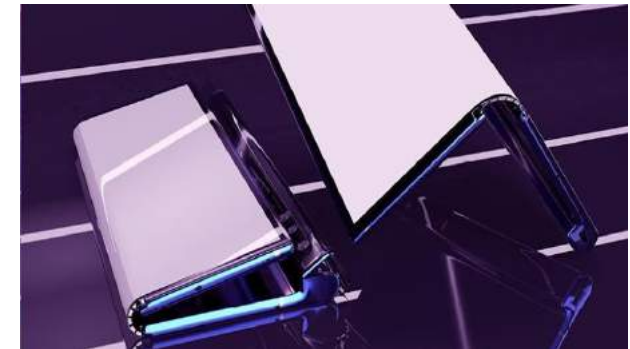


**Miniaturization** of the size and weight of electronic devices while increasing efficiency and speed of operation



**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

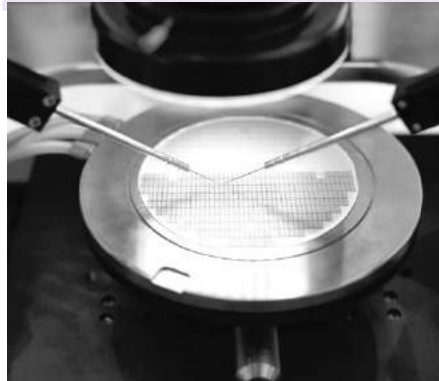
- **USD 41.2bn** - value of the global market of printed, flexible and organic electronics in 2020, up 11.0% YoY
- **USD 63.3bn** - estimated value of this market in 2025, with **USD 74.1bn** estimated in 2030
- **9.0%** - CAGR 2020–2025

### DISPLAYS



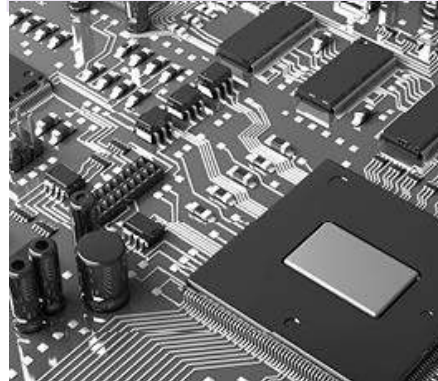
\$34.3 billion  
CAGR 2020-2025 10.2%

### 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%

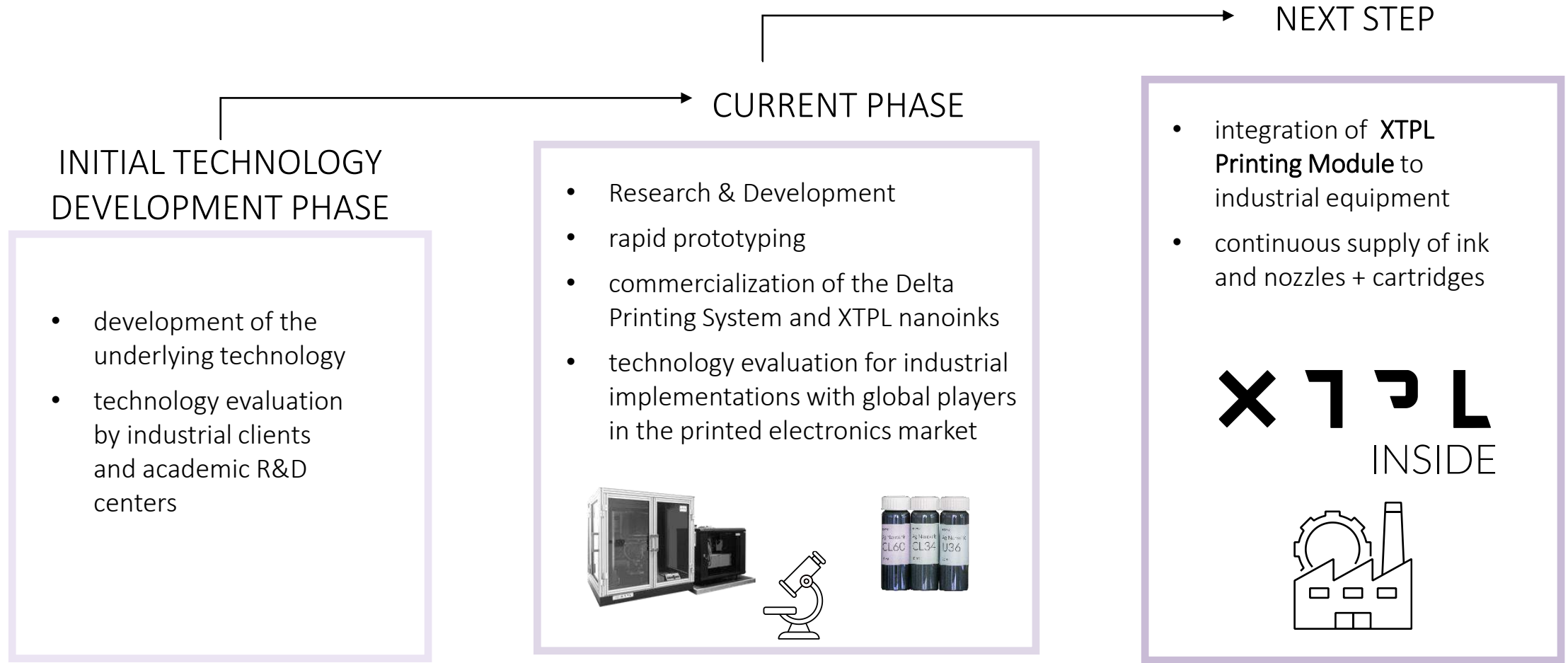
### SECURITY PRINTING

\$106.3 billion  
CAGR 2020-2025 12.1%

### PHOTOVOLTAIC CELLS

\$9.4 billion  
CAGR 2020-2025 3.7%

# COMPANY DEVELOPMENT PHASE

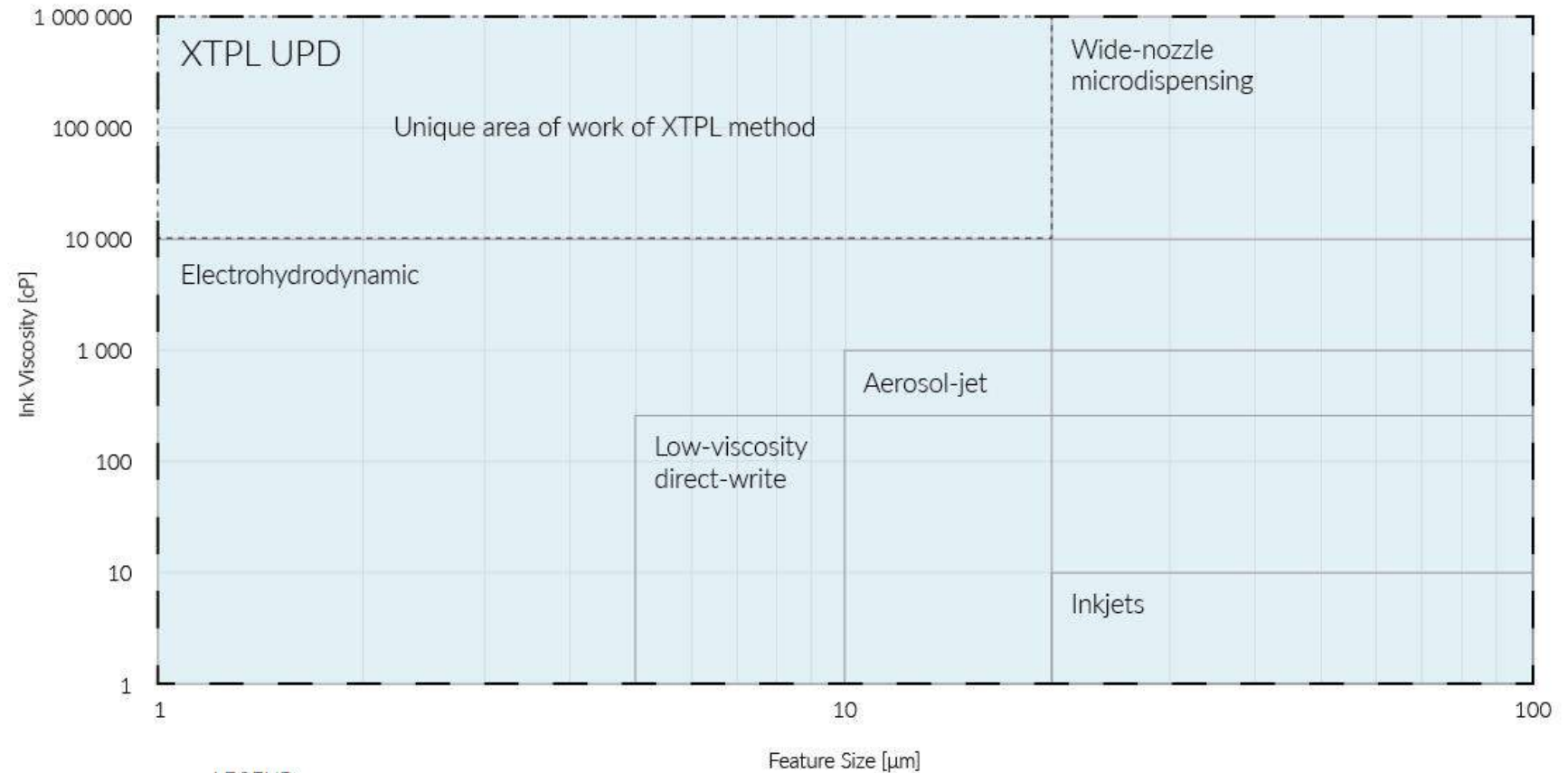


# THE UNIQUENESS OF THE XTPL ULTRA-PRECISE DEPOSITION TECHNOLOGY



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

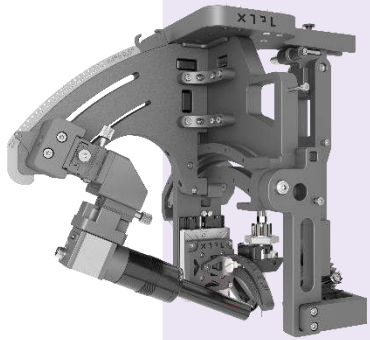
- ability to print high viscous materials along with small feature sizes
- high aspect ratios just after a single pass
- matchless variety of printing different materials
- uninterrupted interconnections on highly complex topographies
- ultra-high-resolution printing on practically any kind of substrate



#### LEGEND:

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

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); sale of the third and fourth devices to **PORT** in Poland and **Glasgow University** in the UK (4Q'2021)
- next tools will be delivered to partners in the near future



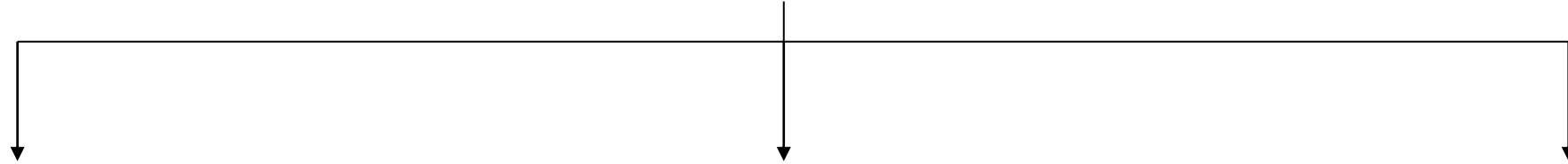
HIGHLY-  
CONCENTRATED  
NANOINKS

- silver nanoinks with a high silver content and excellent stability for use in various printing techniques
- silver products sold to academic and industrial partners globally
- copper and gold products under development

# 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)

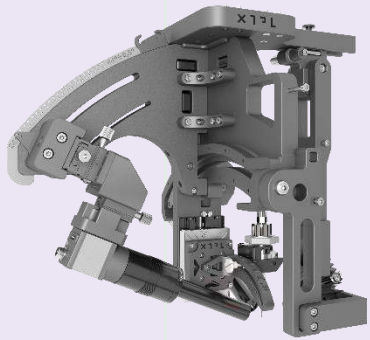
XTPL is expanding its presence in the Chinese market by starting cooperation with Yi Xin Technology, who will distribute the Company's technological solutions in China. The Yi Xin Technology company specializes in additive technologies and the search for innovative solutions dedicated to the printed 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.

\* Conclusion of a distribution agreement in 3Q2021

# COMMERCIALIZATION OF THE XTPL PRODUCTS



HIGH-RESOLUTION  
„EPSILON”  
PRINTING MODULE  
FOR INTEGRATION



DELTA  
PRINTING  
SYSTEM



HIGHLY-  
CONCENTRATED  
NANOINKS

# HIGH-RESOLUTION „EPSILON” PRINTING MODULE FOR INTEGRATION

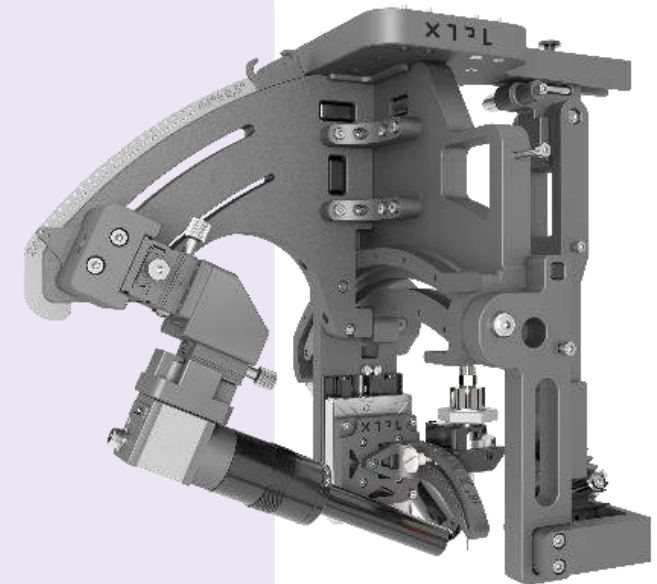


## Goal:

- 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



Q3'2021	Q3'2021	Q3'2021
OFFER MADE TO A POTENTIAL CLIENT	DEMO PROJECTS AND NEGOCIATIONS	SALES CONTRACT SIGNED IN TOTAL*
7	10	4

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

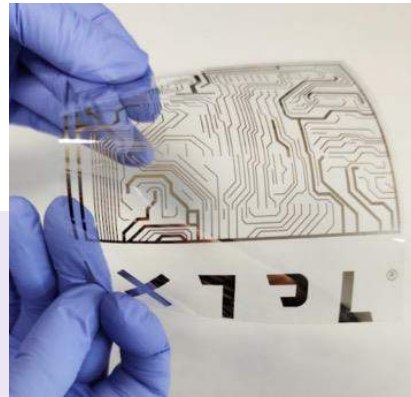
Delta Printer price: approx. EUR 150-170 thousand / PLN 675-765 thousand

## Key milestones:

- first device delivered to the University of Stuttgart, Germany (Q1'2021)
- second device sold to Karlsruhe Institute of Technology „KIT“, Germany (Q3'2021) – delivered to the Institute in Q4'2021
- signing a contract for the sale of a third device to PORT, Poland (Q4'2021)
- another sale of the device to the University of Glasgow, Scotland (Q4'2021)

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



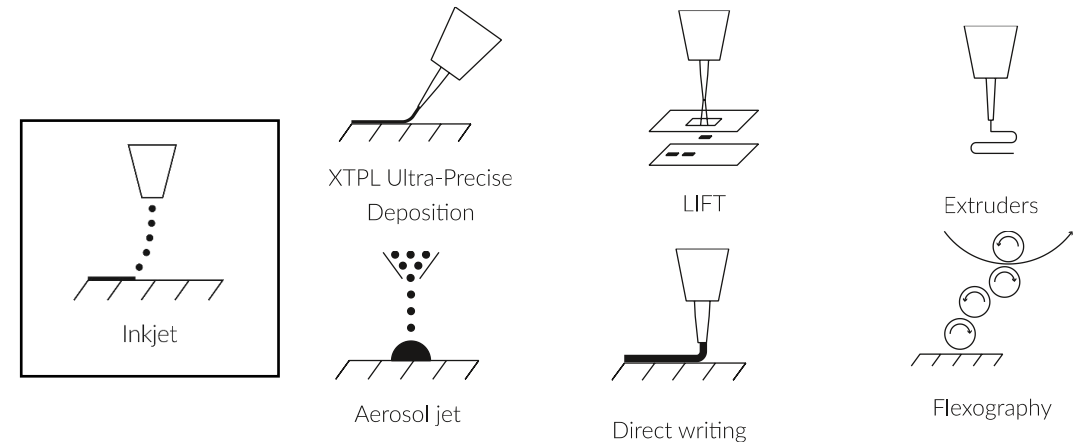


## Key information:

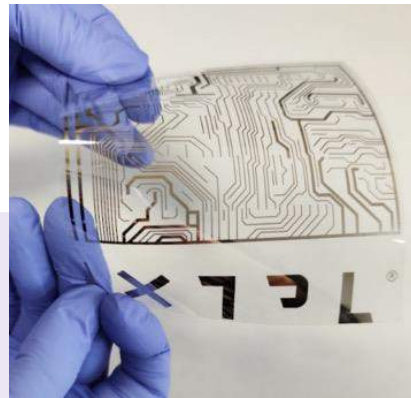
- high-yield, conductive nanoinks with silver content for printed electronics, developed by XTPL's in-house R&D department.
- inks protected by patent applications
- client groups: industrial R&D units, scientific institutions
- XTPL nanoinks are tested by many R&D units in Europe – products delivered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

- 6 independent orders from the EMEA region and USA
- 26 orders from the beginning of the commercialization process
- 3 out of 6 orders are re-orders of the XTPL nanoink
- copper and gold inks under development

OFFER MADE TO A POTENTIAL CLIENT	SAMPLE SENT TO POTENTIAL CLIENT AND NEGOTIATIONS	SALES CONTRACT SIGNED** AND PRODUCT DELIVERED
16	5	6

## Ink sales Q3 2021



## TECHNOLOGY AND R&D – SUMMARY OF Q3'2021



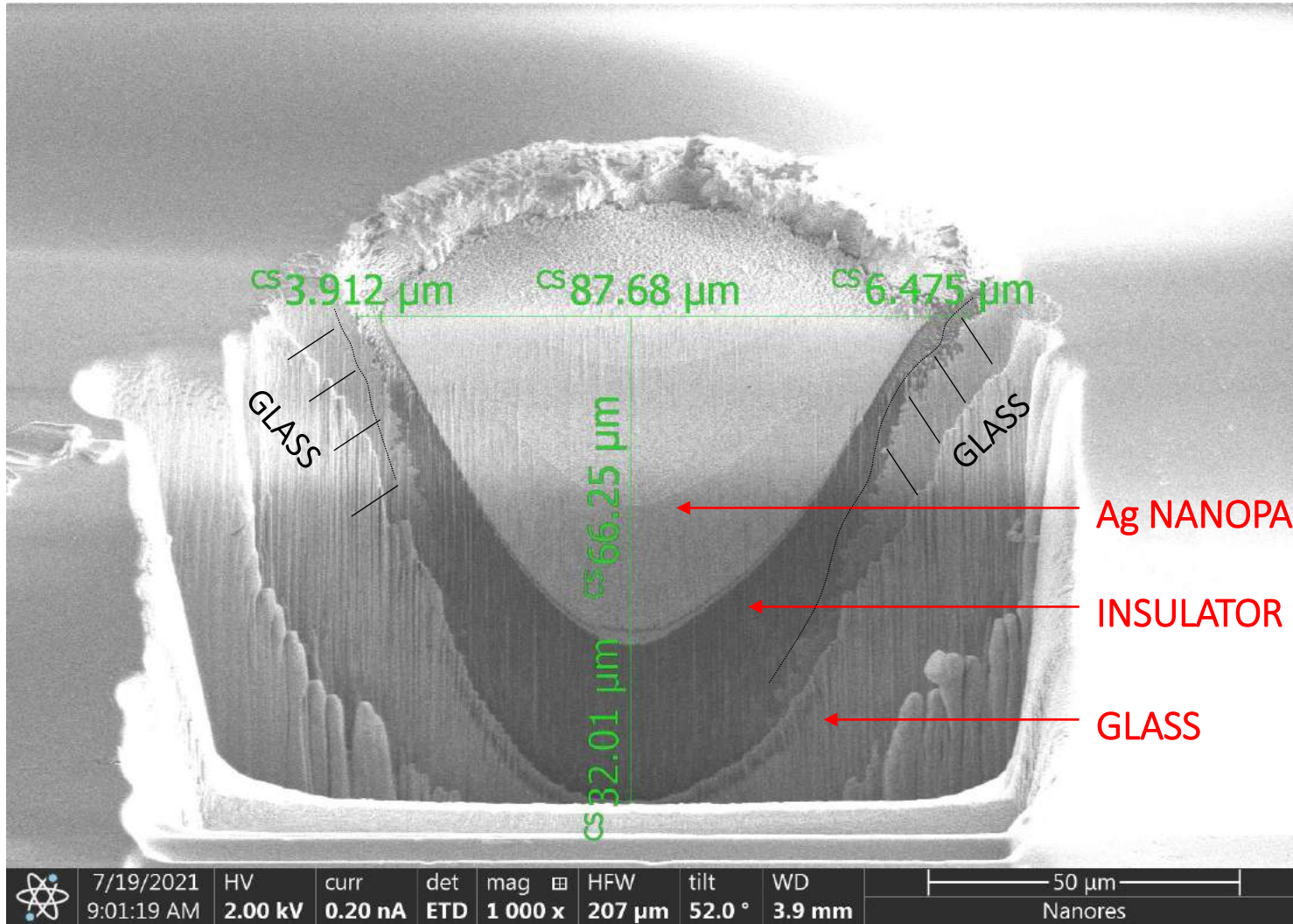
- developing a technique for printing electronic connections in advanced integrated circuits, demonstrating heterogeneous filling of the structure: printing with an insulating material on the outside, and with a conductive material on the inside
- developing metallic ink for the filling of TSVs (Through Silicon Vias) in one of the industrial implementation projects (for a leading manufacturer of semiconductor systems)
- creating a high-resolution redistribution layer (RDL) for integrated circuits
- intensifying efforts on the development of the Delta Printing System as a product
- presentation of the possibility of printing various materials for potential customer
- developing and demonstrating the capabilities of the ultra-precise deposition (UPD) technology and the Delta Printing System for potential clients including Glasgow University and the Karlsruhe Institute of Technology (PoC)
- continuing the development of gold and copper paste compatible with the UPD technology

In Q3 2021, XTPL actively participated in 5 international industry events:

- Nanotexnology – Greece
- Connecting Heterogeneous Systems Summit - USA
- XXX Forum Ekonomiczne in Karpacz – Poland
- Pro Flex – Germany
- Flex China – China

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

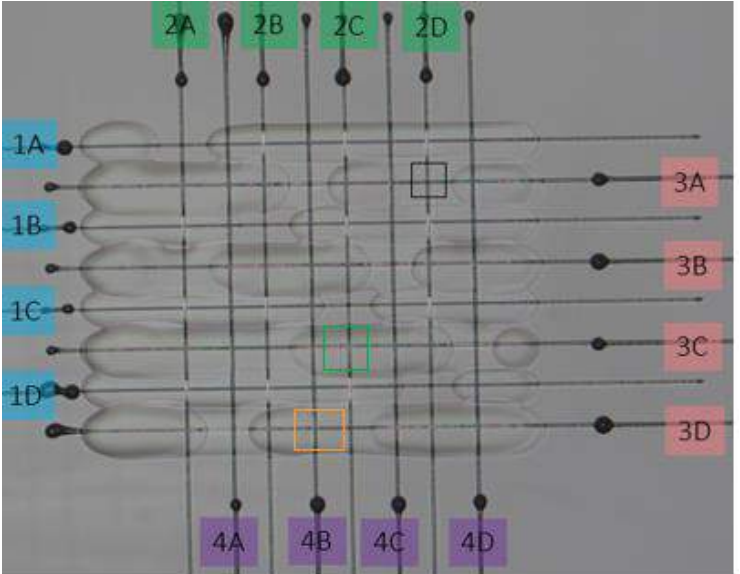
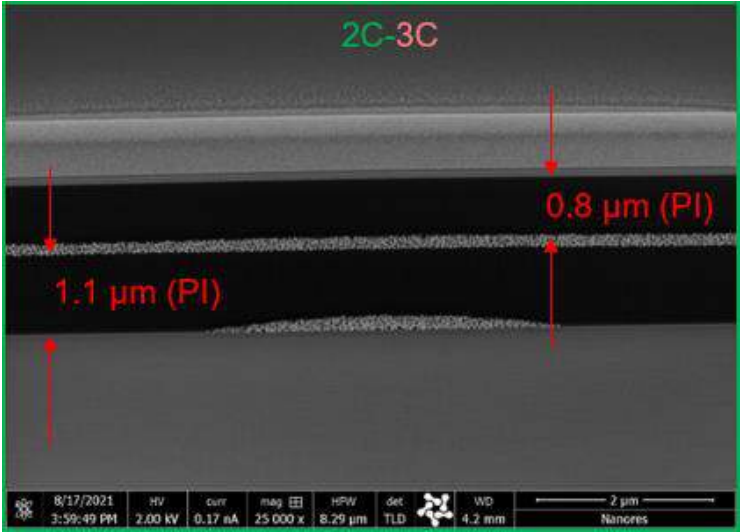
# MICRO VIA FILLING – MULTILAYERS



Cross-section made using the Focused Ion Beam (FIB) device through a structure imitating an integrated circuit. Insulating material (Polyimide) was printed on the outside, while conductive material (XTPL Ag CL85) was printed on the inside.

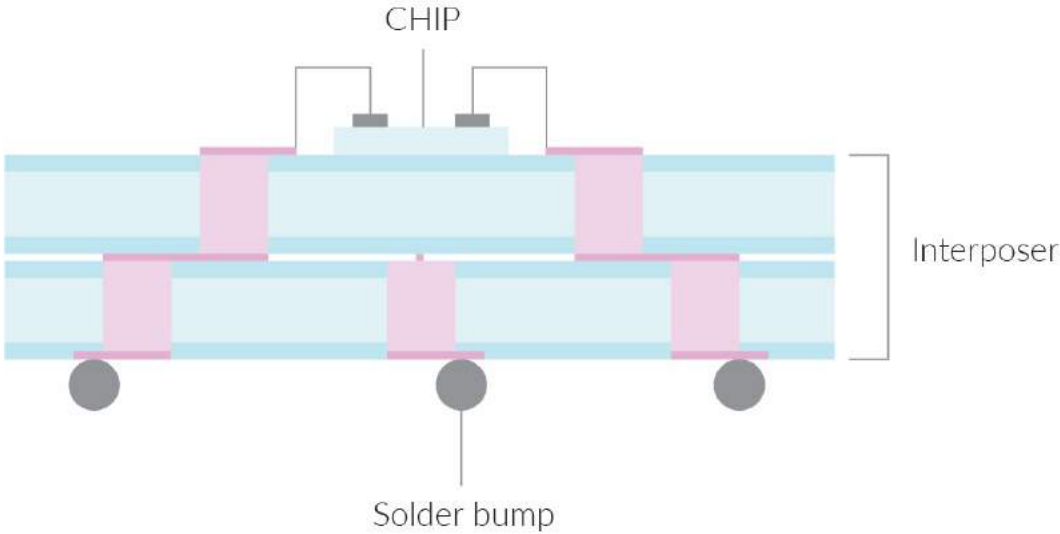
- The via was prepared by laser
  - The via depth:  $\sim 100 \mu\text{m}$
  - The via diameter:  $\sim 100 \mu\text{m}$
- CONDUCTOR: Ag paste: XTPL CL85 Ag-based paste  
INSULATOR: Polyimid

# PRINTED RDL (REDISTRIBUTION LAYER)



The technology team has started work on the development of an additive technique for creating a high-resolution redistribution layer (RDL)\* for integrated circuits

- Redistribution Layer
- TSV

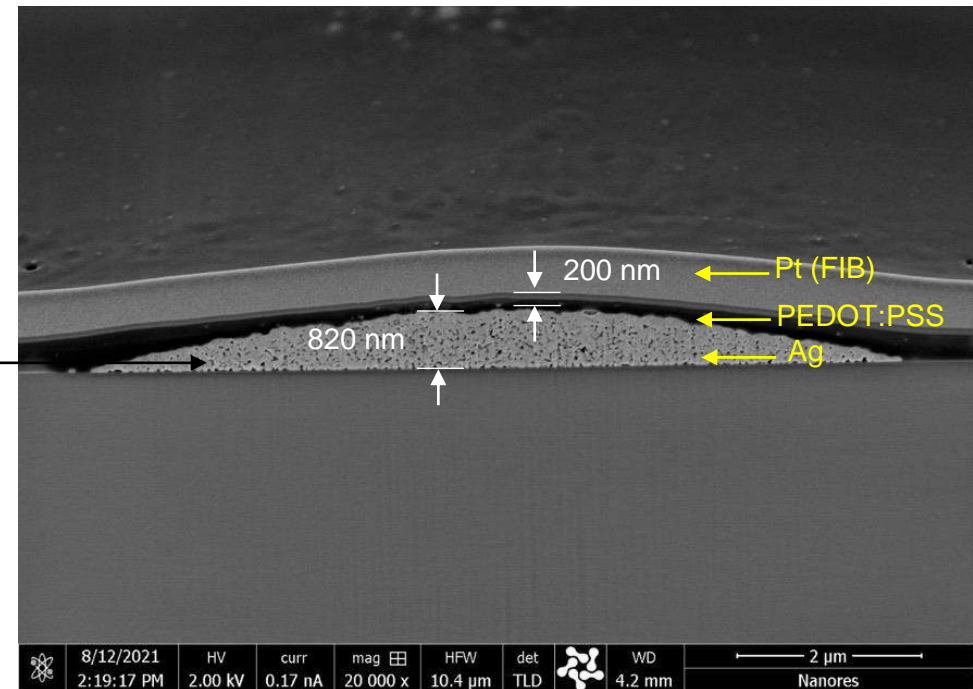
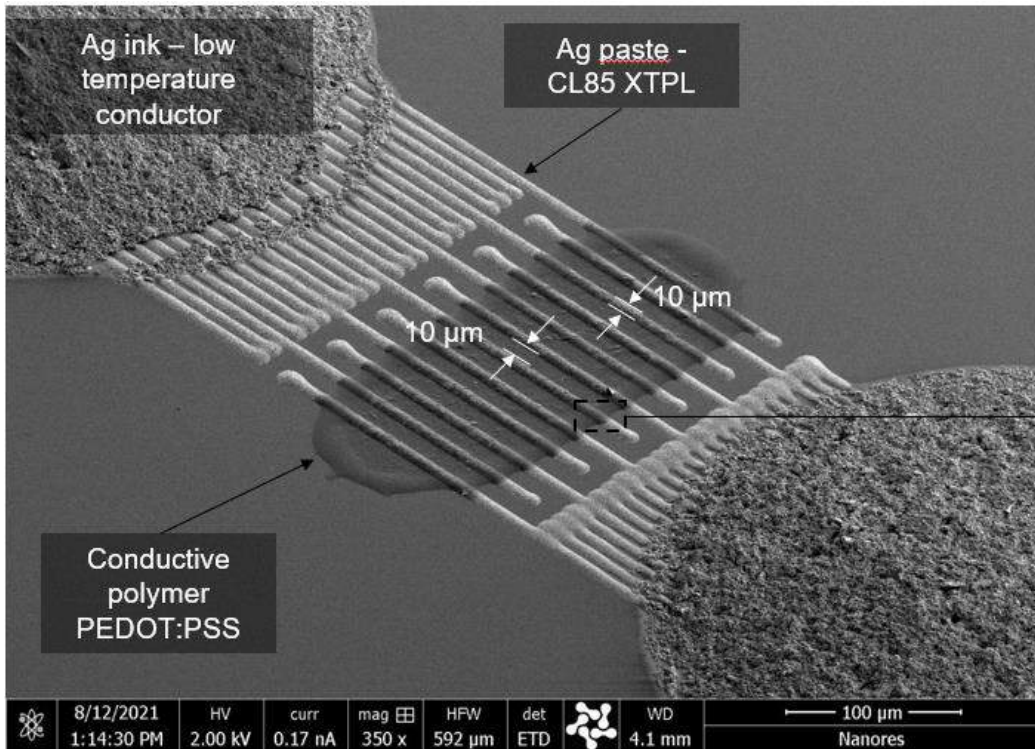


\*A platform that connects integrated circuit components 20

# ULTRAPRECISE DEPOSITION OF VARIOUS MATERIALS



One of the examples of the UPD technology demonstration for a potential customer interested in the Delta Printing System device. Presentation of the possibility of printing various materials: low-temperature conductive ink, conductive polymer PEDOT:PSS, XTPL Ag CL85



# DEVELOPMENT OF THE DELTA PRINTING SYSTEM



- developed and implemented new functionalities to enhance the capabilities of the Delta Printing System
- delivered software that enables automatic conversion of CAD files into a script language that can be read by device drivers
- new improvements and updates of the device are introduced to newly created devices as well as to those used by existing customers



# 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

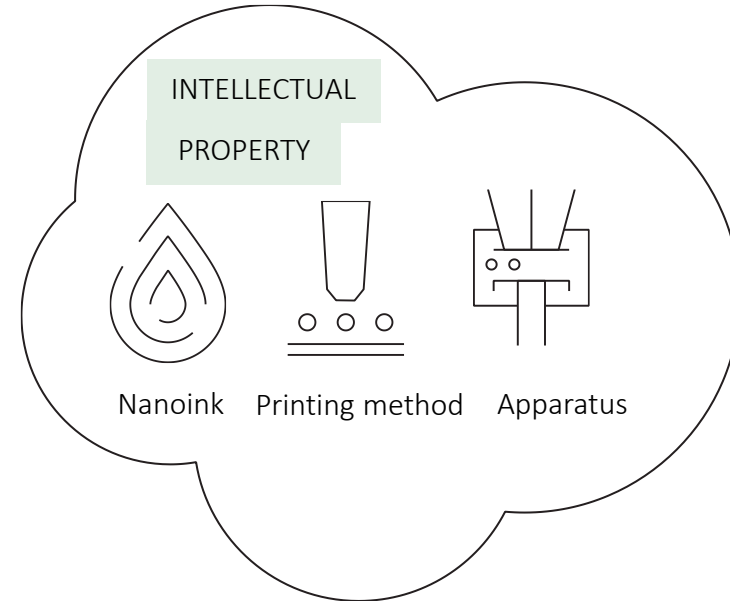
**UPD process** – patents describing the ultra-precise deposition process, or a device used for this process

**Nanoink** – patents protecting various nanoink formulations

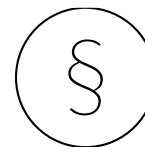
**Software** – patents protecting the solutions implemented in the software that controls the printing devices

**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>4</b>	<b>24</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)

# Q1-3 2021 FINANCIAL RESULTS – SUMMARY



\* figures in EUR thousand

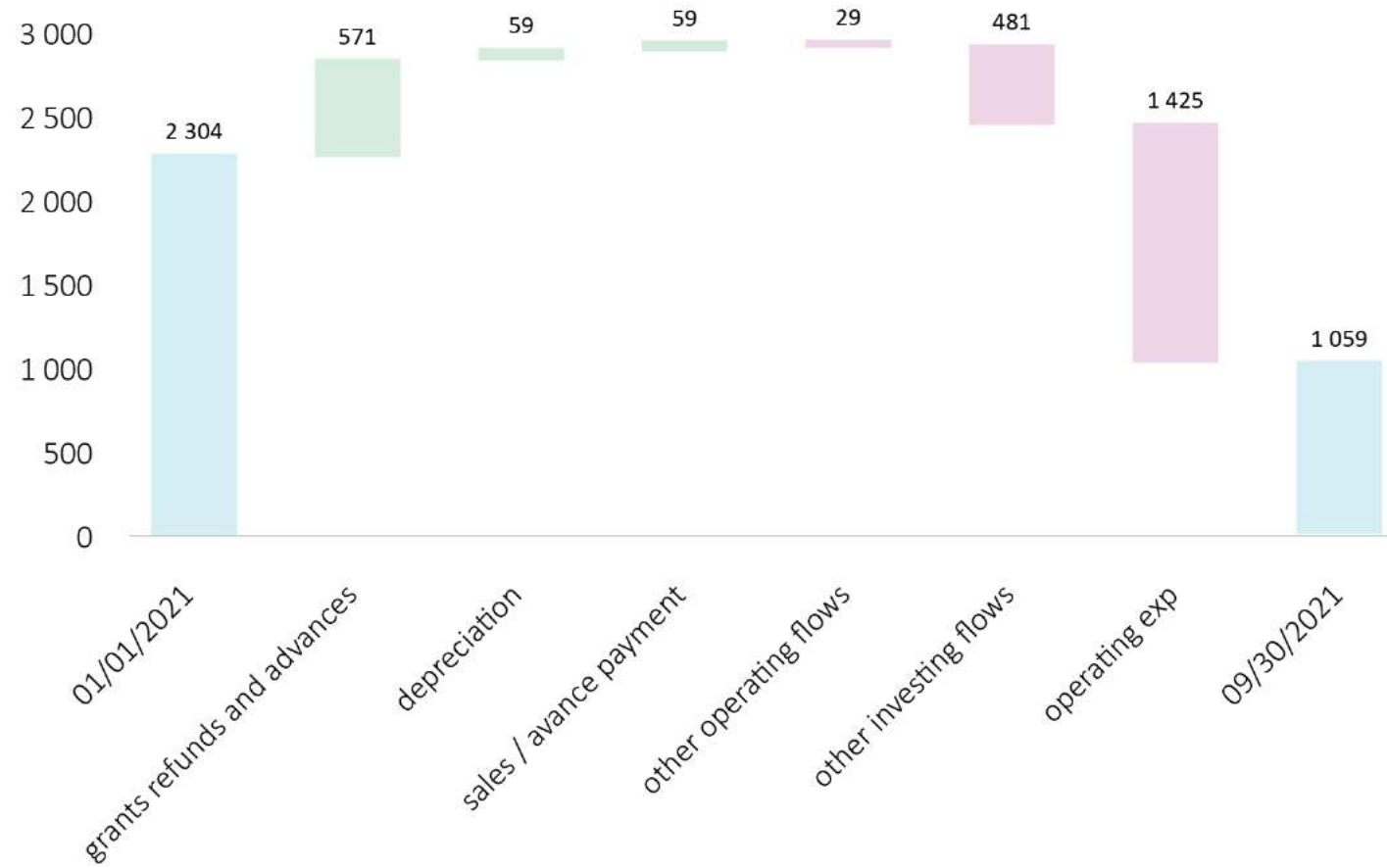
	Q1-3 2021	Q1-3 2020
Revenue from sales	47	10
Grants (refunds and advances)	571	452
Operating costs	1.425	1.484
Incentive program costs	253	434
EBIT	-1.402	-1.418
EBIT adjusted by incentive costs	-1.149	-984
CAPEX	-481	-22
CF	-1.245	1.897
	09.30.2021	09.30.2020
Cash at the end of the reporting period	1.059	2.822

- an increase in revenues from the sale of products due to the commercialization of XTPL solutions under two business lines
- the total value of proceeds from grants is higher YoY – the posted value of grants is lower YoY due to the applied accounting principles, which reduces the total revenues YoY
- operating costs stable YoY
- EBIT steady YoY despite lower value of grants recognized in revenues
- recognition of the cost of the incentive scheme of PLN 1,149 thousand with no impact on the Company’s assets or financial position
- capital expenditure connected with the Company’s growth and solutions supporting the development of XTPL products for further commercialization of its technology.

# CASH FLOW



\* figures in EUR thousand



# ANALYTICAL COVERAGE BY STIFEL EUROPE BANK AG



Stifel Europe Bank AG is European institution in the financial services sector specializing in the areas of equity brokerage, investment banking and fixed income. The scope of its analysis currently covers shares of 400 companies, mainly from Europe. **XTPL is the first Polish company analyzed by Stifel.**

## Previous recommendations issued by Stifel Europe Bank AG:

Institution	Analyst	Recommendation	Target price	Date
Stifel Europe Bank AG	Florian Pfeilschifter	BUY	225 PLN	09.30.2021
Stifel Europe Bank AG	Florian Pfeilschifter	BUY	PLN 225	06.02.2021
Stifel Europe Bank AG	Florian Pfeilschifter	BUY	PLN 210	04.29.2021
MainFirst Bank AG	Florian Pfeilschifter	BUY	PLN 210	09.30.2020
MainFirst Bank AG	Florian Pfeilschifter	BUY	PLN 210	09.02.2020
MainFirst Bank AG	Florian Pfeilschifter	BUY	PLN 210	04.24.2020
MainFirst Bank AG	Florian Pfeilschifter	BUY	PLN 215	02.24.2020

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 <b>SPONSORED RESEARCH</b> 30 September 2021 Buy PT: PLN225.00	<b>XTPL</b> Technology Hardware <b>FLASH NOTE</b> H1: Further progress in all areas tied with stringent cost control
 <b>SPONSORED RESEARCH</b> 2 June 2021 Buy PT: PLN225.00 (vs PLN210.00)	<b>XTPL</b> Technology Hardware <b>COMPANY UPDATE</b> Fields of Dreams: Good progress in all areas - Commercialisation fully on track
 <b>SPONSORED RESEARCH</b> 29 April 2021 Buy PT: PLN210.00	<b>XTPL</b> Technology Hardware <b>FLASH NOTE</b> FY20 recap: Further milestones in a difficult year
 <b>SPONSORED RESEARCH</b> 30 September 2020 Buy PT: PLN210.00	<b>XTPL</b> Technology Hardware <b>EARNINGS UPDATE</b> First sales might be upon us

# XTPL VIRTUAL INVESTOR DAY



## Basic information

- date: September 14, 2021
- number of participants: ~ 200 people
- form: live presentation with the XTPL Management Board and video materials with key employees, selected business partners as well as showing the company's assets and a Q&A session

## Purpose of the event

- educating investors in the market on which the Company operates, as well as the purpose of its solutions, possibilities, potential and competitive advantages
- presenting the company's development path and the most important achievements in technology, product development, the importance of IP and the advancement of their commercialization processes
- presentation of key employees of the company who stand behind its success as well as the most important assets of the company where innovative solutions are implemented
- familiarization with selected business partners who support the commercialization of XTPL solutions



The recording is available on the **Strefa Inwestorów YouTube channel** titled: „Poznaj ekspertów od ultraprecyzyjnego druku elektroniki: Dzień Inwestora XTPL,, (content in Polish)

# 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 –**24 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 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)

**X T P L**®

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THANK YOU

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