



XTPL®

shaping global nanofuture

XTPL – ULTRA-PRECISE PRINTING TECHNOLOGY FOR ELECTRONICS

AGENDA



1.

ABOUT XTPL

2.

BUSINESS

3.

SUMMARY



X T P L®

ABOUT XTPL

XTPL AT GLANCE



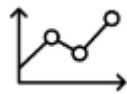
XTPL is a global player, developer and provider of **breakthrough and unprecedented technology** for electronics manufacturers, **enabling effective production of new generation devices**



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



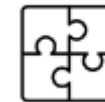
UPD technology **breaks down technological barriers** – current solutions could not be achieved by any other method



IP regularly secured by expanding the patent cloud - **24** patent applications and **2** patents granted



Implementation of 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



Effective CF management. **Growing sales revenues**

THE TEAM



Currently over 35 people in Poland and the United States

TECHNOLOGY

an interdisciplinary, well-balanced team with advanced **knowledge & experience** in:

- chemistry
- physics
- electronics
- mechanics
- material science
- numerical simulations

8 PhDs in the team

BUSINESS

business leaders & highly skilled professionals who possess **know-how & experience** in:

- product development
- marketing & communication
- implementing innovation
- finance
- B2B sales
- capital market

... and proven successes achieved in international markets



Filip Granek

MANAGEMENT BOARD,
CEO



Jacek Olszański

MANAGEMENT BOARD
MEMBER



Aneta Wiatrowska

TECHNOLOGY



Mirosław Woszczyzna

PRODUCTS



Dariusz Świderek

LICENSING /
IP MANAGEMENT



Piotr Kowalczewski

PATENTS

SUPPORT OF EXPERTS WITH DIVERSIFIED EXPERIENCE



MEMBERS OF THE SUPERVISORY BOARD



WIESŁAW
ROŻUCKI

CHAIRMAN OF
THE SUPERVISORY
BOARD



DR BARTOSZ
WOJCIECHOWSKI

DEPUTY CHAIRMAN OF
THE SUPERVISORY
BOARD



ANDRZEJ
DOMAŃSKI

DEPUTY CHAIRMAN OF
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BEATA
TURLEJSKA-ZDUŃCZYK

SUPERVISORY BOARD
MEMBER



HERBERT
WIRTH

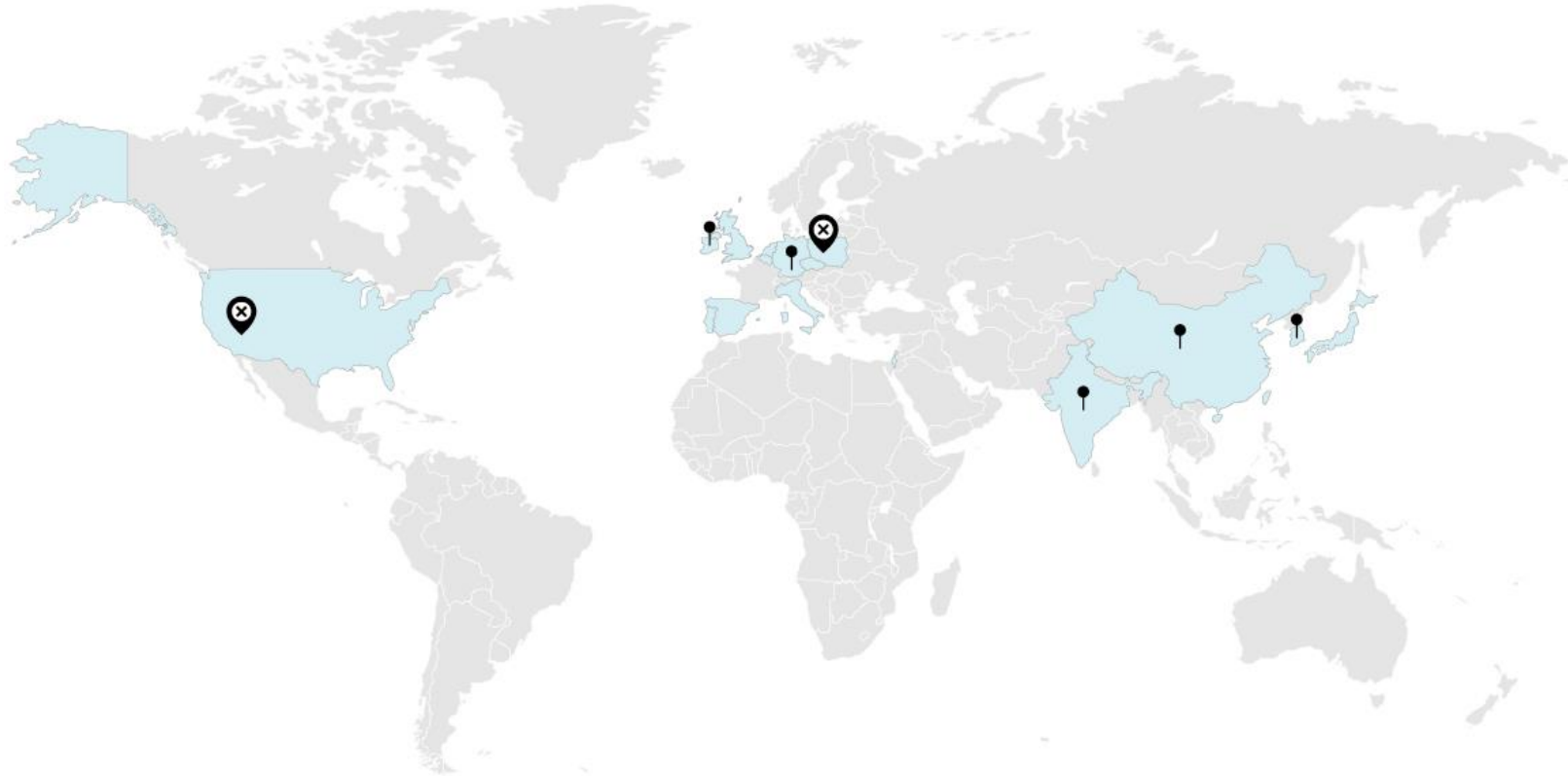
SUPERVISORY
BOARD MEMBER



PIOTR
LEMBAS

SUPERVISORY
BOARD MEMBER

GLOBAL RANGE OF ACTIVITY



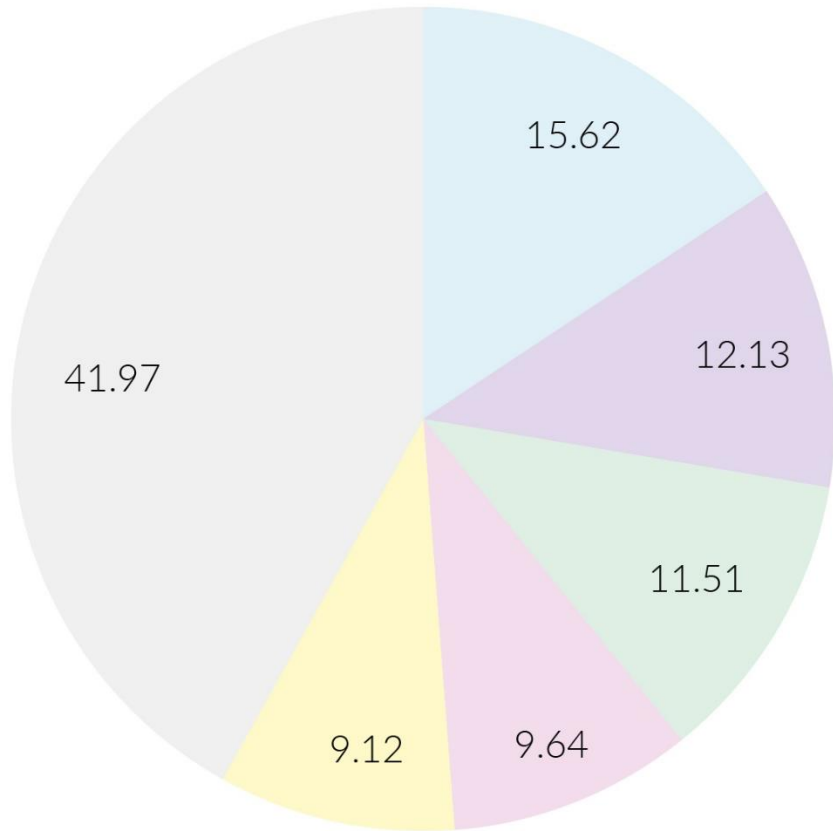
XTPL is based in Poland and in the USA (XTPL Incorporated).

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 Hong Kong, British Isles, Germany and India.

- XTPL office locations
- Sales of XTPL products
- XTPL distributors

XTPL SHAREHOLDING STRUCTURE



- Dr. Filip Granek
- Deutsche Balaton Group (Deutsche Balaton AG and Heidelberger Beteiligungsholding AG)
- Sebastian Młodziński
- ACATIS Investment Kapitalverwaltungsgesellschaft mbH on behalf of ACATIS Datini Valueflex Fonds
- Pankiewicz Venture Sp. k.
- Others

Deutsche Balaton
Aktiengesellschaft

ACATIS

XTPL PRESENCE ON THE CAPITAL MARKET



since February 2019
listed on the Warsaw Stock Exchange



since March 2020
listed on the Open Market of Börse in Frankfurt

Selected market information

Ticker WSE	XTP
Ticker FRA	5C8
ISIN	PLXTPL000018
Reuters Code	XTP.WA
Indices	WIG-Poland, WIGtech, WIGtech Total Return, INNOVATOR
Number of shares	2 029 222
Market cap*	EUR 26.9 m
Free float	44%

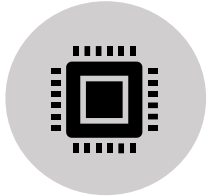
Analitical coverage

In 2020, Stifel Europe Bank AG (MainFirst Bank AG) has started issuing recommendations for XTPL - XTPL is the first Polish company covered by MainFirst. MainFirst is a European financial services firm, specializing in Equity Brokerage, Investment Banking and Fixed Income which is following about 400 predominantly European stocks.

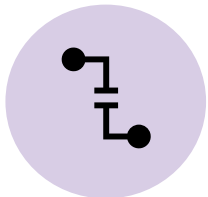
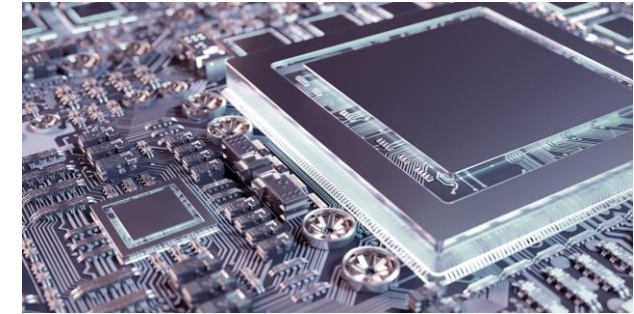


BUSINESS

MEGA TRENDS OF THE ELECTRONICS MARKETS

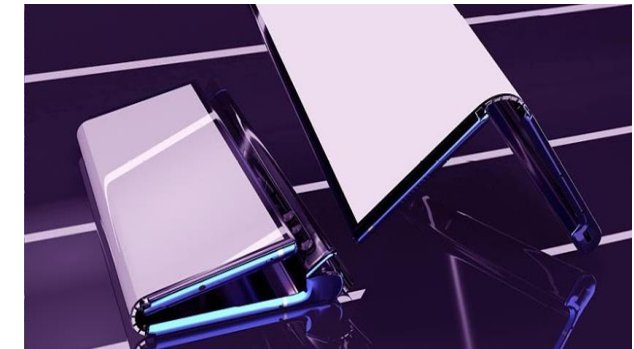


Miniaturization of the size and weight of electronic devices while increasing efficiency and speed of operation



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

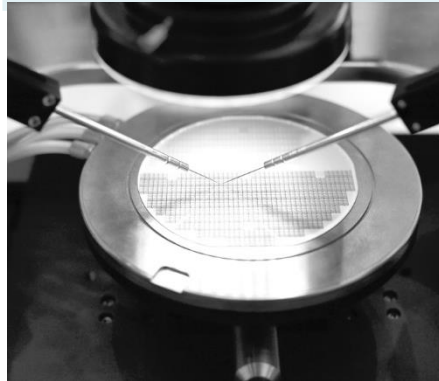
- **USD 47.1bn** - value of the global market of printed, flexible and organic electronics in 2021, up 14.0% YoY
- **USD 63.3bn** - estimated value of this market in 2025, with **USD 74.1bn** estimated in 2030
- **9.0%** - CAGR 2020–2025

OLED DISPLAYS



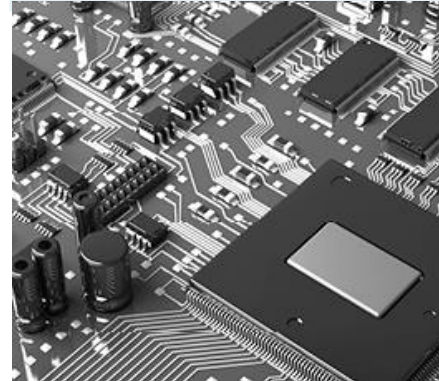
\$38.4 bilion (2021)
CAGR 2021-2026 13.6%

ADVANCED INTEGRATED CIRCUIT



\$25.81 bilion (2021)
CAGR 2019-2026 7.8%

ADVANCED PCBs



\$61.8 bilion (2021)
CAGR 2021-2027 3%

SMART GLASS

\$3.8 bilion (2020)
CAGR 2020-2025 12.1%

BIOSENSORS

\$24.9 bilion (2021)
CAGR 2022-2030 8%

SECURITY PRINTING

\$117.2 bilion (2021)
CAGR 2021-2026 12.5%

SOLAR PHOTOVOLTAIC PANELS

\$180.4 bilion (2020)
CAGR 2021-2030 11.9%

XTPL BREAKTHROUGH



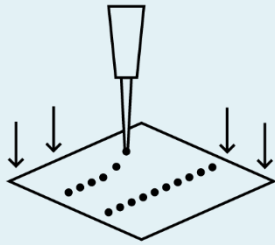
APPLICATION

TIME AND COSTS

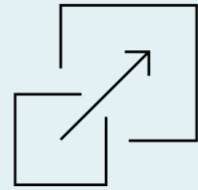
ENVIRONMENT

SUBSTRATE

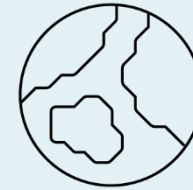
XTPL[®]
ADDITIVE



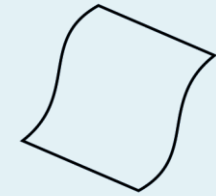
Precise application/ simple process



Effective and flexible

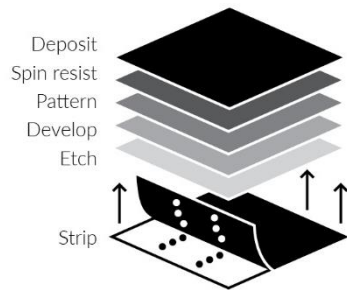


Safe for the environment

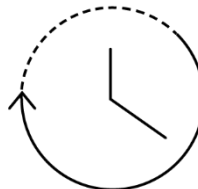


Most substrates/ even curved ones

SUBTRACTIVE



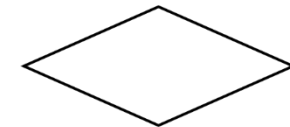
Removal of unnecessary material to obtain a pattern/ multi-stage process



Time and material consuming



Requires highly corrosive solutions



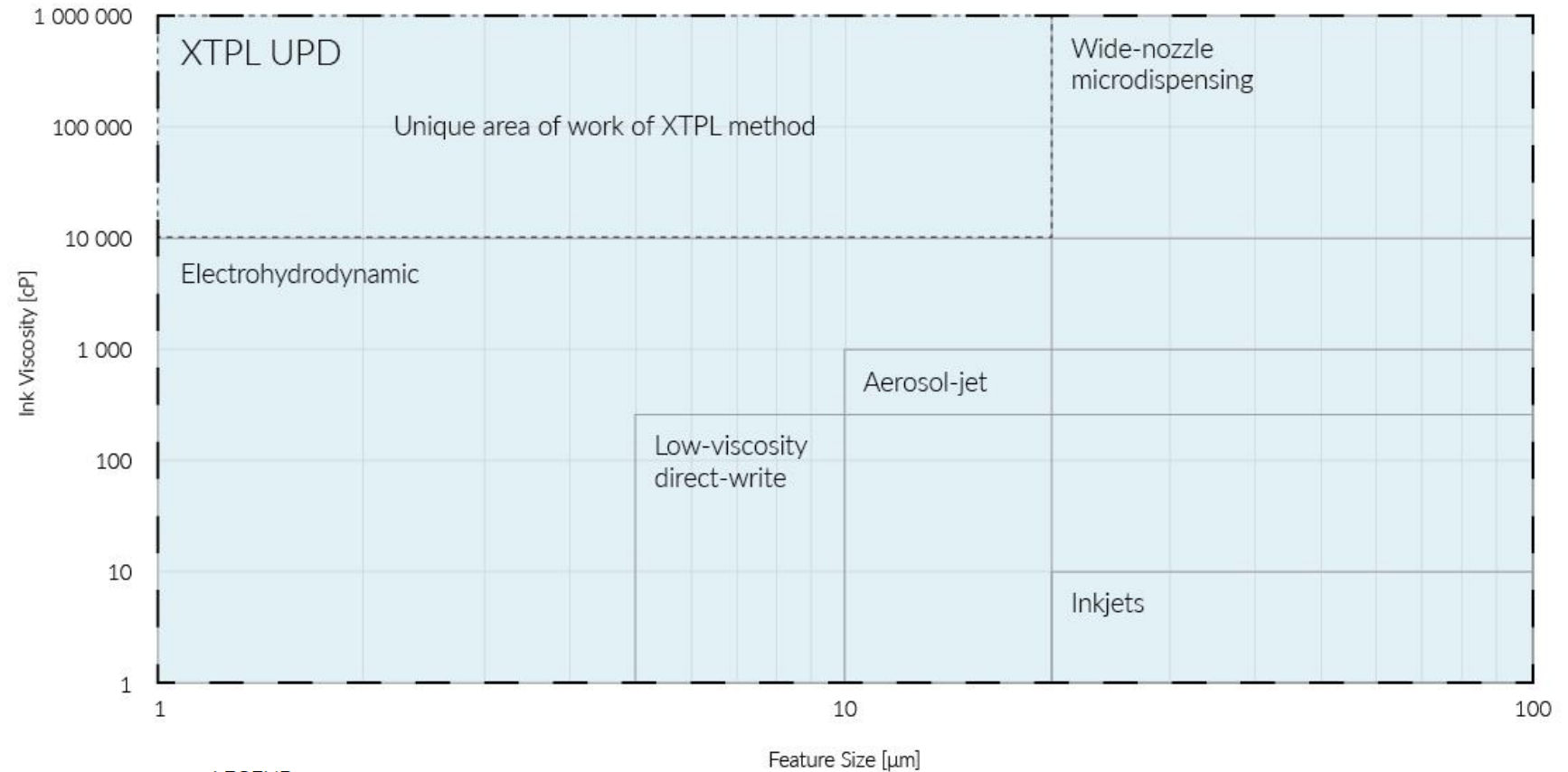
Only flat substrates

THE UNIQUENESS OF THE XTPL ULTRA-PRECISE DEPOSITION (UPD) TECHNOLOGY



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

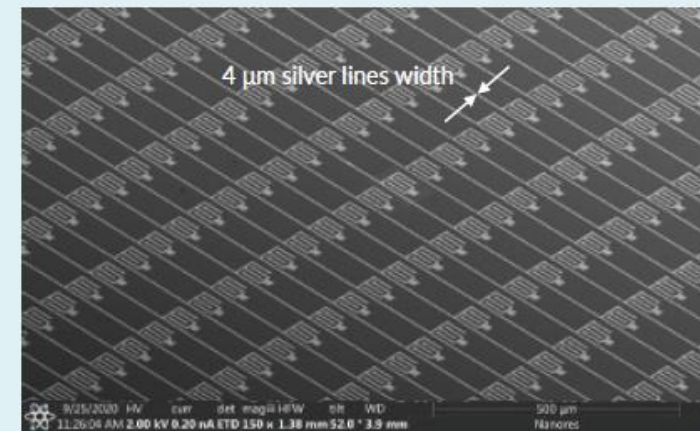
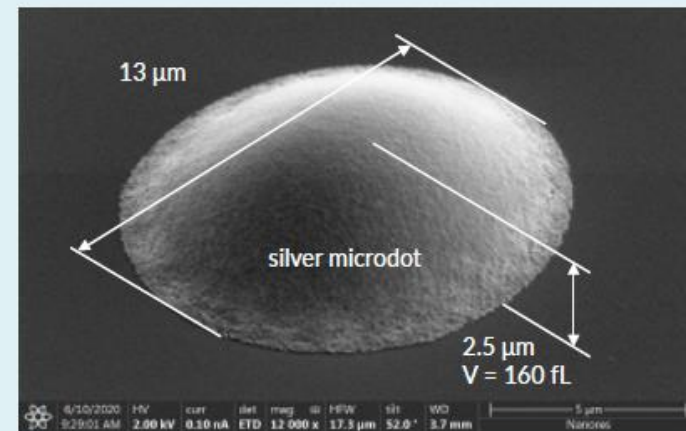
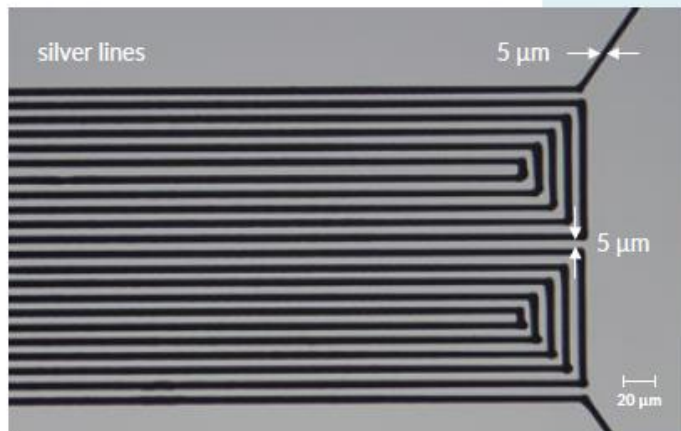
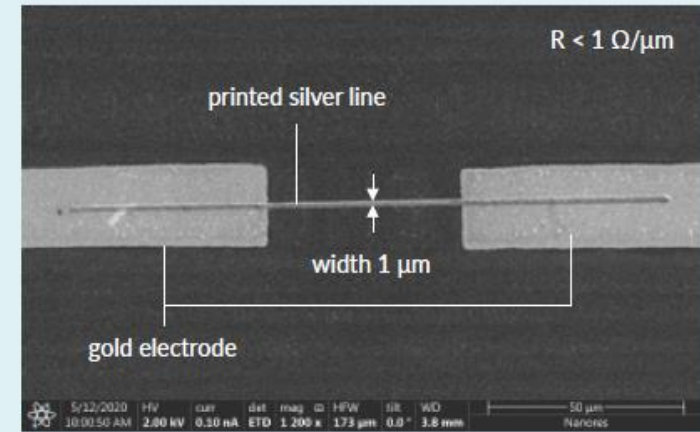
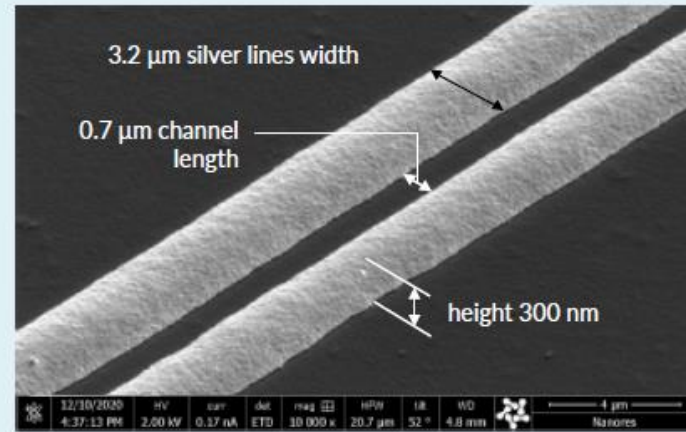
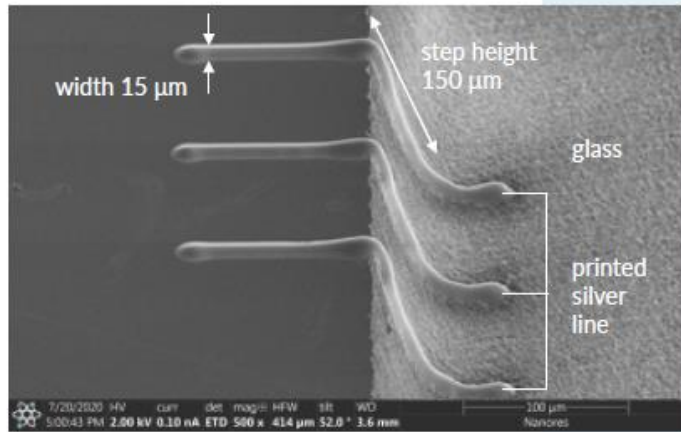
- ability to print high viscous materials along with small feature sizes
- high aspect ratios just after a single pass
- matchless variety of printing different materials
- uninterrupted interconnections on highly complex topographies
- ultra-high-resolution printing on practically any kind of substrate



LEGEND:

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

POSSIBILITIES OF XTPL ULTRA-PRECISE DEPOSITION (UPD)



INTELLECTUAL PROPERTY PROTECTION



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

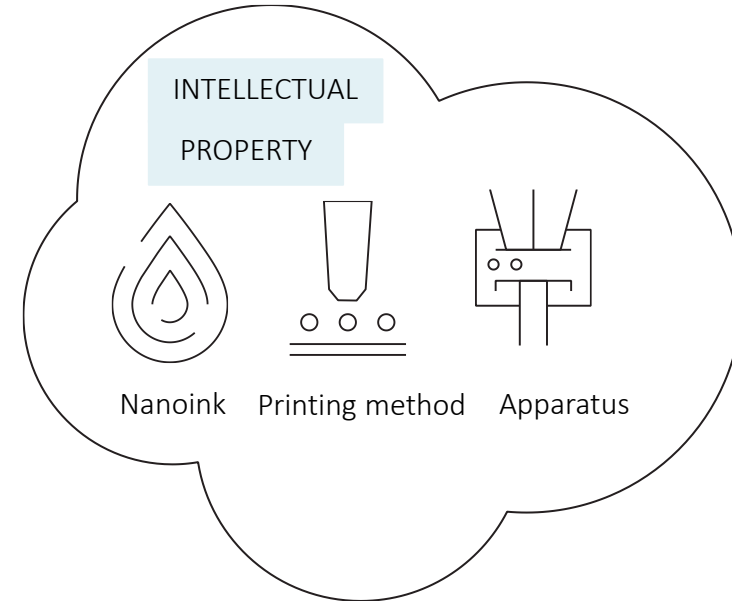
UPD process – patents describing the ultra-precise deposition process, or a device used for this process

Nanoink – patents protecting various nanoink formulations

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

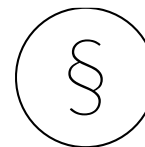
Application fields – patents describing solutions to specific technological problems using the UPD method

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



24
patent applications
filed in total

2
patents granted



Support from a international law firm

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

COMPANY DEVELOPMENT PHASE



NEXT STEP

CURRENT PHASE

INITIAL TECHNOLOGY DEVELOPMENT PHASE

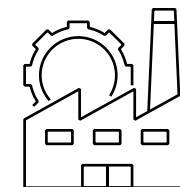
- development of the underlying technology
- technology evaluation by industrial clients and academic R&D centers



- Research & Development
- rapid prototyping
- commercialization of the Delta Printing System and XTPL nanoinks
- technology evaluation for industrial implementations with global players in the printed electronics market
- establishing and implementing commercial and strategic cooperation in order to introduce technologies to global industrial customers

- integration of **XTPL Printing Module** to industrial equipment
- continuous supply of ink and nozzles + cartridges

XTPL
INSIDE

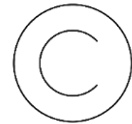


COMMERCIALIZATION MODEL - CHANNELS



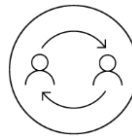
DISTRIBUTION AGREEMENTS

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



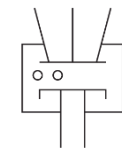
LICENSING

- 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.

xtpl.com

YI XIN (China and Hong Kong)

XTPL is expanded its presence in the Chinese market by starting cooperation with Yi Xin Technology, who intends to distribute the Company's technological solutions in China. 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.

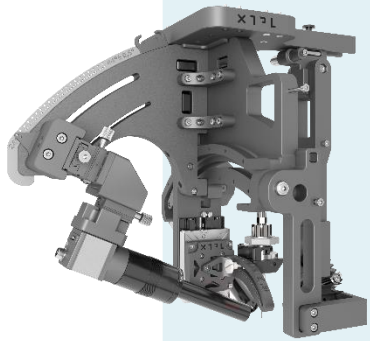
MERCONICS (Germany)

Merconics will promote XTPL technology and products in selected European countries, including in Germany, France, Austria and Switzerland. Merconics is a European renowned distributor active in the area of advanced manufacturing and analytical equipment for the semiconductor sector. Their portfolio includes solutions from such brands as Bruker, Veeco, NovaCentrix or Optomec.

VERTEX (India)

XTPL started cooperation with Mumbai-based Vertex Global Solutions, a firm specialized in providing technological solutions for the display, semiconductor and organic photovoltaic cells industry. Vertex is a newly formed, highly specialized boutique agency headquartered in Mumbai and its founders have over 25 years of experience in the industry.

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
- Delta Printing System clients:
University of Stuttgart, Germany
Karlsruhe Institute of Technology „KIT”, Germany
PORT Poland
Glasgow University, UK
University of Brescia, Italy



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

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						
Interconnect Depo	FPD USA	Multinational technology company				Initial discussions		
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						
Mettalic ink	PCB EMEA	Nano Dimension Ltd.						

DELTA PRINTING SYSTEM: COMERCIALISATION AND PIPELINE

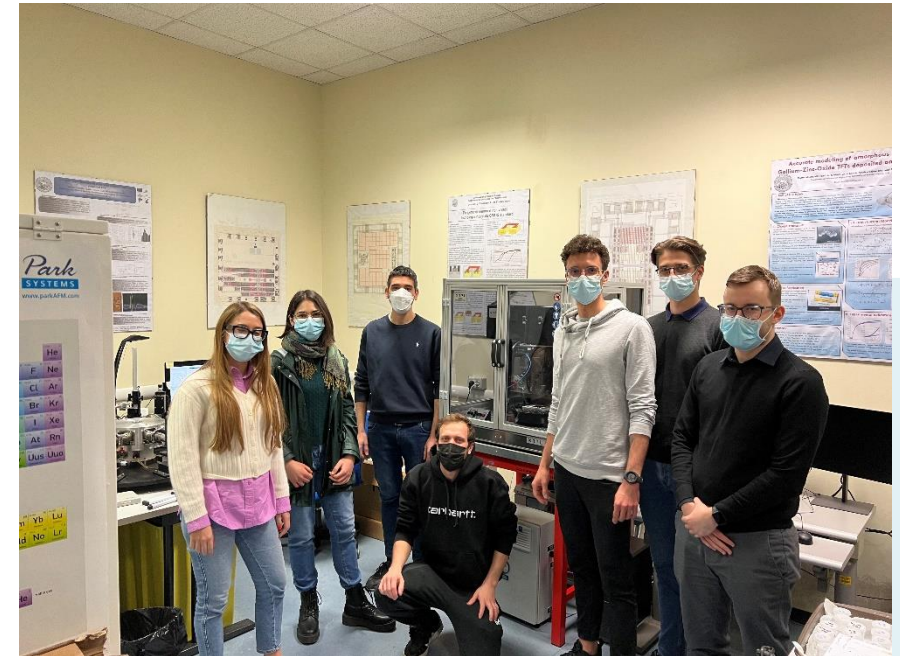


1Q'2022	1Q'2022	1Q'2022
OFFER MADE TO A POTENTIAL CLIENT	DEMO PROJECTS AND NEGOCIATIONS	SALES CONTRACT SIGNED IN TOTAL*
4	9	5

Delta Printer price: approx. EUR 170-200 thousand

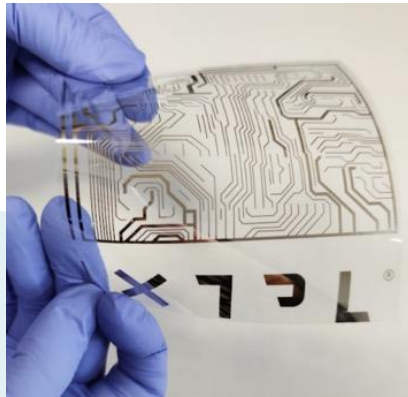
Until the first industrial implementation, the company decided to sell its products in the form of a printer and nanoinks in order to start generate cash flows from operating activities

XTPL Delta Printing System users:



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

NANOINKS: COMERCIALISATION AND PIPELINE

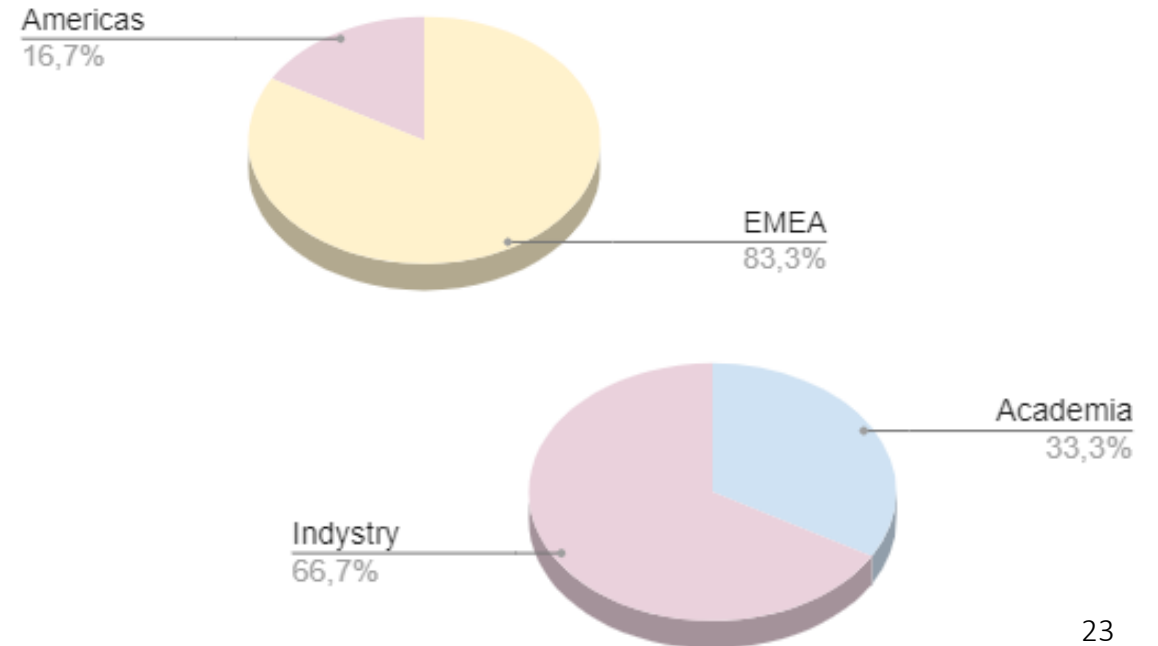


Key milestones:

- 6 independent orders from USA and EMEA region
- 37 orders from the beginning of the commercialization process
- copper and gold inks under development
- business cooperation with **Nano Dimension** to develop a next-generation conductive nanoink
- signing an agreement with **nScript** for the distribution of **conductive paste CL85**, which will be added the client's product offer
- advantage of **industrial clients** over scientific clients

OFFER MADE TO A POTENTIAL CLIENT	SAMPLE SENT TO POTENTIAL CLIENT AND NEGOTIATIONS	SALES CONTRACT SIGNED AND PRODUCT DELIVERED
17	5	6

Ink sales 1Q'2022



NANO DIMENSION – STARTING THE COLLABORATION



- On January 10, 2022, XTPL entered into a cooperation agreement with Nano Dimension Ltd.
- Collaboration to develop a special formulation of conductive ink for the devices manufactured and supplied by Nano Dimension
- The special formulation for electronically conductive ink is based on metallic nanoparticles for Additively Manufacturing Electronics (AME) applications
- The solutions will enable high conductivity for Nano Dimension products focused on AME markets
- The first sales revenues from established cooperation may be recorded in XTPLs' income statement starting from 2022

"Adding new materials to our portfolio is a key strategic aim for Nano Dimension company, and in addition to in-house development of dielectric and conductive ink, we partner with material companies to expand our material portfolio for different applications" said Hanan Gino, Chief Product Officer of Nano Dimension. "The expertise of XTPL will enable our customers to more easily develop new classes of High-Performance Electronic Devices (HI-PEDS®) on our AME solutions" he added.



NANODIMENSION

Nano Dimension Ltd. is a NASDAQ-listed provider of intelligent machines and solutions for the production of Additively Manufactured Electronics (AME). Nano Dimension implements printing technology for manufacturing of AME and 3DPrinted Electronics markets.

NSCRYPT – LICENSE AGREEMENT



- On April 5, 2022, XTPL strengthens cooperation with nScript Inc. by concluding a license agreement.
- XTPL's Ag Nanopaste CL85 will be added to nScript's product offer and will be marketed to nScript's production system users from medical device, defense and space sectors.
- XTPL's Ag Nanopaste CL85 will be the first product to be offered as part of the cooperation between the companies.
- Along with nScript's technological equipment, XTPL's nanopaste will be used for the development of new generation printed electronics.
- The very good results of the nanopaste's evaluation, carried out by the nScript's R&D team for its selected customers, confirmed the uniqueness of the XTPL solution.

„Quality and performance are key for us and our customers. These are the features we see in Nanopaste CL85 developed and produced by XTPL. Implementing the XTPL nanopaste into our deposition systems will allow fine features to be printed, down to 25 microns, with high aspect ratios. This will also allow more electrical current to be carried in a microscopic line.” says nScript's CEO, Ken Church (PhD).



nScript designs and manufactures high-precision industrial Microdispensing and Direct Digital Manufacturing equipment with unmatched accuracy and flexibility. nScript has award-winning technologies and is thrived to provide complete solutions for various applications in electronics & packaging, 3D printing, life science and more. nScript's headquarter is based in Orlando, Florida.

COLLABORATION WITH THE UNIVERSITY OF BRESCIA IN BIOSENSORS



UNIVERSITÀ
DEGLI STUDI
DI BRESCIA

- Starting strategic cooperation with the University of Brescia in Italy – UniBs (22 March 2022), following technology evaluation based on the Delta Printing System purchased in 2021
- Developing an innovative method of producing next generation organic biosensors using the unique electronics printing technology created by XTPL
- The goal is to increase the reach of XTPL technology – entering a new market and a new segment of industrial customers
- The parties to the agreement will consider expansion of the cooperation under international projects funded as part of selected EU programs.

“Once we got to know the capabilities of the XTPL technology, in the first place we decided to purchase the Delta Printing System in the first place. The more familiar we became with the Company’s solution, the more convinced we grew about forging a longer cooperation with XTPL and working together on what we believe is a promising solution for bioelectronics. We intend to develop ultra-sensitive, organic biosensors that will be printed and integrated into 3D, adaptive and flexible substrates. An important market advantage for these new biosensors will be their biodegradability, an important and increasingly necessary feature of electronic devices,” says Fabrizio Torricelli, Professor at the University of Brescia, who leads the research.

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	05.01.2022
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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AWARDS



XTPL ranks high on the list of technology businesses in Poland with the greatest number of awards. Company has been a winner and a finalist of numerous competitions in Poland and abroad.

A close-up photograph of a person's hand touching a glowing screen. The background is dark with out-of-focus bokeh lights in shades of orange and yellow. The hand is in the foreground, with the index finger touching the screen. The screen is illuminated, creating a bright spot where the finger touches it.

SUMMARY

WHY TO INVEST IN XTPL



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 35** 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**

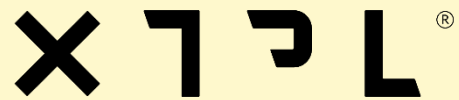
COMMERCIALIZATION

- a consistent commercialization strategy and sales of 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

- generating cash from operating activities thanks to growing sales
- securing financial liquidity and the ability to obtain subsidies (NCBR support, implementation of the HORIZON program in the perspective)

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THANK YOU