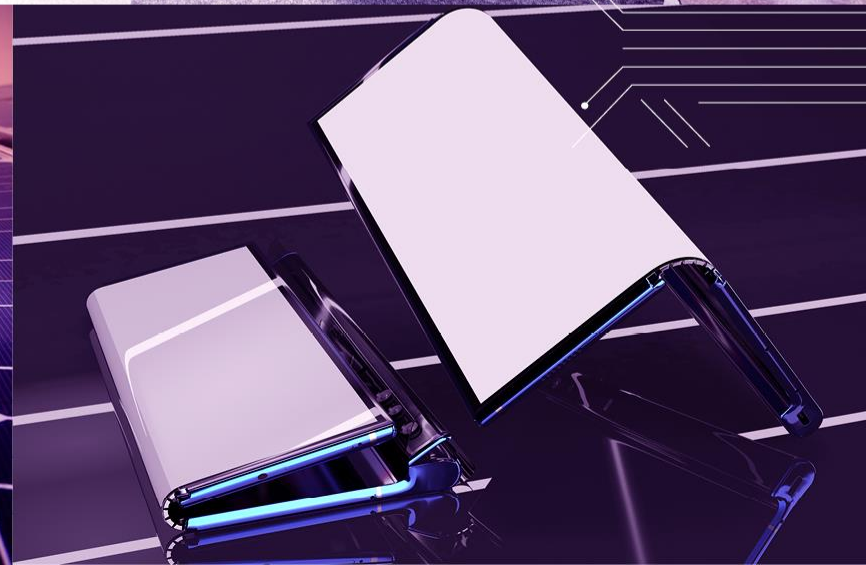
shaping global nanofuture

INVESTOR'S PRESENTATION FOR H1 2020

XTPL S.A.

September 25, 2020



AGENDA

1. EQUITY STORY
2. APPLICATIONS
3. TECHNOLOGY
4. COMMERCIALIZATION
5. EVENTS
6. FINANCE
7. TEAM
8. VISION

EQUITY STORY

XTPL develops the most precise printing technology in the world applicable in the rapidly growing printed electronics market.

Value of printed electronics market in 2019

$ 37,1 mld

Number of application fields in which the company is currently commercializing its technology

5

$ 74 mld

Global value of printed, flexible and organic electronics market in 2030

APPLICATIONS

PLATFORM CHARACTER

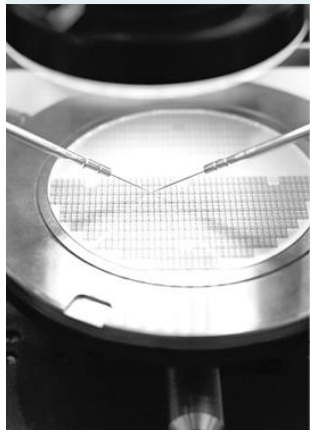
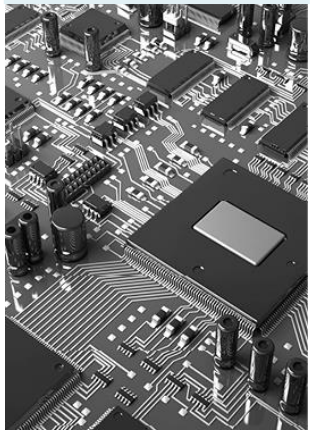
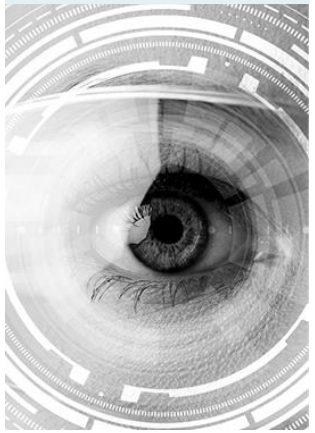
ADVANCED ELECTRONICS

- The global value of printed, flexible and organic electronics market amounted to $ 37.1 billion in 2019
- Its estimated value in 2030 is $74 billion
- CAGR 2019–2030 – 6.5%

STRONG MEGATREND

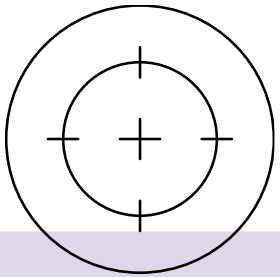
Production of technologically advanced devices using cost-effective and scalable methods.

XTPL has developed a **technology** that **enables that advance.**

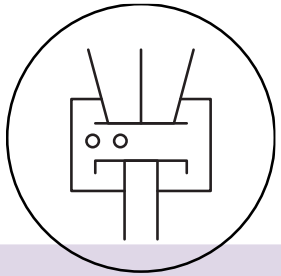
SMART GLASS	DISPLAYS	SEMICONDUCTORS	ADVANCED PCBs	SECURITY PRINTING	BIOSENSORS	PHOTOVOLTAIC CELLS
						
$1.45 bilion CAGR 2019-2026 16.3%	$28.7 bilion CAGR 2019-2023 12.6%	$469 bilion CAGR 2019-2024 4.1%	$55.4 bilion CAGR 2019-2024 4.49%	$51.8 bilion CAGR 2019-2024 12.5%	$3.9 bilion CAGR 2019-2029 0.98%	$19.4 bilion CAGR 2019-2023 19.4%

TECHNOLOGY BREAKTHROUGH

XTPL’s nanoprinting method is ground-breaking. This is because of a unique combination of several features:



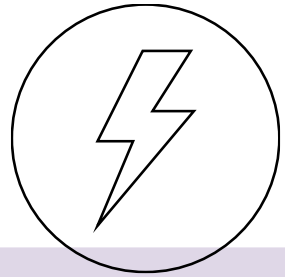
it offers the level of **precision that cannot be achieved** by any other printing method in the world



it allows for the traditional advantages of print – such as **scalability, cost effectiveness, simplicity and speed** – to be used in production of advanced electronics

additive method

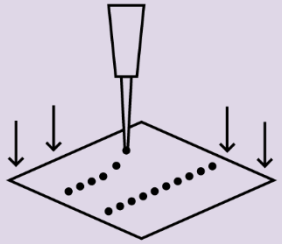
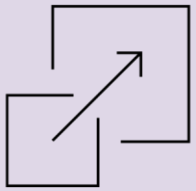
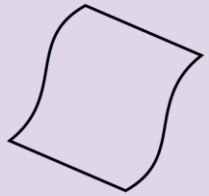
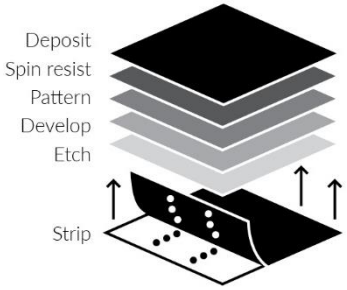
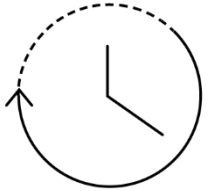
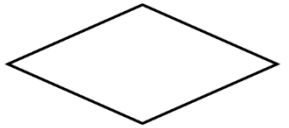
it ensures significant time and material savings



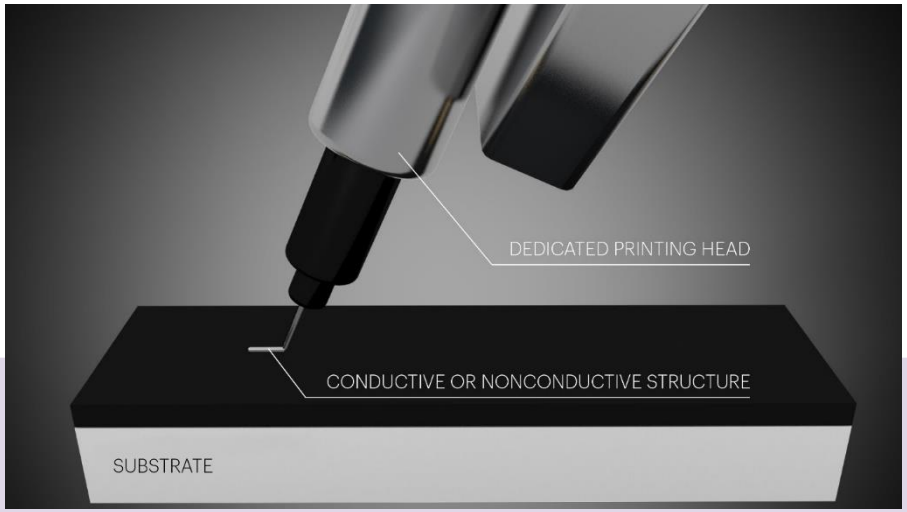
it does not require electric field, which fully **eliminates the risk of damage** caused by such field to any electrically active components

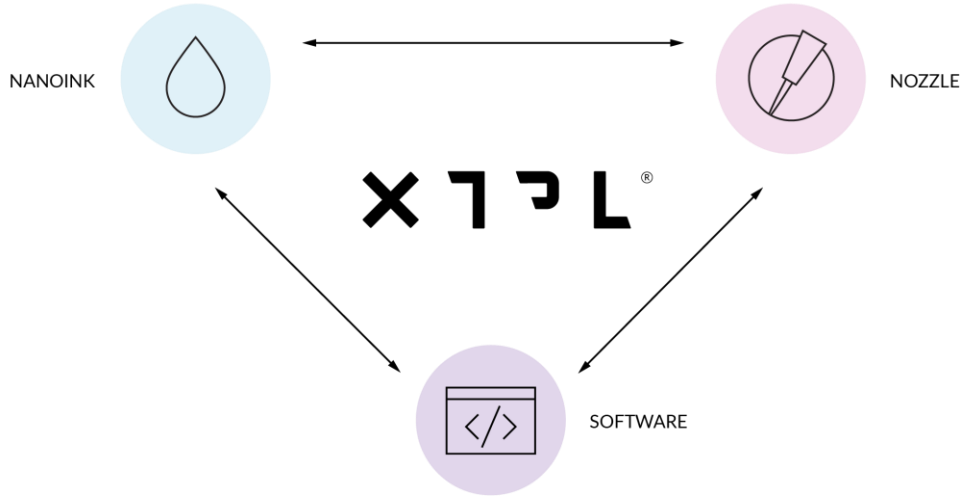
TECHNOLOGY

ADDITIVE VS SUBTRACTIVE METHOD

	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

ULTRA PRECISE DEPOSITION (UPD)® METHOD

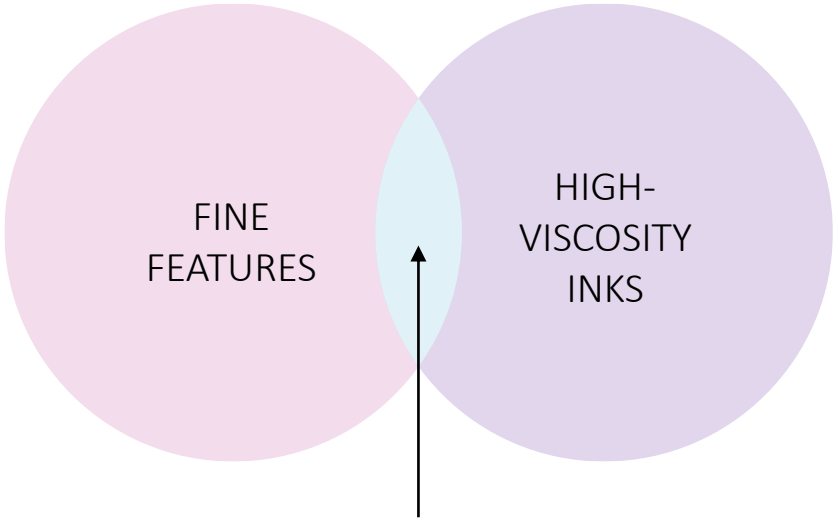




- Pressure based direct writing
- Dedicated high-viscosity inks
- Flexible glass nozzle
- Purely additive
- No electric field required

In-house parallel development of

- Nano-ink synthesis
- Nozzle preparation
- Process optimisation



The need for fabrication of **high-density hybrid microelectronics:**

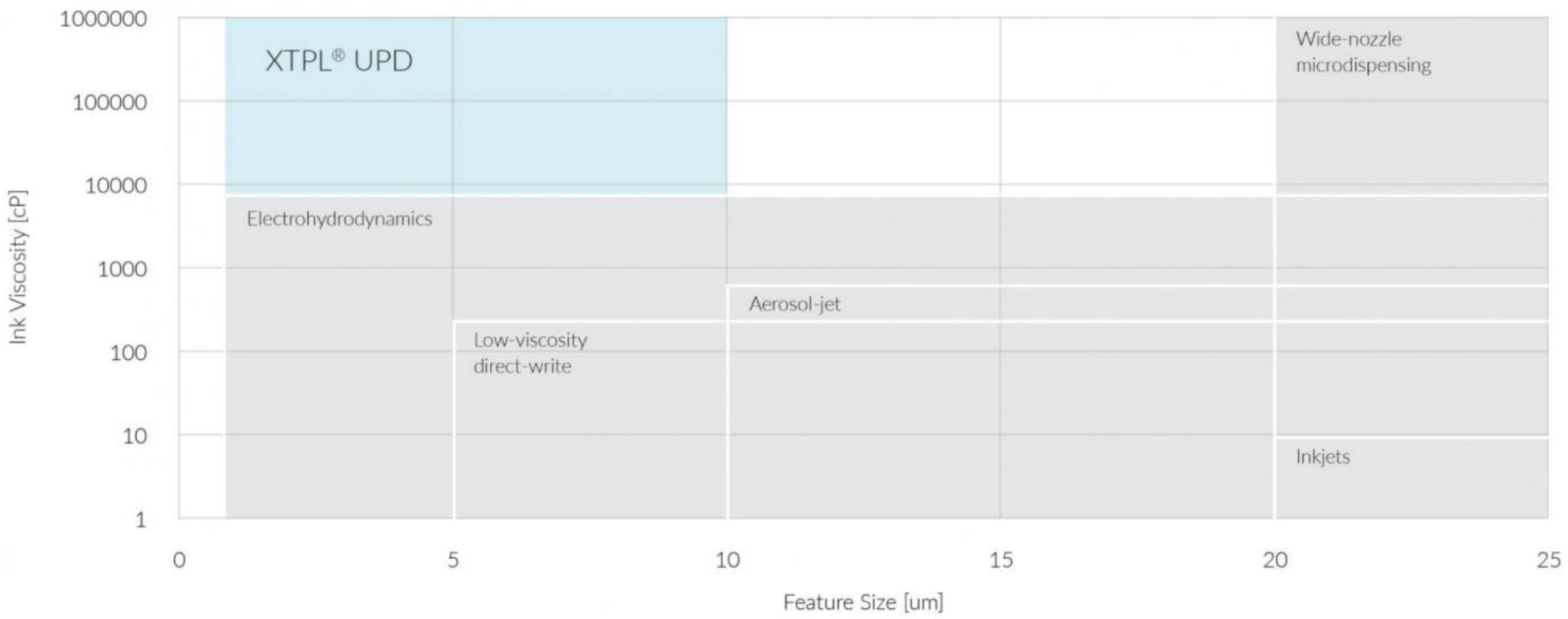
- existing technologies do not provide the required fine feature sizes
- requires precise deposition of high-viscosity conductive inks

Subtractive methods suffer from:

- limited flexibility
- high complexity
- time consuming and costly

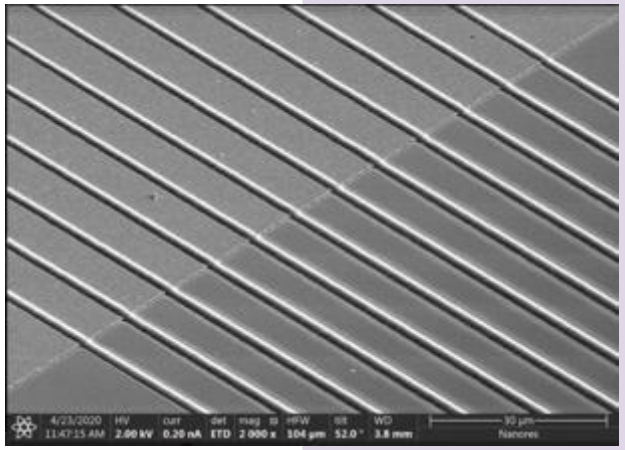
Existing additive methods suffer from:

- low resolution (tens of um)
- fine features require application of electric field
- low viscosity inks → low conductivity
- low aspect ratio

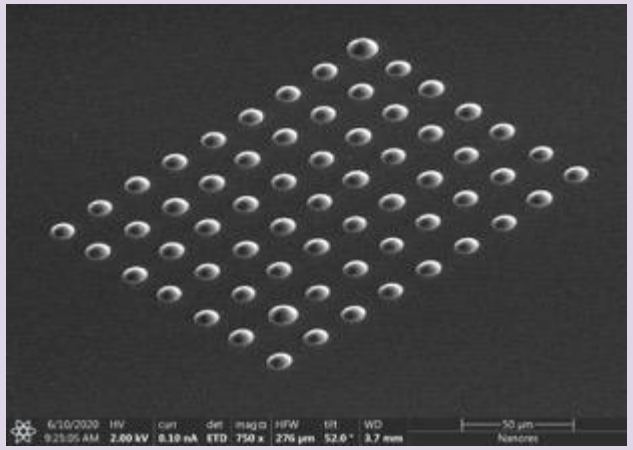

1000000
100000
10000
1000
100
10
1
Ink Viscosity [cP]
XTPL® UPD
Wide-nozzle microdispensing
Electrohydrodynamics
Aerosol-jet
Low-viscosity direct-write
Inkjets
0
5
10
15
20
25
Feature Size [um]

XTPL ULTRA-PRECISE DEPOSITION (UPD) – capabilities

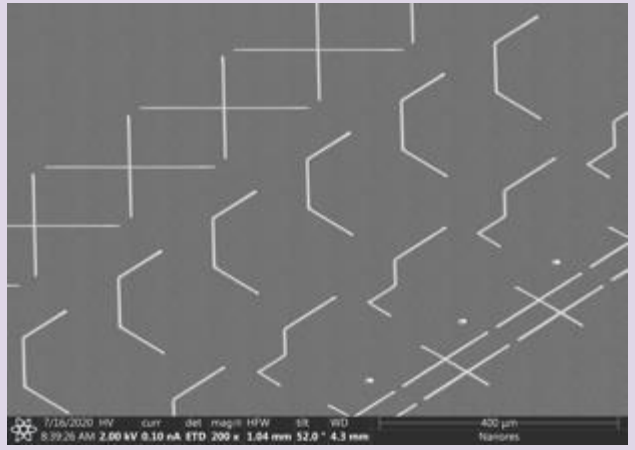
Microlines



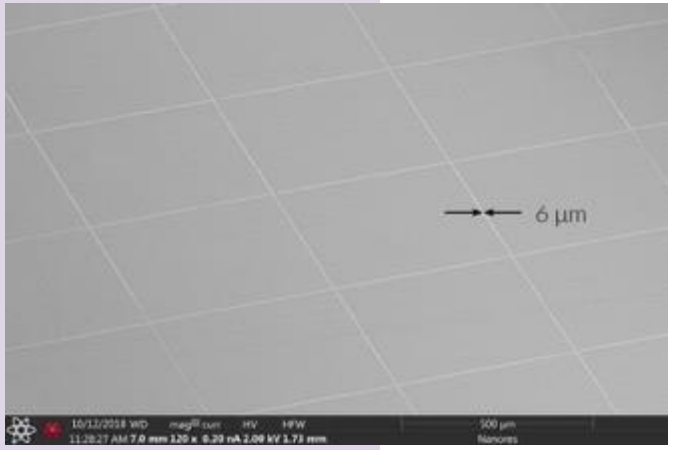
Microdots



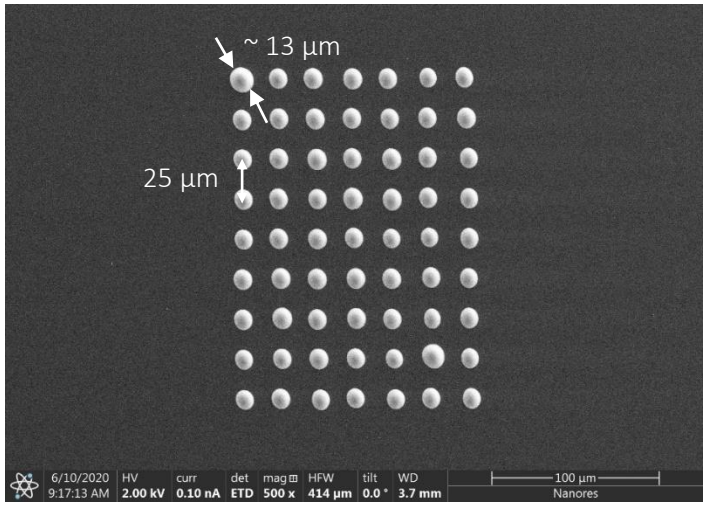
Microtrails

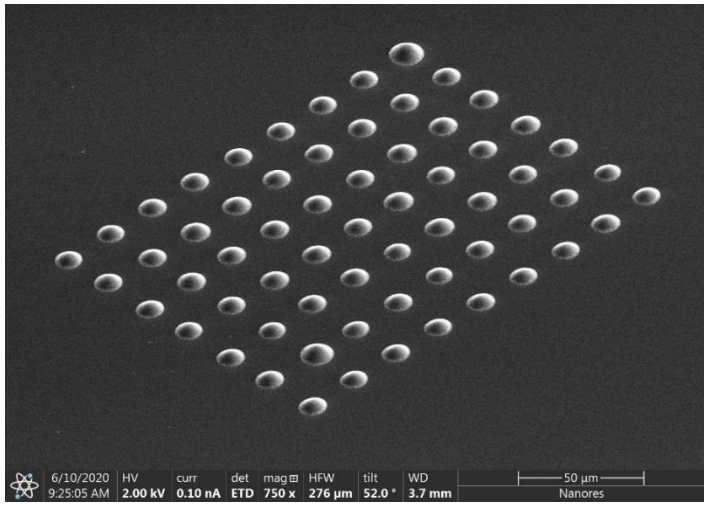


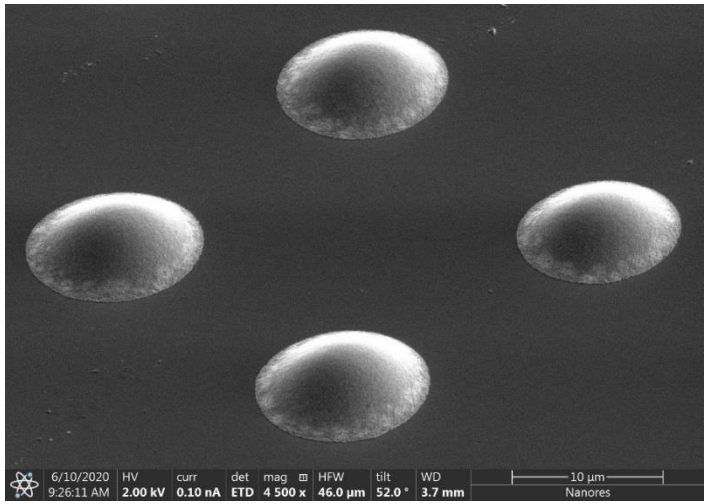
Meshes

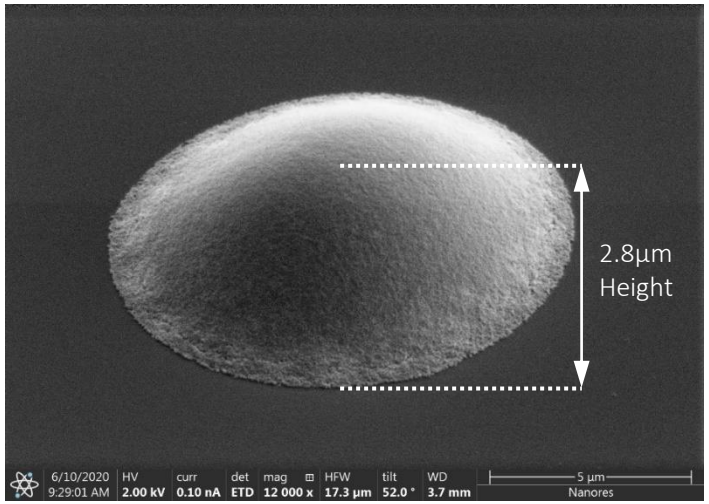


UPD® TECHNOLOGY - MICRODOTS



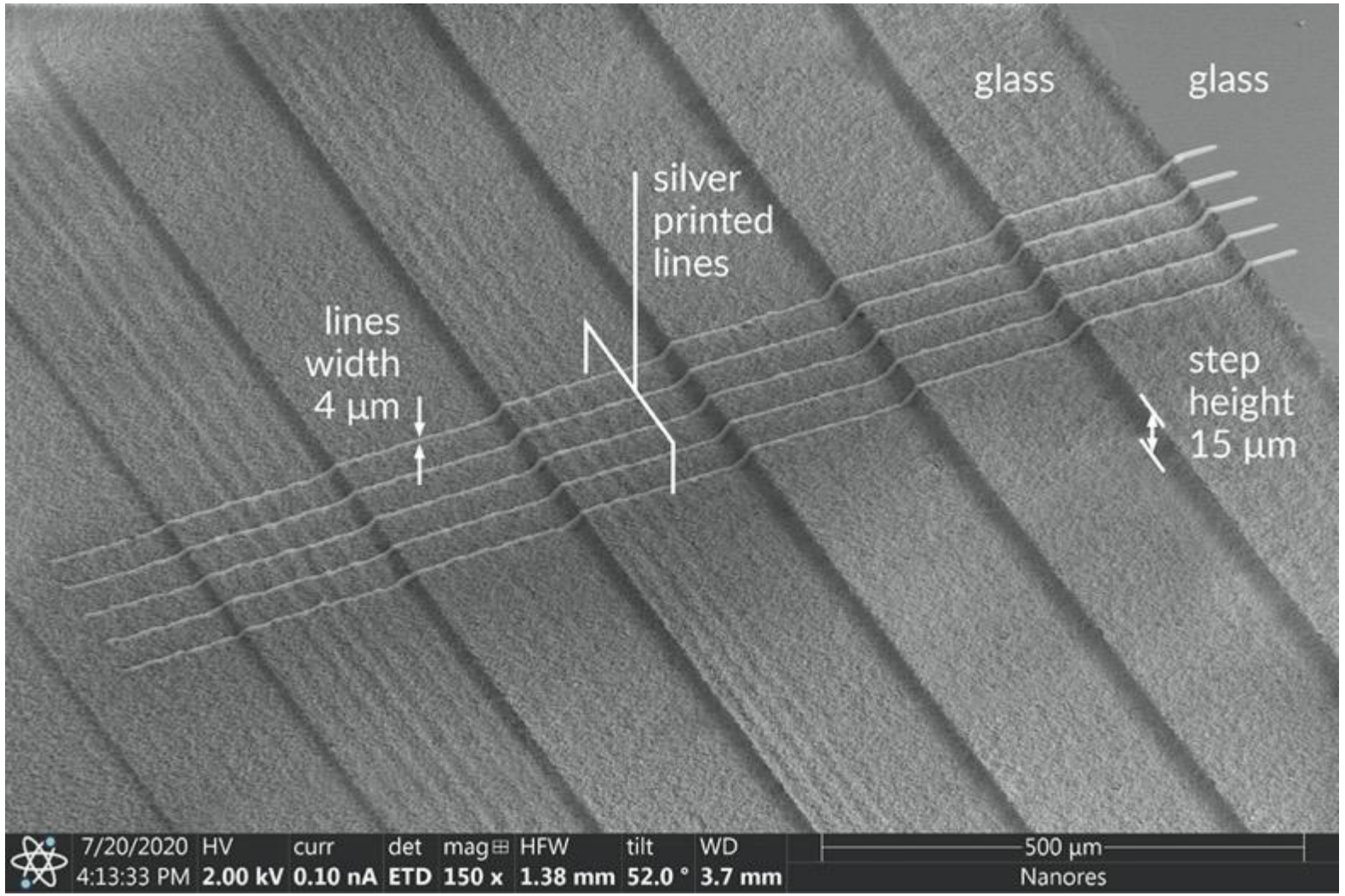






Silver microdots with **diameter of around 13 µm and height of 3 µm** were deposited on the glass using XTPL Ag paste (CL85) and XTPL Ultra-Precise Deposition.

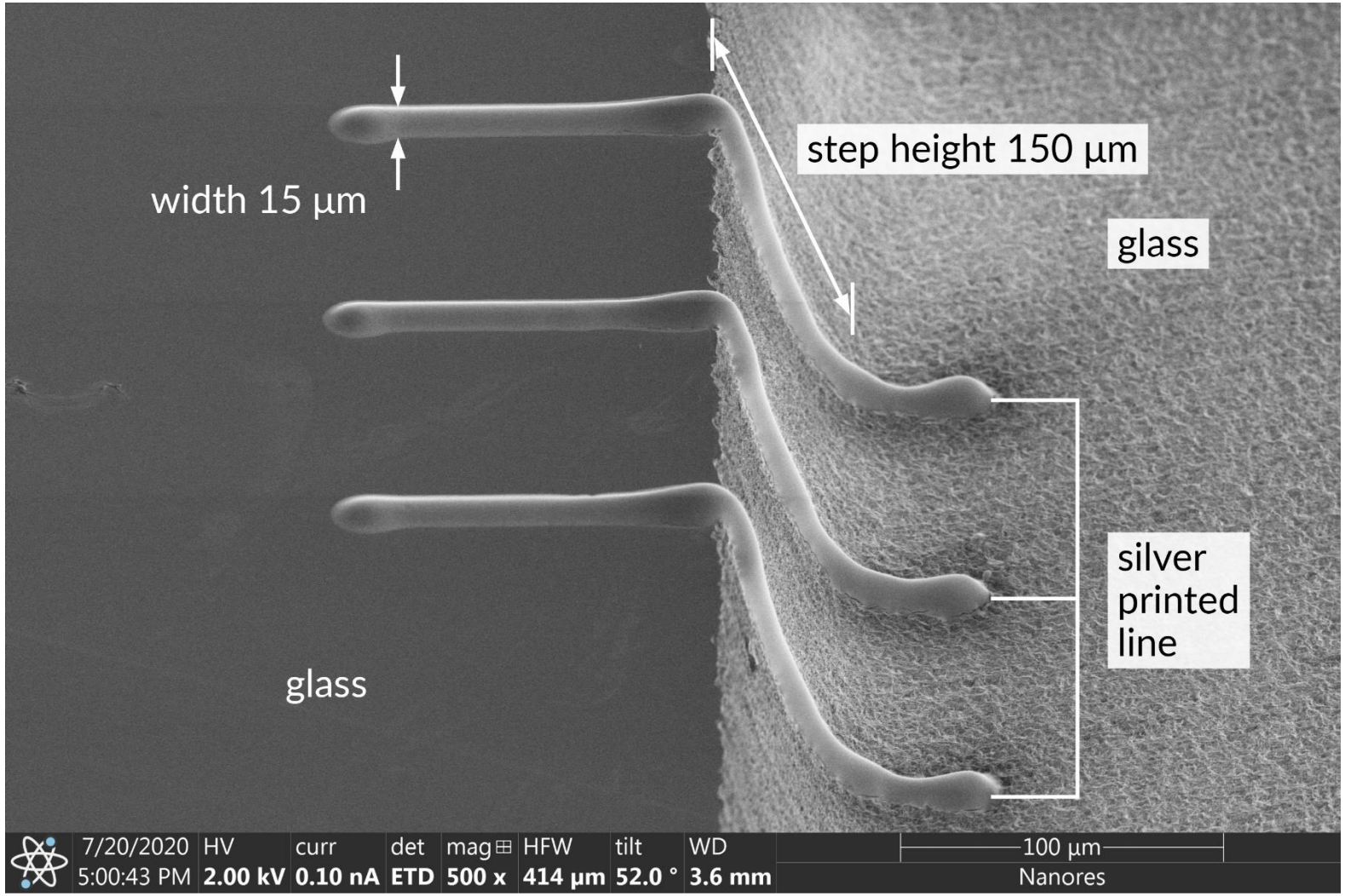
XTPL ULTRA-PRECISE DEPOSITION (UPD) – capabilities



Step coverage

Repeatable and continuous silver lines with a **width of 4 µm** printed on the series of steps with the **height of 15 µm.**

XTPL ULTRA-PRECISE DEPOSITION (UPD) – capabilities

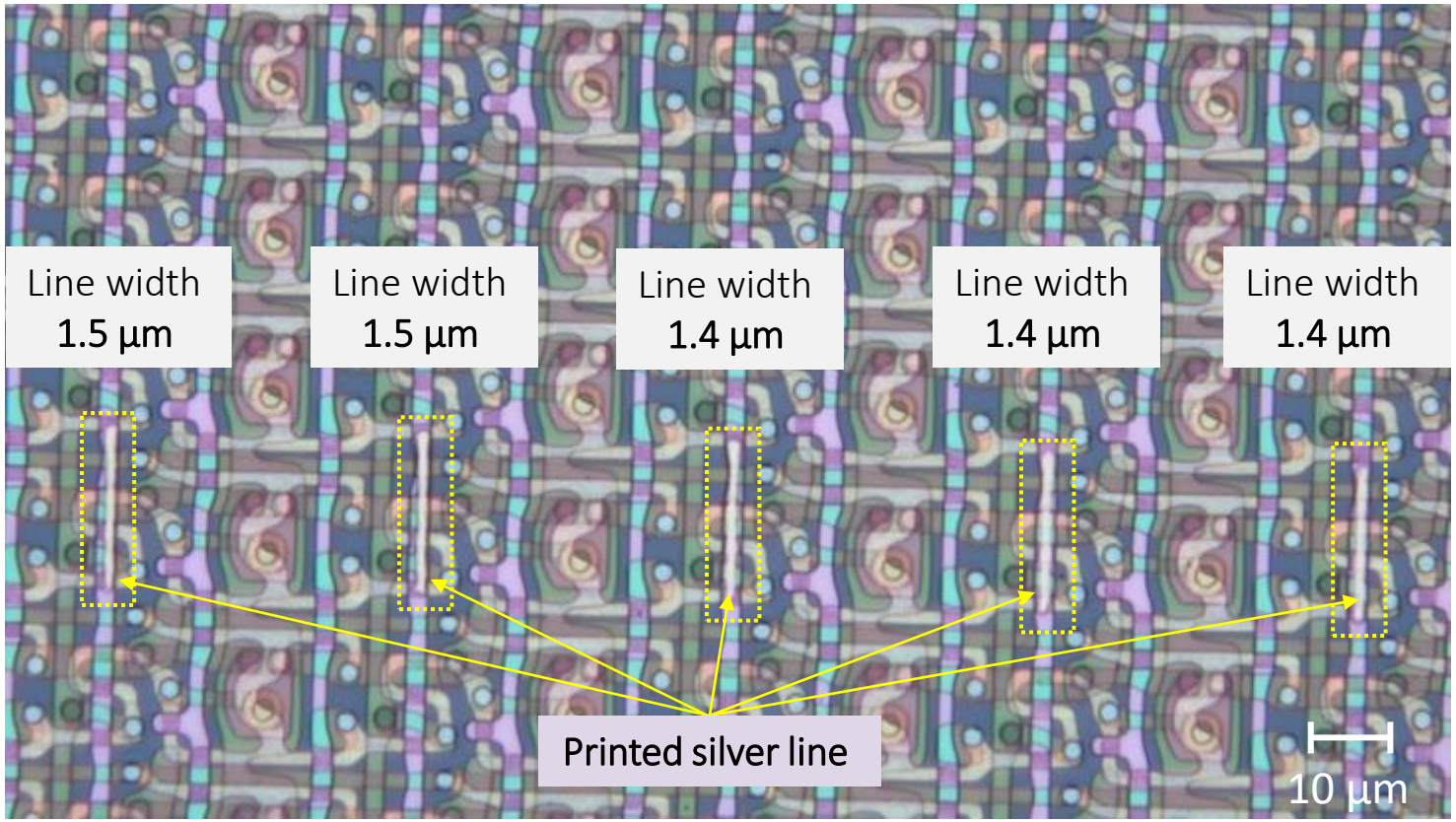


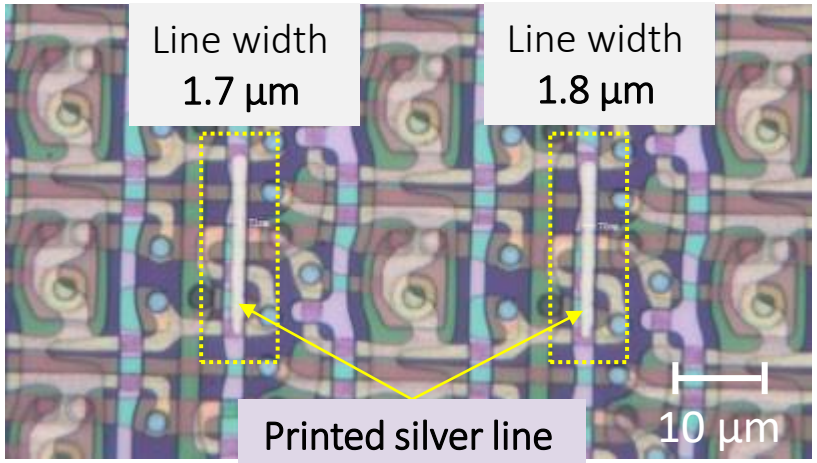
Step coverage

Repeatable and continuous silver lines with a **width of 15 µm** printed on the step with the **height of 150 µm.**

XTPL ULTRA-PRECISE DEPOSITION (UPD)

Open defect repair on OLED

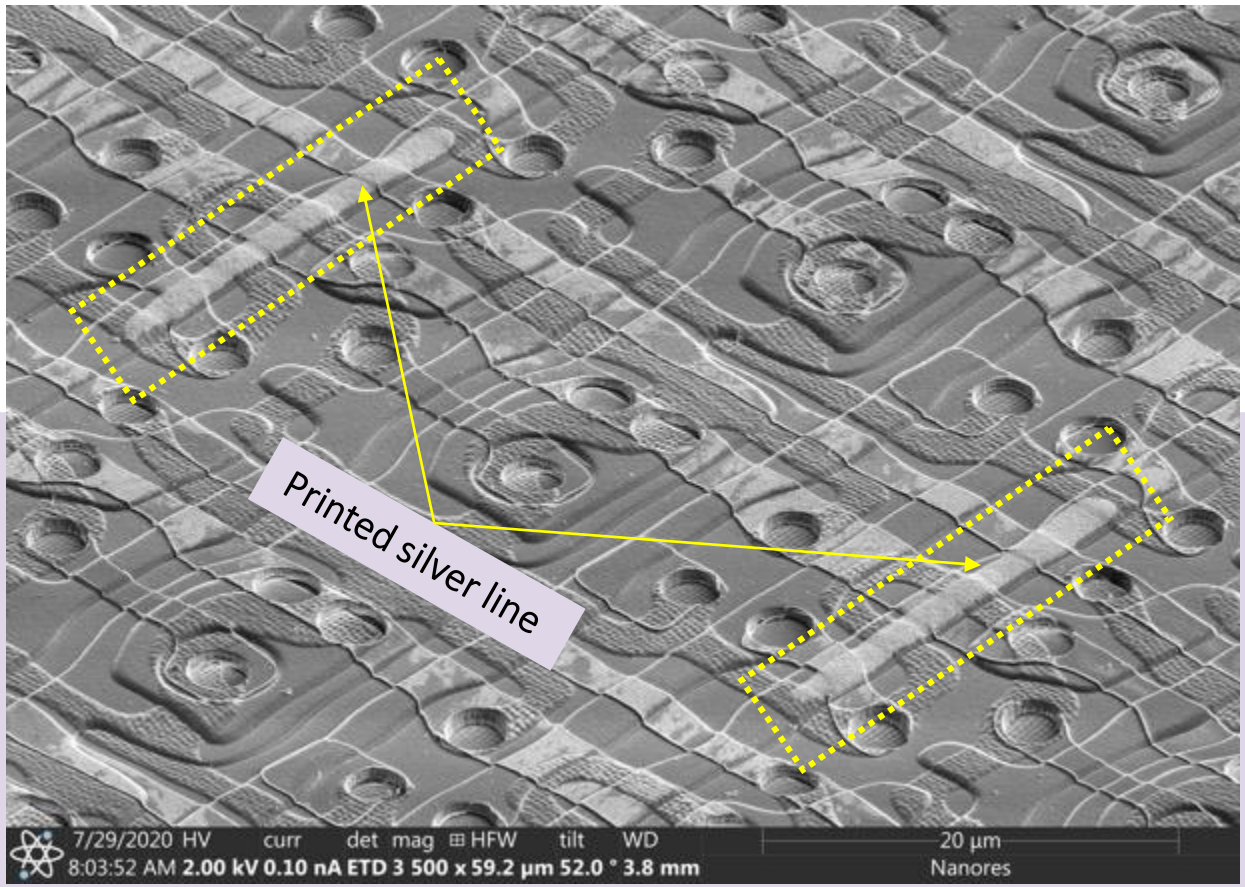


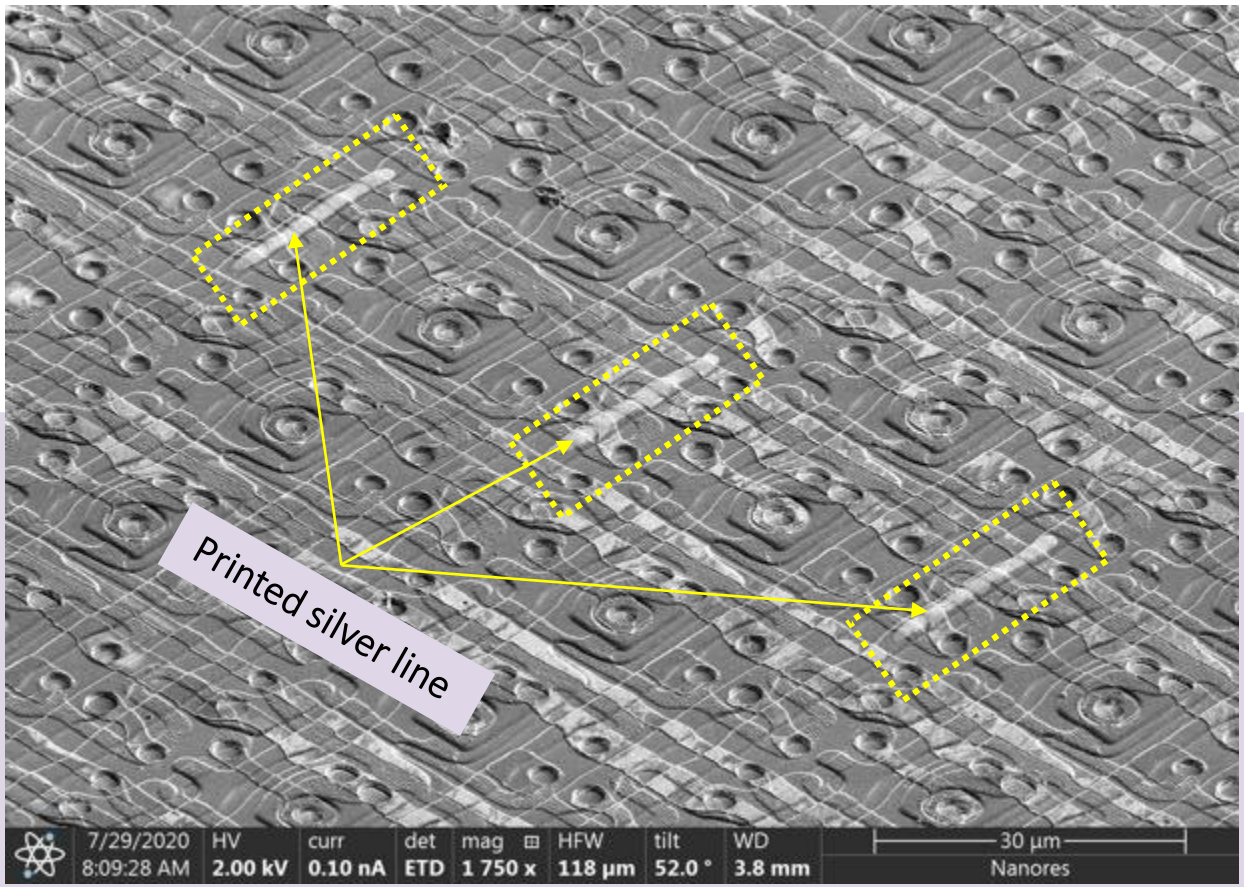


Repeatable and continuous silver lines with a **width of 1.5 µm, length of 20 µm** printed on OLED substrate.

XTPL ULTRA-PRECISE DEPOSITION (UPD)

Open defect repair on OLED





ENTRY BARRIERS

1.

Technology protected by international patent applications

2.

The results expected by the market can only be achieved by the unique interaction between the device, the printing process and the ink

3.

The cost of the technology being copied and the risk of failure are very high due to its unique nature

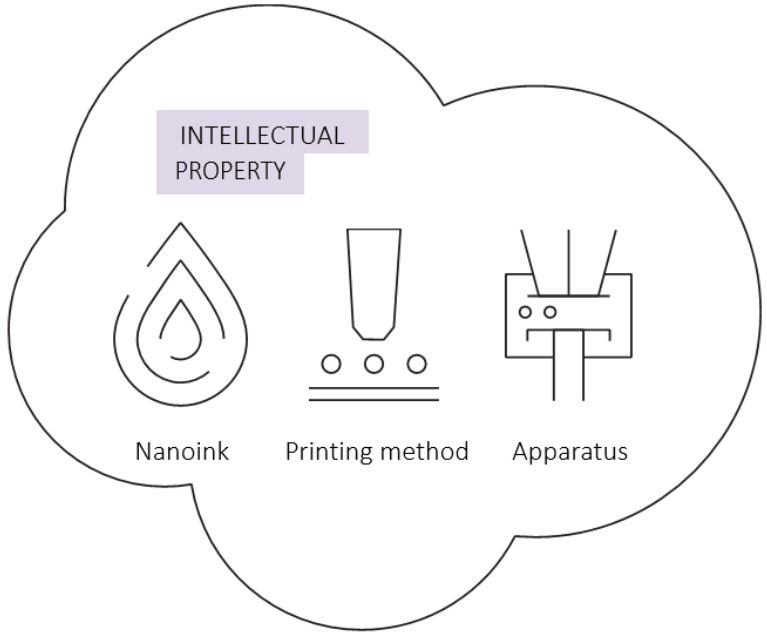
The market has been waiting for such solution for years, but so far no company has been able to provide it

PROTECTED INTELLECTUAL PROPERTY

XTPL global solution is systematically secured by expanding the patent cloud. The company has already submitted 17 patent applications.

Unique and well-protected intellectual property

- is a product
- determines the company's market position
- significantly affects the company's value
- allows to gain a competitive advantage over other market players
- enables safe commercialization
- guarantees appropriate negotiating position before commercial contracts are signed



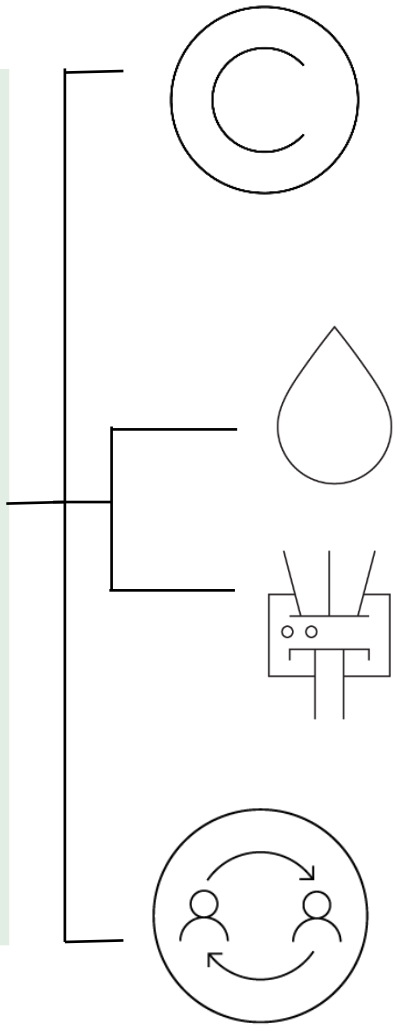
§ Gill Jennings & Every LLP, London UK

K&L Gates, Palo Alto, CA, USA

§ United States Patent and Trademark Office

BUSINESS MODEL

XTPL commercializes its technology by selecting a model that is best suited to the specific application field



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 nanoink

SALES OF PROPRIETARY PROCUCTS

- 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.

- 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

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

BUSINESS MODEL– PHASES

NOW

Development of the underlying technology

Technology evaluation by industrial clients and academic R&D centers

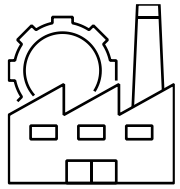
MID-TERM

Research & Development
Rapid Prototyping

LONG-TERM

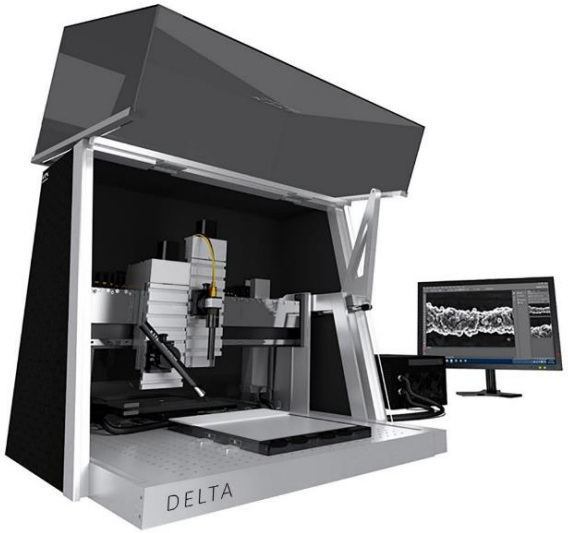
Licensing
and ink selling

INSIDE



COMMERCIALIZATION

DELTA PRINTER



User groups	The added value of cooperation
R&D departments in industry	• Validation of XTPL technology at the customer's site • Increasing awareness of the XTPL technology • Discovery of new application fields
Scientific Institutions	• Discovery of new application fields • Increasing awareness of the XTPL technology • Reference visits
Precision printer manufacturers (integrators)	• Distribution network

Base price: 150,000 EURO

Additional incomes :

Each sale of demo printer should generate monthly revenue through the sale of consumables, services and system upgrade:

- 1,000 – 2,000 EUR/per month (first two years of use)
- 2 000 – 3 000 EUR/per month (subsequent years of use)

Market size:

Global annual sales of printers for research and development as well as rapid prototyping and small series production in the field of widely defined printed electronics amounts to approx. **250-500 pieces**

The price range of this type of printers is from **50,000 EUR up to over 500,000 EUR** per item.

COMMERCIALIZATION PIPELINE

LICENCE / STRATEGIC PARTNERSHIP

- ACTIVE PROJECT WITH 9 INDUSTRIAL ENTITIES FROM AROUND THE WORLD
- INDUSTRIES: DISPLAY, LIGHTING, SEMICONDUCTORS, BIOSENSORS, SMART GLASS
- TECHNOLOGY EVALUATION ON DIFFERENT LEVELS

INTEGRATION WITH PRECISION PRINTER MANUFACTURERS

- ACTIVE PROJECT WITH 4 ENTITIES FROM EUROPE AND MIDDLE EAST – PRINTING HEAD INTEGRATION
- ACTIVE PROJECT WITH 1 ENTITY FROM ASIA –DELTA PRINTING SYSTEM DISTRIBUTION

DELTA PRINTING SYSTEM

- MORE THEN 100 PROSPECTS
- TALKS AND TECHNOLOGY EVALUATION WITH 30 ENTITIES FROM AROUND THE WORLD FROM ALL CUSTOMER GROUPS AND APPLICATION FIELDS
- OFFERS MADE TO 5 POTENTIAL CLIENTS FROM EUROPE, ASIA AND MIDDLE EAST
- PRICE NEGOTIATIONS WITH 1 CLIENT
- NEGOTIATIONS ON DETAILED CONTRACT TERMS WITH 1 CLIENT

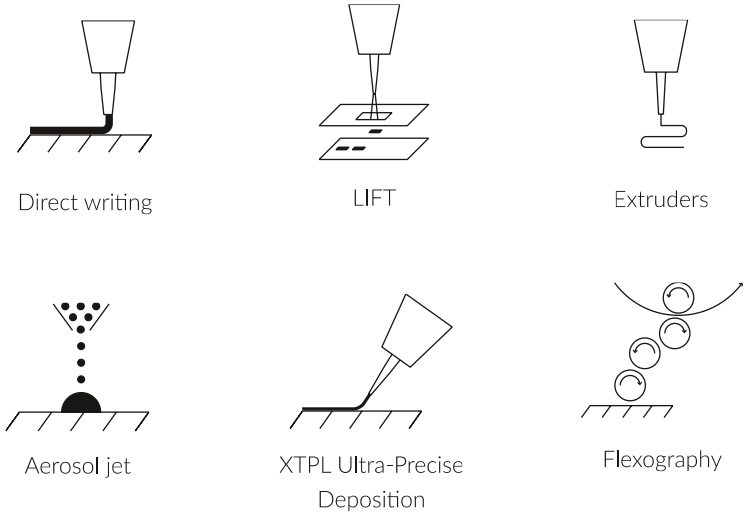
NANOINKS PIPELINE

RANGE OF INKS COMPATIBLE WITH THE TECHNOLOGY:

- XTPL inks are currently being tested in many R&D units in Europe
- The tested technologies include: *Aerosol Jet Printing, Ink-jet printing, Mirco-dispensing, LIFT and EHD*.
- Tests for Flexography and Gravoure technologies are planned

IN ADDITION:

- SEPARATE SALES TEAM
- SUBPAGE ON THE WEBSITE



PIPELINE

- MORE THAN 250 PROSPECTS
- TALKS WITH 40 ENTITIES FROM AROUND THE WORLD
- OFFERS MADE TO 15 POTENTIAL CLIENTS FROM EUROPE, ASIA AND MIDDLE EAST
- SAMPLES SENT TO 10 CLIENTS
- SALES TO 4 CLIENTS

HERBERT WIRTH IN THE SUPERVISORY BOARD

JANUARY 2020

- on 9 January 2020, XTPL shareholders appointed Prof. Herbert Wirth, the former CEO of KGHM Polska Miedź S.A., to the company's Supervisory Board
- Prof. Wirth has significant experience in business development on global markets and unique competences as well as network of contacts which will strategically strengthen the company's business activities, especially in the Chinese market

COOPERATION WITH COWIN

FEBRUARY 2020

- on 28 February, XTPL S.A. and Suzhou Cowin Laser Technology Co Ltd based in China signed a Technology Evaluation Agreement (TEA)
- Cowin is looking for a technology for repairing open defects in new generation displays
- the aim of the proof of concept stage realized by both entities is to confirm the parameters of XTPL technology and to assess the possibility of implementing it in the Chinese partner's production processes
- Cowin is a supplier for leading players in FPD sector, such as BOE (leader of the global display market, which is working on an independent proof of concept project with XTPL); CSOT (display manufacturer based in China, producing LCD panels and developing OLED technology) and Tianma (global display manufacturer operating for over three decades, producing modern LCD displays and new display lines using the AM-OLED technology)

FIRST COMMERCIAL ORDERS

MARCH 2020

- XTPL carried out three sales transactions of nanoink based on silver nanoparticles
- nanoink is one of the key elements of the XTPL technology, protected by international patent applications
- two deliveries were carried out for the partners operating in the display sector, the first application field commercialized by XTPL, while the third order was carried out for one of the major players from the EMEA region operating in the display industry and several other advanced electronics sectors
- the sale of the nanoink confirms the significant potential of XTPL's technology

PAID PRINTING FOR PARTNER FROM AUTIOMOTIVE INDUSTRY

MARCH 2020

- we prepared paid samples for a company that designs and produces semiconductor devices and sensors for the automotive industry
- industrial partner is working on solutions for a number of technological challenges, including autonomous driving, effective remote communication and significant improvement in travel comfort. Technique for rapid prototyping would be required to address these challenges efficiently
- samples made in our laboratories using substrates provided by clients are always a perfect demonstration of the capabilities of the UPD technology, showing how this technology may be successfully used in different applications fields, which is a solid starting point for further cooperation

DUAL LISTING

MARCH 2020

- on 6 March 2020, the Frankfurt Stock Exchange consented to admit XTPL shares to the Quotation Board segment, which is a part of the Open Market
- this step will facilitate the purchase of XTPL shares by investors, where such factors as valuation in EUR or the transaction systems play a key role
- this operation has not generated any costs for XTPL as the Company was not responsible for its initiatiion – the admission was a result of steps undertaken by a German investment bank
- XTPL shares are also listed in Munich and Stuttgart
- XTPL shares are traded on a dual-listing basis, with the Warsaw Stock Exchange remaining the Company's main trading floor

ZLOTA STRONA EMITENTA AWARD

JUNE 2020

- XTPL was awarded “The Best Investor Relations Website” in the categories “small enterprises” in the contest Złota Strona Emitenta XIII organized by the Polish Association of Listed Companies (SEG).
- the Company took a podium place next to companies like Agora S.A. in the categories medium enterprises and CCC S.A. in the categories large enterprises

SUCCESSFULLY COMPLETED FINANCIAL ROUND

JUNE-JULY 2020

- XTPL acquired PLN 9.25 million as a result of shares issue.
- the Company acquired also the bonds in the maximum possible pool of PLN 3.6 million
- overall, the Company's proceeds from the issue of shares and bonds are PLN 12.85 million
- the issue proceeds will be used for R&D, continued commercialization, and extension of the intellectual property portfolio
- the capital increase will ensure steady operations of the company until at least Q1 2022 (not taking into account revenue and public grant contributions)

EXPANSION OF THE PATENT PORTFOLIO

H1 2020

6 new patent applications already submitted in H1 2020

- the first two patent applications submitted in 2020 are related to the method and apparatus for characterising and optimising ink flow in the printing head. This method is generic and can be applied not only to the XTPL technology, but also to other printing techniques. Therefore, both patent applications are commercially valuable on its own merits.
- the third patent application is a crucial invention from the point of view of applying XTPL technology in the smart glass sector. It presents how to significantly improve the parameters of transparent conductors.
- the fourth application claims improved design of the printing head used in the UPD process.
- the fifth application protects the formulation of a high-viscosity inks, compatible with the UPD method.
- the sixth patent application submitted in 2020 allows to predict the geometrical parameters of printed structures based on printing parameters.

K&L GATES
Palo Alto, CA, USA

United States Patent and Trademark Office

COVID-19 – IMPACT ON XTPL

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.
- 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.
- as a response to general market uncertainty, we reduced our monthly operating costs from PLN 1 million to around PLN 600,000 PLN.

SIGNIFICANT SHAREHOLDERS OF XTPL

AUGUST 2020

- Rockbridge Towarzystwo Funduszy Inwestycyjnych S.A. exceeded the 5% threshold in the total number of votes at the Company's General Meeting
- the increase in the total number of votes in the Company is a result of the acquisition by the Funds of 22,764 XTPL shares
- before the transaction, the Funds held a total of 93,896 shares of the Company, which constituted 4.63% of the share capital
- after the transaction, the Rockbridge Funds hold a total of 116,660 shares of XTPL, which constitute 5.75% of the share capital

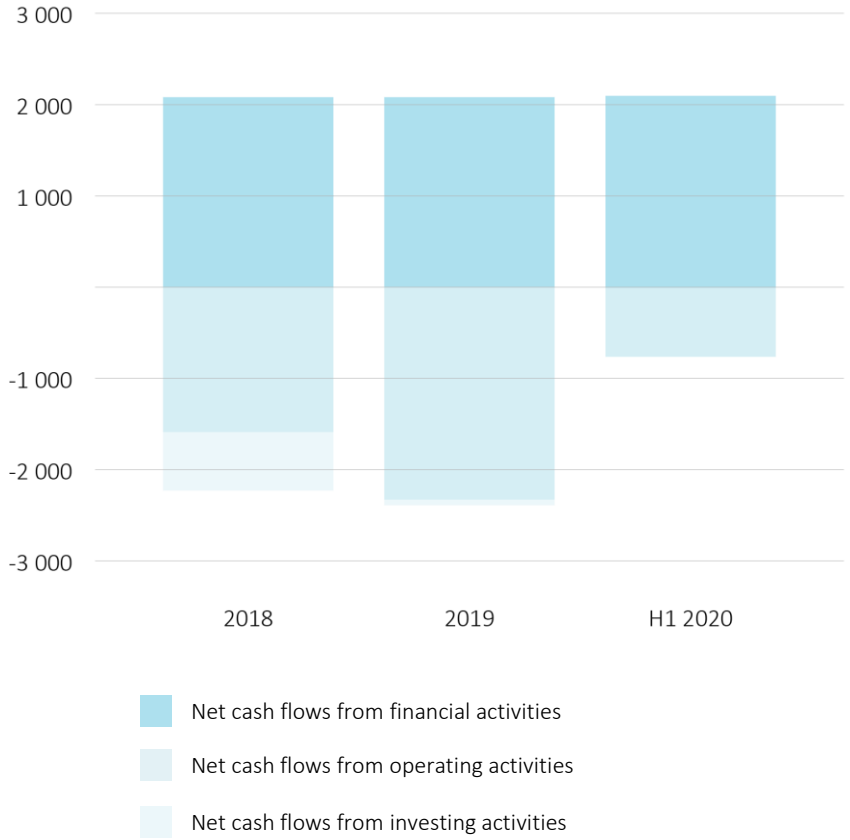
MAINFIRST REPORT

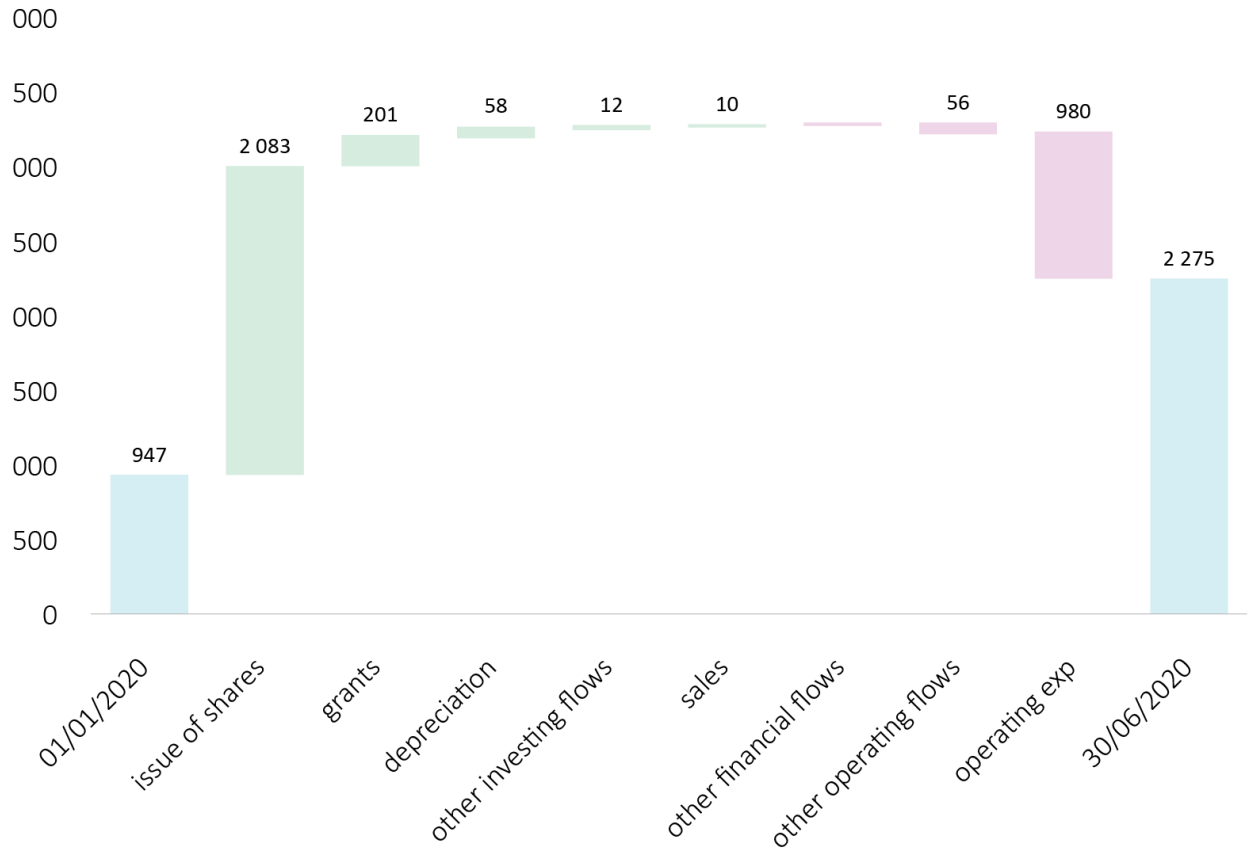
SEPTEMBER 2020

- German MainFirst Bank AG from the Stifel Group recommends “BUY” with regards to XTPL and valued the company share at a PLN 210 price target
- XTPL is the first Polish company covered by MainFirst
- MainFirst recognizes that the first tangible results in the commercialization process of XTPL are visible.
- MainFirst is a European financial services firm, specializing in Equity Brokerage, Investment Banking and Fixed Income which is following about 400 predominantly European stocks.

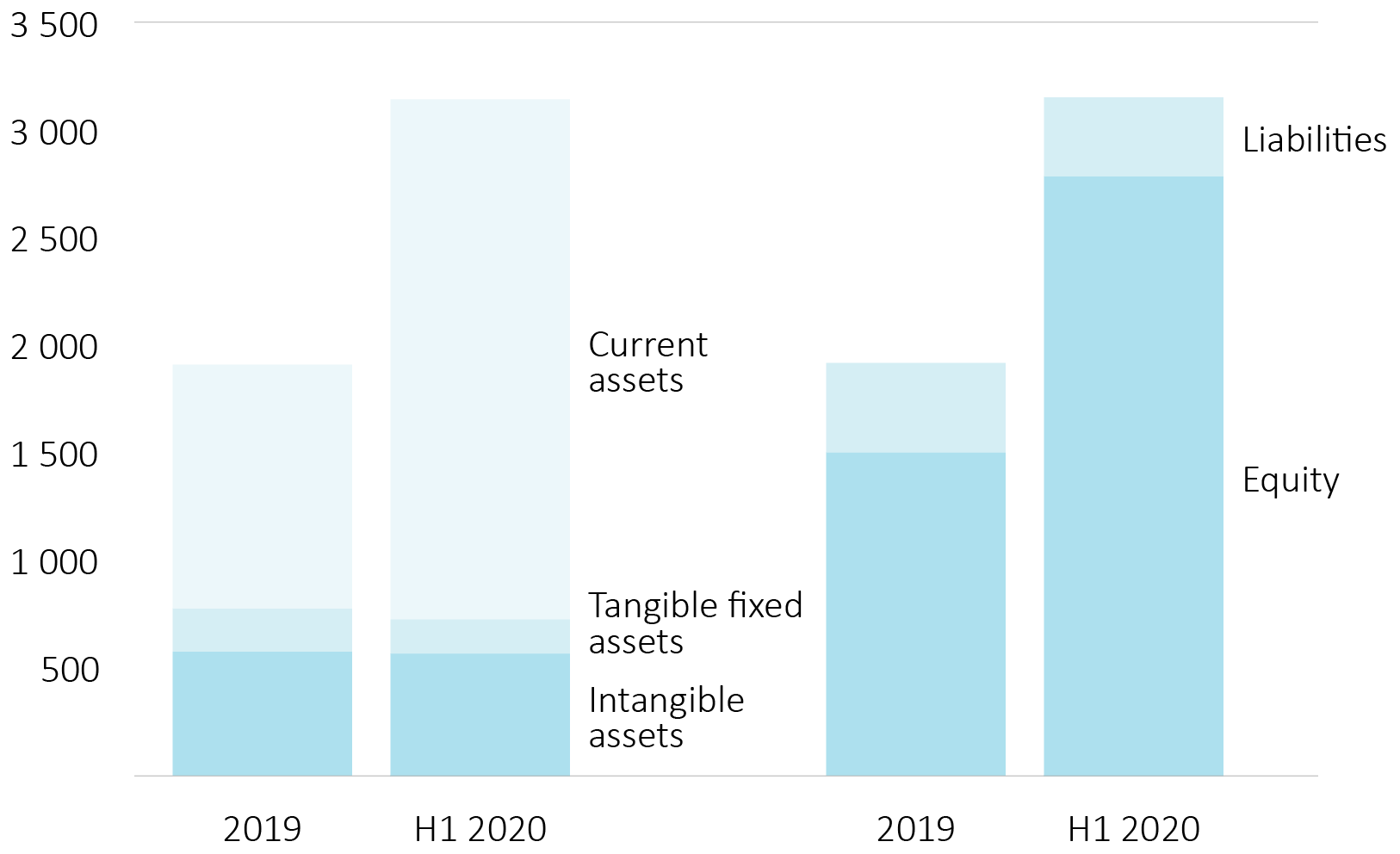
FINANSE

CASH FLOW





BALANCE SHEET STRUCTURE

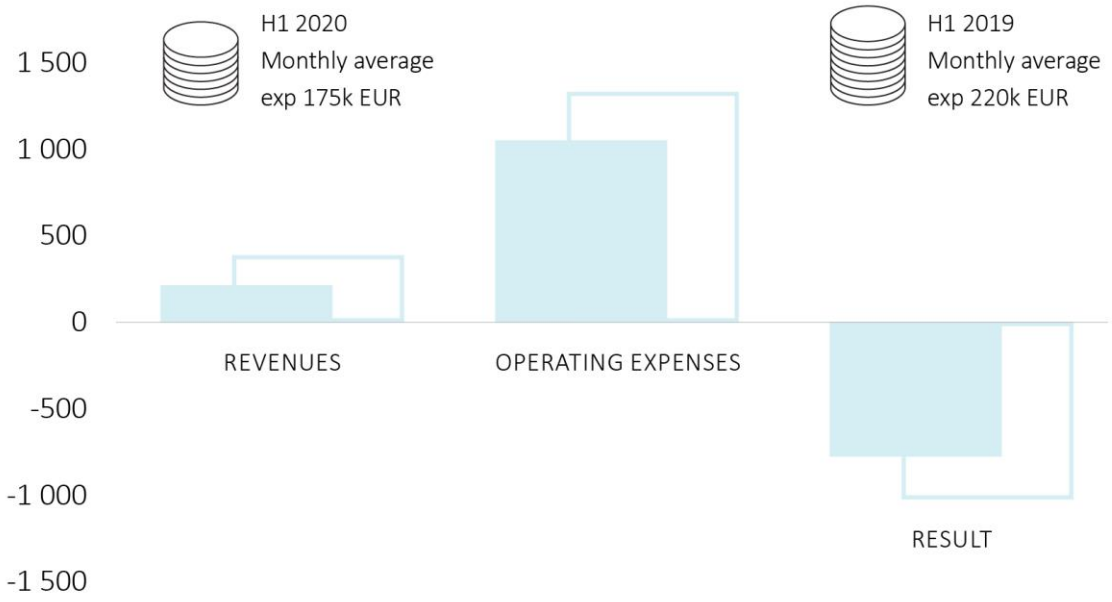


FINANSE

RESULT

	H1 2020	
	without ESOP	including ESOP
Revenue from sales	213	213
Research and development expenses	348	438
Gross profit (loss)	-135	-225
General and administrative expenses	711	1 070
Other operating income and expenses	28	28
Operating profit (loss)	-819	-1 268
Financial income and expenses	23	23
Profit/ loss before tax	-796	-1 245
Tax	0	0
Total comprehensive income	-796	-1 245

	WITHOUT ESOP	
	H1 2020	H1 2019
Revenue from sales	213	362
Research and development expenses	348	521
Gross profit (loss)	-135	-159
General and administrative expenses	711	768
Other operating income and expenses	28	-51
Operating profit (loss)	-819	-978
Financial income and expenses	23	-2
Profit/ loss before tax	-796	-980
Tax	0	5
Total comprehensive income	-796	-984



SHAREHOLDING STRUCTURE

LP	SHAREHOLDER	NUMBER OF SHARES HELD	% SHARE
1.	Filip Granek	315,998	15.57
2.	Sebastian Młodziński	285,696	14.08
3.	Leonarto VC spółka z ograniczoną odpowiedzialnością sp.k. (formerly Leonarto sp. z o.o.)	202,894	9.99
4.	ACATIS Investment Kapitalverwaltungsgesellschaft mbH on behalf of ACATIS Datini Valueflex Fonds	195,663	9.64
5.	Heidelberger Beteiligungsholding AG**	190,571	9.39
6.	Investment funds managed by Rockbridge TFI S.A.	116,660	5.75
7.	TPL Sp. z o.o. *	87,730	4.32
8.	Deutsche Balaton AG**	48,006	2.37
9.	Others	586,004	28.88
	TOTAL	2,029,222	100.00

Number of shares = Number of votes
% of shares = % of votes

* TPL Sp. z o.o. possess Series L and P shares, issued for employees shares option program. Shareholders of TPL Sp. z o.o. are: Filip Granek, Chairman of the Board of the Issuer (34% of shares), Sebastian Młodziński (33% of shares) and Adriana Pankiewicz who is Konrad Pankiewicz's wife (33 % of shares)

** Companies from the same capital group, jointly possess 238 577 XTPL's shares which equals 11.76% of the share capital

TEAM

SUPERVISORY BOARD IN POLAND AND MANAGEMENT BOARD IN USA

WIESŁAW ROZŁUCKI

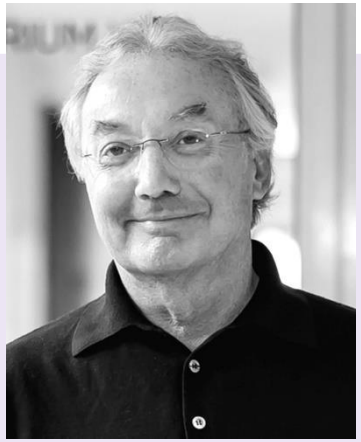
CHAIRMAN OF THE SUPERVISORY BOARD

Co-founder and former president of the Warsaw Stock Exchange

HERBERT WIRTH

SUPERVISORY BOARD MEMBER

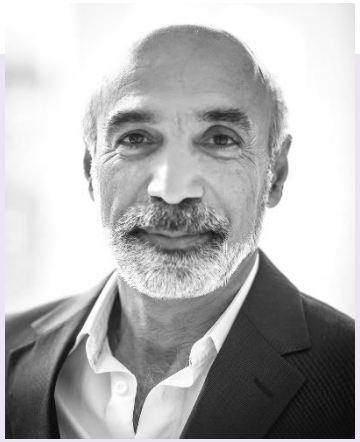
Former President of the Management Board of KGHM S.A. He has vast experience in the area of materials' technologies, international trade and global business administration



HAROLD HUGHES

BOARD MEMBER XTPL INC.

Former CFO of Intel and CEO of Rambus Inc. He has been developing high-tech projects in Silicon Valley for the past 40 years



AMIR NAYYERHABIBI

BOARD MEMBER XTPL INC.

A partner with Benhamou Global Ventures, a VC fund from Silicon Valley which invests in dozens of companies from the digital economy sector

HIROSHI MENJO

BOARD MEMBER XTPL INC.

Co-founder of NSV Wolf Capital, a strategic fund from Silicon Valley. An expert in implementing Japanese entry strategies and forging strategic alliances with Japanese companies

TEAM

Currently 30 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

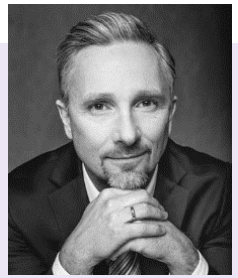
business leaders & highly skilled professionals who possess **know-how & experience** in:

- 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

Krzysztof Berezowski

PROJECT MANAGEMENT /PRODUCT DEVELOPMENT

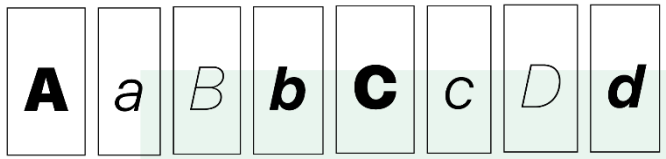
Dariusz Świderek

LICENSING / IP MANAGEMENT

Piotr Kowalczewski

PATENTS

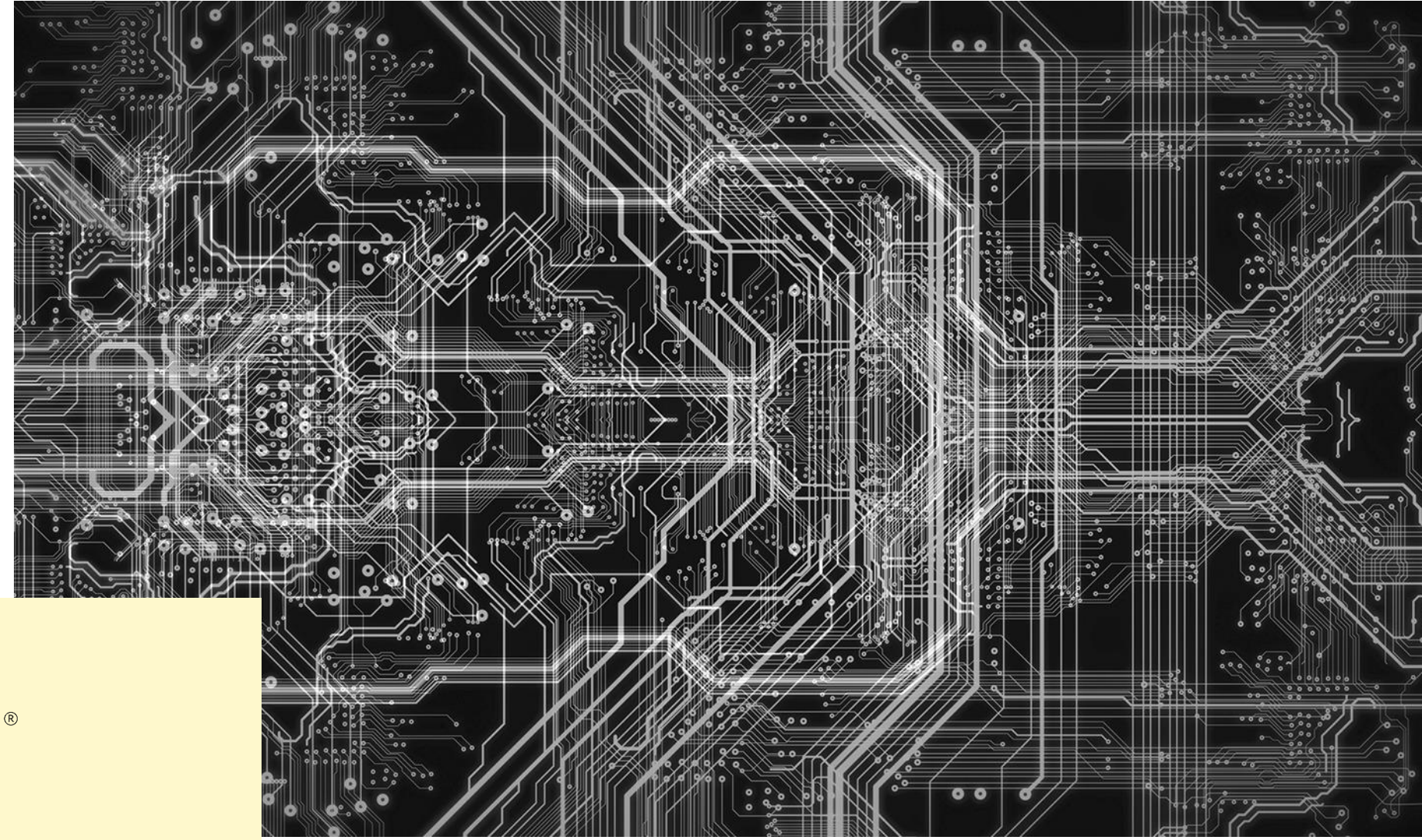
VISION



In the near future, we will print displays, solar cells, biosensors and other advanced elements just as cheaply and quickly as we print newspapers or books today.

This is not just a vision any more.

With XTPL nanoprinting technology, this is a fast approaching reality!



XTPL S.A.
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54-066 Wrocław, Poland
xtpl.com

THANK YOU

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