

# SYGNIS

SPÓŁKA AKCYJNA

## SYGNIS SA 2021 Annual Report



**Knowledge has layers™**

Uncover all.

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## Letter from Andrzej Burgs

### CEO and Chairman of the Board Sygnis SA

#### Dear Sir or Madam,

Together with the Sygnis SA team, I would like to present you the Annual Report on our activities. From our perspective, this is a very important document, because we present ourselves to you in it for the first time. I encourage you to carefully read the whole Report, which is the key to understanding us as a company. As CEO, I'm aware that we are not an easy deeptech company to understand. We break out of standards, we bend patterns. We don't have one niche of specialization. We are simultaneously involved in more than a dozen research areas. We don't live off investors' or grants' money - a thriving sales department ensures that our revenue grows year after year. Each zloty or euro we allocate to investments in company development. We aim high - we want to become the biggest hardware house in Central and Eastern Europe. But this is just the first goal. The next ones are just behind it.

A challenging but rewarding period is behind us. 2021 was a year with a significant formal workload. We merged two companies: Sygnis New Technologies sp. z o.o. and Sygnis Bio Technologies sp. z o.o. Then, we raised capital in Sygnis New Technologies sp. z o.o. by issuing shares in July 2021, and finally, we reached the most important merger - Sygnis New Technologies sp. z o.o. with Mode SA. In this way, already as one company, under the name Sygnis SA, we made our debut on 30 December 2021, when we obtained an entry in the National Court Register (KRS). In this way, the production and trading company Mode, turned into a deeptech company Sygnis.

Here it is necessary to give you some explanations. The merger was carried out using the acquisition method, which means that we cannot directly provide you with the aggregated results of revenues, costs, etc. In accordance with the Accounting Act, the value of the acquired company (Sygnis New Technologies sp. z o.o.) is incorporated as assets in the Company's balance sheet. However, in order for you as investors, shareholders and supporters to have a real picture of the Company, selected elements of the profit and loss account will be in the proforma results table. These results will include the real result of the combined Company. In 2022, it will be simpler - we will report our results directly!

In 2021, we made a huge internal transformation as a Company. Rapid growth in revenues, as well as in the size of the team entailed the need to write down our entire internal organizational culture into one coherent document. In this way, a set of rules was created, unifying the values which we set for ourselves and are guided by - the Sygnis Culture Principles. It is a key element for understanding our ability (and also the need) to carry out many projects in various areas simultaneously. Generalism and constant search for analogies in the universe in order to solve problems pushes us towards new areas of research. You will read more extensively about realizing the potential of our intellectual hyperactivity in the following sections of the Annual Report.

I'm writing this letter to you in the middle of March 2022. The war in Ukraine is ongoing. Our thoughts, as a corporate community, are with all Ukrainians struggling with the horrors of war. As a team, we have been heavily involved in helping Ukraine, especially in what we know very well - using 3D printing, design capabilities and manufacturing capabilities. Details about the donated aid will of course be included in the 2022 balance sheet, however, our pledge expressed in this letter is clear - Sygnis will be involved in rebuilding Ukraine after the war (hopefully victorious for Ukraine). In the meantime, I encourage you to participate in our international initiative that we are leading with 3YourMind, TeenCrunch and Mentors4Startups - **#TechAgainstTanks**.

As part of the changes in the Company, together with the Vice-President Grzegorz Kaszyński we have decided that we will communicate with you in a straightforward, transparent language, explaining the often complicated areas of our activity more often than through official ESPI announcements. We would like to point out, however, that any price-sensitive information will of course first appear in the ESPI or EBI system first. Nevertheless, we invite you to follow us on social media, attend lectures, webinars and read the articles on our blog, where we bring you up to date info on numerous areas of our business.

We look forward to setting new communication standards.

**Knowledge has layers. We recommend you uncover them all! Have a great read!**

Prezes Zarządu  
  
Andrzej Burgs





## Letter from Grzegorz Kaszyński

Vice-President Sygnis SA

**Dear Sir and Madam,**

We are proud to present you the first Sygnis SA Annual Report. I deeply believe that our strength lies in an interdisciplinary team, in the exchange of knowledge and in complementing each other's competencies. Even though our structure is presented in segments of operating areas, we try to make everyone work in the most interdisciplinary teams possible.

At this moment, we have four segments - brands: Sygnis New Technologies, Sygnis Bio Technologies, Sygnis Nano Technologies and MODE\_360 by Sygnis. Each of them focuses on a different area of our activity, and you will read about the details in the following chapters of this Report.

The year 2021 was a time of intensive work and development, resulting in key business partnerships with world leaders such as the American BICO Group, German SPECS Surface Nano Analysis or Aconity 3D, Japanese Mimaki and Polish Sinterit companies. It is thanks to these partnerships that we can provide our customers with the highest quality comprehensive solutions, both in research, development and production.

The enormity of our work had its measurable impact on the financial results presented in the Annual Report. A diversified product portfolio ensures high stability, especially in geopolitically uncertain times. In the context of financial results, it is also worth noting that the government program „Laboratories of the Future”, in which we strongly mark our position, in terms of revenue will be taken into account in Q1 and Q3 2022.

Our plans for 2022 include further expansion of our sales department, extending our reach and expanding our global distributor network.

The most exciting part of our plans for 2022 is the introduction of more proprietary products into distribution. This year, we plan to deepen our presence in international markets by offering not only proprietary equipment, but also superior manufacturing services in a variety of additive methods.

**I wish you interesting reading and discovering our company in all its glory!**

**Wiceprezes Zarządu**

**Grzegorz Kaszyński**

## Report of the Management Board of Sygnis SA (Joint Stock Company) on operations in 2021

March 18, 2022

The year 2021, in order to reliably present the operating activities of the new capital entity which is Sygnis SA, that was created on the basis of Mode SA company, it is necessary to present factual and descriptive description of operations of the acquired company, i.e. Sygnis New Technologies sp. z o.o. Only then, the description of operations will be complete and will be able to be duly evaluated by the capital market and shareholders.

In January 2021 a Term Sheet was signed between Mode SA and Sygnis New Technologies sp. z o.o. concerning negotiations to merge the companies. This was followed by the merger of sister companies - Sygnis New Technologies sp. z o.o. with Sygnis Bio Technologies sp. z o.o. (notarial deed of April 14<sup>th</sup> 2021; entry into the Register of Entrepreneurs of the National Court Register in June 2021). On July 31<sup>st</sup> 2021 the capital of Sygnis New Technologies sp. z o.o. was increased as a consequence of a financing round conducted, within the framework of which the company issued 89 shares with a nominal value of PLN 230 and an issue price of PLN 22,500 per share. The capital raised in this way in the amount of PLN 2,002,500 was used primarily for the needs of the current activities of the company, and part of the funds was allocated to the acquisition of a part of the company MTT Polska sp. z o.o., dealing with 3D printing. In this way, the Company made its first industry acquisition.

In preparation for the merger of the companies, the fair value of the companies' shares was assessed, thanks to which the final parity of exchange of shares for shares amounted to 74% - 26% (Sygnis New Technologies sp. z o.o. - Mode SA). Detailed data can be found, inter alia, in Resolution No. 4 of the Extraordinary General Meeting of Shareholders of the Company dated November 29<sup>th</sup> 2021, the contents of which can be found in the attachment to Report No. 11/2021 published through the EBI system. In August 2021, the plan of merger of the companies was signed and published, and the auditor's examination of the plan of merger was conducted. On November 30<sup>th</sup>, Andrzej Burgs became the President of the Company and Grzegorz Kaszynski became the Vice-President. The accounting merger, which was very time consuming and difficult, was completed with the preparation of annual financial statements. As the merger was carried out using the acquisition method, the acquired company, i.e. Sygnis New Technologies sp. z o.o., was credited to the assets of the acquiring company, i.e. Mode SA (now Sygnis SA). Hence, the actual revenue and cost results are presented in the proforma table of the financial statements. However, from the Management Board's point of view, this is a necessary action so that the shareholders could assess the real financial situation of the Company. The merger was registered in the National Court Register (KRS) as of 30.12.2021.

In 2021, the Company obtained funds from subsidy programmes for, among others, Go To Brand or Export Broker projects, as part of which its products can be presented at international fairs in Germany, the United Arab Emirates or Great Britain. In 2021, both companies took an active part in a total of 34 trade fair events. Including, for example, as the main sponsor at Poland's largest industrial fair, Stom Tools (also a sub-salon of the 3D Printing Days fairs). For the first time the companies participated in Formnext trade fairs, which is the most important event for the 3D printing industry in the world. There were presented machines for 360 degrees photography in the industrial variety for quality control, and 3D printing technology from Syglass low-temperature glass debuted there. The latter is the result of a research project carried out by Sygnis New Technologies sp. z o.o. in 2018-2020. The first revenues from the commercialization of the project are expected in 2022. The Management Board does not exclude the commercialization path by spinning off the Syglass project into a separate entity, dependent on Sygnis SA. This decision, which is under analysis, is related to the choice of the best possible effective development structure for the Syglass project.

In 2021, a new version of the Combo machine went on sale, which is also the result of an R&D project carried out by Mode SA. The new version replaced the previous one, and further modifications, redesigns and upgrades in the automated photography machine segment will continue, using the industrial design team which has existed at Sygnis New Technologies sp. z o.o. for many years.

New machines developed by the Company's Technical Department were recognized, among others, by the main prize of Kielce Trade Fairs for technical solutions and design (3D printer E-NIS 23181). The F-NIS 23151, after focus testing with five selected customers, has been directed to a larger production run that will ultimately be on sale at the end of the second quarter of 2022.

Management also has high expectations in the area of distribution of new machines. Last year, the distribution of new machines in our offer, in particular the Sinterit brand, the BICO group provided revenues exceeding PLN 1,000,000. Contracts with good prospects, such as distribution of Mimaki and Aconity machines or SPECS systems, will, in the opinion of the Management Board, bring profits already in the current financial year. The Company has also taken care of processes of sales automation. A new CRM system was implemented for both companies (Sygnis and Mode) and a store was created based on an e-commerce platform in order to automate simple purchases of cheaper machines or parts. Within the framework of commercial activities, one of the company's outlets - the premises in "Solidarności" 78 Av. in Warsaw were transformed into a showroom and service studio equipped with Combo, Jumbo, Photo Composer and Twister machines. It's one of the segments that we treat as new source of income for MODE\_360 brand (income from services) and at the same time as testing area for UX improvements of devices and software (a kind of a testing ground).

One of the key areas that we as a Board need to talk about is the unprecedented "Laboratories of the Future" program being implemented by GovTech and the Ministry of Education. The program assumes that every Polish elementary school must have a 3D printer by the end of September 2022. The program kicked off in mid-October 2021, and in the past year Sygnis has delivered 780 machines. The remaining prepayments from customers were prepaid, therefore they will enter the Company's financial result only after the final invoices issued in the first quarter of 2022. As part of the entire program, the Company delivered approximately 3,200 3D printers.

In order to effectively carry out the extremely diversified activities of Sygnis SA, we have introduced "brands" which group activity areas thematically. Right now, the following brands operate in the Company's commercial scope: Sygnis New Technologies, Sygnis Bio Technologies, Sygnis Nano Technologies and MODE\_360 by Sygnis. The Company also holds 45% of shares in Albireo Biomedical sp. z o.o., however it is not recognized in the consolidated financial statements. This is a classic joint venture with Voxel SA.

The Company generates revenue from sales of its own machinery, performance of commissioned research work, distribution sales of machinery from other manufacturers, and provision of design and manufacturing. Details and realization examples can be found later in the annual report.

In 2021, the Company continued investments in popularization of knowledge about professional 3D printing and broadly understood popularization and marketing of the Sygnis brand. In 2021, among others, the Company's slogans gained trademarks: „Knowledge has layers" (protection in Poland) and „Knowledge has layers" (pan-European protection). The Company also moved in to the Prototyping Terrace at the Cambridge Innovation Center in Warsaw, thereby joining to an international network of innovators as experts in additive technology and biotechnology. Other activities carried out by us include videos made with Maciej Kawecki (a leading technology influencer in Poland) or with the Spokesmen of Science Association (the program "Copernicus Was a Woman" - about 40 minutes of statements by our experts).

The activities of the Management Board have also resulted in awards for the Company. We received the prestigious title of Master of Business in the Entrepreneur of the Year competition, we were ranked number 48 in the Deloitte Technology Fast 50 Central Europe 2021 ranking (this is a distinction only for the 50 fastest growing technology companies in Central Europe) and we were nominated for the Made in Poland award. We have also continued our mentoring and jurying path in such programs as HelloTommorow, TeenCrunch, MedBizDays, Polish Development Fund, or Enterprise MIT Network. In this way, the company is consolidating its expert image in Poland and increasing its talent recruitment potential.

2021 is also a year of investment in show and service equipment facilities. Among the major production machinery purchases, it is worth mentioning the first Polish FlashForge WaxJet 400, a high-performance wax printer for the jewelry and precision lost wax casting industries.

Our research and laboratory facilities have been expanded to include the first in Poland Cellink (BICO) BioX6 six-head bioprinter, Dispindex (BICO) iDOT precision acoustic dispenser, Cytena (BICO) C.Wash high-throughput microplate washer, and Cytena (BICO) CellcyteX incubation microscope scanner.

They will add to the Company's service revenues in future years. They reached full production efficiency at the end of the fourth quarter of 2021.

We also invested in human resources. The collaborative team at the end of 2021 has grown to 60 people. As a result, the scope of the business delivered and its speed continues to grow. We anticipate, that employment will increase to 90 FTEs by the end of 2022.

The Company's research and development projects are progressing without delay, reaching milestones on time. The following projects are currently underway:

1. Construction of a multifunctional hybrid 3D printer with real-time quality control system.
2. Development of technology for printing from biomaterials and construction of a 3D bioprinter for automated bionic organs.
3. Development of a proprietary product photography system for automated digital product imaging using a compact device with the use of remote work.

The Company does not hold any treasury shares. The issued shares are owned entirely by shareholders, among whom more than 5% are held by Andrzej Burgs with Anastasia Burgs (55.28%) and Grzegorz Kaszyński (13.68%). However, we do not exclude the possibility of proposing a share buy-back programme to shareholders in 2022 in order to create an incentive programme for key employees (rewarding with a share package).

As of December 31<sup>st</sup> 2021, the Company had a loan commitment not exceeding 10% of the Company's revenue, and significantly less than cash at the end of the reporting period. Please refer to the respective reporting lines in the Company's income statement and balance sheet for detailed values.

As a Board of Directors, we do not see any risk in terms of rising WIBOR, and due to our strict prepayment policy for ongoing orders, the risk of counterparty insolvency is negligible from the perspective of financial hedging of contracts.

The situation with the disruption of logistics chains due to the COVID-19 pandemic was a great opportunity for the Company, which it used to its advantage as a European manufacturer independent of Chinese component suppliers. The Company's ongoing strict internal sanitation policies and vaccination incentives allow the team to work on-site without major illnesses.

As a consequence of the February off-balance-sheet event that is the war in Ukraine, we do not anticipate any logistical or financial problems. Management believes that currency rates will return to lower levels, however an internal assumption is that major currency pairs EUR/PLN, USD/PLN and CHF/PLN will increase by 5-7% relative to pre-war levels. Foreign exchange costs have been included in new price lists for clients.

The Company's Management Board assesses the financial and market situation as good and promising. In 2022, a systematic increase in turnover, profits and investments is planned. The Management Board will recommend to the shareholders that annual profits be used for internal investments including the purchase of machinery, new research projects and company acquisitions.

Econophysical methodologies will be used for internal financial risk analysis starting in 2022. In the area of hedging, these will include copula theory and the maximum likelihood method, and in the area of investments - proprietary modeling of the Levy stochastic process.

Prezes Zarządu  
  
Andrzej Burgs

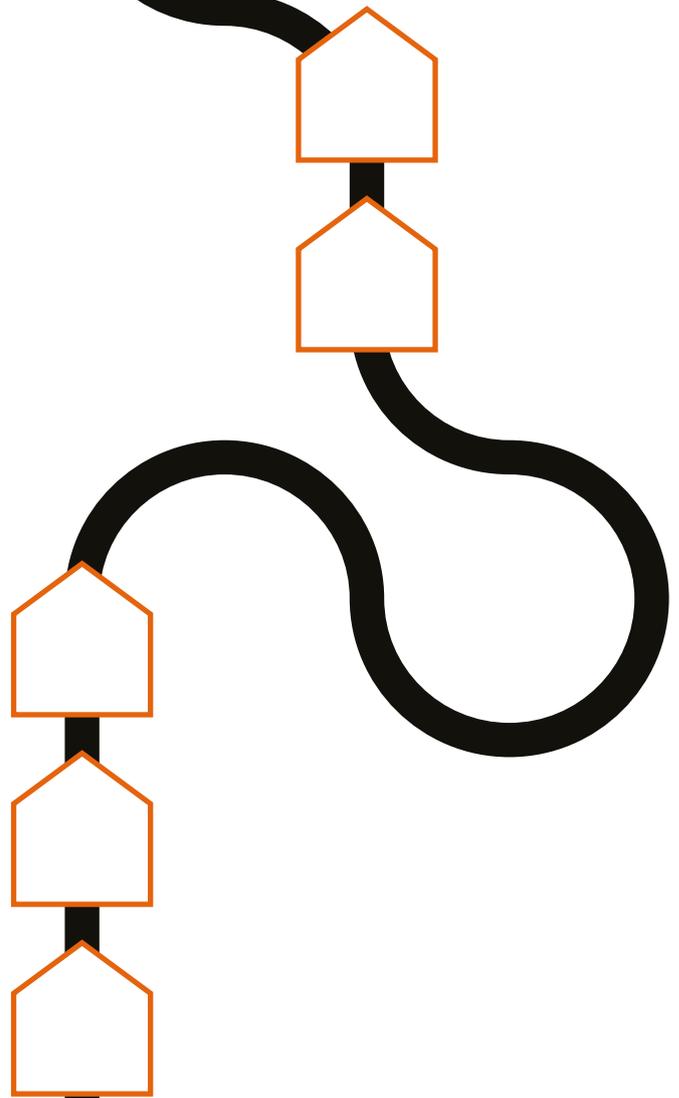
Wiceprezes Zarządu  
  
Grzegorz Kaszyński

# 2021

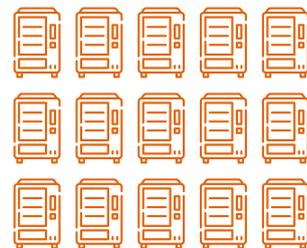
## SYGNIS

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**+ 3**  
**new locations**  
**= a total of 5**

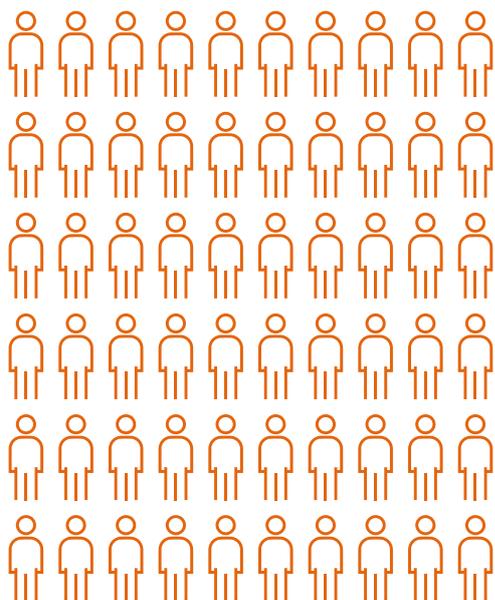


**+ 15**  
**new machines**  
**were added to**  
**the machine park**



The machines included:

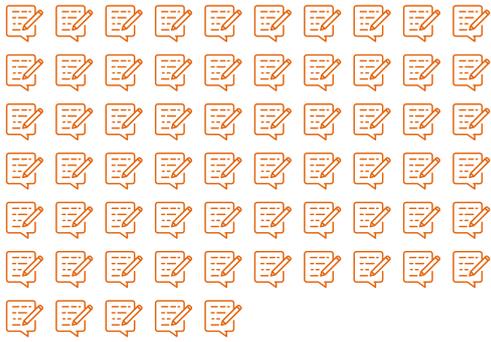
- FlashForge WaxJet 400
- Sinterit Lisa
- 3Devo filament shredder
- 3Devo filament extruder
- BioX6 printer
- Resin 3D printers



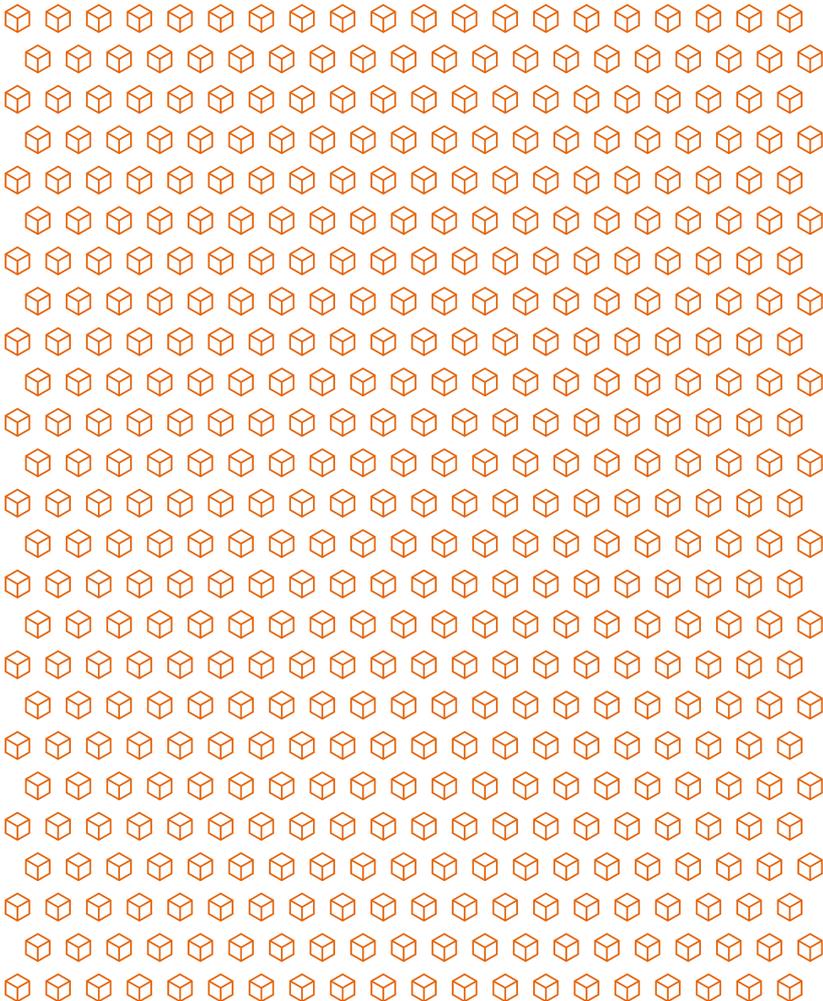
**> 60**  
**employees**



**> 800 000**  
**kilometers**  
**travelled**



**> 65**  
**media articles**  
**about Sygnis**



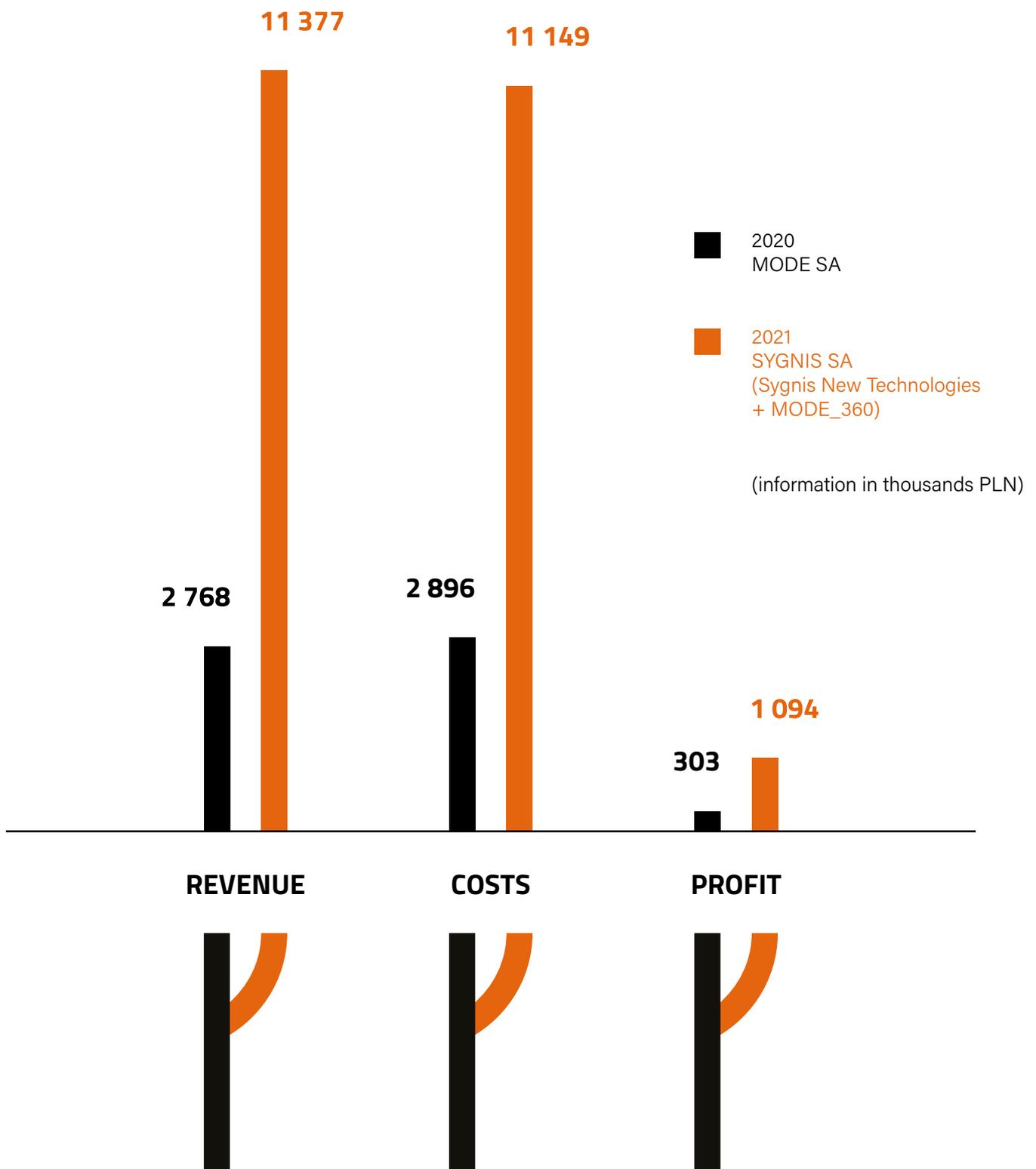
**> 500**  
**service projects**  
**completed**

## Financial data

We present you selected financial data, clearly illustrating the change that Mode SA - Sygnis SA has recorded during 2021. The merger of the companies took place using the acquisition method, therefore the revenues generated by Sygnis New Technologies sp. z o.o. are not included in the financial statements that we report (in accordance with the Accounting Act).

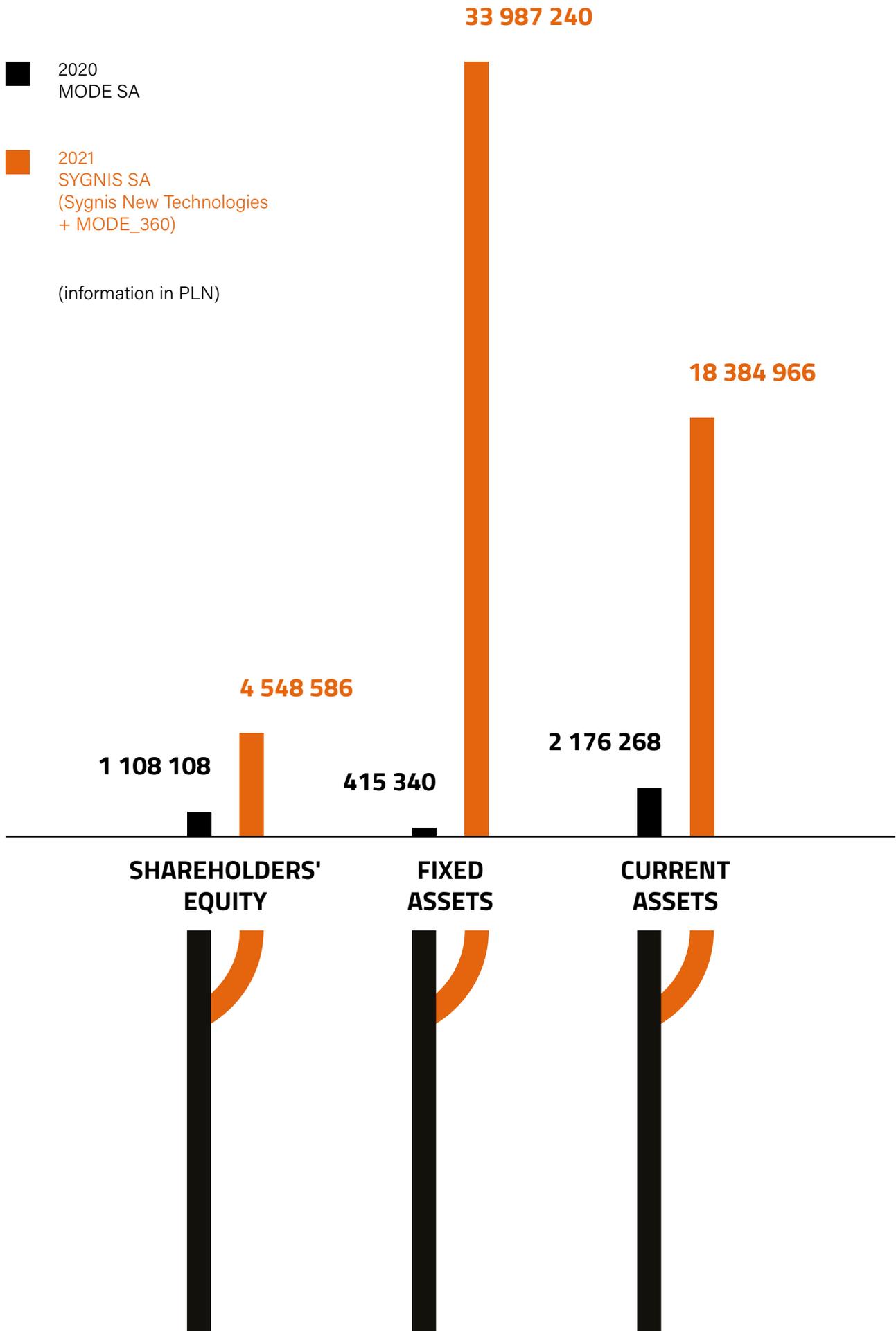
Nevertheless, in order to provide you, as investors, with a full and true picture of the company, we present „proforma” data, i.e. data resulting from adding together the financial results of Sygnis New Technologies sp. z o.o. for the period of January 1<sup>st</sup> 2021 - December 30<sup>th</sup> 2021, Mode SA for the same period and Sygnis SA as of December 31<sup>st</sup> 2021.

For comparison, as in the financial statements, we have selected the period of January 1<sup>st</sup>, 2020 - December 31<sup>st</sup>, 2020 for Mode SA.



# SYGNIS IN NUMBERS

## Financial data



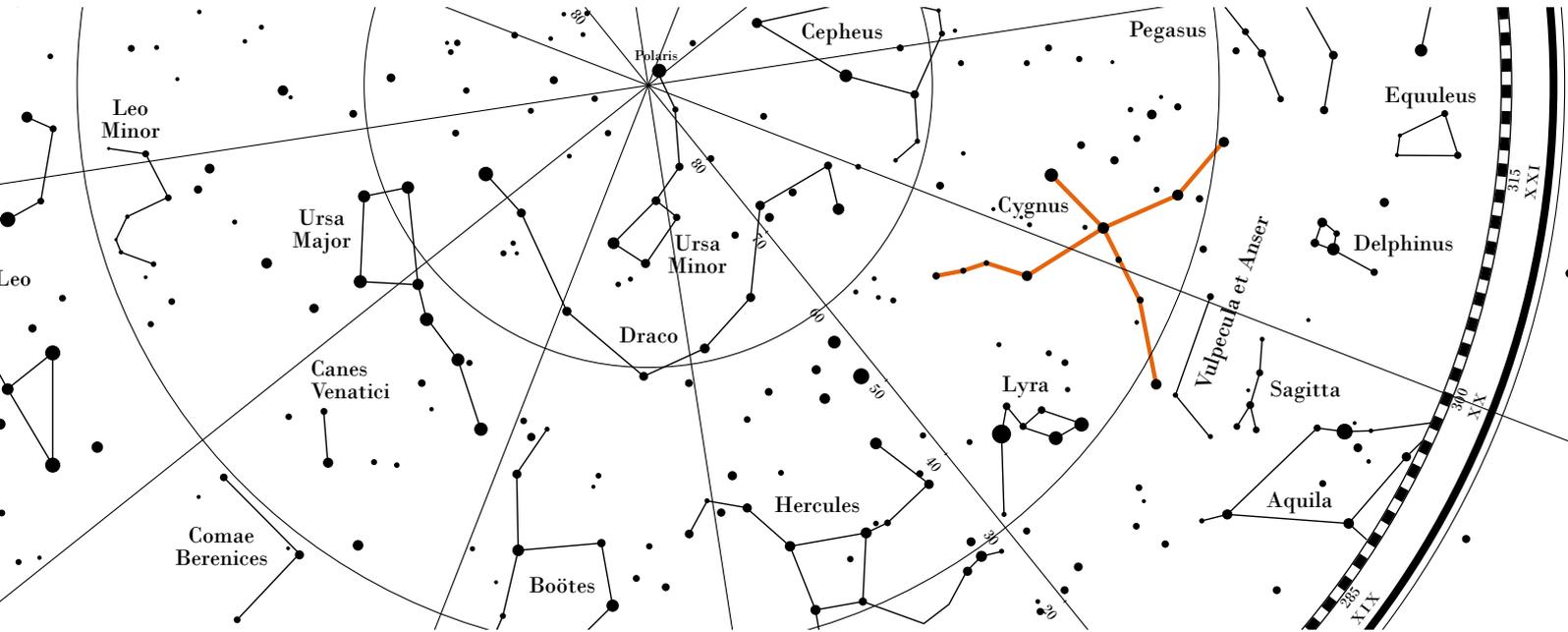
# SYGNIS IN NUMBERS

## Financial data

Selected financial data from the balance sheet				
	in thousand PLN	in thousand PLN	in thousand EUR	in thousand EUR
	31.12.2021	31.12.2020	31.12.2021	31.12.2020
<b>FIXED ASSETS</b>	<b>33987,24</b>	<b>415,34</b>	<b>7389,49</b>	<b>90,00</b>
Intangible assets	33171,37	359,67	7212,11	77,94
Property, plant and equipment	793,42	55,67	172,51	12,06
Long-term receivables	0,00	0,00	0,00	0,00
Long-term investments	22,45	0,00	4,88	0,00
Long-term accruals	0,00	0,00	0,00	0,00
<b>CURRENT ASSETS</b>	<b>18384,97</b>	<b>2176,27</b>	<b>3997,25</b>	<b>471,58</b>
Inventories	6614,59	331,73	1438,14	71,88
Short-term receivables	2769,18	183,41	602,07	39,74
Short-term investments	4858,44	812,59	1056,32	176,08
Short-term accruals	4142,76	848,54	900,72	183,87
<b>TOTAL ASSETS</b>	<b>52372,21</b>	<b>2591,61</b>	<b>11386,75</b>	<b>561,59</b>
<b>EQUITY</b>	<b>35578,41</b>	<b>1108,11</b>	<b>7735,45</b>	<b>240,12</b>
Basic capital (fund)	4548,59	1182,64	988,95	256,27
Supplementary capital (fund)	30998,19	373,57	6739,62	80,95
Profit (loss) from previous years	-371,98	-751,90	-80,88	-162,93
Net profit (loss)	403,62	303,79	87,75	65,83
<b>LIABILITIES AND RESERVES FOR LIABILITIES</b>	<b>16793,80</b>	<b>1483,50</b>	<b>3651,30</b>	<b>321,47</b>
Provisions for liabilities	0,00	0,00	0,00	0,00
Long-term liabilities	554,27	116,99	120,51	25,35
Short-term liabilities	10532,13	395,53	2289,89	85,71
Accruals	5707,39	970,98	1240,90	210,41
<b>TOTAL LIABILITIES</b>	<b>52372,21</b>	<b>2591,61</b>	<b>11386,75</b>	<b>561,59</b>
<b>Selected financial data from the Profit and Loss Account</b>				
	in thousand PLN	in thousand PLN	in thousand EUR	in thousand EUR
	31.12.2021	31.12.2020	31.12.2021	31.12.2020
Net income from sales and equals	3533,22	2768,00	768,19	618,66
Operating expenses	3655,07	2896,74	800,32	647,43
<b>Profit/loss from sales</b>	<b>-121,86</b>	<b>-128,74</b>	<b>-26,68</b>	<b>-28,77</b>
Other operating income	670,60	497,67	146,84	111,23
Other operating expenses	62,47	29,05	13,68	6,49
<b>Profit/loss on operating activities</b>	<b>486,28</b>	<b>339,88</b>	<b>106,48</b>	<b>75,96</b>
Financial income	0,01	0,04	0,00	0,01
Financial expenses	47,55	36,12	10,41	8,07
<b>Gross profit/loss</b>	<b>438,75</b>	<b>303,79</b>	<b>96,07</b>	<b>67,90</b>
Income tax	35,13	0,00	7,69	0,00
Other compulsory reductions of profit	0,00	0,00	0,00	0,00
<b>Net profit/loss</b>	<b>403,62</b>	<b>303,79</b>	<b>88,38</b>	<b>67,90</b>
<b>Cash Flow Statements</b>				
	in thousand PLN	in thousand PLN	in thousand EUR	in thousand EUR
	31.12.2021	31.12.2020	31.12.2021	31.12.2020
Net cash flow from operating activities	2251,14	907,24	492,92	202,77
Net cash flow from investing activities	-1871,99	-372,48	-409,89	-83,25
Net cash flow from financing activities	3219,19	96,08	704,88	21,47
<b>Total net cash flow</b>	<b>3598,35</b>	<b>630,84</b>	<b>787,90</b>	<b>140,99</b>

Selected financial data presented above were converted into EUR in the following way: balance sheet items were converted using the average exchange rate announced by the National Bank of Poland as in the balance sheet date. This exchange rate as of December 31st, 2020 amounted to EUR 1 = PLN 4.6148, whereas as at December 31st, 2021 EUR 1 = PLN 4.5994.

Items of the income statement and statement of cash flows for 2020 (respectively 2019) were translated at an exchange rate being the arithmetic mean of average exchange rates published by the National Bank of Poland and in effect on the last day of each month. This exchange rate for 2020 is EUR 1 = PLN 4.4742 and for 2021 EUR 1 = PLN 4.5670, respectively.



We are a collection of outstanding individuals: engineers, designers and scientists forming a cohesive, dynamic team. No matter where we come from, each of us is an expert in our field. We grow by sharing our knowledge with each other.

We love to create, both utility objects, technological solutions, projects, as well as graphics, films and hermetic jokes. We share a passion for science-fiction series and books - a remnant of our teenage fascination with the Universe. Then we realized that the future is malleable, and we can shape it.

**Our appearance on the market firmament was illustrated by a symbol inspired by the Swan constellation (Cygnus). Cygnus is a friend of Photon, the son of Helios - which fits perfectly with our new technologies.**

The motif of the Swan Constellation, which we have used in various ways, contains the quintessence of what is unspoken about Sygnis.





**Sygnis is created by extraordinary people. There are more than 60 of us, it is already a large team.**

Internally, we put great emphasis on cooperation between particular people on many levels. Building trust between employees, so that they can rely on each other, is one of the key elements of the company's development and process optimization.

**We have consciously decentralized the Company and placed a great deal of responsibility in the hands of our employees, as well as giving them autonomy in the executive field.**

Intra-company equality results in the fact that you can meet one of the CEOs carrying cartons with machines or in the laboratory making 3D prints. Anyway, it concerns the whole managerial staff at Sygnis. We considered it important that, along with the company's development, managers and the Management Board should not lose their image of working on lower positions in the company.

According to the management model adopted by us, in order to be a good manager, one needs to understand thoroughly what the employees are dealing with, and also notice areas for optimization.





## Andrzej Burgs

### CEO and Chairman of the Board Sygnis SA

Andrzej Burgs is a graduate of the Faculty of Physics at the University of Warsaw, specializing in Econophysics. For over a decade he has been operating in the 3D printing industry, running one of the longest operating Polish companies in this area – Sygnis SA.

He is a 3D printing expert with many years of experience. He is one of the founders of the Chamber of Commerce of Industry 4.0 and a co-creator of the Code of Ethics of the Polish 3D Printing Industry. He also acts as an expert – employer of the Polish Accreditation Committee. Experienced speaker and qualified trainer. He was invited to speak at such events as: “Regiosummit” – the 2019 Local Government and Economic Diplomacy Summit organized by the Ministry of Entrepreneurship and Technology, the International Symposium on Intellectual Property in Industry and Business (13th edition) organized by the Patent Office of the Republic of Poland, as well as the 2nd Congress of the Head of Maintenance and innoSHARE 2018.

Under his aegis, Sygnis has become the Deloitte Fast 50 Technology Central and Eastern Europe laureate and received, inter alia, Special Book of Lists 2019/2020 “Pioneer in New Technologies” award, EuroSymbol of Innovation 2019, nomination for the Polish Intelligent Development Award 2019, nomination for Innovation Architects of Puls Biznesu in 2018, as well as a very good rating in the Innovation Health Check conducted by Enterprise Europe Network.

Andrzej Burgs supervises and coordinates research and development works. He works closely with scientists and science popularizers, promoting pro-scientific attitudes and implementing innovative solutions to research institutes and educational institutions.



## Grzegorz Kaszyński

### Vice-President Sygnis SA

Grzegorz Kaszyński has 15 years of experience in the implementation of scientific and research equipment from manufacturers from around the world. He has completed dozens of installations of high-tech devices in research institutions. He started in 2007 with running his own business, which since 2013 focused on introducing the latest solutions in the field of nanotechnology and biotechnology to the Polish market. Currently, as a co-owner and VP Sales at Sygnis, he is responsible not only for the sale of specialist equipment, but also for mentoring new start-ups within Sygnis. He also serves as a mentor for MedBizDays and as a life sciences consultant to VCs.

For many years, he has been working closely with biomedical start-ups in EPFL Lausanne, Oxford and Boston. As an expert in 3D bioprinting, he has repeatedly implemented this technology in research groups in Poland, not only providing equipment, but also conducting training and application support. In 2017, he was the first in Poland to start cooperation with the Swedish start-up Cellink (now BICO Company), which in 2020 achieved the status of a unicorn, and is now a world leader in bioconvergence.

Grzegorz's superpower is finding new market niche areas and perfect partners for business cooperation.



## **Olga Czerwińska, Ph.D.**

### **Chief Scientific Officer Sygnis SA**

Doctor of physics at the University of Warsaw, who boldly combines scientific activity with professional work. Over the past ten years, she has conducted research, taught students, conducted workshops for children, and hosted countless national and international conferences. She is the author of several scientific articles published in international magazines and is an experienced speaker with dozens of specialist conference interviews.

Since 2018, as the Chief Scientific Officer at Sygnis, she has been dealing full-time with the commercialization of science and managing several research and development projects at the same time.

Olga Czerwińska, Ph.D., is an expert in the field of grant management and obtaining EU funds. She is responsible for two original Sygnis projects: development of the Syglass low-temperature glass 3D printing technology and 3D printing technology using the newly created universal carrier of non-conductive ceramic pastes.

Olga is one of the co-founders of the Warsaw branch of Women in 3D Printing and an active ambassador of this organization, promoting, supporting and inspiring women working in the additive manufacturing sector in accordance with the organization's mission. Organizes events related to education, networking and sharing stories between women and men working in the field of additive technologies.



## **Joanna Danaj**

### **Chief Financial Officer Sygnis SA**

A finance expert with many years of experience. A graduate of the University of Finance and Management. For over ten years she has been gaining experience on positions in controlling and financial audit departments.

Skills acquired in the corporate structures of Colgate - Palmolive company, where international environment opened the door to her further development and brought many ideas for herself.

Working in the accounts payable department developed meticulousness and attention to detail, taught her to be attentive in reading the most relevant financial information.

The next big step in her career was to move to the Danish IT outsourcing company Concare IT, which is also a provider of CRM services and solutions. It was a huge challenge to work in the implementation team moving the financial department from the head office in Denmark to Poland. The successfully completed process had to be turned into further activities connected with work in an advertising agency Good Looking Studio. Many years of work and creation of the financial and HR department from scratch have resulted in the stable development of the company as well as peace of mind and the ability to make strategic and investment decisions.

The experience she gained allowed her to turn her career around and focus on further activities with Sygnis SA.

Joanna Danaj controls and optimizes costs, deals with reliable evaluation of investment projects or conducting economic and financial analyses at the highest level. Gained experience as well as characteristic personal traits and resistance to stress allow her to master each crisis situation.

# LEGEND

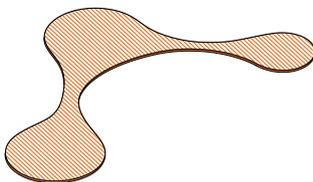
or SLICE\*

Our roots are in additive technologies. It was with 3D printing that we started our adventure as Sygnis. We believe that knowledge, just like 3D prints, is divided into layers.

**Gradual application of successive layers makes it possible to create projects using the additive method. Similarly in the case of knowledge, discovering successive layers in a marked order allows one to fully understand the explored area of reality.**

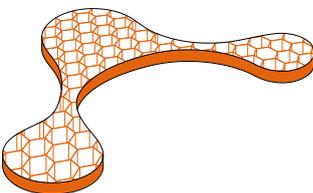
## Knowledge has layers™ Uncover all.

We will also present descriptions and summaries of particular brands in the Sygnis family in the form of layers. Owing to this, the complicated contents will become clearer, and each of the many types of Sygnis' activities – sorted and segmented. Below you will find a legend, according to which we describe each of our brands, teaching at the same time the basic 3D printing vocabulary.



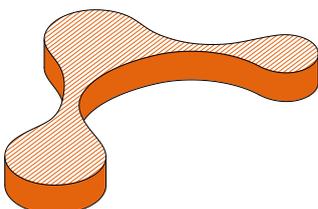
### BOTTOM LAYERS

– The first layers, the foundation for understanding the topic. We characterize the brand, tell about the idea behind it, and we also introduce basic information about the industry or industries in which the brand operates.



### INFILL

– Fill, which is everything that constitutes the core of a given brand. We explain what we sell and how we do it. We describe our products and implementations. In this layer you will also find information about achieved publicity and popularization activities.



### TOP LAYERS

– In the last, closing layers we describe development perspectives for a given brand, as well as our plans related to it. We analyze what awaits us in the future and in which direction are we looking at.

\* slice - cutting, slicing;  
in additive techniques it means dividing an object  
into successive layers in the process of preparation for 3D printing

**We are a research and development company.  
We want to effectively change the world with our inventions.**

We solve problems and create new ideas in the areas of new additive technologies, biotechnology, energy and nanotechnology. Thanks to our projects we create breakthrough solutions in the field of energy storage, expanding access to nanotechnology solutions, as well as pioneering methods of saving life and health.



**BOTTOM LAYERS**

**We use our knowledge and modern technologies  
to create a better tomorrow for all of us.**

We, the people who constitute Sygnis, are physicists, mechatronic engineers, chemists, biotechnologists, engineers, makers, designers, sociologists, artists, electronic engineers. Interdisciplinarity and intellectual hyperactivity lead us to new fields of knowledge and technology, that we discover every day.

**We bring technology, business and science together.**

**We are users, vendors and researchers.**

In addition to our own R&D efforts, we are also distributors of many pioneering solutions from our partners. We import them from all over the world to reach new levels of knowledge. With these, we develop proprietary, one-of-a-kind machines that enable production and research in previously unreachable areas.

We founded the Sygnis Group in 2012 as a trading company.

**The year 2017 was a breakthrough moment for us - at that time we started conducting our own research in the area of new technologies.**

With strong commercial roots, ensuring our company's financial stability, we built the company's largest division today - research and development. Our dynamic growth is a result of a unique in Europe system of managing prototyping processes, concerning both human resources and technological solutions.

We are doubling every year, and between 2020 and 2021 - we have grown as much as four times. Our ambitions go even further:

**We want to become the largest hardware innovation company in Europe.**



**2013**  
Beginning of Sygnis sp. z o.o. activity  
and cooperation with FlashForge

**2014**  
First implementation  
for Client - FDM technology

**December 2016**  
Reduction of employment  
to 2 people

**June 2017**  
Turning point: Andrzej Burgs  
takes over the company  
and sets a new direction

**January 2018**  
The team consists of 6 people

**April 2018**  
2.6 million PLN from NCBiR  
under 1.1.1. to develop a 3D printer  
for low temperature glass "SYGLASS"

**June 2018**  
The team consists of 16 people

**2018**  
Start of cooperation  
with Cellink and Grzegorz Kaszynski

**2019**  
Sygnis merges with Labnatek:  
Sygnis Bio Technologies is created

**2021 December**  
**Debut of Sygnis SA  
on NewConnect**

**2021 November**  
World premiere  
of SYGLASS\_01 - LTG 3DP

**2021 October**  
"Laboratories of the Future"  
project is launched

**2021 October**  
E-NIS with main prize  
of Kielce Trade Fair

**2021 September**  
Premiere of F-NIS 23151

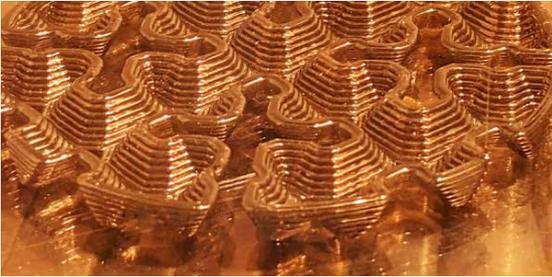
**2021 August**  
Establishment of Sygnis Nano  
Technologies

**2021 July**  
PLN 4.6 million from NCBiR  
under 1.1.1. for an R&D project

**2021 January**  
Start of works on merger  
of Sygnis and Mode SA

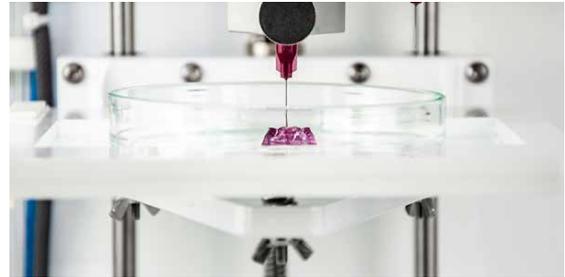
**2020**  
PLN 17.5 million from NCBiR  
under 1.1.1. for two R&D projects

**We use our knowledge, experience and resources to create positive change in the world in four main areas:**



### **New Additive Technologies**

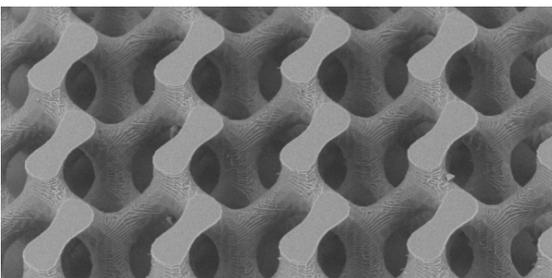
We create breakthrough solutions that take 3D printing to a whole new level of technological development. We add layers of knowledge that enable scientific achievements on a global scale.



### **Bioconvergence**

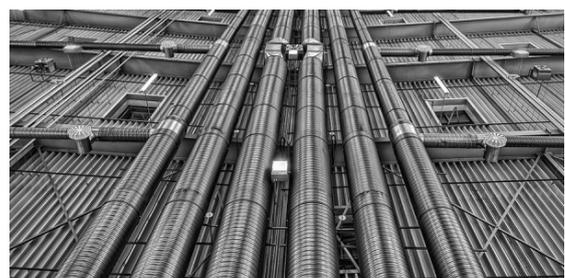
We want to ensure that there is never a shortage of organs for transplantation and that no animals have to die in the name of science. We are working on bioprinting organs for transplantation and creating bionic models for drug testing.

INFILL



### **Nanotechnology**

We focus on activities leading to the increased presence of modern achievements of nanotechnology in the everyday life of all of us. The core of Sygnis Nano Technologies are breakthrough solutions in the field of photoelectron spectroscopy, critical atomic force microscopy and electron microscopy using low energy electrons.



### **Energetics**

We are working on revolutionary energy storage methods that are a necessity in the era of the global climate crisis, requiring an increase in the use of OZE and smart grid storage: distributed and highly efficient.

Nearly 70 employees. 5 locations in Poland.  
Hundreds of implementations and thousands of hours of training.

**Machine park**  
FDM, SLA, SLS 3D printers and CNC machines



**Work in the clean laboratory**  
in Warsaw

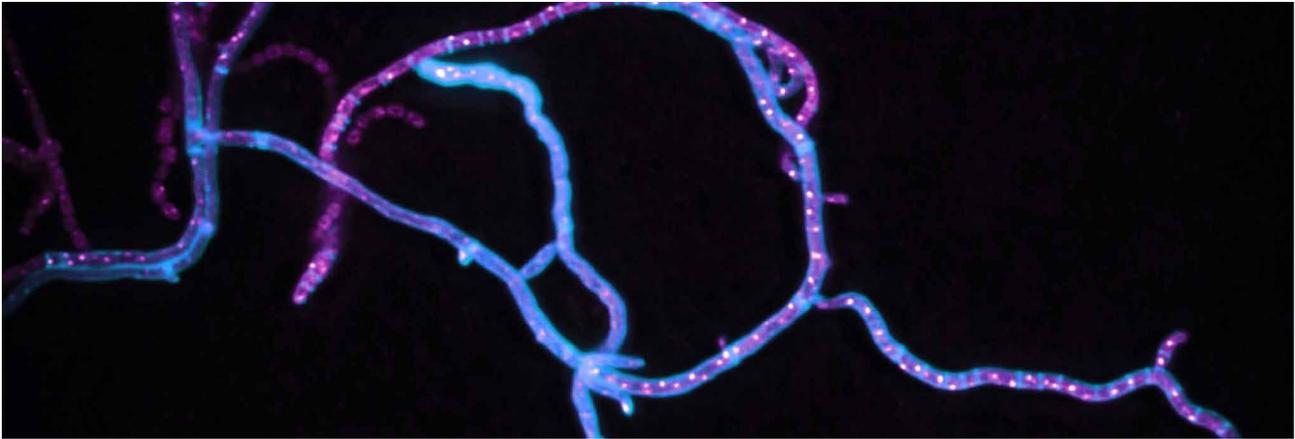


**Prototyping Terrace**  
Technology Hub at CIC Warsaw



## We intend to continue our current direction of growth by expanding the rhizomes in our organization.

We refer in this case to the concept of the rhizome, developed by Gilles Deleuze and Félix Guattari. It means a structure that is constantly and dynamically evolving in all directions, devoid of simplifying levels. It is therefore the opposite of the classical hierarchy of the „pyramid“ (or „tree“).



The rhizome structure illustrates well the flow of knowledge and information between our employees, without centrally imposed coordination. The high level of interactivity between the people who constitute Sygnis ensures the effectiveness of achieving goals and using resources. An inexhaustible source of energy for development is our intellectual hyperactivity, which pushes us into newer and more fascinating projects.

A prime example of cooperation between specialists from different Sygnis brands is F-NIS 23151, 3D printer working in DIW technology, in the design of which:

- **SYGNIS New Technologies** designers and engineers
- have drawn on expertise from **SYGNIS Bio Technologies**
- have developed a product for **SYGNIS Nano Technologies**
- which then received a product session on the **MODE\_360** machines

The internal synergy goes even further, of course, including design, assembly, manufacturing parts and full mutual support of all members of the Sygnis Team.

The Company plans to achieve, in accordance with its strategic plans, the following in 2022 the first own (non-distribution) foreign point (office/branch).

We also do not exclude the implementation of spinoffs based on some of our projects.

We will also continue the path of trade fair exhibitions among others as the main sponsor of Stom Tools (3D Printing Days).

**Although we started with 3D printing,  
today we create in over 30 technologies.**

**„Continuous development“ is not a slogan for us,  
but a real way of doing business**

# SYGNIS SA

## Business philosophy by Andrzej Burgs

**I have completed this section of the Annual Report that I am presenting to you in an accessible column format.**

**I encourage you to gain a deeper understanding of us as a company.**

**Sygnis is a deeptech multithreaded company where siloing of knowledge and resources is categorically avoided.** We advocate cross-fertilization of areas, generalism and intensive collaboration. Why such a non-obvious decision? During my studies and later, during many years of work as an expert for employers of the Polish Accreditation Committee, I observed a highly harmful siloing at universities. It manifests itself in the fact that each Faculty/Institute tries to be maximally self-sufficient, which leads to inefficient management of resources from the perspective of the organization as a whole.

This desire for self-sufficiency manifests itself, for example, in a biologist spending dozens of hours learning Python programming in order to write a script to automate microscope work, instead of asking a colleague in Computer Science from the building next door for help. This also applies to physicists, for example, learning medicine on their own instead of drawing on the knowledge and collaboration of medics and biologists.

**The closure to real cooperation on the level of everyday life, and not only on the level of big, controlled projects, was very memorable for me.** When analyzing this situation, the conclusion is obvious: it is easier to work out costs and plan in the area of a lower level unit (e.g. Department). However, the whole organization, which is the University, loses out on this, as it achieves its goals highly inefficiently.

**In contrast, examples of optimizing resource management in our company are numerous.** They may consist, for example, in lending resources „assigned” to one of the departments to people from outside the department, without the participation of a special coordinator supervising such action. However, **the key element, for which we care so much is an open cooperation and a comprehensive exchange of knowledge between employees.**

To this end, we have jointly developed Culture Principles within the organization, divided into: thinking style, technical tips, slogans and quotes to make them easier to remember or visualize. You will find them at the end of this feature.

**Every day at Sygnis is about building MVPs, prototyping new inventions and looking for the best working solutions.** How do we do it?

When building a project MVP and prototype to present to investors or customers, we have to decide on some compromises. Very often originators are emotionally attached to their products/ideas and try to develop them to perfection. This is literally the end for a project in the 2020s! Getting a product to market as quickly as possible is crucial in today's world.

Let's introduce the concept of „time to market” and create a template (hanging on our wall) that depicts this regularity:

$$\text{A good product MVP} = \lim_{t \rightarrow 0} \frac{\text{innovativeness} \times \text{quality}}{t}$$

A good MVP is the product of innovation and product quality versus time. The faster we can achieve a functional prototype, the better. **That's why we say „do it quick or not at all” so often in our company.** Being late with a product is definitely worse than releasing it with reduced functionality but on time.

Where does this approach to prototyping come from? **We come from the 3D printing industry, so we do everything with a rapid prototyping methodology.** A new handle design? Let's make 10 different pieces and see which one is best. Prototyping and testing is always better than a drawn-out intellectual experiment where we'll ponder the details of the test pieces. This is also one of the famous sentences of experimental physicists: **Theory is valid, however it is experiment that confirms or disproves it.**

**Employees are encouraged to:  
prototype, test, try, improve, take shortcuts, take risks.**

Rapid Prototyping methodology provides the fastest way to a working version, but requires multiple interactions and frequent repetition and looping of activities. When something doesn't fit or doesn't work properly - we go through the whole process again, analyzing its various stages. Such **flexibility to adapt to processes is extremely valuable in the context of the modern world**. Today, we believe it is important to adapt quickly, to be a generalist rather than a specialist. Abandoning narrow fields of specialization in favor of a broader, interdisciplinary view brings many benefits. Thanks to this, we are able to e.g. combine industry with research conducted at CERN or follow the processes of shaping social ideas and translating them into the internal organization of a company.

**Going back to the original thought - R&D project is like 3D printing.**

In rapid prototyping, the process needs to be repeated using different means or methods until the desired effect is that is, until the desired effect is achieved.

3D printing	R&D
Project CAD	Planning and literature/ business analysis
Slicer	Task division and execution of individual measurements on different types of machines
3D printing	Producing the product, where knowledge and skills are the building blocks
Postprocessing	Confirmation of results, extended data analysis, finding additional correlations with other experimental results, customer feedback on the product

Technical note: **in order to achieve our prototype, „proof of concept” as quickly as possible, we need to diagnose the key elements of the project right at the beginning**. Then we start by verifying if it makes sense to go in a particular direction at all before we begin extensive testing. Capturing the critical technological elements will determine the shape of the final product. At the beginning you need to focus on them - not on the brand logo or future profit sharing :)

**Technology is all about people.**

Success depends significantly on the team that creates it. So recruiting the right people - fast learning generalists with open minds - is the best investment for a startup. I'm glad to see that **our investment of time in mentoring, teaching students and promoting new technologies is resulting in a steady stream of talents so far**.

I strongly believe that knowledge has layers, which means that every employee of the company can bring interesting solutions to the project. **When creating an internal MVP, we are generalists, we look for analogies in the whole world**. We assume that an additional layer of knowledge can be created by anyone. Not only the scientific team specialized in this particular task, but any member of the organization (or even outside of it) is able to add such knowledge. It can be a contractor as well as an equipment supplier. We can draw knowledge and lay foundations for next layers almost from everywhere.

**Therefore, as Sygnis, we look for people who can associate even the smallest nuances and see a whole range of analogies in the world around them**. This feature is in our opinion the most desirable. Such attention to detail pushes research projects forward. When creating a product MVP, we can move forward rapidly if we break it down into individual layers and individual problems. Then we can quickly find these analogies, which give us a ready solution or hints where to look for these solutions.

What follows, we can perform such Rapid Prototyping and Rapid Tooling (tooling preparation) all the time. Thanks to the rapid repetition of these processes we are able to dynamically move forward with R&D projects. Much faster than with traditional methodologies.

**We are used to the fact that being a smaller company in relation to the world's giants, we have to be faster, more agile and much smarter in thinking how to create something. So... we act!**

**We always aim for the big goal.**

**All the daily tasks are just means to achieve it.**

## Thinking Style

### 1. Teamwork

We support each other. The overriding value is responsibility towards the company and team members.

### 2. We make decisions with logical thinking

Everyone can make decisions according to their position.

### 3. Absolute honesty

Communicate directly and quickly what we think based on the 4P's principle.

4. There is always room to add an **idea for optimization**, and implementation depends on priorities.

### 5. We look beyond the horizon

We always try to achieve a step towards a long-term goal with our actions.

### 6. Prototype

Try, analyze, improve and try again. Action with mistakes is better than no action. Mistakes are the knowledge of the organization.

### 7. Quick is better

Pragmatism: we look for the quickest and easiest way to solve current problems.

### 8. Generalism is important

Look for analogies throughout the world.

## Performance techniques

### 1. The 4P feedback principle

Positive intention + Practical purpose + Praise + Push or Pull (Accept or reject).

### 2. Principle of Decision Making

We always ask ourselves the questions: Why am I doing this? What is the context of this action? Will this help the company? What is the best decision in this case? How does this relate to our long-term goals? Overriding determinant: What is best for the company.

### 3. Principle of giving instructions

- a. Commissioning: Storytelling the context of the overall project along with explaining the tasks. And how it relates to our long term goals.
- b. Contractor: Paraphrasing the task, demonstrating how they understood their goals.
- c. Mutual trust: If the contractor encounters a problem or lack of knowledge in accomplishing - will return to the contractor with additional questions.

#### 4. Daily Report Rule

- Two levels:
  - a) specific information, relevant as news to other readers;
  - b) project implementation.
- We do not describe simple execution activities.
- We punctuate the problem, our solution or proposed solution, ask for help/resources.

#### 5. Principle of curiosity

Let's exchange ideas and what we do (mainly during lunches, morning coffee and weekly status updates).

#### 6. The principle of argumentation

If you are against or support one of the projects, argue logically why. Remember the different levels of knowledge and perspectives of the others. This does not mean a liberum veto.

## Ideas

### 1. Fast or not at all

„Time to market“ is key.

### 2. Knowledge has layers

We try to use all heads in the company.

### 3. Honesty eliminates lurking grievances

It makes us understand each other better.

### 4. Storytelling and paraphrasing

Improve communication.

### 5. Superiority

What is best for our team? What is best for the company?

### 6. Act

It is always better to correct mistakes than not to try anything.

### 7. Reduce time

Think about how long a task will take you and then try to do it twice as fast. Maybe you will come up with an amazing optimization solution by doing so?

### 8. Improve

If something doesn't work or is unattended – take over!



# The 4P principle

## Positive intention

Feedback must be constructive and presented with positive intent. Sharing critical feedback to vent frustration, intentionally hurt the other person, or pursue your own political goals is unacceptable. Be clear about how a specific behavior change will help the person or company, not how it will help you.

## Practical purpose

Feedback must focus on what the recipient can do better.

## Praise

Do not react defensively or make excuses. Your interlocutor has good intentions. Try to fight this natural reaction and ask yourself: How can I show my gratitude for these insights by listening carefully, considering them without prejudice, and not becoming defensive or angry.

## Push or Pull (Accept or reject)

Listening to comments is required, following them is not. It is imperative, however, that you consider and think about whether the whole thing is a hit or miss.

**We will be the largest hardware innovation company in Central and Eastern Europe.**

**We have to be better and more efficient.**

**Being on par with others means we don't have a chance to overtake them.**

### „Do it quick or not at all!“

– „time to market“ is key, if we are late with the product it won't matter if it is great and perfect. It has already lost at the start. Time is king - let's take care of it!

### „Our company's goal is to hire innovators, not loyal routinists.“

*James Dyson*

– We hire people who are in graduate school or who have worked in a different field but have done something interesting. This way we don't duplicate what other companies have already done, willing to give away valuable employees.

### „Knowledge has layers.“

– We use all heads to solve problems. That's why we describe key problems to our departments at company meetings. Other perspectives can be extremely valuable.

### „Don't be patient and start asking yourself „How do you accomplish a 10-year plan in 6 months. You probably won't succeed, but you'll be much further ahead than the person who just figured it would take those 10 years!“

*Elon Musk*

# The Sygnis Group consists of four main brands:

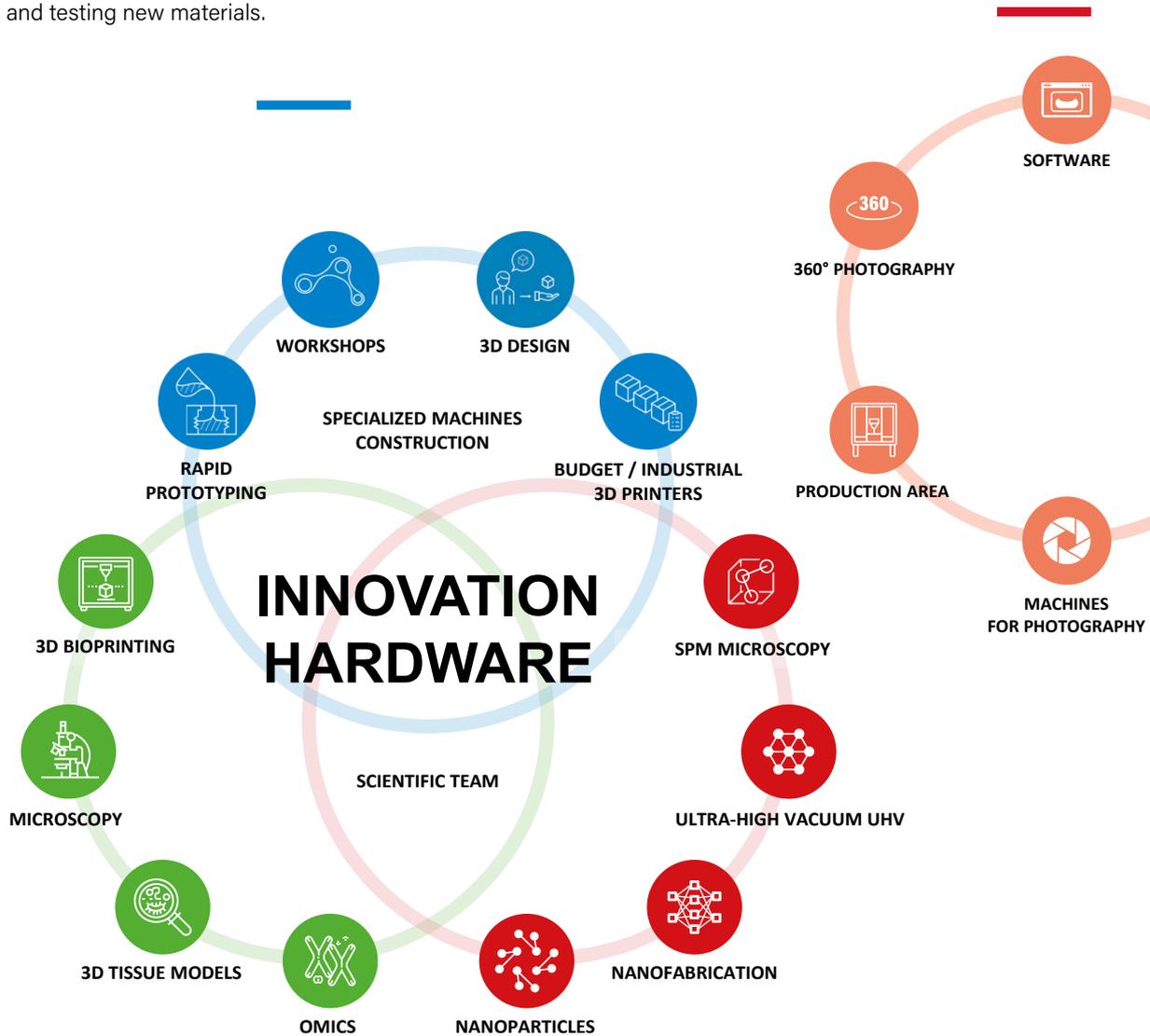


The longest operating brand from the Sygnis SA Family. Our R&D team is dedicated to building proprietary machines operating in the segment of additive technologies.

Our experienced team of 3D printing specialists is stationed in a modern manufacturing center, where they provide rapid prototyping services, advanced projects using hybrid materials, and testing new materials.



The youngest of the brands in the Sygnis SA Family. It is engaged in providing modern additive and analytical techniques in the areas of micro- and nanotechnology. The Sygnis Nano Technologies portfolio includes devices from companies such as SPECS Surface Nano Analysis GmbH, Femtika, LS Instruments, among others.



The first brand in bioconvergence - the convergence of hardware, software and biology innovations to rapidly advance medicine and diagnostics. Finding synergies among diverse developments in technology, artificial intelligence, and biology ignites the minds and imagination of researchers. We are one of the few specialists in Poland dedicated to 3D bioprinting and providing state-of-the-art solutions in 3D tissue engineering, omics science or microscopy. Sygnis Bio Technologies is a distributor of BICO Group, a world leader in 3D bioprinting.



Brand created after merger of Sygnis New Technologies and Mode SA. Mode\_360 by Sygnis since 2009 continues to create complex solutions designed to automate and streamline e-commerce industry. The mission of MODE\_360 is to provide customers with innovative, useful and easy to use systems that allow to present products on the Internet with interactive 360° and 3D presentations. All our solutions, both in software and hardware solutions are developed and manufactured in Poland.



## Hardware innovators

Sygnis New Technologies is a hardware house within the structure of Sygnis SA. Within its framework, we create new industrial solutions and tailor-made machines. Our original projects co-solve global problems of energy storage. We aggregate various additive technologies, thanks to which we are effective in meeting the contemporary needs of industry and science. We provide machines, knowledge and rapid prototyping services.

We cooperate with the largest research centers in Poland and Europe. Our partners are industrial companies operating in many industries, from manufacturing, through education, to other R&D teams. Together with them we implement projects that really change the world.



BOTTOM LAYERS



**SYGNIS NEW TECHNOLOGIES is:**

**machine building, design, 3D modeling, training,  
service and equipment supply, rapid prototyping**





The beating heart of Sygnis New Technologies is an extensive machine center that houses 3D printer farm, complementary machines for manufacturing and processing objects, post-processing spaces, a prototyping laboratory and research rooms.

This is where new technological thinking flourishes, projects for our customers are created, as well as service and repair work is carried out.

## We work in the following areas:

- FDM / FFF 3D Printing
- DLP / SLA / LCD 3D Printing
- SLS 3D Printing
- MJP (casting wax) 3D printing
- 3D printing of high temperature materials: PEEK, PP, PEEK CF30, PEI
- Laser sintering of metal powders
- 3D printing Binder Jetting (from sand)
- Vacuum Casting
- Thermoforming
- LTG 3D Printing (Low Temperature Glass 3D Printing)
- DIW (Direct Ink Writing) 3D Printing

INFILL



## We are a distributor of:



## Sygnis SA's origins are 3D printed

Therefore, all new employees go through the prototyping center and learn 3D printing. In this way, they learn not only our former core business, but they also learn Rapid Prototyping, which is key in every other aspect of the company.

The team that operates the machines serves more than just external service customers. It provides numerous services construction and 3D printing services internally for the company's various departments. Because of this manufacturing independence and speed of execution, our research and development projects can develop so rapidly. In this respect, we strive to achieve complete manufacturing independence, which is not susceptible to logistical perturbations and sub-suppliers. Thanks to a high degree of production flexibility, we are able to switch production from day to day. This is a huge potential that optimizes the whole company to the current needs.

## Education on new technologies

We conduct numerous trainings and lectures using the infrastructure base of Sygnis New Technologies. These are an opportunity for us to recruit new talent into the organization for a wide variety of departments.

In 2021, after several years of absence in the education market, the Company returned with an excellent program education for elementary schools using 3D printers. Together with the Masters of Robotics team, Sygnis has created a nearly 100-page course on 3D design and printing, anchored in the Polish education core curriculum. Sygnis EduLab has its online version of the course, and in Q2 it will also have a physical 3D printing education facility in Katowice.

The motivation for making this investment in the area of education was the GovTech's „Laboratories of the Future” government programme. Under the programme, Polish schools will purchase between October 2021 and September 2022 more than 14,000 3D printers working in FDM technology. Sygnis has signed in this respect two strategic distribution agreements with Moje Bambino sp. z o.o. sp.k. and Educarium sp. z o.o. They are the leading Polish distributors of educational equipment.



## Product design and „small R&D”



As part of the brand's activities, we provide „small R&D” services. They consist in the execution of commissioned research works in accordance company doctrine: Do it fast or not at all. Thanks to this, we have an internal, broad overview of the Polish technological scene.

Our in-house industrial design department provides internal services for the redesign of machines in new, beautiful and ergonomic design. We are able to plan a product from the first hand drawing on a piece of paper, to the implemented production series.

## Laboratories of the Future - 3D printer in every home and school

The following years will see the continuation of the „Laboratories of the Future“ government programme, in this case for secondary schools.

The Company will participate in the supply of equipment under this programme. We also anticipate an increase in interest in 3D printers in home education. Our conclusion is that hundreds of thousands of children will be taught using 3D printers, some of them will be fascinated by 3D printing (like, among others, the founder of Sygnis New Technologies, Andrzej Burgs), so 3D printers will begin to find their way into homes as family gifts for children. Anticipating such development, the Company is preparing 3D printing-based home education programmes based on 3D printing in cooperation with teaching specialists. The emphasis will be put on selling these products using the e-commerce platform **shop.sygnis.pl**.

## Completion of research and development projects

During the next period, the Company will provide updates on the completion of research work on further internal projects.

## European perspective

In 2022, we will participate as a brand in several trade fairs and conference events in Poland and Europe. We want to obtain commissioned research work from other Central European countries. In the same region (enriched with Germany and Scandinavian countries), we will follow in order to develop the branch of commissioned prototyping services, among others through stronger promotion of a dedicated Made in Sygnis website.

## Keep up the good work!

A close-knit and experienced team of Sygnis New Technologies technologists will continue to implement projects aiming at building machines which achieve so far unrealistic production and analytical capabilities.

**At Sygnis New Technologies, we are currently conducting two key research projects:**

**SYGPAST**  
Hybrid 3D printer for liquid materials  
with real-time quality control

**PLUMBO**  
3D printer for the energy industry,  
working on lead materials



# SYGPAST

## Hybrid 3D printer for liquid materials

### Sygpast project:

Constructing a multifunctional hybrid 3D printer with real-time quality control system.

### Project summary

The main goal of the project is to create a prototype of the SYGPAST hybrid 3D printer enabling real-time control of the manufacturing process.

The device will enable printing from liquid materials and thermoplastic filaments in one process and will provide the user with an open access to modify the printing parameters, thus allowing to use own materials.

The SYGPAST printer will find its application in space industry (demanding components of satellites), aviation (small tooling of turbines), energy industry (specialized seals), chemical and material industry (both for validation of manufactured materials and production of specialized equipment assisting in research), and everywhere, where maintaining the continuous operation of machines and their parts requires their efficient adaptation to regularly changing operating conditions (rearming of machine lines by producing specialized adapters, holders and protections).

### The result of the project: Sygpast 3D printing technology

Thanks to the versatility of the Sygpast 3D printer, we can obtain spatial objects with geometries that increase battery capacity, among other things, or allow us to create multi-cell batteries with good sub-isolators between the individual sections.

A favourable event for the project's success is Sygnis joining the CePT II consortium (consisting of e.g. UW, WUM, Unipress, PW, IBB and others) within which the Cell Prototyping Laboratory is also being established. The interest in machines enabling research prototyping and then production of target energy storage products has been confirmed, among others, by a letter of intent from the University of Warsaw.

The development of energy storage capabilities is key to achieving EU climate indicators. Battery research and development is one of humanity's key issues in the coming decades, and Sygpast is the ideal tool to drive this, and in future development iterations, production.

Also in this project, we are interested in participating in the creation of electrochemical cells where changing material mixtures (conductive carriers) and insulators of individual sections (non-conductive carriers) will be used.

The space industry requires materials with a special fit of the elements due to the extreme loads they are subjected to (temperature, radiation, among others), as well as utility in relation to mass (it is essential that lifted elements achieve the maximum ratio: utility - mass). That is why, among others, according to specialists from DARP, next generation spacecrafts will largely use 3D printed ceramics in their construction. Also representatives of Polish space sector describe dedicated ceramics of any shape as one of the most important for development of Polish satellites.

One of the key competitive advantages of the Sygpast printer is its control system, which provides manufacturing stability, as well as the ability to report errors and deviations (quality control), a prelude to quality certification capabilities. Sygpast is also a unique device that allows for research and development activities in the scientific sector. Research teams are struggling to access machines with open parametric systems to check the performance of materials and admixtures in final molds. In terms of industrial machines, advanced solutions exist for specific materials, however, these do not allow for free exploration and testing of new materials under controlled conditions. The customers of Sygnis from the Departments of Materials of PW, AGH, PWr, Nanomaterials Engineering, Institute of High Pressure Physics PAN, CMPW PAN Zabrze, IEN, UAM and others are extremely interested in the possibilities of testing new flexible materials, silicone materials and materials doped with nanomaterials.

The final result of the project is a 3D printing technology with a system of real-time control (and real-time compensation) of printing parameters and a machine in the first iteration using the developed technology - SYGPAST\_01.

## Market size

The technology is applied in three basic areas:

- Creation of spatial structures from binary materials with set parameters for industry (e.g. polyurethanes)
- Creating spatial structures from ceramic materials freely doped (depending on application) for industry
- Application in the development of specialized materials in research groups (research gate machine)

**A.** Industrial standardization requires full process repeatability and control of conditions. Sygpast, thanks to its internal control with compensation and execution report, ensures a controlled production process with 3D printing. This allows it to become part of production lines in demanding industries such as automotive or aerospace.

This could be gaskets with unusual geometries, specialty shoes, insulators for sensitive space electronics. In Poland alone, about 1% of the 40 million pairs of shoes each year are specialized shoes with complex requirements. Printing of non-standard solutions is cheaper than currently used multi-batch methods for unit production.

**B.** The processes for creating ceramic, or preceramic, objects are currently complex and costly. They are also indispensable for creating energy, radioactive and temperature insulators. The demand for such products is growing worldwide, also in the dynamically developing space or energy industry. Sygpast enables the creation of new qualities, among others satellites (better matching of free-form insulators), or non-conductive elements of energy storage systems. 3D printing technologies of manufacturing ceramic objects with unusual geometries are sometimes the only possibility, and when compared to traditional methods are about 20% cheaper. This is an additional advantage in terms of market entry.

**C.** During the „Future of Materials“ lecture at the Formnext conference, it was reported that there are currently nearly 1000 research teams working on the development of resin, ceramics and other liquid materials in Europe alone. Enabling them to test new solutions is analogous to the way Cellink made the BioX research-gate machine available to biotech teams (Cellink's growth in value over 4 years is over 900%). The analogies we have to this development path are that we are creating a machine that democratizes testing of difficult materials (relatively low price of the solution) and we have our own carrier substances (realized Innovation Voucher with universal ceramic carrier).

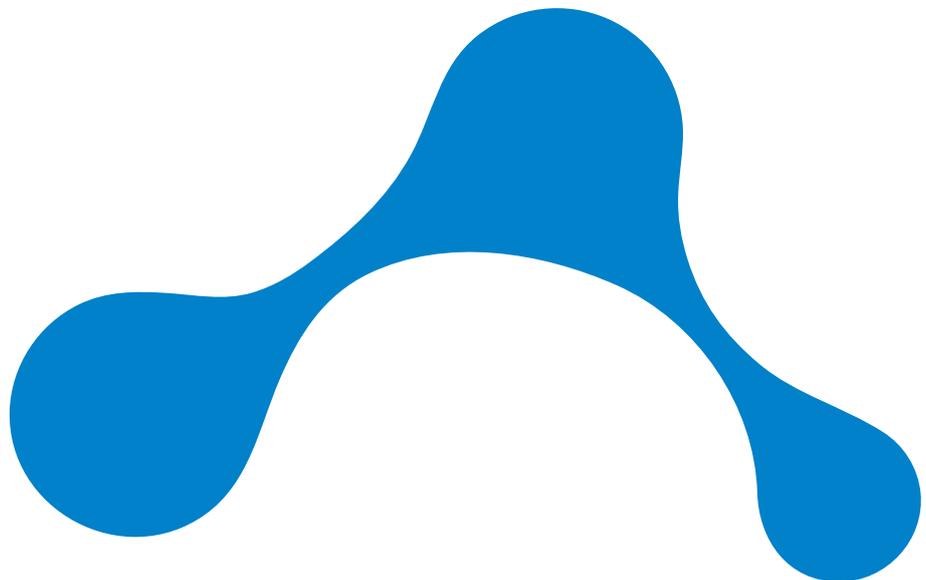
**D.** Development of energy storage, among others, according to Bloomberg New Energy Finance (BNEF), by 2050, 50% of the world's production will come from RES (40% increase from 2019st). Research work on batteries and energy storage is one of humanity's key issues in the coming decades, and Sygpast is the ideal tool to pursue it (in future iterations also for production). Energy storage is key to achieving the energy transition.

**E.** The target markets for the solution under development have a total value of \$50 to \$80 billion (depending on branch development estimates).

### Current project value

In the field of non-conductive carriers, we have completed the PARP project Voucher for Innovation (project value ca. 500 thousand PLN). We have realised it together with Institute of Power Engineering, the results of research work were attached to Sygpast project. The developed carrier wets a wide range of ceramic powders well, which enables universal use with different materials.

Research work worth PLN 7,670 thousand (carried out in a consortium of Sygnis SA [leader] and Poznan Supercomputing and Networking Centre). The project was selected for funding by the National Centre for Research and Development, project number: POIR.01.01-00-0438/20, funding value: PLN 6206 thousand. The agreement between SNT and PSNC provides for exclusive licensing use of the machine software.



# PLUMBO

## 3D printer for lead

### Plumbo project (from Esperanto: „lead“):

Development of a universal tool for prototyping and batch creation of power frames.

### Project summary

A versatile tool, which is a dedicated 3D printer that processes materials such as lead, will allow to create frames and ultimately batteries with increased capabilities. Obtaining the ability to create any three-dimensional structures will translate into increased efficiency of use of cells created with this method, as well as increase their electrical capacity.

Technological adaptation of 3D printing, as well as unusual materials in which Plumbo 3D will work, currently have no direct counterparts. Using the machine as a tool for prototyping new energy solutions will shorten the prototyping work by 2-3 years, as well as provide opportunities previously unattainable (unusual geometries, unlimited by pouring or milling molds).

Moreover, the project aims at providing a tool for the development of lead-acid power generation. It is extremely important from the point of view of the strategic aspect of securing Poland's energy supply. It is a technology that Poland can develop safely, because all the necessary raw materials are available locally, unlike in the case of lithium-ion technology.

Also, a post-processing machine will be developed for the main manufacturing device to ensure the proper final properties of the products. The fully developed tool will be able to serve as modular components of a production line for manufacturing lead-acid cells. Multiplication of the equipment will allow to create an efficient cell factory.

### Competitive advantage/innovation

- New free form geometries available
- Increased cell capacity with new geometries
- Low cost and rapid prototyping of new solutions
- Ability to be encapsulated in small and low cost manufacturing modules that can be scaled easily. Up to large manufacturing plants
- No equivalent in terms of lead generation tools.

### Current status

The annual project began on July 1. We are currently moving with the schedule.

The implementation of the technology solution demo at the project partner should take place in late 2022/2023.

# SYGLASS

## Low-temperature glass 3D printer

The low-temperature glass 3D printing technology using a proprietary Direct Ink Writing method allows for automation of many stages of production of nanostructured fiber optic preforms. SYGLASS printer allows to shorten the production process of one optical fiber at least fourteen times.

The world's leading universities are currently able to produce about 20 nanostructured preforms per year. Thanks to SYGLASS technology this number can be increased up to 180 pcs/year (using only one machine) with simultaneous cost reduction.

The cost of making the preform, thanks to a significant reduction in the time spent by special equipment and staff, has been reduced from about 50 thousand PLN to 20 thousand PLN, depending on the complexity of the optical fibre. By replacing manual process with automatic 3D printing, we reduce the risk of errors and production delays.

The SYGLASS printer allows you to print from any glass with a softening temperature of up to 700°C. This is a key advantage because preforms of low-temperature glasses are hard to come by, while research institutions need such products because of their unique properties. Components printed on SYGLASS have applications in the fields of photonics, cybersecurity and gradient optics.

Unlike current glass 3D printing solutions, at SYGLASS we focus on the specific niche of printing fiber optic preforms. Currently, there are no other machines that offer similar functionality. We are the only firm that can print in the required size, from pure glass, and the resulting preforms do not require mechanical or thermal processing. Moreover, we offer printing with two types of glass (with different refractive indices). All necessary production steps take place in one integrated process.



**SYGLASS\_01 3D printer premiere**

was held at Formnext 2021 fairs



## The development of low-temperature glass 3D printing technology has opened up new markets.

The demand for fiber optic preforms is tens of times greater than the production capacity, which limits the pace of global photonics development.

We are not offering just another 3D printer. SYGLASS is an opportunity for more breakthroughs on a global scale allowing for faster and more reliable data transfer, security, sensors with measurement spectra on a scale not previously available.

There is a huge surplus of theoretical work with no opportunity for validation and testing. The world's best universities and research institutions can only produce one or two preforms per month. We are responding to this need with a specific tool - SYGLASS.

We are currently custom 3D printing single- and dual-component glass preforms for specialty optical fibers such as photonic structures.

Our offer includes machine sales, custom sample printing and R&D consulting. This is a list of services already realized and for which we receive further orders.

Our target audience are research institutes, companies and universities involved in photonics, optics, cyber security and communications. We also develop solutions for optical fiber companies and the military.

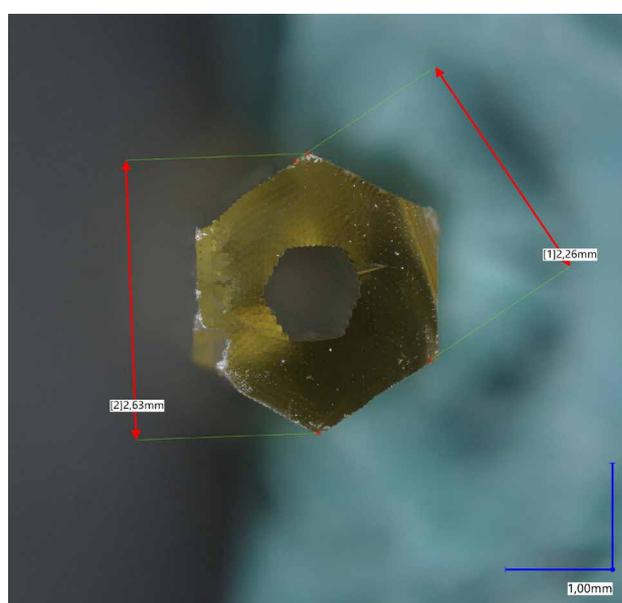
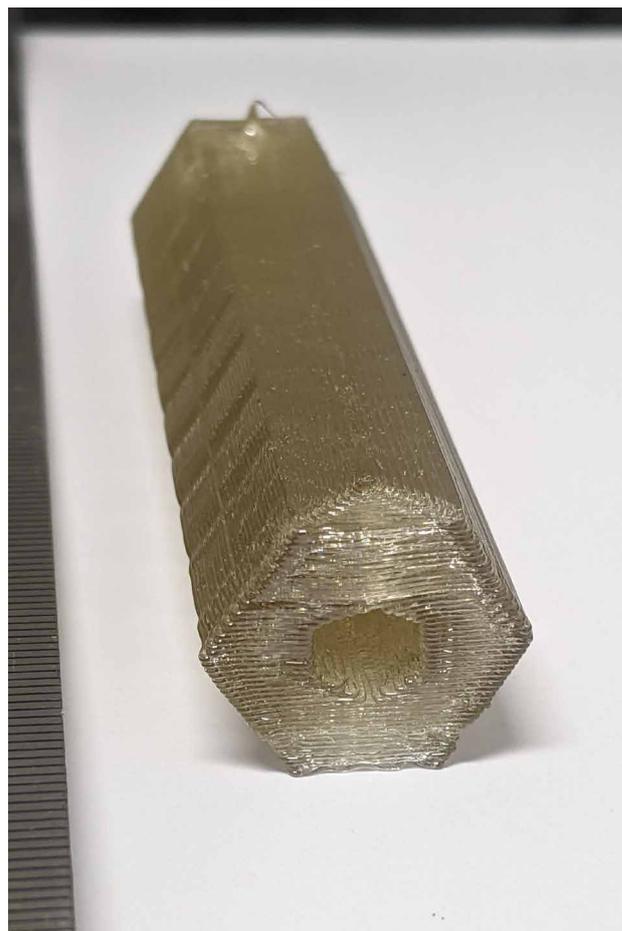
SYGLASS technology was presented in 2021 at two international fairs - FORMNEXT (Frankfurt), GITEX (Dubai), as well as at the largest 3D printing fairs in Poland - 3D Printing Days (Kielce). Each of the visits ended with success in the form of new customers, partnerships or development directions.

The SYGLASS printer is also available to view on the Sygnis Prototyping Terrace at the Cambridge Innovation Centre in Warsaw, Poland.

We work closely with scientific institutions to improve the product and promote the technology through articles in prestigious scientific journals.

We work together with organizations that are members of the Cluster for Photonics and Fiber Optics and the Polish Technological Platform on Photonics to implement and promote SYGLASS.

We are in the process of filing patent applications that will protect our intellectual property.



The current printer has been evaluated to TRL8 technology level - Demonstration of Final Technology Version. We are producing prints with repeatable, user-defined properties. The machine is ready for commercialization, we are promoting SYGLASS technology and receiving inquiries.

The new machine with changes implemented on the basis of our experience and intensive consultations with partners and customers, will be presented in November 2022 at the largest 3D printing fairs in Frankfurt - FORMNEXT.

We also develop proprietary products based on preforms produced on the SYGLASS printer. These include a nanostructured gradient core, a fiber optic gradient optical vortex beam converter, volumetric lenses, an air-core preform for fabricating anti-resonant fibers, or a far-field camera using a hexagonal array of flat nanostructured lenses.

We are considering the creation of SYGLASS, a subsidiary company which would be a spin-off and owned by Sygnis SA. This fits into the strategy of Sygnis SA on development and commercialization of technology companies.

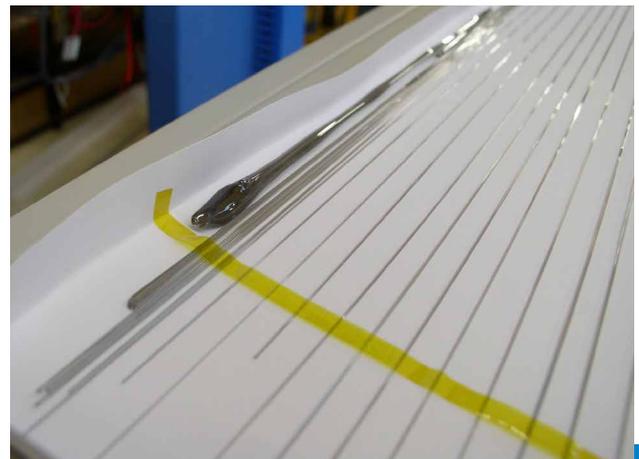
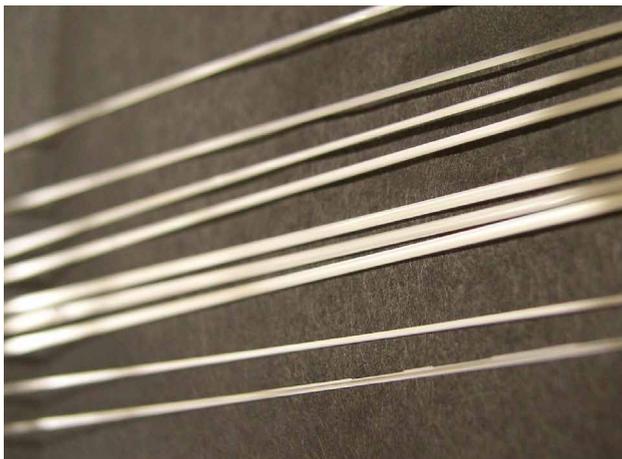
We forecast 40% revenue growth in the glass 3D printing market over the next few years. This is supported by analysis in analogy to the growth of 3D printing technology of other materials. Success is also influenced by enabling factors such as responding to a specific market need and learning from competitors' mistakes, knowledge of future directions taken from global leading research groups, observable growth in the number of companies printing from glass, sales to the global market and the fact that we are not entering the market first.

In the 2022-2024 development plan, we will focus on conducting industrial tests, perfecting the new product version of the printer according to market demand, promoting proprietary products and applications, approving patents and achieving 20% of global revenue in the glass printing sector.

We will continue to grow from 2024 to 2027. The goal is to become a leader in the global supply of fiber optic preform production machinery. To achieve this, we will build an advanced high-purity production hall and expand the range of the machine functionality.

## FIBER OPTICS MANUFACTURING

Pulling the fiber 3D prints from Syglass\_01 on the column



World's first  
low-temperature  
glass 3D printer

# SYGLASS\_01

Rapidly growing Polish deeptech innovation company, Sygnis SA, presents state-of-the-art 3D printing technology from low-temperature glass (LTG3DP).

This landmark achievement is the result of a five-year research and development process. Syglass will enable previously impossible advanced projects in optics, photonics, cybersecurity and Smart Grid.

Syglass technology will automate the production of fiber optic preforms and nanostructurization of 3D printed glass. It will revolutionize the way we view hardware cybersecurity systems.

**The price of the device  
will not exceed €200,000  
in any of the possible configurations.**



**OPTICS**

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**PHOTONICS**

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**CYBERSECURITY**

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**SMART GRID**

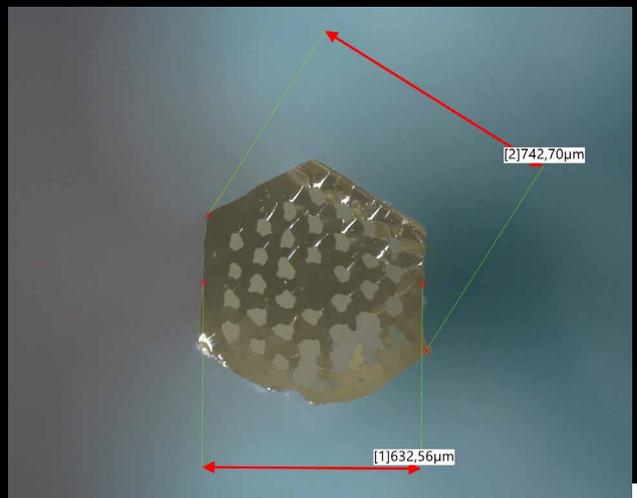
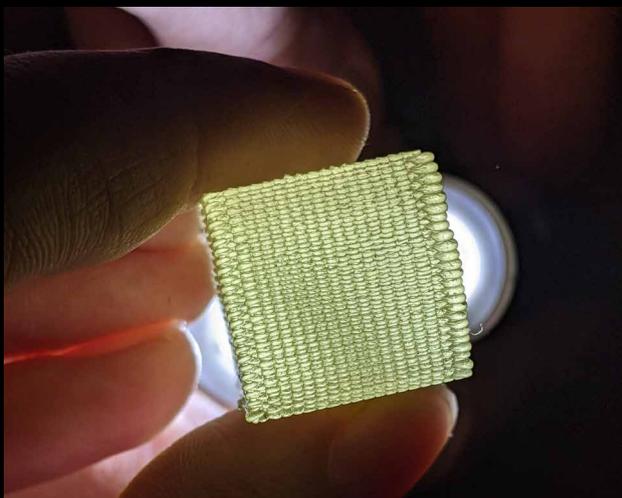
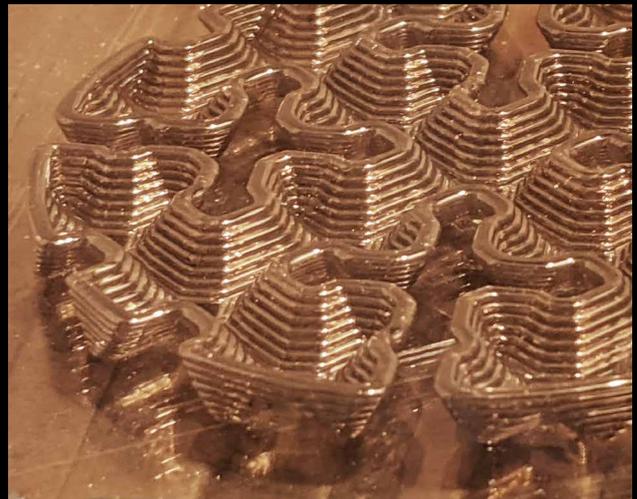
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**GRADIENT-INDEX  
OPTICS**

# SYGLASS\_01

Sygnis SA proudly presents the world's first low-temperature glass 3D printer

<b>MAX CRUCIBLE TEMPERATURE</b>	700°C
<b>MAX TABLE TEMPERATURE</b>	500°C
<b>MAX CHAMBER TEMPERATURE</b>	550°C
<b>PRINTING AREA</b>	10 x 10 x 10 cm
<b>DEVICE SIZE</b>	84 x 62 x 165 cm
<b>MAX POWER CONSUMPTION</b>	4200 W
<b>DATA</b>	Full process recording, 4-point temperature mapping, integrated charting
<b>DISPLAY</b>	13.3" touch screen display with integrated slicer
<b>OTHER</b>	Built-in camera, security lock, Ethernet, USB





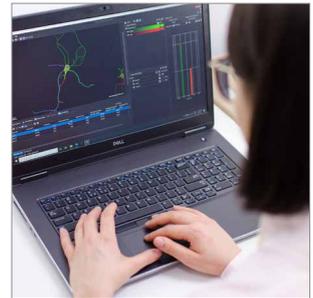
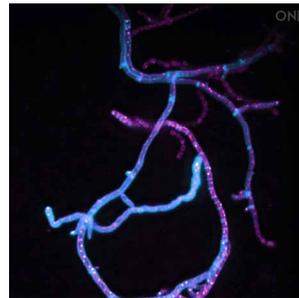
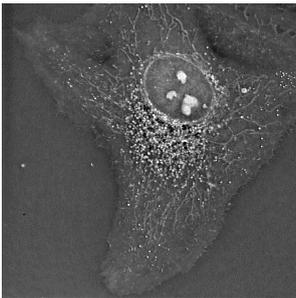
# SYGNIS

BIO TECHNOLOGIES

## Bioconvergence leaders

Sygnis Bio Technologies was established in 2019 on the basis of knowledge and many years of experience contributed by the current Vice President of Sygnis SA, Grzegorz Kaszynski. It can be confidently stated that it is the first brand in Poland in the field of bioconvergence - the confluence of hardware, software and biology innovations for rapid development of medicine and diagnostics.

Finding synergies among the diverse directions of technology, Artificial Intelligence and biology ignites the minds and imaginations of researchers



BOTTOM LAYERS



### SYGNIS BIO TECHNOLOGIES:

**creates and delivers tools that set new perspectives  
of biology and medicine.**

**We connect the dots of biotechnology  
into a coherent picture of the future.**

The projects that our customers are working on are groundbreaking for the future of medicine.

Thanks to 3D bioprinting it will be possible in the future to bioprint elements of the body for transplantation, and thanks to bioprinted tissue models it will be possible to reduce the participation of animals in the drug testing process.

A future is opening up before us in which transplantology, oncology are revolutionized, and futuristic ideas straight out of science-fiction series become the subject of scientific publications.



We are one of the few specialists in Poland, dealing with 3D bioprinting and providing cutting-edge solutions in the field of 3D tissue engineering, omic sciences, or microscopy. Devices from the Sygnis Bio Technologies portfolio are used in laboratories, research institutes and top universities.

## We work in the following areas:

- Omic Sciences
- Exosomes isolation and analysis
- Tissue engineering
- 3D bioprinting
- Super-resolution microscopy
- Holotomography
- Stochastic Microscopy
- Super-resolution
- Intravital Imaging
- Microfluidics



## Sygnis Bio Technologies is a distributor of, among others:



## 3D Bioprinting

3D bioprinting is an innovative technology from the borderline of biotechnology and medicine. It allows for printing spatial constructs using living cells suspended in hydrogel. As a result, we are able to create an advanced 3D tissue model that better reflects the microenvironment of real tissues, and in the future, probably also functional organs. The wide range of biomaterials used in 3D bioprinting allows the use of different cell types, including nerve cells, liver cells, and bone cells, which has applications in regenerative medicine, diagnostics, and drug screening. 3D bioprinting also contributes to animal replacement and reduction in scientific experiments in accordance with the 3R principle (Reduce, Reuse, Recycle). The bioprinters we offer allow the simultaneous use of up to 6 different biomaterials or cell types, which provides extraordinary opportunities to create complex heterogeneous models that replicate the native conditions of living organisms. Our partner Cellink (BICO Group) is one of the world leaders in this field.

## Exosomes

Exosomes are a type of extracellular vesicles (EVs). Transporting substances such as functional proteins, lipids and nucleic acids, they play a role, among others, in the space of intercellular interactions. This opens wide perspectives for their use in biomedicine and tissue engineering. Current issues involving experiments with exosomes concern their therapeutic potential, diagnostics or cancer research. The solutions we offer support all stages of working with exosomes - from isolation, through sample preparation, material analysis, to detailed results presentation. Advanced systems enable automation of subsequent steps, ensuring precision, speed and efficiency while simplifying complex procedures.

## Microfluidics

Microfluidics is the field that deals with the precise control and management of fluids with a volume less than a microliter. This allows for increased accuracy and reproducibility of experiments while reducing the cost, time and space required to perform them. The experiments are conducted using small constructs called microfluidic chips. The use of chips allows for better control of chemical processes and a better understanding of the processes occurring in the human body.

They allow us to create disease models and test the action, efficacy and safety of new substances without the use of living organisms. This technology makes it possible to limit testing of drugs and cosmetics on animals. Our partners offer high quality products, comprehensive solutions that are used by research institutes, universities and pharmaceutical companies around the world.

## Microscopy

Microscopic techniques are the cornerstone of virtually every biological laboratory. Advanced microscopic techniques such as confocal or super-resolution microscopy allow observation of processes on a scale not previously observable. Unfortunately, such microscopy is available on a very limited basis due to the costs involved. Thanks to partners such as Andor (Oxford Instruments), Nanolive and Cytexa, we are able to clearly state that our goal is to democratize microscopy. Our solutions increase the availability of advanced microscopy techniques such as spinning disc or holotomography by bringing these solutions to a price segment accessible even to small laboratories or institutes.

## Precise liquid dispensing

Devices for precise dispensing favourably affect the improvement of laboratory work, as well as environmental protection by reducing the use of tips, and thus reduce the costs associated with the conduct of research. The process of acoustic dispensing is fast, non-contact, precise, eliminates the possibility of contamination and significantly affects the minimization of the amount of reagents. Our dispensing and rinsing systems are fully automated, easy to use and, most importantly, ready for integration with robotic arms in the spirit of future robotic laboratories.



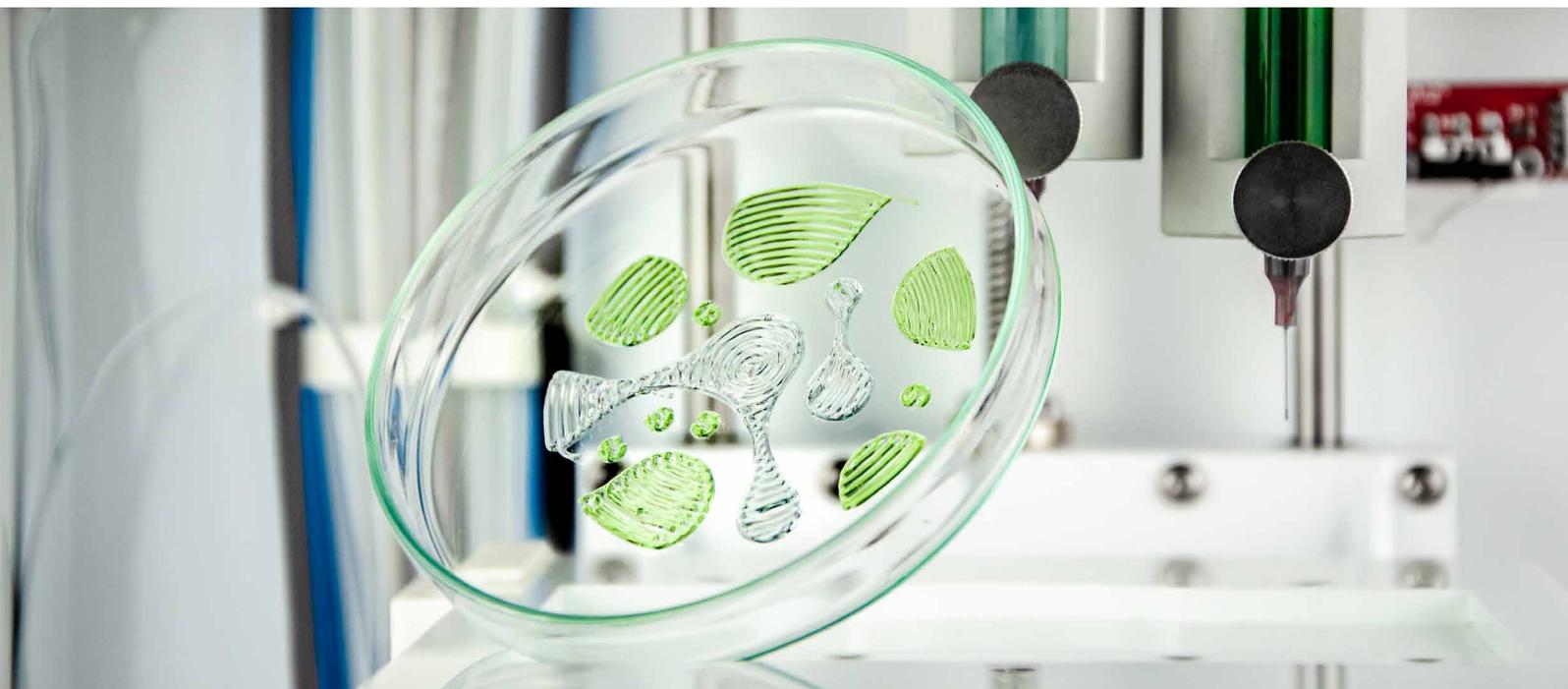
Sygnis Bio Technologies will continue to expand its applications engineering staff in 2022. This will allow to increase the area of influence of the brand, as well as ensure the appropriate quality of service, customer support: post-sales and application.

## International promotion

We aim to increase Sygnis Bio Technologies' activity in the field of conferences and trade fairs in the Central European region. Especially interesting for us are the markets of the Czech Republic and Slovakia, where we are planning not only international events, but also the organization of our own shows, trainings and lectures.

## Supporting the development of bioconvergence

3D bioprinting opens amazing possibilities for medicine and biotechnology, creating precise tissue models, minimizing the use of animal models and ultimately creating elements of the human body for transplantation. Our key task for the coming year is to popularize the idea of bioconvergence, as well as increase market awareness of the idea of small, agile biotechnology laboratories. We will continue to democratize research opportunities in biotechnology areas.



**At Sygnis Bio Technologies we are currently undertaking a key research project:**

**SYGBIO**

**Create technology to print from biomaterials and construct a 3D bioprinter for the automated creation of bionic organs.**

### Sygbio project:

Create technology to print from biomaterials and construct a 3D bioprinter for the automated creation of bionic organs.

### Summary of the project

The main goal of the project is to create technology for printing from biomaterials and construct a 3D bioprinter for automated creation of bionic organs. Our innovative 3D bioprinter is intended to be the world's first 3D bioprinter adapted to clinical applications - it is designed with the end customer in mind, not just laboratory research. It will enable the creation of large structures containing biological elements such as bionic organs. The innovativeness of our 3D bioprinter on the scale of the Polish market and foreign markets is undeniable, because until now there is no 3D bioprinter for clinical use with a class A purity and a similarly large working volume.

What distinguishes our product from those currently available on the market are: integrated incubation chamber, accelerated printing by using several printheads, large volumes and orientation towards the end customer – surgery and transplantation instead of the laboratory. Our innovative product will simplify technically complex medical procedures and, most importantly, provide new opportunities in creating personalized organs for research and transplantation. Due to the involvement of end users in the process of improving our product, it is certain that new areas of application of our technology will emerge. The main recipients of the implementation will be: companies from the medical and pharmaceutical industry, hospitals and clinics, R&D centers.

The result of the project, i.e. the 3D bioprinter, is a novelty on the scale of the European market, however the applied technological solutions and key technical parameters will be an innovation on a global scale. The main objective of the project is to create the first Polish 3D bioprinter to be used in hospital facilities, including transplantation centers, i.e. bioprinting of blood vessels or bioprinting of skin, and institutes and hospitals for ophthalmology, cardiology and orthopedics, e.g. bioprinting of corneas, heart valves and bones. Additionally, the 3D bioprinter will be used by pharmaceutical companies in preclinical research e.g. in toxicity assessment and/or efficacy testing of potential drug products.

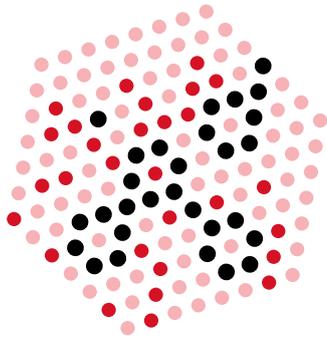
### Market size

It is important to note here that the preclinical research market is about 12% of the drug research market, which reached a total of \$54 billion in 2021 with an annual growth rate of about 12%. That is, the average growth in the value of the preclinical research market will be an estimated \$6.5 billion per year. Printing tissues in multiples or organoids, i.e., organs on a smaller scale, will allow internal organ function to be mimicked under near-physiological conditions, and therefore will allow animal testing to be reduced (though not eliminated). In the case of current global trends, including the 3Rs principle, which states, among other things, to reduce the use of animals in preclinical and basic research, our bioprinter fits into the bioethical approach to the problem.

In addition, the bioprinter will enable the printing of a smaller scale organ, a so-called test organ, where prior to the main process of bioprinting a functional organ, it will be possible to preliminarily evaluate the performance, or assess the risk of transplant rejection (e.g. by incubating the test organ with the recipient's blood and evaluating the immune response). This is a potential scenario for the future of clinical trials, when this will be an obligation as part of personalized therapy.

### Current project value

Cost of research and development works: PLN 9,895 thousand  
(including NCBiR funding of PLN 8,585 thousand, project no: POIR.01.01.01-00-0166/20).



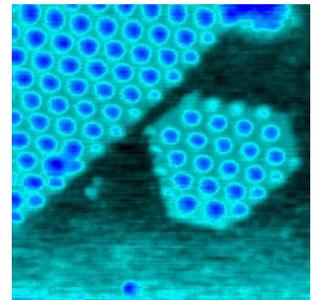
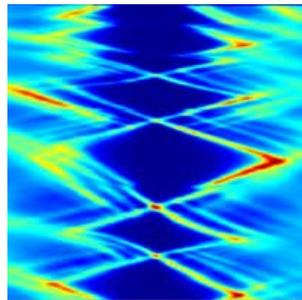
# SYGNIS

## NANO TECHNOLOGIES

### We bring nanotechnologies closer to everyday life

Sygnis Nano Technologies is the youngest brand of Sygnis S.A., established in 2021 as a result of signing a distribution agreement with the world leader in ultra-high vacuum (UHV) solutions, the German company SPECS Surface Nano Analysis GmbH.

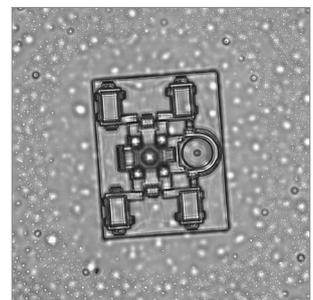
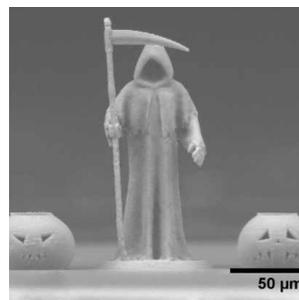
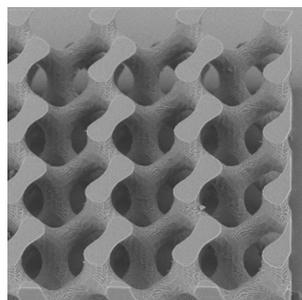
Thanks to such a partner we are able to provide our customers with the highest quality support and technical service. SPECS equipment is at the very frontier of both technical and physical science. In Poland, apart from the most important universities, SPECS solutions can be found at the National Synchrotron Radiation Center SOLARIS.



**BOTTOM LAYERS**

### SYGNIS NANO TECHNOLOGIES

**brings to Poland the best and most promising technologies  
in the field of research and production of metamaterials,  
two-photon photopolymerization  
and ultra-high vacuum systems.**





At the core of Sygnis Nano Technologies are state-of-the-art solutions for photoelectron spectroscopy and critical atomic force microscopy as well as electron microscopy using low energy electron microscopy. These solutions are not only used in the most advanced physics and nanotechnology laboratories, but also, thanks to EnviroESCA, enter the world of high-throughput industrial solutions.

Sygnis Nano Technologies also has a part of its portfolio dedicated to additive techniques at critical resolutions. Thanks to our partner, Lithuanian company Femtika, a leader in hybrid techniques technologies for femtosecond laser manufacturing, we are able to offer our customers solutions to take 3D printing to true nanoscale, with resolutions as fine as 0.0002 mm.

## We work in the following areas:

- Nanofabrication
- Two-photon polymerization
- Atomic Force Microscopy
- Ultra-High Vacuum UHV
- Electrospinning
- Scanning Electron Microscopy
- XPS, MEM, LEM
- Surface Analysis
- Rheology/Reometry



## Sygnis Nano Technologies is a distributor of, among others:

**SPECSGROUP**

**Femtika**

**Nanonis™**

**Enviro™**

**LS Instruments**

## Own research direction

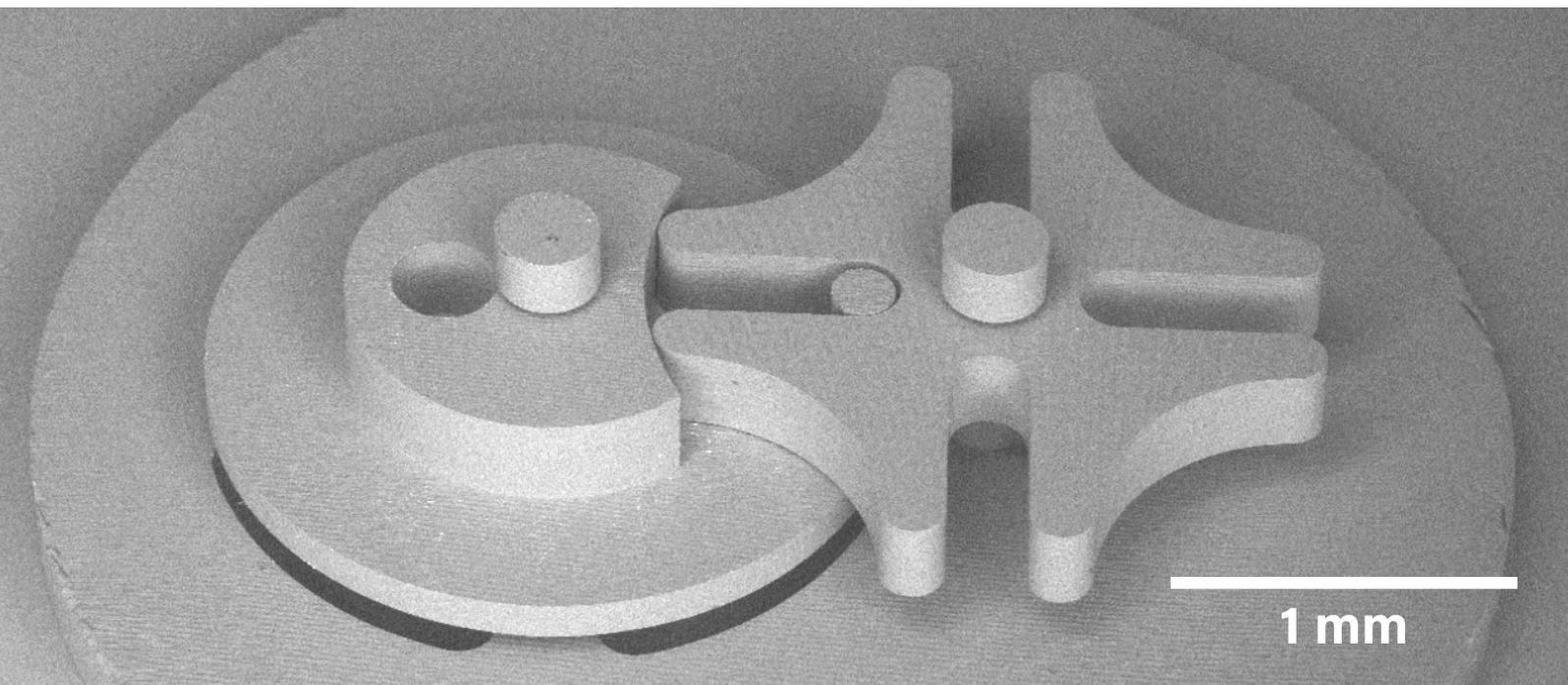
Continuing the development of the brand in accordance with the company's strategy, we are planning in the near future to expand our team with research and development department, which will conduct its own work in the field of application of new technologies in the nano-scale.

## Conferences and trade fairs

As Sygnis Nano Technologies was established in 2021 it is crucial to build brand recognition and a clear link to the SPECS brand in customers' minds.

## Strengthening the collaboration with the academic community

In the coming year Sygnis Nano Technologies will focus on building a presence at conferences and trade fairs and promoting the solutions, especially among the academic community.



**We are a patron of the Nanonet Foundation  
and we are a part of the Silesian Nano Cluster**



# MODE\_360

by SYGNIS

## Professional automated photography solutions

Since 2009 MODE\_360 by Sygnis develops complex solutions for automation and improving online sales in e-commerce industry. The mission of MODE\_360 is to provide customers with innovative, usable and easy to use systems which allow to present their products on the Internet using interactive 360° and 3D presentations.

We are constantly working on expanding our offer, both in terms of software functionality and capabilities of our devices. We are proud that our software and hardware solutions are developed and manufactured in Poland.

Since 2017 MODE\_360 by Sygnis is Official Technical Partner of CANON company. Cooperation with the leading company in the camera industry allows us to quickly adapt solutions to the ever-changing market and high requirements of our customers.

**Canon**  
OFFICIAL TECHNICAL PARTNER

**CPS.**  
Canon Professional Services

BOTTOM LAYERS



### MODE\_360 by Sygnis

**delivers innovative and easy to use systems  
(hardware + software)  
for automated product photography  
and interactive product presentations in 360° and 3D.**



The portfolio of recipients is extremely wide. The largest group are companies from the e-commerce industry, which in recent years has been developing rapidly. Equally important is the logistics industry, where our devices are used to automate and speed up quality control processes, communication between departments and with external customers. Other customers of MODE\_360 systems are advertising agencies, professional photo studios, online stores and auctions, museums, jewelry and watch producers and retailers.

Devices are sold by Authorized Distributors and Agents in many countries worldwide. The distribution system remains a key element for the Company, both in terms of sales volume of our solutions and promotion of the brand MODE\_360 by Sygnis on the global market.

Current offer includes a number of professional systems, designed to meet the needs of many industries on the e-commerce market. The combination of advanced software and remotely operated studio provides a complete solution for effective photo, video and 360° animation creation.

INFILL



## MODE\_Style



Style is a professional photographic studio dedicated to flat lay type of photography. Large LED table surface provides a wide range of possibilities ranging from photography of clothing, fabrics and fashion accessories, to museum archiving of paintings or bas-reliefs. Additional side mount for the camera is a great complement for photographing subjects at an angle.

## MODE\_Twister



Twister is a modular rotating platform with a diameter of 75 to 200 cm. Remotely controlled motorized system provides full automation of 360° photo creation process. The extremely robust construction of the device allows to photograph objects weighing up to 200 kg.

## MODE\_Combo



Combo is a solution that combines closed or fully open studio, providing greater control over product lighting. The open design extends the range of motion of the LED panels, allowing flexible lighting control and provides full and easy access to the unit.

## MODE\_PhotoComposer



Photo Composer is a compact solution dedicated to the jewellery industry, designed for precise macro photography. The 7 LED light sources with daylight temperature ensure the highest possible color rendering index, which allows for real color reproduction of the photographed jewelry.

## MODE\_Jumbo



A key feature of the Jumbo system is its versatility. The system is designed to accommodate the widest possible range of products. The Jumbo is designed to provide repeatable results without the need for any photographic experience. The Jumbo has many accessories designed to handle even the most demanding products. Bottle stands, suspension system, diffusion panels - everything to make your daily photographic work easier.



For Mode\_360 by Sygnis the coming year 2022 is all about solution optimization, focusing development on increasing capabilities of the devices and optimization of software to make the process from product to 360° presentation as fast and easy as possible, even for people who are not familiar with photography. A big emphasis in the coming year will be increasing sales presence in the country and expansion of the distributor network in key global markets.

In 2021, despite the pandemic situation, we visited directly or together with our distributors thirteen different trade shows around the world, including GITEX, Jubinale and MICAM. We are planning the year 2022 as much more intense in terms of trade fairs and promotions.

# PROPRIETARY SYSTEM FOR PHOTOGRAPHY

**At MODE\_360 we are currently conducting a key research project**

## Project:

Development of a proprietary product photography system for automated digital product imaging with a compact device using remote work.

## Project synopsis

The aim of the project is to develop a proprietary system consisting of a compact device product photography device equipped with an automatic arm, a built-in PC and the software controlling it, and to develop a novel white balance algorithm. The result of the project will be used in the e-commerce industry, allow for more efficient product photography and remote creation of photos and presentations in any place and at any time.

**The project addresses the problem of ineffective use of currently used solutions for product photography, especially for smaller objects with dimensions not exceeding 10 x 10 x 10 cm.** The result of the project is a product innovation characterized by the novelty of features on the international market in the form of an original and innovative system for creating product photographs having:

1. An original construction of an automatic arm enabling positioning of a built-in camera and/or a cell phone depending on height and shape of the photographed object.
2. Innovative design of an in-built PC to control the device, the camera and the process of taking pictures and making presentations.
3. Remote creation of images and presentations anywhere and anytime, allowing control of the device and the camera and/or cell phone using innovative software.
4. Proprietary algorithm for white balance selection based on a self-designed pattern placed in a specific area of the frame, allowing the end user to remotely and automatically achieve the correct representation of colors without the need for external tools.

## Market

The result of the project will be directed to the international market, and its recipients will be primarily manufacturers and owners of online stores from the jewelry, numismatic, cosmetic and toy industries. The results of the project will also contribute to the intensification of the company's internationalization process, foreign markets expansion and an increase in the share of exports in revenues.

## Current value of the project

Project value: 4 520 838,63 PLN, subsidy value: 2 754 673,81 PLN.



# STRATEGIES AND PLANS

## Sygnis SA

**We have a clear vision of becoming a leader in hardware “deep tech” technologies with emphasis on the additive technologies segment and successfully implementing R&D projects using “rapid prototyping” methods.**

**Several years of uninterrupted development has led us to the point where we began looking for new tools to maintain the pace. Hence, in 2021, we merged with Mode SA and went public.**

We strongly believe that the merged Company with the implemented Sygnis’ organizational culture has a very promising future. We want our innovative technological solutions to be known all over the world, and ourselves to become the largest hardware innovation company in Central and Eastern Europe within the next 5 years. Our great strength is a fantastic team of outstanding specialists. We believe that the key to success is knowledge sharing and cooperation of real talents. This is why our teams work together, even if they are assigned to different brands and subject areas. Together we are able to deliver even the most complex projects.

We believe that the strength of Sygnis is also an unusual for deep tech companies dual combination of emphasis on research and development with the sale of partner solutions. The revenue generated by the commercial activities increases the Company’s ability to implement further development investments and to make its own contribution to multi-million dollar, co-financed research and development projects. But more importantly, thanks to our constant commercial presence on the market, we gain the most up-to-date knowledge of the technological situation and the ability to quickly diagnose real problems for R&D projects.

We deal with applications of additive techniques for Industry 4.0, energy sector, nanotechnology and biotechnology and innovative solutions for e-commerce. The coming decades herald enormous growth in these fields, and we have built up a very good starting position for ourselves over the years. Our commercial presence in these markets is an important part of our strategy, but our primary goal is to deliver proprietary technologies, thanks to a large research and development team.



**Going global - but above all, going fast!**

## We have divided the commercial development of the company into the following areas:

### A. Launch of proprietary products for sale

#### In 2021, we have completed the development of a low-temperature glass 3D printing technology - Syglass.

The machine made its debut in November at Formnext fairs, the most important international event in the field of additive technologies, held in Frankfurt am Main. The technology has a highly specific industrial application – it's the world's first 3D printed fiber optic preforms - elements necessary for manufacturing special fiber optic cables, allowing the creation of new hardware security of digital data transmission. The first machines will reach users in 2022. We are planning the expansion of the team dealing with the development and commercialization of this technology. Syglass as Sygnis' spin-off project has been submitted to several international technology competitions. It is one of the forms of promotion of solutions on the global market.

#### In 2021, we also developed two machines working in DIW (Direct Ink Writing) technology.

The E-NIS 23181 machine was distinguished at the Kielce Trade Fairs (the biggest Polish industrial event) in October with the main product award. The advanced E-NIS 23181 will be introduced into the international distribution network along with the F-NIS 23151, which is a budget machine ideal for an academic customer to test new ceramic pastes and hydrogels. Intensive sales are planned for Q3 and Q4 2022. In Q2, the investment will be completed in terms of preparation of the production line for these machines.



**SYGLASS\_01**

for low temperature glass 3D printing



Currently, advanced implementation work is also underway for two products, however their introduction into production stage depends on end-user tests. These are OEM products, which we dedicate to strictly defined needs of global partners.

One of the important goals of the company is increasing the share of revenue from the sales of own products to the level of 40% of the total revenue of the company. In particular, an important export markets are Western Europe and the U.S.

**E-NIS** for printing with paste,  
presented at Formnext 2021

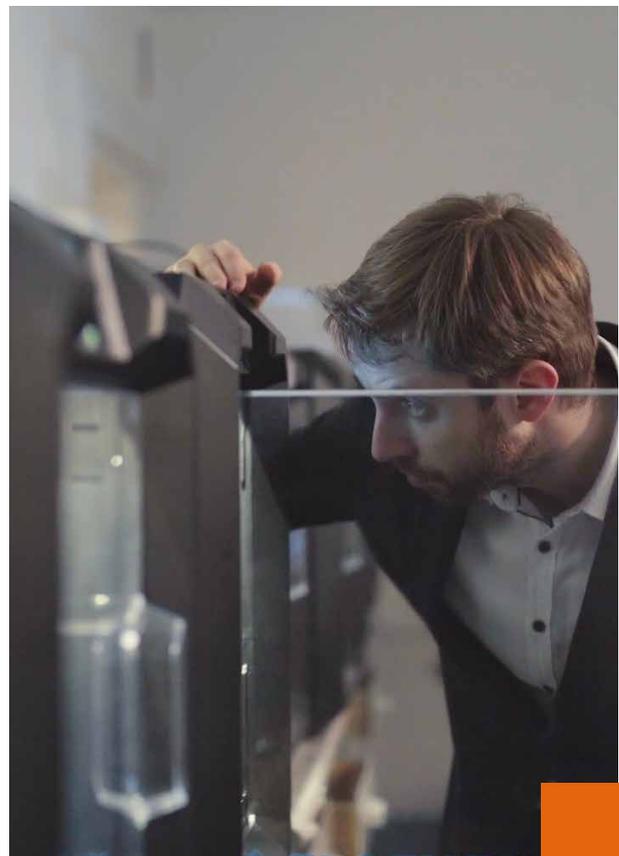


The current mode of new product introduction can be represented as a cycle of approximately 18 months from the completion of research work on a given technology. After the technology is developed, the company tests the equipment directly at the target customer's site, then takes the feedback into account for developing final usability and technical corrections. The product thus received is translated into the final production stage. The human and infrastructural resources required to start production and active sales are gathered - and only then does the first full commercial implementation take place.

## B. Commercial development and distribution channels

The direction of development in the area of distribution was set several years ago, and it is still being consistently pursued. Despite the apparent multitude of partner companies and devices offered, they are strategically grouped according to the needs of specific market segments. For example, the Sygnis Bio Technologies focuses most of its equipment around the creation and analysis of three-dimensional tissue models, providing solutions for every stage of the process from isolation of single cells through culture, 3D bioprinting or analysis and microscopic observation and validation of the effects.

In the nearest future the Company does not expect a significant expansion of its commercial partners, however it monitors the market situation on an ongoing basis so as to provide our customers the most comprehensive service in given segments. If any new interesting technologies are discovered, the Company will enter into distribution of new research equipment or machines related to additive technologies.



Sygnis' **machine park** in Warsaw, Poland

## The Company's trading segments by sales type:

**1. Specialty sales** – highly technical, comprehensive sale of specialized equipment, mainly supplies to universities and R&D departments of industrial companies. It is a direct sale carried out by industry experts and application engineers working at Sygnis. Sales processes in this segment last on average from 3 to 24 months.

**2. Sales in the distribution model** – this is the sale of goods with a lower level of technological complexity conducted also through a network of distributors and agents. In 2022, we are planning to significantly expand the global distribution network.

**3. Direct sales** – currently these are the sales via our online shop (shop.sygnis.pl). In 2022 we want to significantly increase the market share of the store and expand the sales of our manufacturing services through made.sygnis.pl. We believe that the unprecedented „Laboratories of the Future” government project will have a long-term market impact in the form of increased recognition of 3D printing and expansion of the B2C market. Therefore, in the last quarter of 2022, we consider the operation of the online store to be one of the key links of retail automation.

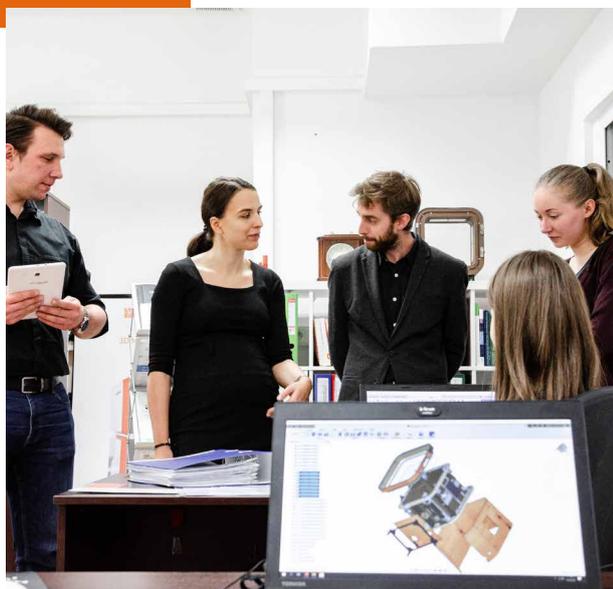
The company intends to maintain a diversified portfolio of products and distribution models.



Last year, the **production department** carried out more than 500 orders.

## C. Sales of research and development and design services

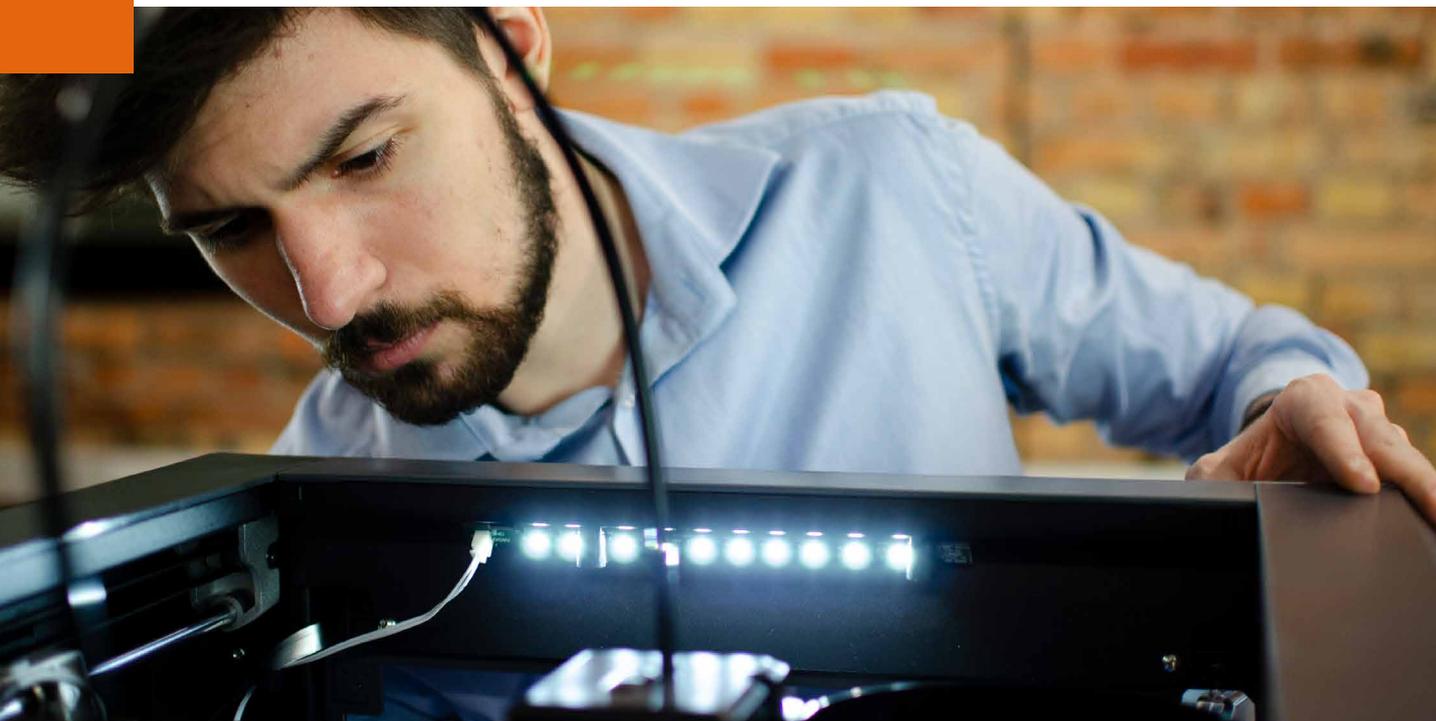
The company enjoys a well-deserved reputation as an expert in difficult hardware and technology issues. Thanks to this earned status, we have a large portfolio of orders for research and design services performed by our technical team. In addition to its own projects, the company also intends to continue conducting commissioned research. We believe that this is a great opportunity to expand the team's knowledge and skills, as well as a way to create an income for the Company.



The industrial design department also receives numerous orders for its services. Those orders are often interesting for the Company's from the promotional point of view. Some of our Company's design department projects include statuettes for Voice of Poland TV program, unusual Bloom lamps or Forteni cable holders.

The company also has several test stands, where material research work is being carried out, e.g. a station for extrusion of specialised filaments for 3D printing.

In the past year, the **design department** developed more than 30 projects of devices and products.



## D. Sales of manufacturing services

**In 2021, the manufacturing department expanded with the addition of several specialized manufacturing machines:**

**1.** FlashForge WaxJet400, a 3D printer working in MJP technology. This 3D printer processes casting waxes adapted for high throughput production for the jewellery industry and precision casting. It is the only machine of its kind in Poland.

**2.** SLS machines department (selective laser sintering of polyamide powders technology) was expanded. Sinterit Lisa Pro with the whole 3D prints processing station has been purchased. For the purposes of further development an order was placed for a Sinterit NILS production machine operating in the same technology. Its delivery is planned for Q2 2022.

**3.** Mimaki 3DUJ-2207 - the first 3D printer in Poland to print Full Color CMYK in the technique of photopolymerization of resins (Inkjet) has been purchased. Its main application will be the production of highly accurate photorealistic models for advertising, architectural companies or prototyping purposes. Its commissioning is planned in Q2 2022.

**4.** In 2022 we plan to modernize the basic fleet of machines working in FDM technology. Guider II and Guider IIs machines will be replaced by Creator 4 HS large format 3D printers. The replacement of machines should take place by the end of Q2 2022.

In autumn 2021 the Company launched the department of automated photography services for e-commerce purposes. At „Solidarności” 78 avenue premises we opened MODE\_STUDIO by Sygnis. Studio is using own production equipment (machines: Photocomposer, Combo, Jumbo, Twister).

The biggest emphasis in 2022 is put on selling automated photography services for e-commerce and industry.

In order to expand sales of machine park services a website ([made.sygnis.pl](http://made.sygnis.pl)) was created, which facilitates placing orders by our customers. In 2022, work will be conducted to improve the website and expand its reach. The company plans to invest in a larger fleet of postprocessing machines allowing for more advanced and automated processing of finished elements (3D prints).

In 2022 we expect to close the Company's technological project under Actphast 4.0. entitled: All-fiber multiphoton scanning microscope. This will be the next stage of the company's development in the direction of fiber optic techniques and will allow, in the following years, to develop a multiphoton microscope produced by Sygnis.

1. Construction of a hybrid 3D printer with real-time quality control system.
2. Developing the technology to print from biomaterials and constructing a 3D bioprinter for automated bionic organs.
3. Development of a proprietary product photography system for automated digital product imaging of products with a compact device using remote work.

The Company also plans to submit new grant applications in 2022 for European projects in Green Steel, circular economy and photonics sectors.

**In addition to the organic development of the R&D department, it is necessary to make investments to expand the capabilities and overall reach of the commercial department. Current distribution agreements allow us to expand the geographical range of availability of our products and services. We also want to expand the availability of our own production and prototyping services. Specific development directions are:**

1. Increasing the value of the sales warehouse. This is one of the ways to secure the Company in times of logistic problems plaguing the world's transport routes.
2. Expansion of the sales team in Poland to increase sales capacity and market penetration.
3. Establishment of a Czech subsidiary/foreign branch. The key for the Company's development is to increase market share in the Czech and Slovak markets.
4. Organizing (as a founder) the Central European 3D printing cluster (Poland, the Czech Republic, Ukraine, Hungary, Romania, Lithuania etc.). The aim is to increase sales and attract cooperators to research projects such as Horizon Europe.
5. Participation in industry events and conference sponsorship in Central Europe. The goal is strengthen the brand's recognition among the clients on those markets.
6. Increasing presence and active advertising on the Internet and promotion on the Scandinavian, German and U.S. markets.
7. Expansion of the distribution network to new markets.

### **In summary:**

The Company intends to sustain a multithreaded investment and strategic development. We aim towards the development of a rhizomatic, rather than a siloed, nature. This approach enables us to quickly deploy and relocate resources, matching the dynamics of the 21st century business realities. Strong interactions between departments, as well as cross selling of products are the driving forces for the team to maintain high intellectual readiness. This in turn generates numerous new projects, which are often implemented in order to optimize the company's operations. In 2020 and 2021, the company has prepared a solid infrastructure base in terms of achinery, know-how, skills and a stable core team.

The year 2022, apart from the constant search for new opportunities, will be primarily based on increasing efficiency of the use of current resources. In the opinion of the Management Board, the Company has a significant reserve in this respect, the management of which will further increase the profitability of the Company.



# JOIN OUR INITIATIVES

Stay up to date!



## Our Social Media:



/Sygnis SA



@Sygnis3d



@SygnisPL



@sygnis\_nt3d



/Sygnis SA

## Our knowledge and information base:

Visit the "Layers" blog

## Meet us in Warsaw:



**Prototyping Terrace**  
CIC Warsaw, 73 Chmielna St.



**MODE\_Studio**  
"Solidarności" 78, Av.



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**+48 22 668 47 57**  
[www.sygnis.pl](http://www.sygnis.pl)

**Write or call**  
and make an appointment!

## Where are we?



### PRODUCTION

Straszyn k. Pruszcza Gdańskiego

### SHOP/STUDIO

„Solidarności” 78, Av.

### OFFICE

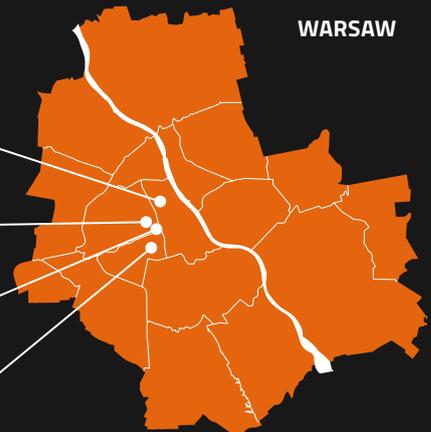
Grzybowska 78 St.

### PROTOTYPING TERRACE

Cambridge Innovation Center

### PRODUCTION, R&D, SERVICE

Żwirki i Wigury 101 St.



WARSAW

Cygnus

# SYGNIS

SPÓŁKA AKCYJNA

**Knowledge has layers™**

Uncover all.