Breakthrough in Lithuania’s Electronics Industry

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Navigating potential pathways of el. industry

Recognizing the increasing usage of electronics across every industry and high added value products, Lithuania is competing to become a player in this market. To understand the current situation of our country, identify the key challenges and opportunities, and evaluate the ecosystem of the sector, we started with research across various fields during September and October.

A challenge such as improving a nation's electronics industry can be approached from many angles. To tackle this, we sought insight from a variety of fields through approximately 15 meetings. The aim was to seek insider perspective – ranging from talent and startup creation to scientific endeavors and key players of the existing industry. This approach allowed us to map the challenges, opportunities, and existing players within the sector. These segments are outlined below.

Finally, after a discussion with our project owner and coordinators a pathway focusing on foreign direct investment (FDI) has been selected. With this international business context in mind, the current plan is to gather the trends of the worldwide and European electronics industry. We need to find out what the trends are in the worldwide FDI markets and types of project developments. The final objective is to describe Lithuania's value proposition, what are our strengths, weaknesses and what threats and opportunities we are facing. This can provide recommendations of what can be improved or what is needed for our country to increase the value for investors.

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Semiconductors	Optoelectronics	Med-Tech / Bio-Tech
• There are 4 semiconductor industry development scenarios in Lithuania: → Semiconductor R&D center, → Supplier of semiconductor industrial equipment, → Semiconductor Foundry (manufacture), → Fabless center (designer). • Semiconductor equipment is expensive – high initial investment is needed for the first 3 options. • This industry requires a larger number of high-quality specialists than we currently have. • Global focus is on semiconductor chips as a strategic asset and recent friend-shoring trends. • Extremely competitive field with large players and large subsidies.	• Lithuanian optoelectronics industry generated 210 mil. in 2022, with steady growth for a decade. • Almost half of the 2022 revenue comes from Light Conversion and Ekspla. • Industry has promising startups and an active ecosystem. • Hard to scale as it is B2B, local companies focus on "Blue Ocean" niche markets. • Current products are not standardized – cannot be mass produced and scaled quickly. • No integrators. Value chain is often limited to supplier rather than end product, missing out on key stage of added value. • Lithuania lasers association expects to reach 5% of GDP by 2030.	• Lithuanian industry generated 269 mil. revenue in 2023. • Lithuania has a lot of specialists in electronics and medical devices. • Focus can be on wearable electronics and biosensors. • High added value and emerging market. • Initial investment is lower compared to industries like semiconductors. • Goods are comparably cheap to produce but have high value. • Will not lead to FDI investment in the short term. High-Risk High-Reward Research field. • Lacking cross-industry talent pool for biosensors or wearable el. applications.

Printed Circuit Boards (PCBs)	Electronic Manufacturing Services (EMS)	Space-Tech
• EU covers 2% of the world's market. • Intercontinental supply chains from China. • No domestic production currently, and no large-scale PCB factories have been built in Europe for 20 years. • Even though producing PCBs in China is cheaper, quality can be a concern. • It is cheaper to produce small and medium size orders in EU. • Acts only as a base component. Not an end product, so relatively low added value. • Key benefit is supply chain resilience through localization.	• EU covers 9% of the world's market. • Intercontinental supply chains from Asia. • Often includes assembly, repair, design, and testing services. • Higher quality and faster services can compete with China/Asia. • Does not produce a product, acts only as a service.	• Space-Tech produced 66 mil in 2022. • Dependent on assistance from multi-lateral orgs like European Space Agency for test launches. • Extremely hard industry to get in to due to conservative players, and steep testing requirements. • "New Space" market is not yet explored in Lithuania. • Crucial to gain investment from US, where the market is most active.

Internet of Things (IoT)	Research and prototyping centers	Startups
• IoT has a lot of promising ways to expand, as industries become more digitized**,** and products need connectivity and sensors. • Photonic sensor technologies can be integrated in this field. • Could be a focus sector with ongoing Industry 4.0.	• Research centers are under Education and Science ministry – main KPIs are scientific articles. • There could be a research center which focuses on applied research under EIMIN with different KPIs. • There is a lack of industrial labs for startups. • Insufficient collaboration between businesses and the scientific community. • There is a need for rapid prototyping laboratories.	• Small number of hard-tech startups. • It is hard to get funding for hard tech startups due to difficulties in scaling, longer development cycles, and lack of specialized investors. • These startups are hard to create, requires lots of interdisciplinary knowledge.