

Polish Space Agency



Space sector in Poland

In addition to the Polish Space Agency, which is overseen by the Minister for the Nation's economic interests, the Polish space sector comprises a great number of scientific and research institutes, reputable technical universities, and businesses, especially small and medium enterprises serving the IT, aviation and defence industries.

POLSA fosters development of the Polish space sector through:

- membership in European Space Agency (ESA) since 2012
- highly-regarded accomplishments since the 1960s and involvement in scientific research and development in support of the space sector

POLSA'S engagement has opened international liaison networks to Polish entities which now facilitate contracts with national space agencies and international organisations. As a result, Polish entities have gained new experience and contacts, leading to their involvement in more advanced tasks and projects. The expansion of the technology base and human capital continues through to today and remains fundamental for further development of the space sector in Poland. The growing staff of specialists and the network of players are highly-experienced in the complex environment which the international space market presents.

2012 witnessed a landmark for Polish businesses operating in the space industry. Today, there are over 467 entities enrolled in ESA's procurement system, including commercial entities, with 450 contracts concluded for space projects.

Areas of specialisation and technological niche occupied by the Polish space sector:



electronics



mechanics



robotics



propulsion engineering



software development



optics and optronics



material technology

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The Polish Space Agency (POLSA) was established in the law of 26 September 2014. POLSA's tasks involve support of the space industry, research, space exploitation, development of space technology (including satellite engineering), utilisation of research and its results towards practical, economic, defence, state security and scientific objectives. POLSA collaborates with international space agencies and state administrations in the research and exploitation of space products. According to the Polish Space Strategy, POLSA's projects include a National Space Situational Awareness (SSA) System, satellite connectivity, applications development for state administration, and certain educational programmes (such as Future Space, Entrusted, and Sat4envi). POLSA promotes development of everyday satellite technology for use in agriculture, forestry, land and maritime transport, environmental monitoring, crisis management, and weather forecasting. One of POLSA's priorities is the support of the Polish industrial sector to improve its competitiveness in Europe and its competence to successfully secure international contracts, especially with ESA and the European Commission.



Since 2014, 35 Polish enterprises have been awarded EUR 13 million in 39 projects under the Horizon 2020 programme. POLSA was in the vanguard of that pool. POLSA is also ranked 14th among all EU recipients of Horizon finance outlays. Poland is additionally 12th of 27 EU Member States participating in Horizon 2020 space technology projects.

POLSA is committed to implementing the Polish Space Strategy, which was adopted by the Council of Ministers in January 2017.

The Strategy sets forth clear strategic objectives for the space sector in Poland to be achieved by 2030:

- The Polish space sector should become an effective competitor on the European market, with a market share of at least 3% of the EU space sector (ratio proportionate to the economic potential of Poland).
- The state administration should utilise satellite data for faster and more effective implementation of its tasks, and domestic businesses should be able to meet the domestic demand for such services, as well as to supply them abroad.
- The Polish economy and public institutions should have access to satellite infrastructures as needed in their operations, especially in security and defence sectors.

The strategic objectives will be achieved through five operational goals:

- To improve the competitiveness of the space sector in Poland and increase its share in the EU space sector.
- To develop satellite apps and hence contribute to digital economy development.
- To expand the competence of the security and defence sectors by leveraging space and satellite technology.
- To establish a nurturing environment for development of the Polish space sector.
 - To build human capital as needed by the Polish space sector.

Key POLSA projects in progress under the Polish Space Strategy

Space industry

National Space Programme

The Space Programme is one of the fundamental documents for the Polish space sector. Its aim is to establish a system of optimised tools for advisory, financial and educational support of the space sector as well as for institutions that implement and promote the domestic space policy.

The programme includes an array of instruments and mechanisms complementing Poland's involvement in ESA missions and projects, according to domestic objectives and needs as well as the Polish Space Strategy.

NSN

In 2020, POLSA started developing NSN, a ground system supporting satellite infrastructure and handling data that is collected by Earth observation satellites. It is expected to foster development of satellite data use for state and business purposes. It will have an indisputable impact on the effective management of public systems, including public transport infrastructures and energy distribution. The project will also contribute to the digital transformation of both the business sector, as well as the public administration on state and local levels. It will create new jobs for high-end professionals.

PERASPERA – European Space Robotics Consortium

POLSA is a member of a robotics consortium which gathers the leading space agencies in Europe. Its objectives include support for increasing competence of the EU robotics industry (planetary and orbital robotics), enhancing the competitive advantage of European entities, and demonstrating key technology solutions in space. POLSA's participation in the consortium allows the integration of Polish entities in prime R&D projects that involve, for example, new sensors, orbital maintenance, new robot designs (e.g., for use on Mars and Venus).

National SSA System

Space Situational Awareness (SSA) covers the capacity to detect and track objects (including satellites) that move across the Earth's orbits. The capacity is crucial in order to ensure the security of space objects (e.g., identification and prevention of satellite collision, collision follow-up assessments), protect the life and health of people, as well as to safeguard ground infrastructures (e.g., fall trajectory identification). It also contributes to better security of the state because the path of foreign satellites can be monitored in Polish space.

Project objectives:

- joint involvement and a major role in the EU's SSA/SST system
- monitoring the status and involvement of Polish entities in space programs
- supply of independent SST and NEO services to domestic recipients
- supply or assistance in SWE services for domestic recipients

The operational fitness of SSA depends upon an advanced sensor network and the capacity to process data collected by sensors. Polish sensors are scattered worldwide and their maintenance, upgrades and expansion are fundamental for both domestic and EU capabilities to detect and track satellites that move across the Earth's orbits. It is likewise crucial for the supply of related services. Polish scientific centres and businesses have been successfully expanding their SSA competence for many years, especially in optical telescopes and laser-based observations.

POLSA determined to build the National SSA System by consolidating all existing sensors into a global network. Data collected by the sensors is processed through POLSA's SSAC-PL centre, which supplies services to domestic users, such as satellite operators and security agencies, European users (under EU programmes, such as EUSST), as well foreign partners and international organisations.

Liaison with state administration



Pilot programme – satellite data apps for public administration

The programme aims at promoting the use of satellite data among public administration units on various levels, as well as creating innovative solutions (both original and adapted from existing systems) based on contracts awarded by POLSA. The outcome will be a great improvement for operational effectiveness across many areas of public operations. Once optimized, the public processes will positively impact how the community perceives public administration services and should further reduce operating costs, a crucial factor in today's times of public spending reductions.



SAT4ENVI

An innovative operating System for Gathering, Sharing and Promotion of Digital Satellite Information about the Environment, Sat4Envi is a project in-Progress, implemented in collaboration with the Polish Institute of Meteorology and Water Management (IMGW), the Space Research Centre of the Polish Academy of Sciences (CBK PAN), and CYFRONET – AGH University's Academic Computer Centre.

The project expands the existing IMGW infrastructure used for collection, processing, distribution, and archiving of data from meteorological and Earth observation satellites, including their products. It will ensure the uninterrupted gathering and processing of satellite data and its distribution for scientific, strategic, crisis management, and state security purposes.

POLSA is in charge of efforts targeted to developing and commencing a generally-accessible educational programme that incorporates the use of satellite data imaging and services.



Entrusted

Entrusted is a scientific project devoted to the development of secure satellite connectivity for public administration use. It focuses upon the expansion of GovSatCom, a European programme. POLSA implements the Entrusted project together with nearly 20 other EU institutions and agencies. The project is subsidized with EU funding under the Horizon 2020 programme. The allocated budget is EUR 3 million through March 2023.

International liaison

POLSA on the international stage

POLSA supports the international space policy of Poland, as well as the interests of Polish entities in the space sector by promoting their involvement in international projects. POLSA's activity is founded upon collaboration with ESA, EUMETSAT, ESO and GSA/EUSPA, other European countries and certain bilateral agreements that POLSA has signed with space agencies based in the U.S., France, Italy, Ukraine, Brazil, China, and Mexico.

POLSA is a member of key international organisations that are active players of the space sector, such as the IAF, ISECG, and CEOS. POLSA also hosts a number of events that promote Poland's domestic space potential abroad and facilitates foreign partnerships for Polish entities (e.g., studies, bilateral days, expo stands at trade fairs, etc.).

Education

Future Space

POLSA is a member of a consortium which includes the Space Research Centre of Polish Academy of Sciences (CBK PAN – Poland), Computer Assisted Education and Information Technology Centre (OELIZK – Poland), NEMO Museum of Science (Netherlands), and NOESIS Centre for Science and Museum of Technology (Greece). The consortium seeks to make the teaching community more knowledgeable about how to teach about space and improve awareness among students of their scientific and professional opportunities. The project is intended to promote the space sector as a viable career option and endow educators with tools necessary to effectively teach about cosmos. The project also reaches communities beyond the main university centres to spread access to knowledge further in society.

Space education support

POLSA engages in a variety of initiatives that support colleges and universities as well as bottom-up projects. It hosts space sector open-door events at domestic colleges and universities, meetings and conferences devoted to the latest trends in the space industry, and professional career events that are often student initiatives.

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