

Vilnius, Lithuania

Sunrise on technology

The Sunrise Valley (*Saulėtekio slėnis*) initiative comprises a group of projects combining physical infrastructure development with a range of business incubation, risk capital, R&D, product development and entrepreneurship education services in an attempt to transform the capital of Lithuania, Vilnius, into a 'knowledge city'. The title derives from 156 ha Saulėtekio (Sunrise) Campus, which hosts two major universities, other research organisations, a science and technology park and high-tech businesses. The initiative, which originated back in 2001, has received a major boost from the EU Structural Funds in 2007-2013. It aims to deploy and focus Lithuania's physics, technology and civil engineering research resources more rationally. By creating conditions for their further development, it aims to establish a world-class centre of science, studies and knowledge-intensive businesses.

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Initial ideas to create Sunrise Valley as the central node of science, studies and knowledge-intensive business in Vilnius and Lithuania emerged in 2001, and the first projects were implemented in the 2004-2006 programming period. However the major step forward in delivering this initiative was taken with the approval in 2008 of the Programme for the Development of Sunrise Valley, which listed the main projects to be implemented between 2007 and 2013. The key developments finalised so far include the first building of the Science and Technology Park opened in 2008, the Civil Engineering Centre with eight laboratories opened in 2011, and the National Open Access Scholarly Communication and Information Centre which is to open later in 2012. Several other projects (such as the National Centre for Physical and Technology Sciences, the Joint Centre for Life Sciences and the Multifunctional Ultra-short Laser Complex Naglis) are planned to be operational by 2015. There are also plans for the next steps (such as using a public-private partnership to attract a major international operator of science and technology parks to develop and operate the second phase of the Science and Technology Park), and the overall initiative will be developed in phases over the next 10 to 20 years. The support from the ERDF in 2007-2013 played a crucial role in delivering the key infrastructure projects which are at the core of the Valley and which would not have been feasible without the EU funding.

The case study demonstrates that the implementation of such ambitious and far-reaching initiatives often progresses more slowly than initially expected, not least due to the need to ensure the continuous consensus and effective partnership among the main stakeholders, which represent the varied interests of universities, research institutes industry and the local authority. In any case it represents a major investment in the modernisation and optimisation of R&D and innovation potential in Lithuania in general, and in Vilnius in particular.

Building the nucleus of the knowledge economy

Sunrise Valley (*Saulėtekio slėnis*) is an initiative which comprises a group of projects combining physical infrastructure development with a range of business incubation, risk capital, R&D, product development and entrepreneurship education services in an attempt to transform the capital of Lithuania, Vilnius, into a 'knowledge city'. Its overall goal is to create an integrated centre – 'valley' – for science, studies and business in order to develop the sectors of physics, technology and civil engineering. This would include the development of business, internationally competitive fundamental and applied research, as well as the preparation of human resources to work in these R&D areas. Sunrise Valley has two main objectives. First, the intention is to concentrate in one location the available potential for scientific research, studies and knowledge-intensive business in physical, technological and civil engineering sciences. This goes along with the reorganisation of the network of state institutes of physical sciences, and the development of the research infrastructure that is indispensable for work in leading-edge areas. The second purpose is to develop the infrastructure for science-business cooperation (the Science and Technology Park), including a business incubator to encourage high-tech driven start-ups, as well as a technology centre that can demonstrate and field-test new technologies so that they can be turned into innovative products and services.

The idea to create Sunrise Valley emerged in 2001 during the process of preparation of strategic plan for Vilnius. At that time the mayor of Vilnius and his team in the municipality played an important role promoting the idea, which was inspired by ideas of modern city development. A major effort was made to present Vilnius as a developing, modern, attractive city for investors. Good practice examples of other countries were researched in order to apply new ideas in Vilnius. In 2001 the municipality approved a vision for Vilnius to become the most modern city in central and east Europe as well as an international centre for business, science and culture. In the strategic plan of Vilnius municipality for 2002-2004 particular attention was paid to establishing Sunrise Valley as the nucleus of the knowledge economy in Vilnius, Lithuania and the broader Baltic Sea region.

In 2002 a Memorandum of Understanding was signed by Vilnius municipality, Vilnius University, Vilnius Gediminas Technical University and the Association Knowledge Economy Forum. This memorandum provided a framework through which key stakeholders interested in developing Vilnius as a 'Knowledge City' would co-operate. In May 2003 'Sunrise Valley' was formally incorporated as a public body. The founding shareholders included Vilnius University, Vilnius Gediminas Technical University and leading companies in key target sectors – such as Alna (information technology), Bitė (telecommunications) and Ekspla (lasers). In February 2004 Vilnius City also joined this public body, which is responsible for business support infrastructure development. The development of Sunrise Valley shows the importance of the wide partnership built to support this idea. The involvement of a wide range of partners at the beginning helped to initiate this idea and continue to its practical implementation.

The first projects at Sunrise Valley were implemented in the 2004-2006 programming period. However the major step forward in delivering this initiative was taken in 2008 with the approval of the Programme for the Development of Sunrise Valley, which listed the main projects to be implemented in the 2007-2013 programming period. This programme identified the main fields of research carried out in the valley (lasers and optical technologies, materials science and nanotechnologies, semiconductor physics and electronics, civil engineering) and the main projects to be implemented there. Overall, it is planned that Sunrise Valley will be developed in phases over the next 10 to 20 years.

Sunrise Valley aims to generate new ideas and technologies in these areas, promote them, develop and roll out new hi-tech products and new services – and also attract foreign direct

investment in high technologies. The Valley is seen as the link between science, studies and business. It is expected to develop internationally competitive fundamental and applied research as well as post-graduate studies. Also, the more effective participation of business entities in Valley activities is encouraged through the Science and Technology Park, which offers a range of business incubation, risk capital, R&D, product development and entrepreneurship education services.

The development of the Valley is centred on the 156-hectare Sunrise Campus in Vilnius (5 km from the city centre, 12 km from the airport). The territory of 2.4 hectares designated for Sunrise Valley stands in the immediate neighbourhood of the laboratories, research centres, institutes and auditoriums of Vilnius University and Vilnius Gediminas Technical University. This prestigious district of Vilnius is already fully integrated into city life and is a dynamic, multifunctional environment. The area is supported by adequate communications and transportation, and surrounded by the student campus, sport and recreational facilities and private housing.

A focus for research and business

The first projects in Sunrise Valley were funded by the EU Structural Funds in the 2004-2006 programming period. In 2006 Sunrise Valley started the development of new business support infrastructure and office space for domestic companies and foreign investors. The Sunrise Valley Science and Technology Park (STP) project received over €3 million in EU structural assistance. As a result, a 6 300 square metre building was constructed and opened in 2008 for high-tech and business support companies. STP provides such services as a joint secretariat, a Technology Transfer Centre (including technology audit, access to potential R&D projects partners in Vilnius universities and private institutes, IPR management), a Sunrise Entrepreneurship School (with business clinics, entrepreneurship library, trainings), Business Angels and Mentors networks, and access to EU Structural Funds and national funds.



Figure 1. The Science and Technology Park: model and reality

The Programme for the Development of Sunrise Valley adopted in 2008 provided for a number of key R&D infrastructure projects in the Valley, the main ones being:

- The National Centre of Physical and Technological Sciences, which includes building the complex of laboratory buildings as well as buying open access scientific and technological equipment. With a budget of €58m (€50m of which came from ERDF), this project is the largest in Sunrise Valley. The 25 300 square metre centre will offer a joint open-access physical and technological infrastructure designed for active development of laser light technology, materials science, nanotechnology, semiconductor physics, electronics and related research and development (R&D) activities;
- The Vilnius University Laser Research Centre, which includes a superstructure on the second and third floors as well as equipment for the Multifunctional Ultra-short

Laser Complex (Naglis) with open national and international access. With a budget of €3.3m (of which €2.8 million from the ERDF), this project built new laboratories and modern ultrafast lasers along with diagnostic equipment, which will become a platform for multidisciplinary fundamental and applied research and extended cooperation with private high-tech companies. The facility will offer national and international access;

- The Civil Engineering Centre of Vilnius Gediminas Technical University, which opened in 2011. Costing €5.5m (of which €4.7m from the ERDF), this integrated centre for science, studies and business has eight laboratories and includes open-access scientific and technological equipment. its purpose is to develop the civil engineering sector;

The programme also included phase 2 of the Science and Technology Park (STP) and the National Centre for Physical and Technological Sciences, as well as development of the former military base in Vismaliukai. This includes the construction of the second building of the STP as well as engineering infrastructure and the installation of a technology transfer centre at the National Centre for Physical and Technological Sciences.

The construction of the basic infrastructure of the Valley, its provision with basic equipment, and the employment of the scientific workforce was scheduled for the period 2009-2013. However, owing to the delays in public procurement, the projects above are not likely to be completed until 2014-2015.

Although not part of the Programme for Development of Sunrise Valley, several other important projects are under way in the Sunrise Valley area. The National Open Access Scholarly Communication and Information Centre (SCIC) will open in 2012. This project was financed from the ERDF (€24.6 million) and the national budget (€4.3m). It will become the centre for communication between scientific research, studies and business. The 13 800 square metre building contains 2 750 square metres of closed stacks, with room for 1.8 million items. It will bring together in one place a wide variety of high-quality information resources relevant to the Valley's research priorities. Its main tasks are to facilitate lifelong learning, provide services based on the most advanced IT technologies, ensure interaction between science, studies and commerce and learn from the best practices around the world.



Figure 2. The model of the National Open Access Scholarly Communication and Information Centre and real situation in November 2011

The Joint Centre for Life Sciences, which was initially to be located in the Santara valley elsewhere in the city, is planned to be built in 2015 with a price tag of €36.3m (of which €30 million from the ERDF). This centre is devoted to biotechnology and molecular medicine research, studies and technological development. It will be equipped with new working places for scientists and researchers, and 10 new packages of R&D equipment will be procured for open-access use. To back these up, new leisure, sport and commercial facilities are also planned in the medium term.

The Sunrise Valley development forms part of broader strategic plans of Vilnius city and its two biggest universities. There are plans to transfer a number of university faculties from

their present premises spread across central Vilnius to the Saulėtekio site in order to rationalise their operation, and also to support and stimulate Sunrise Valley's development.

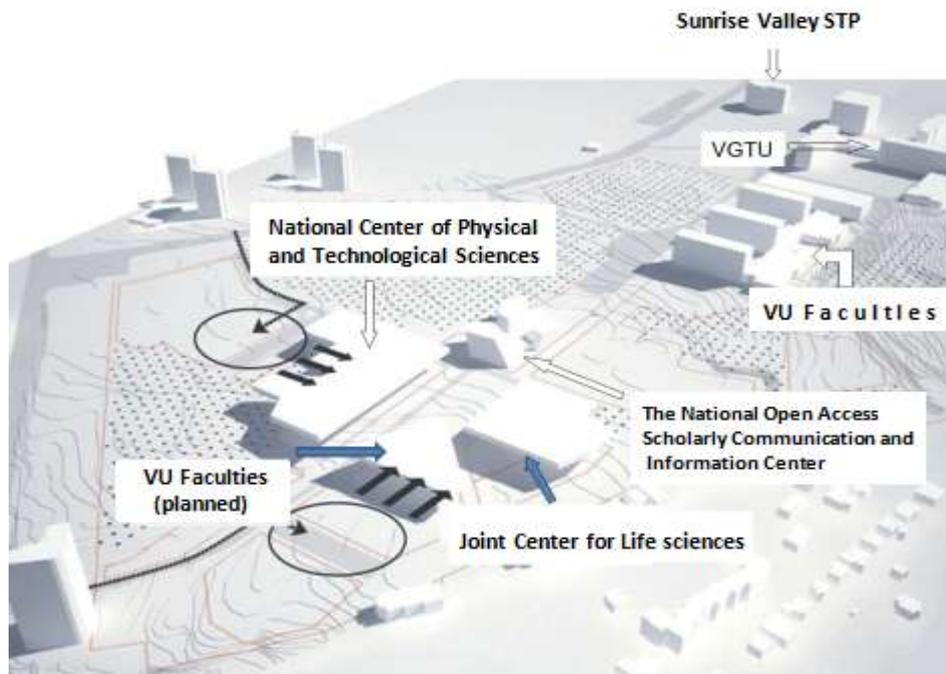


Figure 3. Plan of key infrastructure in Sunrise Valley

A wide range of impacts expected

As many of the Sunrise Valley projects are still under way, the development has yet to make much of an impact. It is however expected to generate a range of benefits.

- The Valley's infrastructure will be available for regular use by scientists and researchers, doctoral students, master degree students, undergraduates studying or working in the fields of physics and technology as well as civil engineering.
- The fact that it is a one-stop-shop with adequate equipment and infrastructure will prevent overlapping functions.
- The Valley will strengthen scientific research, maintain the level of scientific research in the established fields, and encourage research in new fields.
- The quality of studies will undergo an essential improvement and businesses will have more influence on the development and quality of university study programmes.
- The creation of the Valley will contribute to the EU's sustainable R&D policy, as high technologies will have more possibilities to compete internationally and impact on global markets.
- The socio-economic benefit will be demonstrated by the growing competitiveness of high technology-driven businesses, a considerably larger GDP share generated by business, and increased possibilities for it to compete in world markets. With a possible injection of foreign direct investment, the GDP share generated by high-tech companies would increase fourfold.
- Close cooperation between business and science in the Valley will improve working conditions for scientists and researchers, and will create new jobs for high qualification specialists and high-tech managers.
- The large scientific potential and qualified staff will help attract more foreign direct investment.

- Conditions provided by the Science and Technology Park for business start-up and development will facilitate the commercialisation of research outcomes, new spin-offs.
- Business will be enabled to access the infrastructure necessary to carry out scientific research, and interaction between business and studies will improve the quality of the studies.
- The Valley will increase the competitiveness of Lithuanian scientists participating in EU programmes in fundamental and applied research.

The Management of Sunrise Valley

Although initially the idea was to develop one or two valleys in Lithuania, the envisaged launching five valleys in the 2007-2013 period. Two were established in Vilnius (electronics, nanotechnologies, ITT and biomedicine), Two in Kaunas (ITT, mechatronics, chemistry and agriculture) and one maritime valley in Klaipeda, Lithuania's only seaport. This decision is often criticised because of the fragmentation that has resulted from developing so many valleys in such a small country. As a result, projects implemented in different valleys are sometimes too small, and ambitious goals cannot be achieved.

As regards the management of all five valleys, the overall governing body of the process is the Valleys Supervisory Council, which was set up by order of the Minister of Education and Science and the Minister of Economy. The main function of this 11-member council is to consider and submit proposals to the Ministry of Education and Science, the Ministry of Economy and the government on strategic decisions regarding for development of the valleys and Joint Research Programmes. Implementation and development of the valleys projects is monitored by Valleys Monitoring Group, which is composed of Lithuanian and foreign experts (in total 14 people). However, the role of these two bodies is rather formal.

As the development of Sunrise Valley is based on implementing different projects, there is no clearly defined and practically working single management system for the whole of Sunrise Valley. Instead, each project has its own manager and management system. These projects are monitored by particular public institutions – the Central Project Management Agency, the Business Support Agency, the Support Foundation European Social Fund Agency, the Ministry of Education and Science and the Ministry of Economy – following specific indicators. Overall, the development of Sunrise Valley is the outcome of various interactions and compromises between partners and political interests.

Sunrise Valley came up against a number of implementation problems. First, the partnership among key stakeholders was ineffective. The visions of different participants as regards the number and design of the 'valleys' were diverse. The initial suggestions were that Lithuania should have one or at most two valleys, but the political decision (based on various interests) was made to create five valleys. Thus, the Programme for the Development of Sunrise Valley drafted in 2008 was the result of various compromises, and had lost touch with the initial work that had been done to analyse the real needs, possibilities and feasibility of such a project. The programme was drafted by a small team of people who worked without the help of external consultants, and no feasibility studies or comprehensive financial analysis were made. As a result, several important aspects were missed which caused problems during implementation.

Secondly, significant risks were not foreseen – and in particular the risks concerning public procurement. It was planned that the purchasing procedures would be completed quite quickly (in a few months) so that all the projects would be implemented by 2013. However in practice they took a very long time because of their very high value. For example the procurement of the National Centre for Physical and Technology Sciences has already lasted for two years, which has delayed project implementation.

Thirdly, an effective management system for Sunrise Valley was not created. Although the Programme of the Development of Sunrise Valley foresaw the establishment of the main

managing bodies, in practice they were not established because of a clash of interests among key stakeholders. The Valleys Supervisory Council and the Valleys Monitoring Group are playing a rather formal role as regards supervising the valleys. One of the main drawbacks in the overall management system of all valleys is that it was not foreseen to establish one responsible body at the highest political level (e.g. at government level). Such a body could help to ensure more effective management.

Finally, one of the challenges in implementing Sunrise Valley has been the Vilnius municipality has not always paid sufficient attention. From the beginning, it played an important role in promoting the 'knowledge city', but as time went on its role began to diminish and the city became passive. No unit was created in the administration of the municipality to deal with the development of the knowledge economy in Vilnius. As a result, a consistent and strategic policy as regards Sunrise Valley and modern urban development is lacking. Moreover, Vilnius municipality does not always use all the opportunities it has to exploit the valley's potential.

Lessons learnt

The implementation of such ambitious and far-reaching initiatives often progresses more slowly than initially expected, not least owing to the need to ensure the continuous consensus and effective partnership among the main stakeholders, which represent the varied interests of universities, research institutes and industry as well as the local authority. The case of Sunrise Valley shows that active partnership and cooperation at the beginning helped to generate ambitious ideas and commitment to a common goal. However, effective partnership is necessary throughout the project. If the interests of different stakeholders diverge, it becomes difficult to implement ambitious ideas and many obstacles emerge.

In any case Sunrise Valley represents a major investment in the modernisation and optimisation of R&D and innovation potential in Lithuania in general, and in Vilnius in particular. It is a very important long-term project for the urban development of Vilnius. Despite the fact that this area will need further development after the main infrastructure is built, the valley is already attracting future investors, including foreign direct investment from the EU member states but also other countries.

Sunrise Valley will help to maintain an adequate level of science in Lithuania and to encourage smart growth in the country. Both science and business (especially in such sectors as optics and biotechnology) are expected to derive real benefits from the projects that have been implemented in Sunrise Valley. The initiative is also expected to counter the well-established trend of brain drain in Lithuania, as it will offer opportunities for prospective young researchers and entrepreneurs in the country as an alternative to emigration.

Support from the ERDF was essential in implementing these projects, as Lithuania would not have been able to finance them otherwise. However, the key stakeholders understand that only attracting an increasing flow of private investment will ensure long-term sustainability.

AEIDL has been contracted by the European Commission in 2012 in order to provide 50 examples of good practice in urban development supported by the European Regional Development Fund during the 2007-2013 programming period (contract reference 2011.CE.16.O.AT.035). The views expressed by AEIDL remain informal and should not under any circumstance be regarded as the official position of the European Commission.