

PROJECT PARTNERS



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GENERAL INFORMATION

Title of the case	RUARDI: Developing alternative solutions for degraded industrial environment – City Airport
Sales pitch	A university-industry collaboration project conducted within the “Creative Paths to Knowledge” scheme, involving interdisciplinary student research, which would analyse and provide recommendations for the enlargement, optimization, and integration of the existing city airport into the local environment and community.
Organisations	<ul style="list-style-type: none">• University of Ljubljana (Faculty of civil engineering, Faculty of architecture, Faculty of social sciences, and Faculty of maths and physics)• Institute for Innovation and Development of the University of Ljubljana• Company Aereform• Municipality of Zagorje ob Savi (Department for urbanism and environment)• Non-governmental organisations and voluntary associations (Aeroclub Zagorje, firefighter community)
Country	Slovenia
Authors	<ul style="list-style-type: none">• Jure Vetršek (IRI UL)• Sašo Knez (Aereform)• Sara Arko, PhD, IRI UL (Institute for Innovation and Development of University of Ljubljana)
Nature of interaction	Student-industry-city engagement project addressing real-life challenges
Level of mechanism	<ul style="list-style-type: none"><input type="checkbox"/> Government policy (e.g. law, funding framework)<input type="checkbox"/> Organisational strategy (e.g. university/business/agency)<input type="checkbox"/> Structural element (e.g. centre, lab, office)<input checked="" type="checkbox"/> Operational level (e.g. activity or programme)

Length of programme

6 months	Formality	Informal
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Curricula-bound, co or extra-curricular?

Co-curricula	Level of initiative	Cross-disciplinary
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Summary

Degraded industrial environments (former coal mines) – such as Zasavje, also known as Central Sava Valley, in Slovenia – are faced with social, economic, and environmental challenges. Some of which are unemployment, pollution, and brain drain. To achieve growth, these kinds of areas need fresh ideas, positive visions, and industrial restructuring, which needs to be agreed upon and achieved together with local industry, community, and citizens. The RUARDI project was conducted for 5 months in 2015 within the “Creative Paths to Knowledge” scheme of the Public Scholarship, Development, Disability, and Maintenance Fund of the Republic of Slovenia. It was co-financed by the Government of Slovenia and the European Social Fund. RUARDI established cross-disciplinary and multi-stakeholder cooperation between different faculties and research institutes of the University of Ljubljana and city of Zagorje ob Savi (Slovenia), its local industry representatives (Aereform), the local community, and citizens. The key aim was to conduct an interdisciplinary study that would research and provide recommendations for the enlargement, optimization, and integration of the existing city airport into the local industrial environment, community, and every-day life of citizens. The long term vision was to establish an aeronautic entrepreneurial hub for high tech innovation and the multiplication of regional social-economic development.



CASE STUDY PROFILE

BACKGROUND

The Creative Path to Knowledge (Po kreativni poti do znanja – PKP) is an education programme of the Government of Slovenia (co-funded by the Slovenian Ministry of Education, Science and

Sports, and the European Social Fund). It supports the integration of HEIs with industry, other organisations, and the local and regional environment. The current programme (2016-2020) value is 10.625.000,00 EUR and aims to involve at least 2,700 undergraduate and graduate students and 1,400 non-academic experts. The programme co-finances projects that are carried out in groups of 4 to 8 students under the mentorship of the pedagogical and industry/non-academic mentors, as well as encouraging the exchange of knowledge, experience, and good practices. Projects can last from 3 to 5 months, in which the students use their knowledge and skills to tackle the challenges of the industry, gaining new knowledge and competences. University and industry/non-academic partners have to apply for funding. If successful, the academic mentors recruit a team of students to work on the project.

Location: Zasavje is one of the most affected Slovenian regions with an unemployment rate of 17.5%. In times of economic crisis, the unemployment rate in the region has grown to almost 100%. Traditional industrial sectors are labour intensive and characterized by high levels of manual work with low levels of automation. In past years, the production was globally moving to areas with a cheap labour force, causing high levels of long-term unemployment in respective sectors, such as wood and textile industries. These events have further aggravated the economic situation in Zasavje, causing serious economic problems, e.g. a low standard of living, low income, dependence on the social welfare system, long term unemployment, etc. These kinds of areas can benefit by introducing positive visions and by enhancing new solutions and development strategies that incorporate local heritage and involve its citizens as co-creators.

CONTEXT

The partnership between the University of Ljubljana, Aereform, IRI UL, and Zagorje ob Savi Municipality was established with the successful application for PKP funding, initiated by the industry partner who identified the need. 3 non-academic mentors from industry and research (Aereform and IRI UL), 4 academic mentors (University of Ljubljana), and 8 students from four different Faculties within the University of Ljubljana (Faculty of civil engineering, Faculty of architecture, Faculty of social sciences, and Faculty of maths and physics) commenced work on the RUARDI project in January 2015 while the project concluded in June of that same year.

Air mobility and aeronautic industry can present key integrators and drivers having positive effects on the development of the environment, region, local community, and entrepreneurship. The RUARDI project provided a holistic solution of expanding and integrating the existing city airport into the local community, and the everyday life and activities of citizens. **The established high-tech industrial ecosystem attracts different companies that operate in aeronautics and further enhances innovative projects with long term positive spill over effects throughout the broader region.**

The core of the project was the students' research and development of solutions, focusing on the pre-defined challenge posed by revitalising the airport in a degraded urban area of the city of Zagorje ob Savi in order to set up high tech industrial zone. In the process, the students were mentored both by industry and academic mentors. The research project included the following activities: identifying relevant stakeholders and actors within local community; concept

development and mapping; implementation of research methods and analysis; evaluation of results and development recommendations; dissemination of results; and multi-stakeholder meetings.

During this process, the students developed new competences and an elaborate vision of the airfield, while the collaboration between industry and university partners enabled the UBC, exchange of knowledge, and sharing best practices.

OBJECTIVES AND MOTIVATIONS

The key motivations of the project stakeholders are as follows:

HEI partners: Key objectives of HEIs to participate in PKP projects are to establish partnerships with non-academic organisations (government organisations, industry, local governments, NGOs, etc.), exchange knowledge with non-academic professionals, and to offer students a practical learning experience in an interdisciplinary setting.

Industry partners: PKP projects offer industry partners an opportunity to collaborate with university researchers and students, knowledge exchange, opportunity for lasting partnerships, and the potential for innovative solutions developed by the student teams.

Municipality/local government: As PKP projects specifically focus on applied projects that address local and regional environments and communities, these provide an opportunity for developing and designing solutions that can support the existing strategies and projects of the local governments.

Students: Participation in a PKP project offers practical work experience, interdisciplinary project teamwork, collaboration with industry representatives, an opportunity to showcase existing knowledge and skills, as well as gaining new competences, thus enhancing their employment opportunities. The students also receive payment for their project work.

Government of Slovenia (funding PKP projects): The objectives of the PKP funding scheme are the following:

- Using an innovative, problematic, and group approach to solving practical problems, students are given the opportunity to develop competences, acquire practical knowledge, and gain experience
- Encouraging innovation, creative thinking, entrepreneurial thinking, and subject specific competences in the field of study and competences in other fields, the PKP scheme is intended to improve the employability of students and stimulate the creation of new job opportunities
- Facilitating the transfer of knowledge between HEIs and industry, as well as non-academic organisations, allows the exchange of expertise, which contributes to strengthening the long-term integration of HEIs and industry and, consequently, adapting the education system to the needs of the industry and civil society

Key specific objectives within the RUARDI project:

- Conducting interdisciplinary research to identify and analyse different possibilities for expanding the existing city airport, which is built on a specific terrain and is surrounded by hills (drainage, analysis of flight path, soil research, axis flow, risk analysis)
- Conducting the axis flow research and possible modifications
- Analysis of current state and identification of future development needs in terms of integrating the existing airport into the local environment and community
- Connecting the airport and its (current and future) activities with the city's development strategy

STAKEHOLDERS

The stakeholders of the project are as follows:

- **Students of University of Ljubljana** (research project development, conducting research, developing solutions, reporting, and development plans)
- **Professors of University of Ljubljana** (academic mentors to participating students, research project development, lectures, knowledge exchange with non-academic partners)
- **Researchers from the Institute for Innovation and Development of University of Ljubljana** (intermediary organization facilitating the dialogue between project stakeholders, knowledge exchange and management, non-academic mentors to students, research support)
- **Industry – Aereform** (non-academic mentors to students, knowledge exchange, participation in research)
- **City representatives** (city mayor, department for urbanism and environment, others – integrating the project and developed solutions in the wider local environment and development plans)
- **Representatives of non-governmental organizations and voluntary associations** (Aeroclub Zagorje, firefighter community – participation in research, engagement in the project, specific interest for revitalising the degraded area)
- **Citizens** (high interest in revitalising a degraded urban area in an industrial environment)
- **Government of Slovenia** (funding)

PROCESS

INPUT

Project-specific inputs:

- Knowledge, skills and experiences of university professors, researchers and industry representatives and student mentorship: the project involved 4 academic mentors (UL), 2 external mentors (IRI UL), and 1 industry mentor (Aereform)
- Students' work (research and development of solutions): the project involved 8 participating students
- Access to infrastructure and relevant data (e.g. spatial acts, development strategies etc.)
- Physical (e.g. excavation)

- Funding - National scheme "Creative paths to knowledge" (PKP): 22.080,00 EUR

PKP – general programme inputs:

Until the end of 2018, PKP scheme funding was 6.942.950,50 EUR, which funded 397 projects that involved 2800 students, approximately 1000 pedagogical mentors/coordinators, and over 560 representatives of industry or other external partners.

ACTIVITIES

In the six months (duration of the PKP project), the following activities were undertaken by the involved partners (academic and industry) and student team.

1. Knowledge exchange - Exchange of knowledge and ideas between HE, industry, and local government stakeholders to reach a common understanding of the challenge as a basis for solution proposal (geomechanics, investment strategies, stakeholder management).

2. Joint research activities

- Interviews with key stakeholders and actors involved with the potential airport expansion and revitalisation
- Relevant documentation research
- Review and synthesis of similar cases and orientations of the aviation industry based on reference documents.
- Interdisciplinary research to explore the possibility of expanding the airport in the landslide area, covering a number of restrictions (aerial aspects, terrain stability).
- Creating a wider analysis of the current situation and identifying development needs from the point of view of the city take-off and its involvement in the local environment through the implementation of sociological research with focus groups and interviews with entrepreneurs interested in the use of the aerodrome, the general public and representatives of Aeroclub Zagorje (NGO).

3. Presentation of results and recommendations to the city mayor and municipality council

4. Writing a detailed study report (students and mentors)

5. Writing the project final report for the funder (partner organisations)



OUTCOMES AND IMPACT

OUTPUTS

Interdisciplinary study resulted in a detailed, 153 pages long, study report, written by the participating students and their academic and industry mentors. The report provided concrete recommendations that have been included into city development strategy and spatial act, approved by the Municipality and its Council.

Final project reports are a requirement from the funding institution (cca. 10 pages, project activities final report, template provided for all PKP projects), along with the study report in an annex.

IMPACTS

One of the key impacts were the skills and competences developed by the students during the project, including e.g. creative thinking; solving practical challenges, with the solutions being feasible both technically, socially, and financially; communication skills between different disciplines and social stakeholders; work in an interdisciplinary research team; ability to set, formulate and implement a research process that has clear objectives and performance indicators; organizational competencies of work in an interdisciplinary group; public presentation skills; the skill of preparing a written report as a result of the work of an interdisciplinary team. The learning outcomes and competences developed were assessed for each student individually by the involved academic mentors from their respective Faculties, based on the activities undertaken by the individual student within the project and their performance. The individual assessments had to be included in the final project report.

Two students continued working for the industry partner after the conclusion of the project in the form of student work contract. The industry partner recognised one of the students as particularly talented and have employed her in the company.

SUPPORTING ENVIRONMENT & SYSTEM

SUPPORTING MECHANISMS

The following elements can be considered to have provided a supporting environment for the success of the project:

- National scheme “Creative paths to knowledge” as a funding mechanism which enhances interdisciplinary cooperation between students, researchers, professors, industry professionals and other external stakeholders (governmental and NGOs, municipality, community, citizens).
- Individual: motivation and positive attitude of professors and students (towards interdisciplinary cooperation and collaboration with city and industry). Support from industry and existing positive experiences with university-industry cooperation. Support from municipality and mayor.
- Organizational: SME – flexible and innovative environment. Already established connections with the municipality (due to past successful projects).
- Environmental: City facing environmental, social and economic challenges which need fresh ideas and new, positive visions. Access to data and people (experts, officials, citizens).

Regarding monitoring of the process, detailed timesheets with the description of project activities were provided monthly to PKP coordinator at the coordinating Faculty. Final report (financial, project activities, learning outcomes) and a detailed study report were first evaluated internally at the University level (coordinator) and then submitted to the funding organisation (Public Scholarship, Development, Disability, and Maintenance Fund of the Republic of Slovenia).

BARRIERS AND DRIVERS

Barriers:

- Short-term project and sustainability
- Funding (smaller project with very limited funding)

Drivers:

- Support from mayor and municipality
- Addressing real life challenges
- Involving citizens in co-creation of solutions
- National funding



LESSONS LEARNED

CHALLENGES

Sustainable and longer-term funding would be needed for follow-up activities and sustainability of the solutions proposed by the students within PKP projects in general. However, as PKP projects are being funded regularly since 2014, there is opportunity for development of follow-up or upgraded projects, focusing on the same city area, or sustaining and deepening the partnerships established between the participating University and non-academic partners.

KEY SUCCESS FACTORS

Partnership was enabled by funding (although limited) through PKP scheme, with which the students' work on the project was paid, as well as partner organisations' activities (mentoring the students, participation in research).

Support from municipality (mayor), which enabled access to the area, to research participants, and relevant data and documents.

The students were highly motivated to participate in such an applied interdisciplinary project, and to work on real-life city challenges (positively contributing to the society and environment).



FURTHER INFORMATION

AWARDS AND RECOGNITION

Study recommendations have been included into city development strategy and spatial act, approved by the Municipality and its Council.

TRANSFERABILITY

Model of cooperation and learning has been transferred to other projects (at IRI UL) and is a continuing practice within PKP projects. The results have not been transferred to other contexts due to specifics.

LINKS

http://iri.uni-lj.si/wp-content/uploads/2017/11/IRIUL_letak_RUARDI.pdf

<http://iri.uni-lj.si/vzletisce-ruardi-alternativne-resitve-za-degradirano-industrijsko-okolje/>

<http://pkp.sklad-kadri.si/?p=3147>

<https://www.delo.si/mnenja/kolumne/zasavska-hvalnica-norosti-vse-za-cajtgajst.html>

<http://kum24.si/clanek/novice/55362ae830bb1/do-maribora-prej-po-zraku-kot-skozi-predor-pod-mrzlico>

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