SHORT PRESENTATION OF PARTNERS ON THE AMERICAN SIDE

UNIVERSITY OF NEVADA, RENO

UThe University of Nevada, Reno (UNR) is one of the most prestigious and active research facilities in the United States of America. It has risen to its position by engaging in scientific research and activities serving the Nevada residents and businesses, as well as in international business activity.

The University of Nevada, Reno is a public institution, which was founded in 1874 as the first institution of higher learning in Nevada. The University has been developing dynamically due to the increase in the number of students in recent years (approximately 22,000 students), investments in advanced laboratories and other facilities, which since 2009 have exceeded 750 million USD. The UNR boasts the status of a leading research institution in Nevada, with expenses exceeding 108 billion USD annually.

Meeting with Kate Marshall, Lieutenant Governor of Nevada.
Source: PWiK Sp. z o.o. w Rybniku

The UNR is widely known for its research programs in the field of earthquake science and engineering, humanities, neurobiology, environmental sciences, biological sciences, biotechnology, and advanced autonomous systems. According to the Carnegie Classification the UNR ranks as R2. It is a complex, doctoral university with high research activity, which offers over 460 bachelor and masters majors, as well as certificates, and programmes of lesser importance. The University carries out its mission of access to education and knowledge by investing in scientists, infrastructure, support, engagement, and a lively campus, that promote the cognitive development and academic achievements of students.

NEVADA WATER INNOVATION INSTITUTE (NWII)

The Nevada Water Innovation Institute is a result of a shared vision and effort of regional water resource agencies, public utilities, and the University of Nevada, Reno. The goal of this initiative is to develop and implement innovative and integrated water solutions for the regional needs and to demonstrate leadership in the water sector, as well as to present the results of its research in the process of managing water resources in the Truckee Meadows region.

The NWII's partners aim to collaborate in order to demonstrate national leadership in the water sector in the American market by developing products, methods, and human resources in order to compete in the water innovation market. The NWII's achievements help the region and the state of Nevada to support a sustainable water industry for economic growth and enriching the natural environment. Through wide international co-operation, the NWII participates in the protection of global water resources by sharing its experience and constantly seeking new partners with high scientific and industrial potential.

Aside from the University of Nevada, Reno, the NWII's partners are the municipal authorities of Reno and Sparks, Washoe County regional authorities, Truckee Meadows Water Management Board, Western Regional Water Commission, and the Nevada Department of Transportation.

Lake Tahoe Dam - retention system element. Source: PWiK Sp. z o.o. w Rybniku

Modern „grey water" installation. Source: www.unr.edu

General view of the University.
Source: www.greenriver.edu

University of Nevada, Reno

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GOOD PRACTICE – THE SCIENCE – INDUSTRY – SELF-GOVERNANCE
COLLABORATION MODEL FOR THE DEVELOPMENT AND IMPLEMENTATION OF NEW WATER TECHNOLOGIES
BASED ON THE EXPERIENCE OF THE NEVADA WATER INNOVATION INSTITUTE

Ladies and Gentlemen,

I would like to present the results of a project completed thanks to the support granted by the Ministry of Science and Higher Education regarding the management of scientific research and commercialisation of R&D work results in scientific units and companies. The TOP 100 Innowatorzy Gospodarki Program is carried out under the action 4.4 *"The increase of staff potential of the R&D sector" of the Inteligentny Rozwój Operational Program".*

In this publication, I present a new model of creating and commercializing new technologies, an innovation management method developed for the PWiK Rybnik inspired by the excellent Innevation Center founded in Nevada, with an international scope and founded by close collaboration of companies from the water and sewage industry, regional authorities, and research centers, the leaders of water technologies. The model takes into account the conditions of operation for municipal companies in Poland and attempts to respond to the best of its ability to the expectations of both the organisation itself and its surroundings.

While observing the constantly changing natural environment, the worrying symptoms of hydrological drought problem can be seen to escalate. I think that it is the right time to start implementing concepts thanks to which in the future we will open a tap and it will release high quality water. Thanks to the collaboration with leading research centers, especially those successfully implementing new waterworks technologies, we can be inspired in our work by drawing on the best "good practice" models in order to strengthen the potential of our waterworks companies.

dr inż. Janusz Karwot

President of the Przedsiębiorstwo Wodociągów
i Kanalizacji Sp. z o.o. Company in Rybnik

GOOD PRACTICE – THE SCIENCE – INDUSTRY – SELF-GOVERNANCE COLLABORATION MODEL FOR THE DEVELOPMENT AND IMPLEMENTATION OF NEW WATER TECHNOLOGIES BASED ON THE EXPERIENCE OF THE NEVADA WATER INNOVATION INSTITUTE

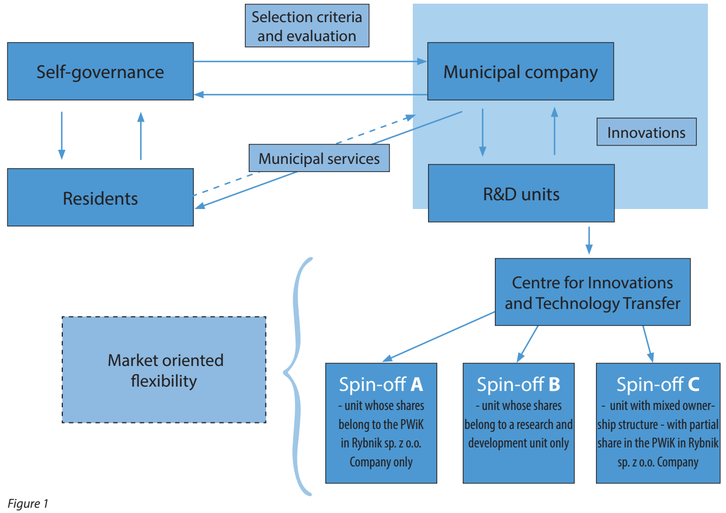

Figure 1
Conceptual model for innovation management
Source: Author's own work

The model of implementing innovation in a municipal and commercial company involving stakeholders representing a local community.

In the context under consideration, a few possible strategic directions, adapted to the specifics of operation of a company providing municipal services for local community, can be outlined for the PWiK in Rybnik sp. z o.o. Company.

These directions are:

- opportunity capture – opportunities allowing the organization to develop should be sought and pursued. The strengths of the PWiK in Rybnik Sp. z o.o. Company can be utilized here. Due to the organization's strengths (e.g. its financial means), it can utilize numerous opportunities not available to the competition. The PWiK in Rybnik Sp. z o.o. Company has numerous opportunities and potential which allow for great development possibilities;
- takeover of similar companies/expanding activity or establishment of strategic relations and alliances – potential competition poses a threat to the PWiK in Rybnik Sp. z o.o. Company. Private companies appearing on the market may takeover certain areas of additional activity (the basic activity is a monopoly) from the PWiK in Rybnik Sp. z o.o. or engage in a similar activity, as well as provide services partially related to the Company's business activity.
Due to the PWiK in Rybnik Sp. z o.o. Company's many strengths which can be utilized, market analyses should be conducted in order to detect opportunities to generate service innovations;
- focus of resources on the best/innovative services – the PWiK in Rybnik Sp. z o.o. Company offers basic services and supplementary services which provide it with the greatest benefits and profits. Under such conditions the Company can focus on those services and improve on them by using its strong position. It will have a positive effect and will enable an innovative development;
- strengthening the market position – the PWiK in Rybnik Sp. z o.o. can use its positive situation to strengthen its position in the Western Subregion by establishing and developing collaboration with other companies in the industry;
- optimization and increase of effectiveness in resource utilization – the PWiK in Rybnik sp. z o.o. Company currently possesses an advantage of opportunities over threats and advantage of strengths over weaknesses. This is impacted by an optimal resource structure which should, however, be constantly improved upon and developed, especially in regards to human resources.

In the presented conceptual model for innovation management under the conditions of municipal company operation, of special importance is the evaluation of innovations in terms of their commercialization potential, including the commercialisation of solutions on an international scale. Currently there is no single technology commercialization model – they can be developed both within a company and in dedicated units created by a company and/or a company collaborating with a R&D unit.

Every option of developing innovative solutions is related to a necessity to secure financial, human, and technical resources. Under the conditions of municipal company operation, it is especially important to create additional financial reserves for diversification of incurred investment risk. The creation of financial reserves dedicated to innovations by companies is currently facilitated thanks to the provisions of the Act of 30th May 2008, pertaining to some forms of support

Figure 2
The model of innovation commercialization in the PWiK Rybnik sp. z o.o. Company
Source: Author's own work

for innovative activity1. Under the conditions of municipal company, this requires the approval of the Board of Directors.

The innovative potential of a solution is primarily determined by its applicability. The potential commercialisation evaluation model acquires key significance for the decision on the implementation of a project concerning a specific solution. Due to the area of business activity of the PWiK Rybnik sp. z o.o. Company this model is specific for the water and sewage management industry. However, it can be reproduced and adapted for other companies.

The model's idea is based on a two-stage procedure of idea evaluation and selection and decision of the Program Board regarding the recommendation of a project to be implemented to the Company's Board of Directors.

STAGE ONE includes the submission of a project request according to the Company's current procedures. The request should contain elements which will enable its evaluation.

STAGE TWO encompasses the performance of an indicator-based assessment of project proposal. The indicators which are considered in this assessment and which meet the sustained development rules, are as follows:

- Increase in employment in supported companies,
- Number of submitted patent applications,
- Number of implemented R&D work results,
- Profit from implemented R&D work results,
- Reduction of energy consumption,
- Reduction of emissions,
- Reduction of water consumption,
- Improvement in the degree of material or recyclables usage,
- Increase of RES participation in energy balance.

Points are assigned to an indicator depending on the range in which its value is located. The points correspond to current trends and needs (of self-governance, community, and municipal company). Point ranges for indicators are determined by the Program Board which operates in a municipal company.

After the initial selection, the projects proceed to the next level – the expert assessment. The experts are selected Program Board representatives and invited field and sector experts. During the expert assessment, the project applicant presents detailed information about the project and answers questions regarding its implementation and expected products and results. The expert body performs a point-based assessment of the project using the following criteria:

1 Compliance with goals and needs of the PWiK Rybnik sp. z o.o. Company,
2 Novelty of R&D work results,
3 Benefits from implementation,
4 Research team implementing the project.

The number of points assigned under each criterion is determined by the Program Board, similarly to the indicator based assessment.

The ranking list compiled based on the conducted assessments is presented to the Program Board, which takes into account all current needs of the PWiK Rybnik sp. z o.o. Company and recommends selected projects for implementation, along with proposed budget. The Program Board is established by the Management of the PWiK Rybnik sp. z o.o. Company and consists of: a representative of the Company's owner (self-governance authorities), an employee of the PWiK Rybnik sp. z o.o. Company, and a representative of the collaborating R&D unit. Other persons can be appointed in an advisory capacity. In the model implementation planned for the PWiK Rybnik sp. z o.o. Company, it would be a maximum of 3 people.

The list of projects for implementation is approved by the Board of Directors. The implemented projects leading to the creation of innovative solutions can be utilized for the needs of the PWiK Rybnik sp. z o.o. Company or can be separated out as innovative companies, in which the PWiK Rybnik sp. z o.o. Company holds shares.

SUMMARY

On 9th May 2019 in Reno, Nevada, USA a collaboration agreement was signed between the Nevada Water Innovation Institute of the University of Nevada, Reno and the Przedsiębiorstwo Wodociągów i Kanalizacji Sp. z o.o. in Rybnik and the Central Mining Institute in Katowice. The goal of the collaboration is to share the experience with regards to using cutting edge technologies in water and sewage management and implementation of innovative solutions serving to protect and to promote the sustainable use of local and global water resources.

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Support of scientific research and R&D work results commercialization management in scientific units and enterprises under the action 4.4
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