

# Model of an engineering centre on nanotechnology as the element of scientific results commercialization process in a Belarusian University 3.0

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## Introduction

The higher education system of Belarus is rapidly changing: modern universities tend to function as entrepreneurship promoters in addition to their traditional educational and research functions. The new entrepreneurial function embraces the development, accumulation and transfer of science-intensive knowledge, technologies, products and services, as well as profit taking out of IP, international scale up of high technologies, competitive positioning of products and services, etc. Such universities become the universities of the next generation – the so called Universities 3.0.

The formation of Universities 3.0 is nowadays a vital challenge for the economy and society of Belarus. In December 2017 the Strategic plan on the scientific and technological development of the Republic of Belarus in 2018-2040' [1] was approved at the II Congress of Scientists of the Republic of Belarus. This strategy is aimed at strengthening the cooperation between education, fundamental and applied research, and business through the practical implementation of the University 3.0 model, according to which an entrepreneurial eco-system shall be integrated into the universities' infrastructure, thus making these universities to become the key suppliers of innovations. Starting from 2018 seven Belarusian universities have been engaged in the national-wide pilot project on the implementation of the University 3.0 model [2].

The research purpose is to develop a model of an engineering centre on nanotechnology as a core element of the internal infrastructure of the scientific results commercialization process in a Belarusian University 3.0. Belarusian engineering universities are the object of the study, while the internal infrastructure of the scientific results commercialization process in these universities is considered to be the subject of the study.

## Methods

To achieve this goal, we have set and solved the following tasks:

1. We studied international commercialization practices (regulatory legislation, commercialization infrastructure, engineering centres structure).
2. We analyzed Belarusian legislation in the field of scientific results commercialization, as well as approaches to determine the organizational and economic mechanism of commercialization, existing strategies, methods and challenges of scientific results commercialization Universities 3.0 of Belarus.
3. We developed a model structure of an engineering centre on nanotechnology as a core element of the internal infrastructure of the commercialization process a Belarusian University 3.0.

## Conclusions

Taking into consideration current international and local best practices in the organization of commercialization activities and creation of engineering centres [3], we have developed a model of an engineering centre on nanotechnology that might enable the Belarusian engineering universities to smoothly transfer to the University 3.0 model, intensify research and business integration, and enhance knowledge and technology transfer from these universities to the industry, society and economy.

R&D labs and Common Use Centers that possess unique research facilities shall be the main core of the centre, thus determining the engineering potential of the centre. In addition, the engineering centre shall have a marketing department, training department and entrepreneurship support office. In accordance with a customer's request, the engineering centre can develop a new technology or research-intensive product, provide some engineering services and fulfil R&D projects [Pic. 2].

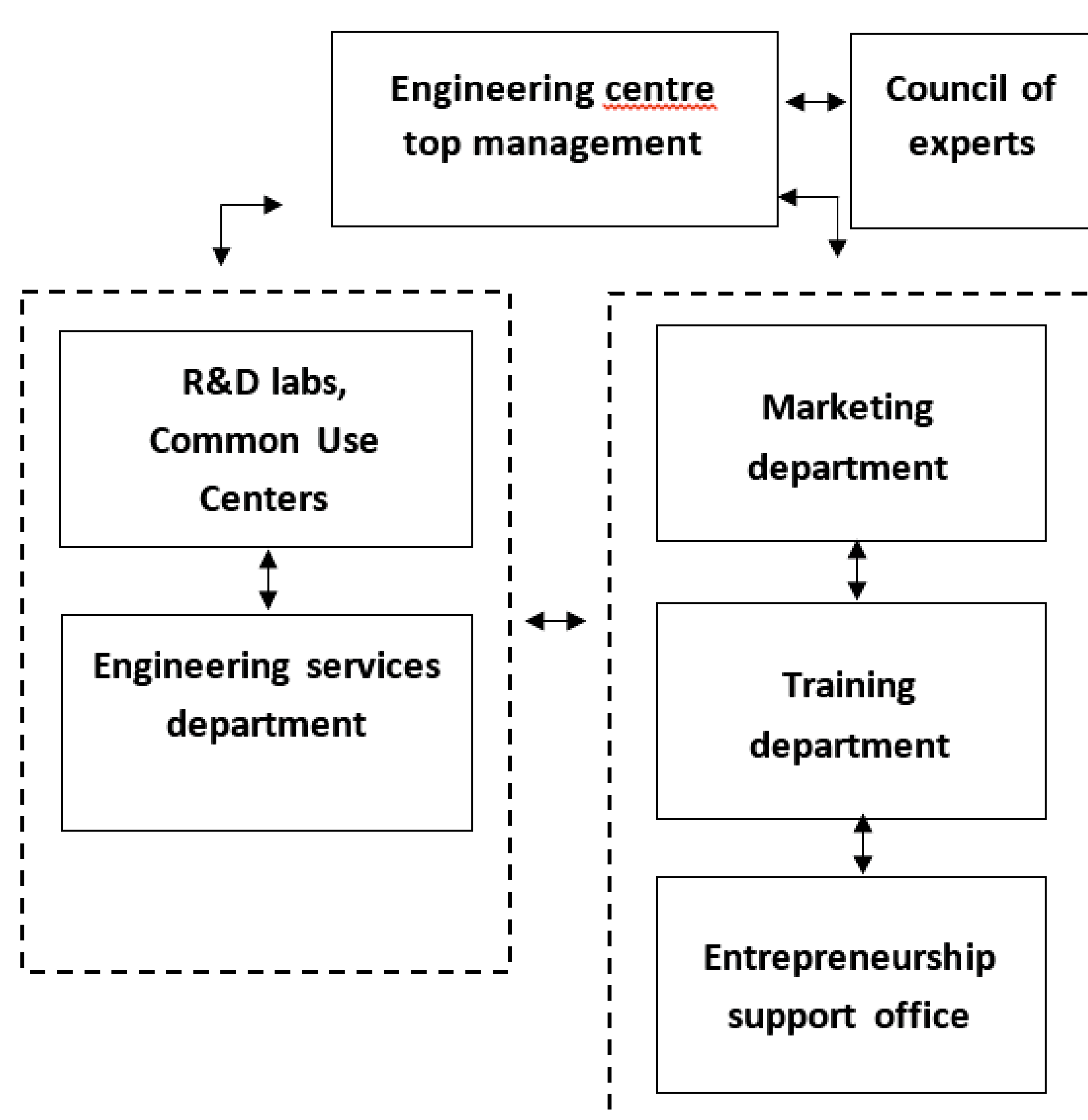
Advantages:

- accumulation and consolidation of breakthrough technologies and innovations in the single data base;
- direct access to personnel capacities, research infrastructure, IP, equipment and other facilities;
- easy technology transfer, commercialization and profit taking;
- development of business skills and soft skills of the university staff and students;
- effective promotion of the university brand;
- support of long lasting relations with partners and customers.

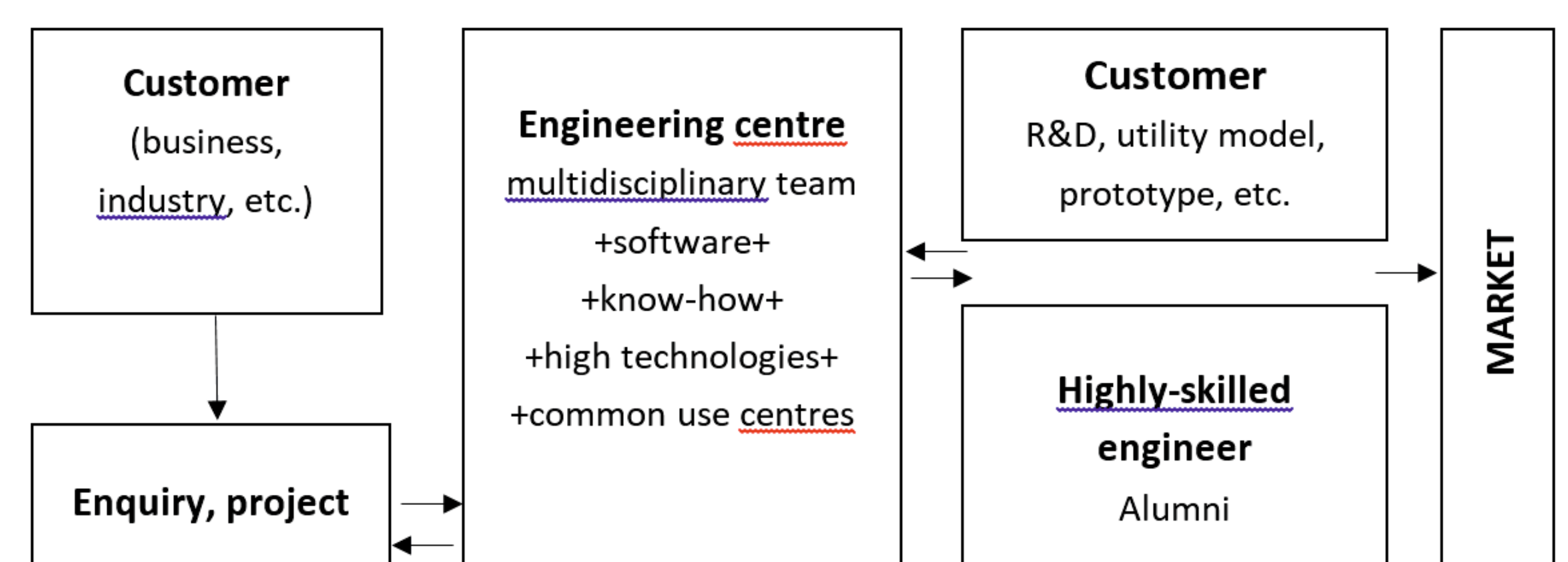
We believe that this paper could serve as a good guide for the Belarusian engineering universities that are striving to implement the University 3.0 model and enhance the quality of the existing commercialization process.

## References

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Pic. 1. Organizational structure of an engineering centre in the Universities 3.0



Pic. 2. The interaction process between the engineering centre and its customers