



NURE

Харківський національний університет
радіоелектроніки

•NURE & Third University Mission

•UNICOM Kick-off meeting, 12.04.2023

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I. EDUCATION

Active NURE – business partnership machine-building, power engineering and IT-industry



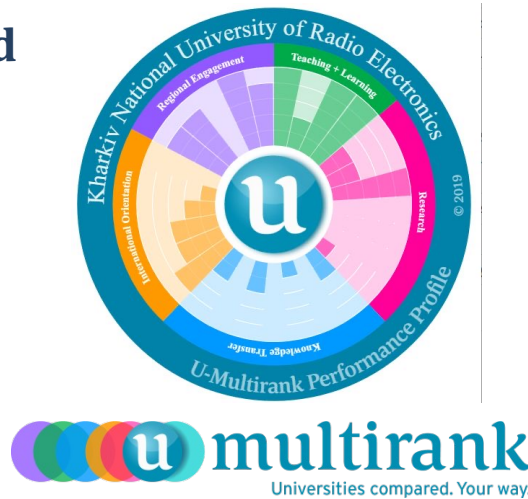
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Times Higher Education World University Rankings



QS Emerging Europa and central Asia (EECA)



RANKING WEB OF UNIVERSITIES

Country Rank: 1
World Rank: 1144

THE University Impact Rankings



NURE is one of the oldest Universities of Technologies in Ukraine which focuses on *IT and engineering education*

NURE has 30 scientific centers and strong research and education capabilities in

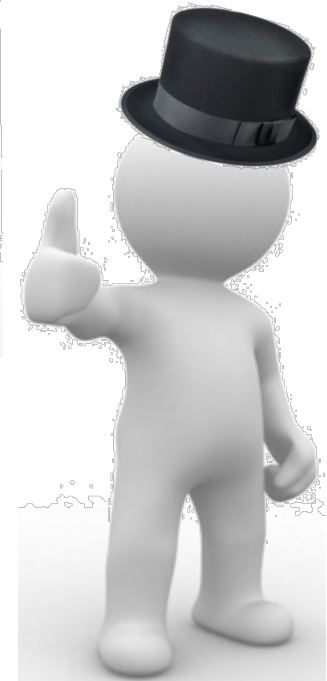
- ✓ Computer Science
- ✓ Software Engineering
- ✓ Artificial Intelligence
- ✓ Computing Engineering
- ✓ Biomedical Engineering
- ✓ Information Technologies
- ✓ Cyber Security
- ✓ Telecommunications
- ✓ Information Management
- ✓ Electronics
- ✓ Economics & Management



NURE offers 43 Bachelor Degree, 60 Master Degree and 16 PhD Programmes and train in average 8300 students annually.

The most popular degree programmes at NURE

- ✓ Software Engineering
- ✓ Artificial Intelligence
- ✓ Computer Science
- ✓ Cyber Security
- ✓ Computing Engineering
- ✓ Telecommunications
- ✓ Biomedical Engineering



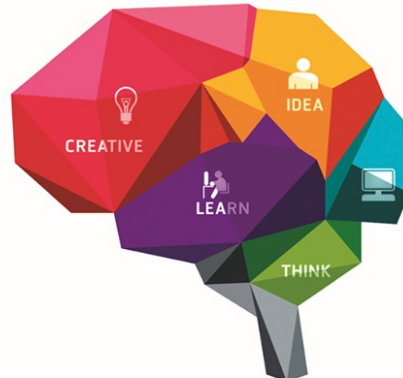
90 РОКІВ
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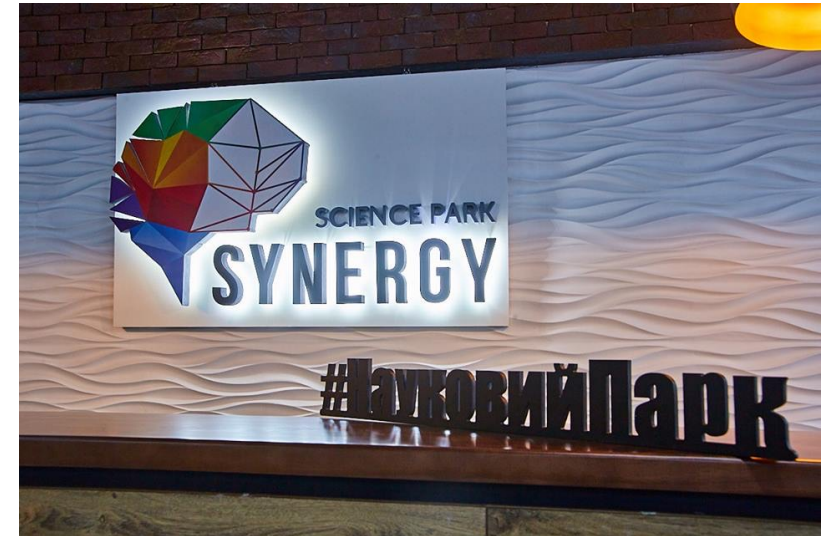
II. Research

NURE hosts Eastern-Ukrainian IEEE chair
NURE is a pioneer of the distance learning in Ukraine
NURE has a recognised expertise in introduction of innovative technologies into education and business

Creative
Technologies
Center



<https://www.synergy-park.com/en/>



In 2019 NURE launched Science Park “Synergy” provides modern equipment and wide opportunities for tight cooperation between education, research and business. It became the first science park of Ukraine which joined the International Association of Science Parks IASP

Important results obtained in 2019-2022

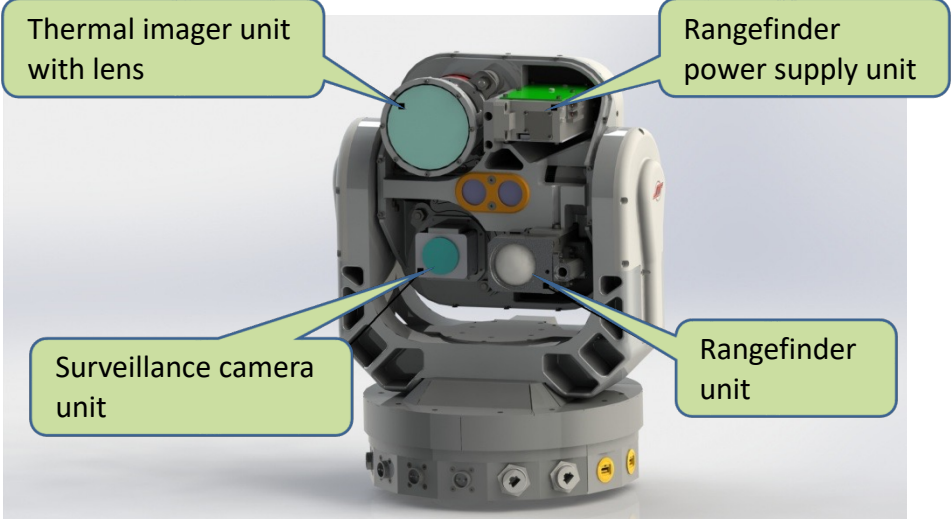
Development of technology for detection and high-precision tracking of air objects

The experimental sample was presented at the International Exhibition "Weapons and Security - 2019" (Kyiv, October 8 -11)

PERFORMERS:
Department of Applied Mathematics,
Department of Infocommunications,
Pilot plant



Optoelectronic module



Optoelectronic module (without cover)

The developed methods and algorithms for detection and high-precision tracking of air objects

Erbium laser rangefinder LR-20-EN - developed by the PilotPlant

The experimental sample was presented at the International Exhibition "Weapons and Security - 2019" (Kyiv, October 8 -11)

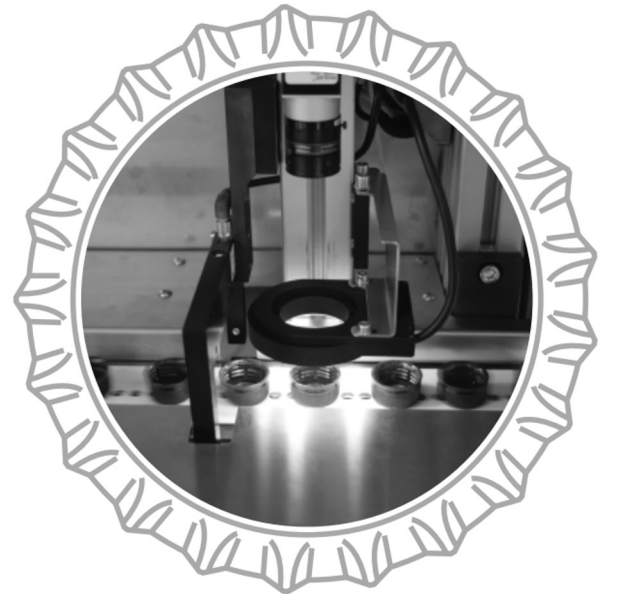
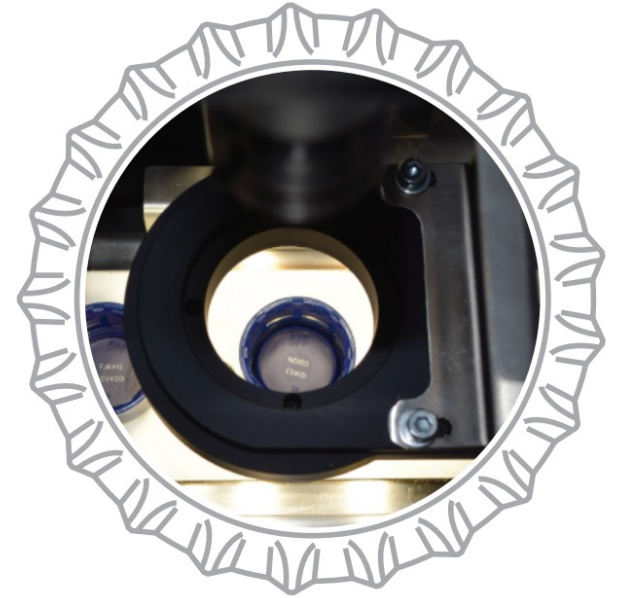
Implemented at the enterprises of Ukroboronprom



No	Parameter	Value
1	Operating wavelength	1535 Nm
2	Max. measurement frequency	5 Hz
3	Eye safety	Class 1
4	Diameter of transmitting optics	12mm
5	Diameter of receiving optics	50mm
6	TDC measurement error	0,5m
7	Maximum range	20km
8	Minimum range	32m
9	Interface	USB, RS422, UART
10	Work resource	more than 100 million imp.
11	Terms of use	-40°C/+60°C

PERFORMERS: Pilot Plant, MST Department

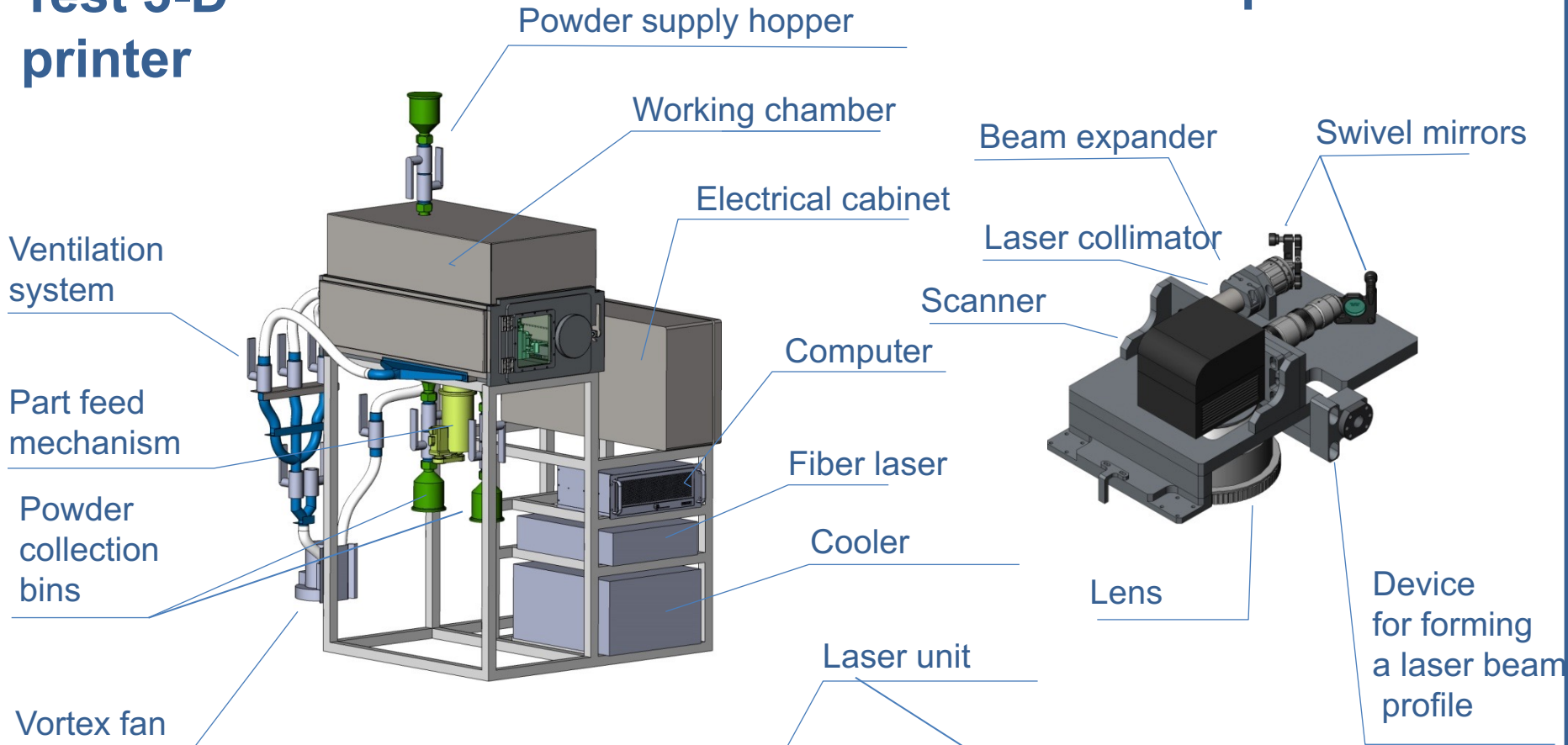
**Purpose: video quality control of marking plastic products according to the set criteria.
The technology of "technical vision" is used.
Quality control is carried out in real time by conveyor technology.**



Laser 3-D printer (new development of the Pilot Plant)

Test 3-D printer

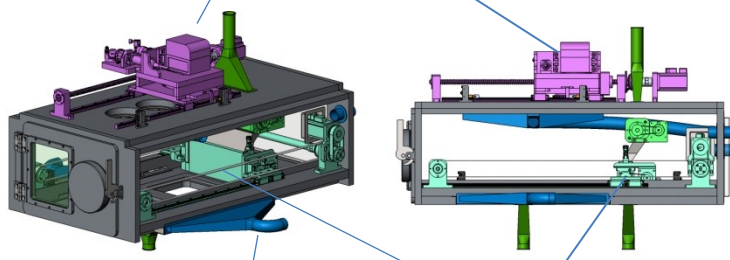
Optical unit



Working chamber

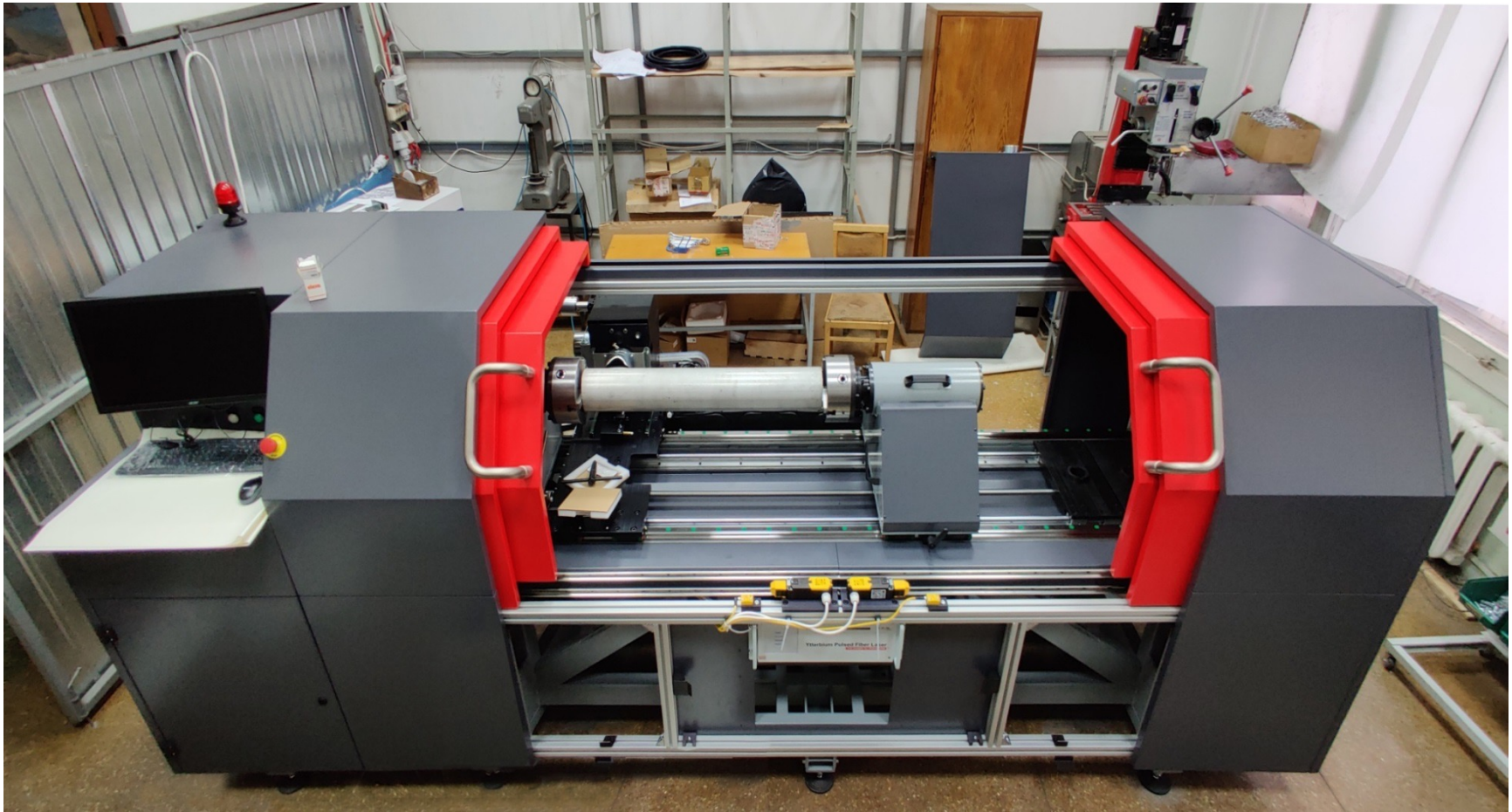
Powder dosing mechanism

Powder supply mechanism



Laser technology complex for high-resolution engraving of rotary cliches ¹²

The complex was manufactured by a pilot plant and scientists of NURE on the order of the company "U-Plast Bel" LLC (Republic of Belarus)



Commercialization of scientific developments - entering the world market¹³

DLM Series laser units developed by the NURE Pilot Plant and brought to the level of finished products have found their demand on the world market

Purpose: marking text and graphic information on the surface of plastic products (drawings, text, barcode, QR code, promo code)



Decoration of plastic products, marking to protect against counterfeiting

Currently, two new contracts have been signed and are being implemented for the manufacture and supply of DLM laser installations for Pelliconi Florida (USA) The estimated cost of the pilot plant works is 5.7 million UAH.

Implementation of DLM-DC PRO-N installation at Alucaps Mexico

The equipment is delivered to the Baltic States, Mexico, Kazakhstan, the Czech Republic, Switzerland, Belarus.

DLM Series laser technology complex (development of a Pilot Plant)



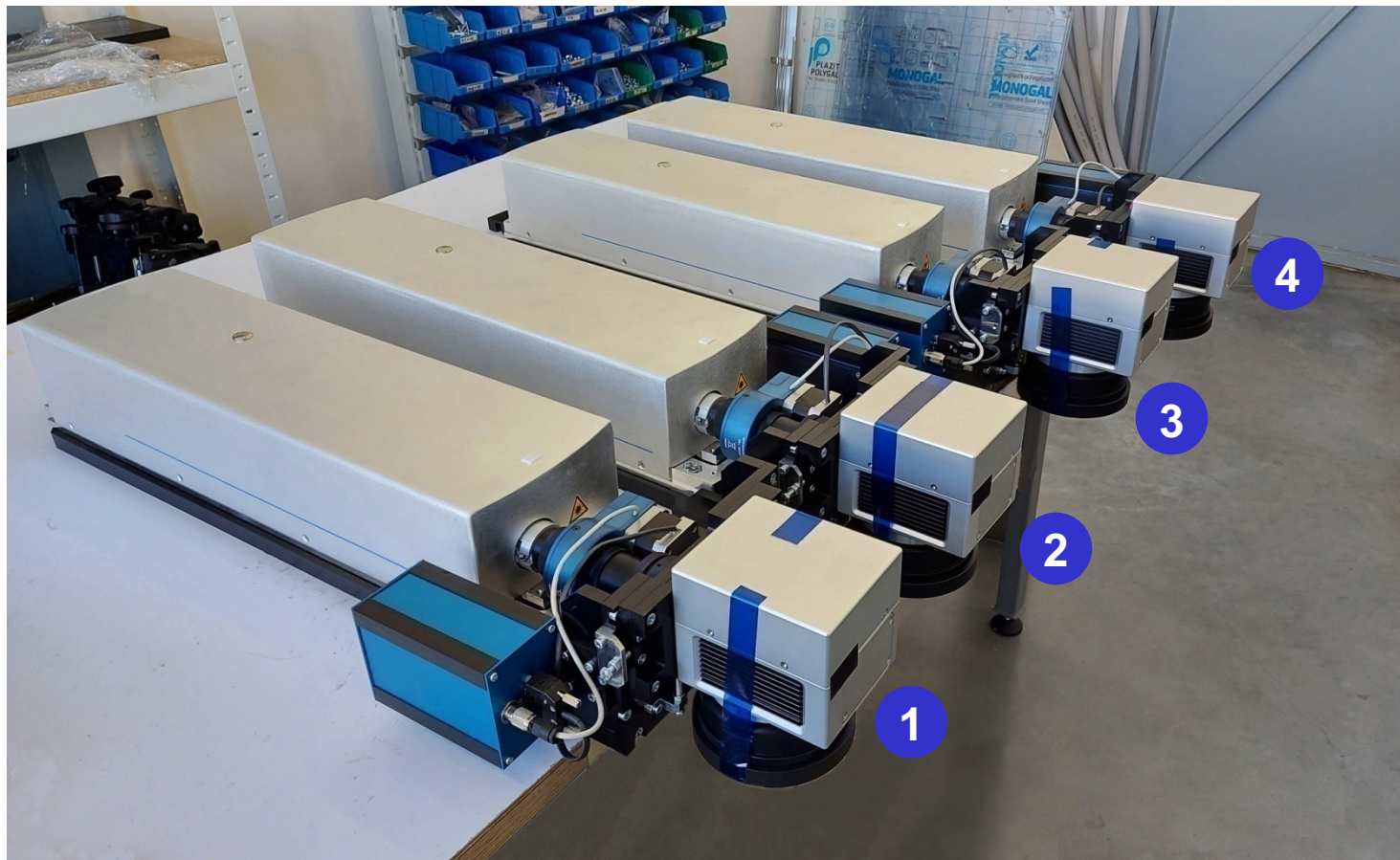
Production of a laser technological complex at the NURE Pilot Plant by order of Pelliconi Co. (USA)



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Laser ultraviolet emitters (developed by the Pilot Plant and Research Institute of Laser Technologies)



Manufactured at the NURE Pilot Plant by order from Pelliconi Co (USA)

III. International cooperation



NURE

- ✓ has 23 mobility projects within KA107 Erasmus+
- ✓ implemented 10 EU projects of Erasmus + KA2 CBHE
- ✓ provides double degree programmes with Finland, France, Netherlands, Slovakia Sweden and Poland
- ✓ represents Ukraine in Management Committees of 6 COST program Actions (under Horizon 2020)
- ✓ H2020 projects
- ✓ NATO Science for Peace and Security Programme approved the Project G5511 "Cyber Defence for Intelligent Systems"
- ✓ AUF projects and francophones cooperation
- ✓ CRDF & US Department of State projects
- ✓ Bilateral research projects: China, Germany, Lithuania, France etc.



International projects, grants (2018-2022)



UNICOM - "University Third Mission - Communities : Strengthening cooperation" (2023-2026), Maksym Kolisnyk
dComFra - «Digital Competence Framework for Ukrainian Teachers and Other Citizens» (2018-2021) Igor Grebennik, Prof.;
WARN - «Academic Response to Hybrid Threats» (2019-2022) Maryna Golovyanko, Assoc. Prof., Svitlana Gryshko Assoc. Prof.
«New technologies of label-free of electrochemiluminescent detection of biologically important fluorescent amines» (2019-2020) Yuri Zholudov, Assoc. Prof.



NATO: «Cyber Defense for Intellectual Systems», (2018-2021) Maryna Golovyanko, Assoc. Prof., Svitlana Gryshko Assoc. Prof.

Erasmus + Jean Monnet



«European Union Digital Single Market: Policy, Integration and Harmonization», (2019-2022) Maksym Kolisnyk, Assoc. Prof.
5 Jean Monnet modules



«3D-Model. Introduction of rapid prototyping technologies for modeling the upper respiratory tract in normal and in some pathologies» (2019-2021) Oleg Avrunin, Prof.



«Deep Intelligent Optical and Radio Communication Networks» MSCA-RISE-2020 Valentin Filatov, Prof. (2021-2024)

Erasmus+ KA 1 Learning Mobility 2019

Poland	WYZSZA SZKOŁA GOSPODARKI W BYDGOSZCZ
Poland	UNIwersytet KAZIMIERZA WIELKIEGO
Poland	POLITECHNIKA WROCLAWSKA
Spain	UNIVERSIDAD DE JAEN
Spain	UNIVERSIDAD DE VALLADOLID
Turkey	ISTANBUL TEKNİK UNIVERSİTESİ
Turkey	ESKIŞEHİR TEKNİK UNIVERSİTESİ



Erasmus+ KA1 Learning Mobility 2020

Sweden	Linnéuniversitetet
France	Université de Limoges
France	ECAM-EPMI, Grande Ecole d'ingénieurs généraliste
Estonia	Tallinn University of Technology
Portugal	Universidade de Coimbra
Turkey	Istanbul Zaim University
Lithuania	Kaunas University of Applied Sciences
Austria	Carinthia University of Applied Sciences



- In 2019 NURE joined l'Agence Universitaire de la francophonie, one of biggest university network in the world
- National French language scientific competition (2019-2020)
- SRI project NUMECO (2021-2022)

“Cyber Defense for Intellectual Systems”,

Contract #G5511

- Duration : 36 months.
(24.05.2018 – 23.05.2021)
- Technical University – Sofia, BG
- ECAM-EPMI (Graduate School of Engineering), FR,
 - University of Jyvaskyla, FI,
 - NURE, UA

The general project objective is to develop a Proof of Concept (PoC) of an operational tool for effective and real-time intelligent and resilient cyber defence in supply chains and logistics, modules.
<http://recode.bg/natog5511/>



*This workshop
is supported by:*

The NATO Science for Peace
and Security Programme



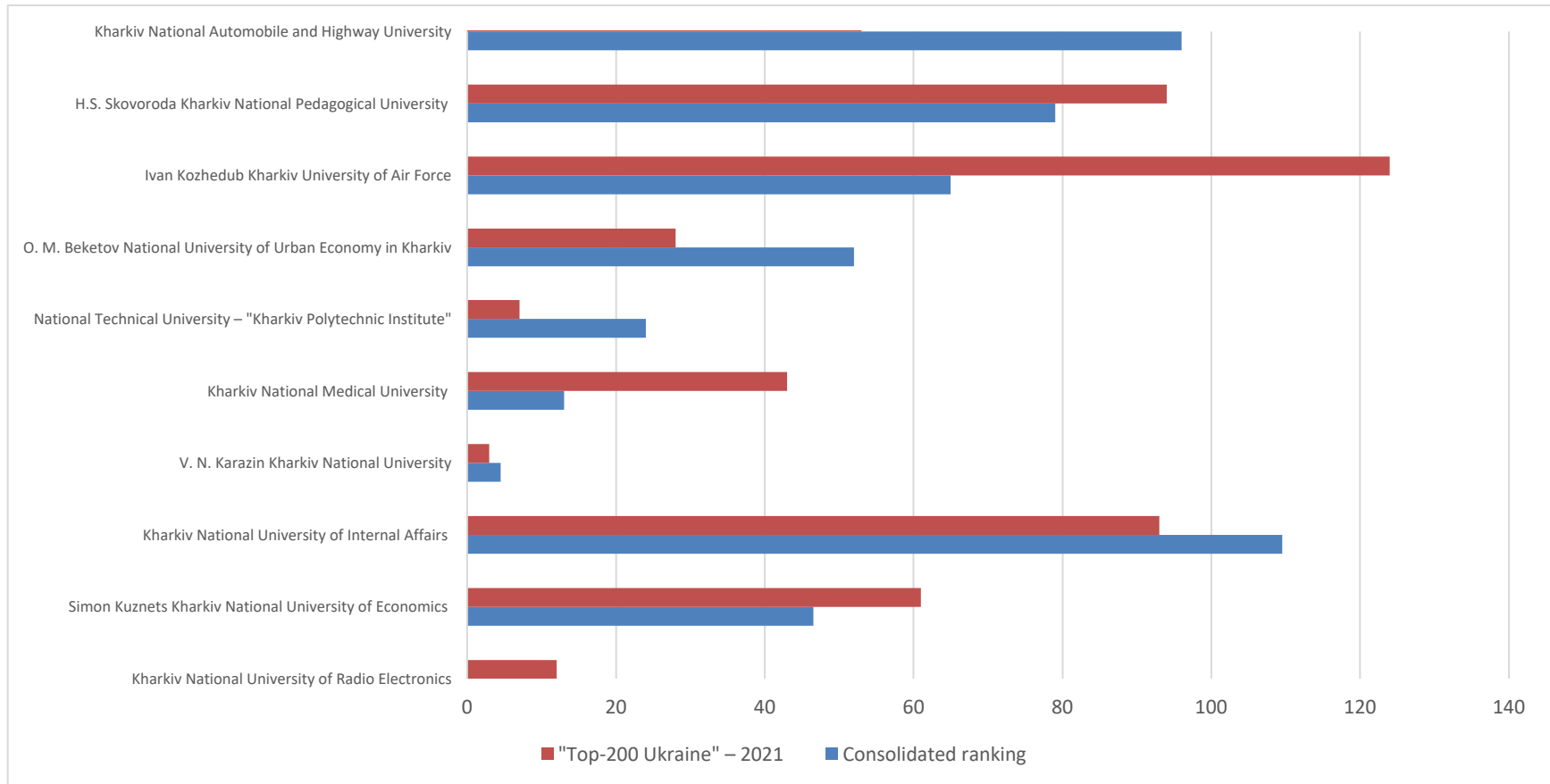
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IV. Ranking indicators

Third University Mission of 10 selected Kharkiv HEI

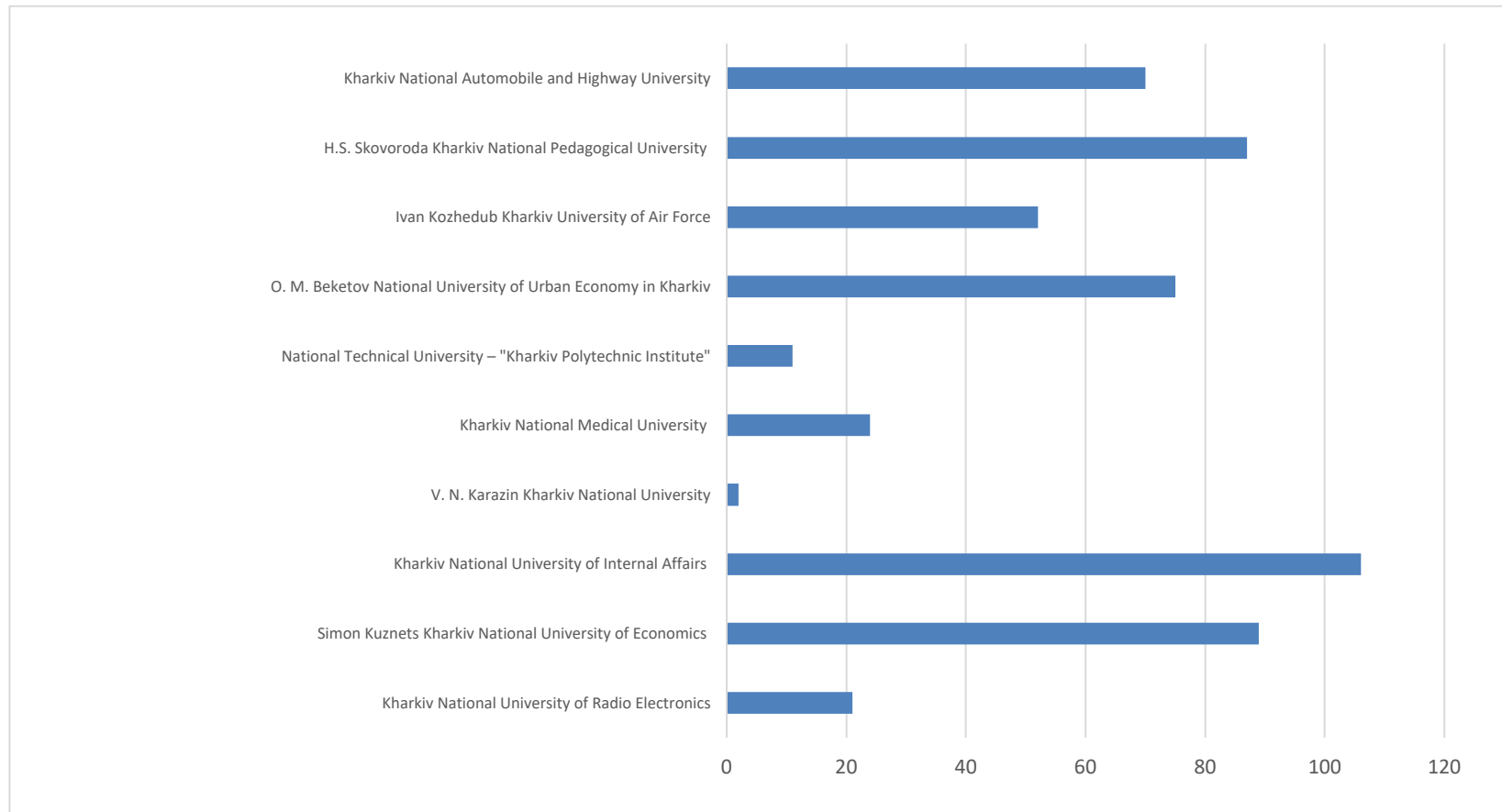
Kharkiv universities ranking comparison



Source: **THIRD MISSION OF HIGHER EDUCATION: CASE OF UKRAINIAN UNIVERSITIES //**

The 14th international scientific conference "New Challenges in Economic and Business Development – 2022: Riga, Latvia, May, 2022. Riga: University of Latvia, 2022

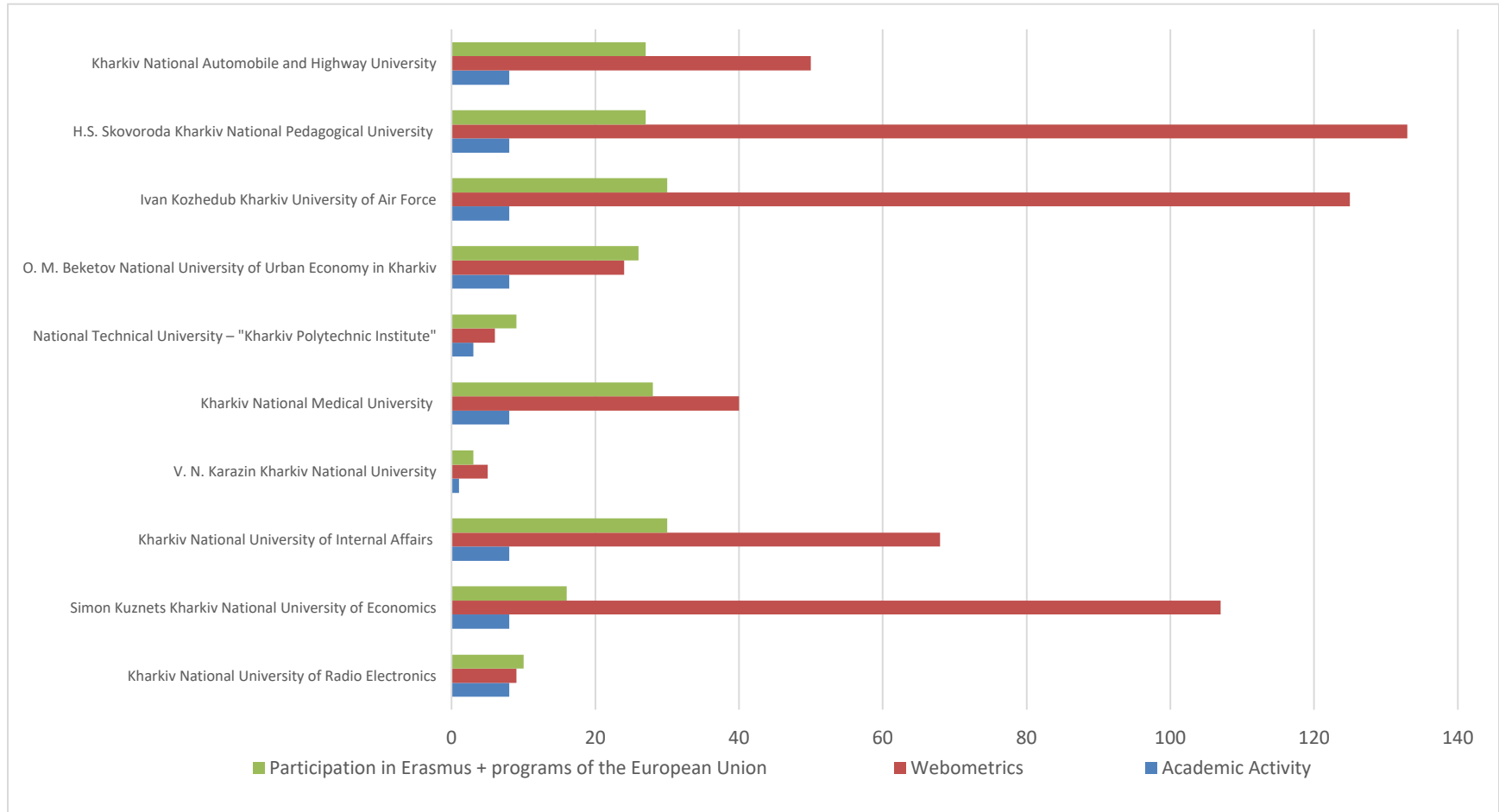
Kharkiv universities ranking by Scopus criterion



Source: **THIRD MISSION OF HIGHER EDUCATION: CASE OF UKRAINIAN UNIVERSITIES //**

The 14th international scientific conference "New Challenges in Economic and Business Development – 2022: Riga, Latvia, May, 2022. Riga: University of Latvia, 2022

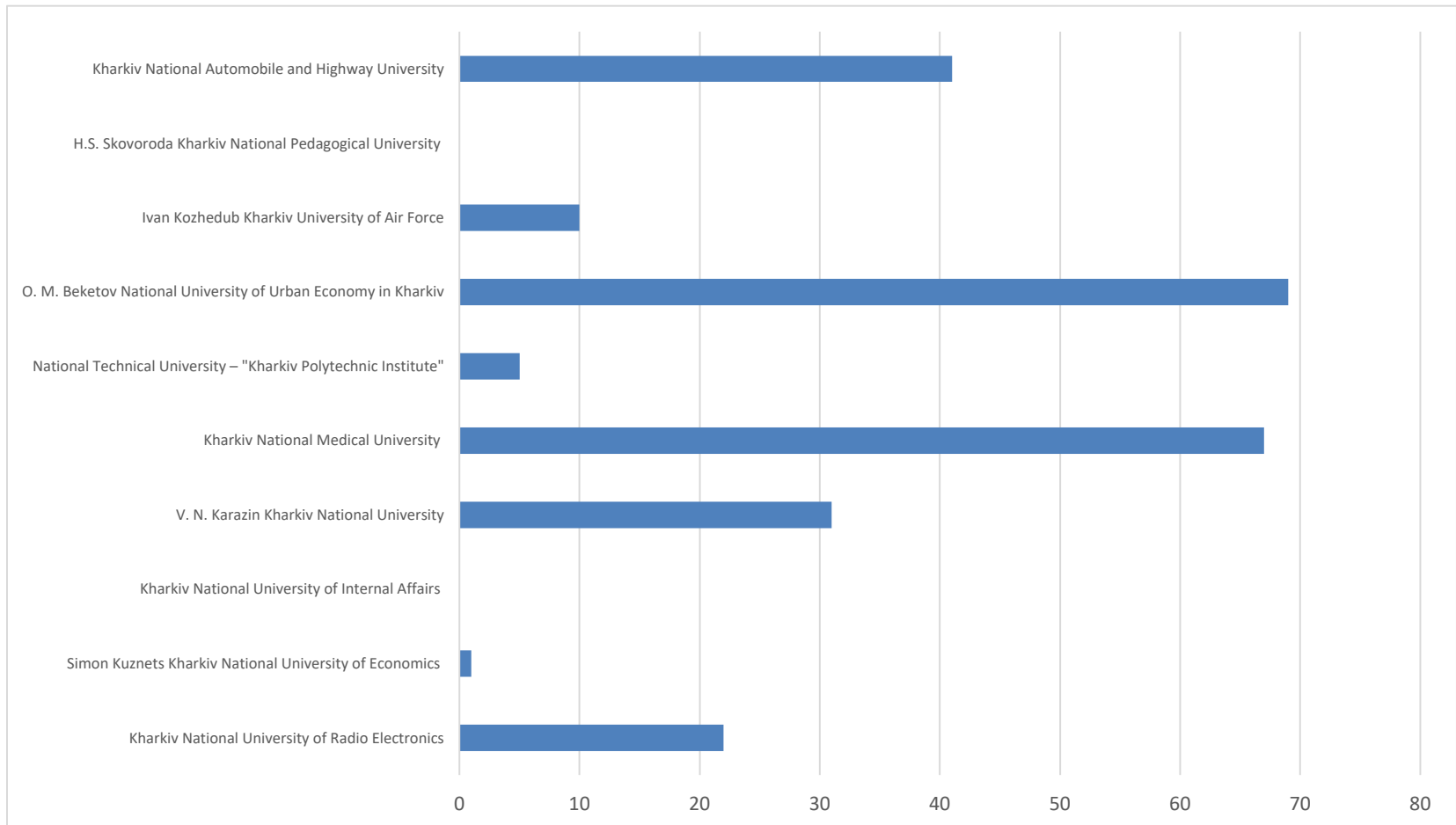
The most significant impact : criteria of Academic Activity, Webometrics, Participation in Erasmus + programs of the EU



Source: **THIRD MISSION OF HIGHER EDUCATION: CASE OF UKRAINIAN UNIVERSITIES //**

The 14th international scientific conference "New Challenges in Economic and Business Development – 2022: Riga, Latvia, May, 2022. Riga: University of Latvia, 2022

Kharkiv universities ranking by business development criterion



Source: **THIRD MISSION OF HIGHER EDUCATION: CASE OF UKRAINIAN UNIVERSITIES**

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The 14th international scientific conference "New Challenges in Economic and Business Development – 2022: Riga, Latvia, May, 2022, Riga: University of Latvia, 2022

Some conclusions

Contingent results in the sense of third university mission.

- **The common feature is the involvement in expertise of national and regional strategic documents.**
- **The HEIs actively improve innovation infrastructure to offer new opportunities for students, professors and business. It is of utmost importance to include concrete outcomes in evaluation criteria because they better reflect the development of knowledge economy.**
- **The latter stimulates universities to make use of human and structural capital to attain regional development goals conjointly with public bodies, local authorities, experts and society.**
- **Current rankings rather focus on indicators of “traditional” university activities. Such an approach does not reflect evolving role of HEIs in the innovation and business ecosystem development.**



**Thank you for your
attention!**

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