



# DEVELOPMENT STRATEGY OF THE UNIVERSITY OF ZAGREB **FACULTY OF ORGANIZATION AND INFORMATICS** 2025 - 2029

**Impressum:**

Development Strategy of the University of Zagreb Faculty of Organization and Informatics for the Period 2025–2029

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## Content

Foreword.....	2
Fundamental principles.....	5
Methodology for developing the Development Strategy of the University of Zagreb Faculty of Organization and Informatics for the period 2025–2029 .....	8
Strategic positioning of UNIZG FOI study programs in the field of informatics (STEM interdisciplinary field) .....	13
Strategic positioning of UNIZG FOI study programs in economics (Economics of Entrepreneurship) .....	18
Future expectations and focus on technologies in entrepreneurship .....	19
Development Strategy of the University of Zagreb Faculty of Organization and Informatics.....	20
Strategic areas of the Development Strategy of the University of Zagreb Faculty of Organization and Informatics .....	20
Review of the existing strategic areas and trend analysis .....	22
Strategic development areas of the University of Zagreb Faculty of Organization and Informatics .....	22
Information systems of the future, the internet of everything, and related disciplines.....	23
Big data analytics and artificial intelligence.....	24
Economics of entrepreneurship and innovation management.....	24
Organizational and business process management .....	25
Educational technologies.....	26
Information security and open systems .....	27
Core values of the University of Zagreb Faculty of Organization and Informatics.....	27
Strategies based on the initial situation in the three core areas of activity .....	29
Mission and vision of the University of Zagreb Faculty of Organization and Informatics .....	33
Goals, activities, and metrics.....	34
Strategic guidelines in digital transformation.....	40
Strategic guidelines for scientific and research activities .....	43
Strategic guidelines for the internationalization of teaching and research.....	46

## Foreword

The Development Strategy of the University of Zagreb Faculty of Organization and Informatics (hereinafter: UNIZG FOI or the Faculty) for the period 2025–2029 represents the overarching strategic document aimed at ensuring that the Faculty, as a higher education and research institution, continues to foster positive change through its teaching, research, and project activities, and to contribute to the development of a (digital) society. This Strategy for the period 2025–2029 builds upon the previous Development Strategy of UNIZG FOI for the period 2018–2024.

For the upcoming five-year period, new goals and metrics have been defined in alignment with the Faculty's development policies, technological advancements, research achievements of its staff and the institution, as well as changes in the academic and social environment. With this approach, the Strategy is adapted to external demands and shifts, ensuring that UNIZG FOI remains among the leading higher education institutions in Croatia and the region, with a clear plan for implementing all aspects of technology and innovation in teaching, research, and operations in order to continue educating future professionals ready for the jobs of the future and the challenges of a dynamic labour market.

Through this document, the Faculty continues to plan the development of study programs and areas of activity along two verticals – the informatics vertical (within the field of Social Sciences, branch of Information Sciences) and the economics vertical (within the field of Social Sciences, branch of Economics, subfield of Entrepreneurship Economics). These foundations were originally established in the first Development Strategy of the Faculty for the period 2010–2014, which introduced indicators for monitoring outcomes in key areas of activity, thus initiating a path toward systematic enhancement of its teaching and research quality.

A significant step forward was made with the Development Strategy for the period 2019–2023, which was extended to include 2024 and set new standards in organization and planning. This strategy not only enabled a strategic approach to the growth and development of UNIZG FOI, but was also crucial in establishing new development guidelines and strategic objectives. Based on this Strategy, research laboratories were established, becoming key centres of research excellence at UNIZG FOI.

Since its establishment, the University of Zagreb Faculty of Organization and Informatics has positioned itself as a leading higher education and scientific institution in Croatia in the field of Information Sciences, within the STEM interdisciplinary area, as well as in the fields of Economics and Entrepreneurship. The Faculty strives for excellence in teaching, innovation in teaching and learning, cooperation with industry and business partners, and is increasingly focused on internationalization. In addition to teaching excellence, UNIZG FOI achieves excellence in research by building a strong foundation for the development of social sciences in the areas of Information Sciences and Economics. This is evidenced by numerous research projects and papers published

in prestigious international journals and presented at international research conferences. Moreover, excellence is being achieved in other areas and disciplines in which UNIZG FOI faculty members are active, including the fields of Computer Science, Mathematics, and Educational Sciences, further confirming the interdisciplinarity and high quality academic work of the faculty members.

In the future, it will be important to continue improving the quality of scientific publications, to define priorities in project applications related to recognized strategic areas, to contribute to open science, and to strengthen the interdisciplinarity of research work.

Despite challenges related to the high number of overtime teaching hours—which to some extent affects research productivity—UNIZG FOI has successfully passed the re-accreditation procedures for higher education institutions conducted by the Agency for Science and Higher Education (AZVO), thus confirming compliance with the provisions of the Act on Quality Assurance in Higher Education and Science (*Official Gazette*, No. 151/22<sup>1</sup>) and the *Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG)*<sup>2</sup>. Taking into account the recommendations of the Accreditation Council in the 2019 re-accreditation of the University of Zagreb Faculty of Organization and Informatics, UNIZG FOI has made great efforts to increase the relevance, quality, and effectiveness of its study programs. It is also worth noting that, based on annual analyses of the number of relevant research publications among the University of Zagreb's social sciences constituents, as well as among other faculties in Croatia, UNIZG FOI has, for several years in a row, ranked among the top 30% faculties in the field of Social Sciences in terms of the number of relevant research publications.

Furthermore, UNIZG FOI systematically adapts its study programs and business processes to align with international standards and the guidelines of organizations such as EFMD (European Foundation for Management Development) and ASIIN (Accreditation Agency for Degree Programs in Engineering, Informatics/Computer Science, Natural Sciences and Mathematics). In 2024, EFMD accredited the university graduate program *Entrepreneurial Economics*, confirming the high quality of education aligned with top European standards. The future development plan of UNIZG FOI is focused on further improvements in quality in accordance with the provided recommendations. In early 2025, UNIZG FOI plans to initiate the ASIIN accreditation process for the university undergraduate study program *Information and Business Systems*, thereby further confirming its commitment to excellence in informatics education and enhancing the international recognition and competitiveness of its study programs in the field of informatics.

Through the strengthening of lifelong learning culture, innovation and digitalization of its business, research popularization, and efforts to achieve equality and equity at the institutional level, UNIZG FOI contributes to strengthening social responsibility—which, along with teaching and research,

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<sup>1</sup> [https://narodne-novine.nn.hr/clanci/sluzbeni/2022\\_12\\_151\\_2330.html](https://narodne-novine.nn.hr/clanci/sluzbeni/2022_12_151_2330.html)

<sup>2</sup> *The Standards and Guidelines for Quality Assurance in the European Higher Education Area*  
<https://www.eua.eu/publications/policy-input/standards-and-guidelines-for-quality-assurance-in-the-european-higher-education-area-esg.html>

represents the third key area of its mission. Cooperation with industry has always played a vital role in the Faculty's development and today, UNIZG FOI is widely recognized for its intensive and continuous collaboration with the IT industry.

Currently, the Faculty has a database of more than 500 business partners connected to UNIZG FOI through student internships, guest lectures, intensive programs, project-based teaching, pre-incubation program activities, participation in workshops, and joint projects, ensuring a two-way knowledge transfer.

The strong connection between academia and industry has led to the establishment of a centre dedicated to supporting students, developing their careers, and connecting them with businesses. Additionally, the Faculty has a centre that continuously innovates and develops new systems to support teaching and research. UNIZG FOI is recognized for developing information systems that support the digitalization of business processes and the digital transformation of the Faculty, and many other constituents of the University of Zagreb also use these systems. Today, UNIZG FOI is focused on developing Croatia's first academic pre-incubator through the establishment of the *Center for Pre-incubation in Smart Industry*, which aims to become a regional hub that gathers resources, knowledge, and experts to support the development of innovative ideas and technologies. The project's purpose is to strengthen institutional activities in the early recognition and development of innovative entrepreneurial ideas, digital and entrepreneurial knowledge, and smart technologies, as well as to support their development and commercialization. This initiative aims to demonstrate the Faculty's commitment to continuous learning and adaptation to change, always striving for progress and development.

Interdisciplinarity represents a key competitive advantage of the University of Zagreb Faculty of Organization and Informatics. It is not just a theoretical guideline but is actively embedded in all curricula, research projects, and collaborations with other institutions and industry. However, to maintain a strong position and recognition in education and research, UNIZG FOI must systematically work on attracting the best talent and strengthening human resources for scientific research, as well as improving the capacities of its professional services. The Faculty's *Quality Assurance Committee* has prepared a set of recommendations for recruiting associates, based on which the Faculty Council has established selection criteria for assistant positions. This marks the first step in defining employment criteria for academic staff. It is crucial to identify top talents and direct their skills toward the long-term development of the Faculty. Retaining talented individuals is essential, but additional efforts must also be made to attract the most promising members of future student generations. Therefore, it is important for every stakeholder to find their role and purpose in implementing the activities and guidelines outlined in the Development Strategy.

Given that the application of digital technologies has reached unprecedented level, Information Sciences now define modern society, creating new business models and fostering entrepreneurial initiatives. This phenomenon presents a challenge for higher education, as the rapid pace of technological and innovative change increases the need for fast knowledge acquisition. Various

forms of non-formal and informal education are raising expectations for the quality and efficiency of education.

General societal circumstances and public funding mechanisms alone are not sufficient for significant progress. The key development factors include human capital, interdisciplinarity, the reputation of UNIZG FOI, high graduate employability, and long-standing networks with business and academic partners. These development areas will be crucial for achieving the strategic objectives over the next five years. The goals, activities, and metrics within UNIZG FOI's three main areas of activity (teaching and students, science and research, and innovation and social contribution) are clearly outlined in the Development Strategy guidelines for the period 2025–2029.

The Faculty faces a period of both challenges and opportunities. With the support of all stakeholders—students, staff, researchers, and industry partners—the goals set in this Development Strategy can be successfully achieved, further solidifying UNIZG FOI's position as a recognized and high-quality higher education and research institution, both nationally and internationally.

## **Fundamental principles**

The University of Zagreb Faculty of Organization and Informatics operates within the Social Sciences, primarily in two scientific fields—Information Sciences and Economics. However, through a holistic and interdisciplinary approach to addressing challenges, it also encompasses other scientific areas, including Computer Science, Mathematics, and Educational Sciences. Interdisciplinarity is integrated into every aspect of UNIZG FOI's activities, which is its key strength making UNIZG FOI unique in the Croatian higher education landscape.

At the undergraduate level, UNIZG FOI offers one university study program in the field of Information Sciences—Information and Business Systems (IPS)—which includes four modules: Software Development, Artificial Intelligence in Business, Networked Systems and Computer Games, and Business Systems Analysis and Design. In the field of Economics, UNIZG FOI offers the undergraduate university study program Economics of Entrepreneurship (EP).

At the graduate level, UNIZG FOI offers four university study programs in the field of Information Sciences—Information and Software Engineering (IPI), Business Systems Organization (OPS), Databases and Knowledge Bases (BPBZ), and Informatics in Education (IuO)—as well as one graduate university study program in economics—Economics of Entrepreneurship (EP). In October 2024, the Economics of Entrepreneurship program received the prestigious EFMD accreditation for a period of three years. This international accreditation confirms the high quality of the teaching processes and positions UNIZG FOI among the leading higher education institutions globally. With this accreditation, UNIZG FOI has gained recognition for the quality of its study program and expanded opportunities for academic collaboration with top universities and institutions worldwide.

In addition to university programs, UNIZG FOI offers a professional undergraduate program in information sciences—Information Technology and Business Digitalization (ITDP).

At the postgraduate level, UNIZG FOI runs the Doctoral Program in Information Sciences (IZ) and co-runs the Doctoral Program in Digital Innovation Management (UDI) in collaboration with the Faculty of Economics & Business, University of Zagreb. UNIZG FOI independently offers two specialist university programs: Business Systems Management (MPS, in Economics) and Information Systems Security and Audit Management (USIRIS, in Information Sciences). Additionally, in cooperation with the Faculty of Humanities and Social Sciences and the University Computing Centre (Srce), UNIZG FOI offers specialist university program E-learning in Education and Business (EUOP, in Information Sciences).

Furthermore, UNIZG FOI is an institutional co-holder of several other university programs, including undergraduate and graduate military studies Military Leadership and Management and Military Engineering at the Croatian Defense Academy "Dr. Franjo Tuđman", as well as the Public Administration specialist program at the University of Zagreb.

The Faculty operates at three locations: the historic Jesuit Monastery building (FOI 1), the former Music School building (FOI 2), and the newly renovated Villa Oršić (FOI 3). UNIZG FOI owns the FOI 1 and FOI 2 buildings, while FOI 3 has been granted for use by the City of Varaždin for the period of 30 years. Additionally, the Faculty rents spaces in Zagreb and Sisak, where the Information Technology and Business Digitalization professional undergraduate program is delivered.

We are particularly proud of the historic FOI 1 building from the 17th century, located in the main square of Varaždin, where most teaching takes place. The preservation of this building and its cultural heritage is of great importance to UNIZG FOI. We also take pride in the renovation of Vila Oršić (FOI 3), which was largely funded by business partners, primarily from the IT sector. However, current spatial capacities do not meet development needs and represent a limiting factor for strategic growth. Therefore, one of the key objectives is to construct a new building on the FOI 2 site that will meet modern higher education standards. Along with ongoing efforts to secure funding for the renovation of FOI 2, one of the most important strategic infrastructure and development projects in 2025 is the planned construction of the Regional Centre for Pre-incubation in Smart Industry. This initiative is being developed in collaboration with the City of Varaždin, with plans to use Integrated Territorial Investments (ITI) funding to construct a facility in the surrounding plot of Vila Oršić. Besides the physical structure, the content and activities of the centre are equally crucial, and there are already project applications and initiatives aimed at developing activities within the Regional Centre for Pre-incubation in Smart Industry.

Financially, UNIZG FOI faces challenges and limitations similar to those affecting the entire public higher education system in Croatia. The current funding model destabilizes its business, as the state budget allocation is insufficient to maintain regular activities, let alone support strategic development and growth. Consequently, UNIZG FOI heavily relies on projects as a key source of



funding to ensure adequate staffing and enable further development and innovation. While this funding approach presents challenges, it also offers opportunities for strengthening research capacities and fostering international collaboration through projects and research initiatives.

One of the key factors contributing to scientific productivity at UNIZG FOI is national and international project engagement. On average, the Faculty participates in 20 to 30 projects annually, with 70% to 80% of UNIZG FOI staff involved. However, despite the high number of projects, a clear prioritization strategy for selecting potential projects has yet to be established. The lack of a unified focus in project activities results in challenges related to resource coordination, synergy among research teams, and the overall impact of research outcomes.

Scientific productivity at UNIZG FOI grows continually, as evidenced by the increasing number of published papers in prestigious journals, the rising number of project applications, and the Faculty's overall visibility as a high-quality research institution. Additionally, the growing number of citations of UNIZG FOI faculty members' research papers confirms the relevance and impact of their research in the international academic community, further strengthening the Faculty's reputation and recognition. According to data from the University of Zagreb, based on Google Scholar profiles, UNIZG FOI researchers rank among the top 25% most cited scientists at the University. One researcher is in the top 5%, two researchers are in the top 10%, while ten UNIZG FOI researchers are in the top 25% of the most cited scientists at the University of Zagreb (Source: Google Scholar profiles; University of Zagreb Research Office, 2023).

To further promote scientific excellence, UNIZG FOI offers various financial incentives. These incentives emphasize publications in internationally recognized, high-ranking journals, which enhances the visibility and reputation of UNIZG FOI. Additionally, financial incentives are provided for applying to competitive international and national research projects. Through such initiatives, UNIZG FOI aims to strengthen its researchers' capacities and improve the scientific infrastructure.

Moreover, the mobility of faculty and students to partner universities in Europe and worldwide has increased, contributing to the strengthening of international scientific cooperation and research activities. However, there is a noticeable lack of applications for the most competitive project funding programs, such as those from the Croatian Science Foundation and Horizon Europe, highlighting the need to set precise priorities when selecting potential projects and ensuring a unified focus on the most critical funding opportunities. While project collaboration with the IT sector is strong, the success of specific projects often depends on the conditions of particular funding lines.

At UNIZG FOI, quality assurance processes are carried out with the support of the Quality Assurance Committee, following the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG). The Faculty strives to ensure that student qualifications, learning outcomes, and study experiences remain central to UNIZG FOI's mission, despite challenges such as increasing labour market demands, rapid changes in education, a high number of overtime teaching

hours, and complex, lengthy procedures, such as curriculum revision processes. Nevertheless, UNIZG FOI continuously updates its study programs every few years, improves teaching methods (Work-Based Learning, Project-Based Learning) and enhances student support through workshops, guest lectures, Career Week, internships, and more—always keeping track of market trends and demands. Special attention is given to developing competencies that enhance students' competitiveness both nationally and internationally (employer-led academies, short intensive programs). This process includes adapting curricula in accordance with the Croatian Qualifications Framework (HKO) and implementing internships (the Informatics study program includes internships at the undergraduate level—job shadowing—and at the graduate level, while the Economics of Entrepreneurship study program integrates internships at the graduate level). These internships enable students to acquire practical knowledge and skills.

In the context of Environmental, Social, and Governance (ESG) standards, UNIZG FOI is committed to strengthening the green transition, social responsibility, and transparent governance. The Faculty ensures that its projects and activities align with sustainability principles while promoting innovation. Sustainability efforts are integrated into all aspects of the Faculty's operations, from study programs to research projects, with the goal of increasing societal impact and preparing students for future challenges and job markets. Integrating ESG principles into both UNIZG FOI verticals (Informatics and Economics study programs) is essential for educating future professionals capable of addressing sustainability challenges, digital transformation, the green transition, and corporate social responsibility. By doing so, UNIZG FOI aims to enhance student employability in the evolving digital and green job markets.

## **Methodology for developing the Development Strategy of the University of Zagreb Faculty of Organization and Informatics for the period 2025–2029**

For the preparation of the Development Strategy of the University of Zagreb Faculty of Organization and Informatics for the period 2025–2029, a special Committee was formed, consisting of representatives from various Faculty stakeholders. The committee met regularly and operated according to a pre-defined methodology, ensuring a systematic and transparent approach to planning. Below are the key methodological steps undertaken to develop this strategy:

**1. Review of the existing UNIZG FOI Development Strategy:** The first step involved reviewing the *UNIZG FOI Development Strategy 2019–2024* by analysing achievements and progress toward planned objectives. The conclusions of this review are summarized in the chapter *Review of Existing Strategic Areas and Trend Analysis*.

**2. Defining the purpose, principles, and methodology of strategy development:** The purpose of the new strategy was discussed, and the principles and methodology for its development were agreed upon. A strategic framework was defined by mapping relevant strategic documents, which are described in the chapter *Strategic Framework for the Next Period*.

**3. Defining the strategic framework by mapping documents and redefining the vision and strategic areas:** After mapping strategic documents, guidelines and trends both within and beyond UNIZG FOI were analysed to assess their potential impact on the Faculty's strategy in the coming period. Based on the review of the previous strategy, the Faculty's mission and vision were revised, providing direction for strategic positioning over the next five years. The Faculty's three key strategic areas were defined: 1. Teaching and Students, 2. Science and Research, 3. Innovation and Social Contribution. These areas were assessed based on research activity (scientific publications, project collaboration, conferences, summer schools, competitions), visibility and recognition, industry collaboration, and internationalization.

**4. Analysis of development needs and potential included:**

a. State-of-the-art analysis: A *SWOT analysis* was conducted for the three core strategic areas (*Teaching and Students, Science and Research, and Innovation and Social Contribution*). This analysis evaluated strengths, weaknesses, opportunities, and threats, considering the questions about current and future state.

b. Development of strategic topics and metrics: After the SWOT analysis, *corrective* and *aggressive* strategies were identified for each strategic area using a pairing process method.

**5. Planning and designing priorities and objectives based on development needs and potential:**

Each corrective or aggressive strategy referenced a SWOT element and described measures to leverage or mitigate them. Measures were designed using criteria related to individual or collaborative scope, cognitive or emotional focus, and technological or organizational impact. By grouping related strategies and activities, a set of objectives was developed for the three main strategic areas (Teaching and Students, Science and Research, and Innovation and Social Contribution) and actions for corrective and aggressive strategies were identified. Corrective strategies aimed to eliminate or reduce the impact of identified weaknesses and threats, while aggressive strategies focused on exploiting opportunities and leveraging strengths.

**6. Selection and development of priority measures and activities:** The set of objectives, activities, and metrics defined in the previous step is presented in this document. Once the Strategy is adopted by the Faculty Council, it will be implemented through an Action Plan, which will specify activities based on available resources. The implementation will align with UNIZG FOI's vision and prioritize the following: strengthening research and academic reputation, enhancing internationalization and collaboration, strengthening ties with industry and the labour market, Improving infrastructure and support for research, promoting and increasing visibility of scientific activities with a focus on responsibility, excellence, and sustainability.

**7. Defining the monitoring and evaluation framework:** After adoption and implementation through the Action Plan, mechanisms for measuring progress toward strategic goals will be established. Key monitoring activities will include early detection of risks, tracking strategy execution, continuous evaluation, and taking corrective actions as needed. Effective mechanisms for data collection,

result tracking, reporting, and evaluation will be implemented to ensure strategic management effectiveness. By analysing achieved target values and using regulatory management instruments, UNIZG FOI will maintain focused organizational development and fulfil its societal role.

## Alignment with Key Strategic Documents

The Development Strategy of the University of Zagreb Faculty of Organization and Informatics (UNIZG FOI) for the period 2025–2029 is aligned with current and relevant strategies at the national and EU levels, as well as with strategic documents of the University of Zagreb and institutional policies. The following documents serve as the foundation for the Strategy:

### a. Institutional:

1. Statute of the University of Zagreb Faculty of Organization and Informatics
2. Development Strategy of the University of Zagreb Faculty of Organization and Informatics for the period 2018–2023 (extended to 2024)
3. Guidelines for Scientific Research at the University of Zagreb Faculty of Organization and Informatics for the period 2021–2023
4. Gender Equality Plan of the University of Zagreb Faculty of Organization and Informatics
5. Framework for the Use of Artificial Intelligence Tools in Teaching, Student Work, and Research at the University of Zagreb Faculty of Organization and Informatics
6. Action Plan for Quality Improvement in Accordance with the Recommendations of the Expert Committee, 2022–2027
7. Quality Assurance Activity Plan for the Academic Year 2023/24

### b. University:

1. Open Science Policy of the University of Zagreb
2. Strategic Guidelines for the Digital Transformation of the University of Zagreb until 2032
3. Strategic Guidelines for Scientific Research at the University of Zagreb 2023–2026
4. Internationalization Strategy of the University of Zagreb 2014–2025
5. Student Support Development Strategy of the University of Zagreb 2013–2025
6. Study and Learning Strategy of the University of Zagreb 2014–2025
7. Quality Assurance System Strategy of the University of Zagreb (version from January 17, 2014, covering 2014–2025)

### c. National:

1. Act on Quality Assurance in Higher Education and Science (Official Gazette 151/22)
2. Act on Higher Education and Scientific Activity (Official Gazette 119/22)
3. National Development Strategy of the Republic of Croatia until 2030
4. Development Plan for Research Infrastructure in the Republic of Croatia 2023–2027
5. Smart Specialization Strategy until 2030
6. Digital Croatia Strategy until 2032

7. National Education System Development Plan until 2027
8. National Recovery and Resilience Plan 2021–2026 (NPOO 2021–2026)
9. Competitiveness and Cohesion Program 2021–2027 (PKK 2021–2027)
10. Integrated Territorial Program 2021–2027 (ITP 2021–2027)
11. Efficient Human Resources Program 2021–2027 (PULJP 2021–2027)

**d. International:**

1. Horizon Europe, the EU Research and Innovation Program 2021–2027
2. Strategic Plan for Research and Development 2020–2024, European Commission
3. Future of Education and Skills 2030, OECD
4. Catalyzing Education 4.0: Investing in the Future of Learning for a Human-Centric Recovery, World Economic Forum, 2022
5. The EU Artificial Intelligence Act (Regulation (EU) 2024/1689), Official Journal version of 13 June 2024
6. Top 10 Emerging Technologies of 2024, World Economic Forum, ([https://www3.weforum.org/docs/WEF\\_Top\\_10\\_Emerging\\_Technologies\\_of\\_2024.pdf](https://www3.weforum.org/docs/WEF_Top_10_Emerging_Technologies_of_2024.pdf))
7. Gartner Top 10 Strategic Technology Trends for 2025, Gartner, (<https://www.gartner.com/en/articles/top-technology-trends-2025>)
8. Education Strategy, Council of Europe 2024–2030
9. Digital Education Action Plan 2021–2027
10. Erasmus+ Program 2021–2027
11. Council Resolution on the Strategic Framework for European Cooperation in Education and Training towards the European Education Area and Beyond (2021–2030)
12. United Nations Sustainable Development Goals (UN SDGs), 2030 Agenda for Sustainable Development
13. Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG), ENQA, 2015
14. Decision on the Establishment of the Digital Decade Policy Program until 2030
15. European Declaration on Digital Rights and Principles for the Digital Decade (2023)
16. EU Cybersecurity Strategy, 2020
17. Declaration on the Future of the Internet, 2020
18. Future of Jobs Report 2025, World Economic Forum, ([https://reports.weforum.org/docs/WEF\\_Future\\_of\\_Jobs\\_Report\\_2025.pdf](https://reports.weforum.org/docs/WEF_Future_of_Jobs_Report_2025.pdf))
19. Ethics Recommendations for Artificial Intelligence, UNESCO, 2021, (<https://unesdoc.unesco.org/ark:/48223/pf00000381137>)
20. Data Act (Regulation (EU) 2023/2854), (<http://data.europa.eu/eli/reg/2023/2854/oj>)

Alignment with strategic documents at the institutional level, the University of Zagreb level, as well as at the national and international levels, is essential for the University of Zagreb Faculty of Organization and Informatics (UNIZG FOI) to ensure that its development corresponds to the current

needs of the academic community, society, and the labour market (economy). This alignment enables UNIZG FOI to maintain relevance and innovation in teaching, research, and community engagement, thereby contributing to the economic and social development of Croatia. Such alignment further strengthens UNIZG FOI's capacity to adapt to new challenges and achieve excellence within the international higher education landscape.

**The key elements of alignment with strategic documents include:**

**Ensuring the quality of the teaching process** – By aligning with legislative frameworks and quality standards such as the Act on Quality Assurance in Higher Education and Science and the National Education System Development Plan, as well as by ensuring compliance with the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG), UNIZG FOI continuously improves its teaching and research processes through the analysis and implementation of feedback from students and other internal and external stakeholders. The Faculty aims to establish a complete PDCA cycle (Plan-Do-Check-Act) to enhance the quality and efficiency of studies.

**Enhancing scientific excellence** – Through institutional guidelines for scientific research and the University of Zagreb Strategy, UNIZG FOI aims to provide high-quality support for research projects and reward authors who publish in high-ranking journals. Procedures for supporting scientific research have been implemented both institutionally through centres and offices, as well as in other forms of support for employees (e.g., training workshops, guest lectures, Time4Science, etc.).

**Digital transformation** – The aligning with the Strategic Guidelines for Digital Transformation of the University of Zagreb and the Digital Croatia Strategy is key to UNIZG FOI's adaptation to changes in the digital society. Through the development of its own applications and the implementation of new technologies in business and teaching processes—used by other University of Zagreb constituents as well—UNIZG FOI plays an important role in the further development of the digital society. The Faculty is agile in responding to the challenges and needs of students, staff, and the broader environment.

**Strengthening social responsibility and sustainability** – By adopting European and global initiatives, such as EU education goals and the Gender Equality Plan, as well as through projects aligned with the UN Sustainable Development Goals (SDGs), UNIZG FOI actively promotes socially responsible action, equality, gender inclusivity, and accessibility in education and science.

**Strengthening internationalization and global recognition** – By aligning with the Internationalization Strategy of the University of Zagreb and international frameworks such as the OECD's Future of Education and Skills 2030 initiative, UNIZG FOI aims to enhance its reputation and attractiveness in the international scientific and academic community.

## Strategic positioning of UNIZG FOI study programs in the field of informatics (STEM interdisciplinary field)

Traditionally, the University of Zagreb Faculty of Organization and Informatics (UNIZG FOI) has focused its activities on the scientific field of information sciences, specifically on the development of information systems. Information sciences, as a scientific discipline, are inherently linked to natural sciences, technology, engineering, and mathematics (STEM). The domain of information sciences is interdisciplinary within STEM, as it utilizes and develops approaches, methods, and techniques based on the interaction of STEM with business, organization, economics, education, and other fields. Information sciences are primarily research the application of information technology across all areas of human activity. The application of information sciences is limitless—through the development and implementation of information (sub)systems, it supports STEM as well as other fields of research, education, and human activity in general. Therefore, in addition to incorporating scientific, mathematical, technological, and engineering paradigms into its research methods, information sciences serve as a bridge for meaningful and user-oriented applications of these paradigms in information (sub)systems intended for various fields. The integration of the STEM approach with organization, business, and user needs has been formally recognized in the classification of sciences, where Field 5.04 – Information Sciences belongs to the social sciences and includes the following branches: 5.04.02 – Information Systems and Informatology, 5.04.06 – Organization and Informatics, 5.04.07 – Information and Software Engineering. The user-centric development of information sciences, which implements an interdisciplinary application of STEM to create value through information (sub)systems, will continue to evolve while considering the significant technological, economic, and social changes that have marked the past decade and are expected to accelerate during the period covered by this strategic document.

The informatics study programs at UNIZG FOI are classified as belonging to the STEM interdisciplinary area and have been recognized as such within the funding framework since 2018. Additionally, UNIZG FOI students have been eligible for STEM scholarships since 2017. These study programs are characterized by a STEM approach, which includes: a high proportion of practical work in small groups within computer laboratories, the development of analytical and critical thinking through computational, engineering, and scientific methods, an interdisciplinary approach that connects various scientific disciplines and fosters innovation. Graduates of informatics programs acquire knowledge and skills in software development, data analysis, artificial intelligence applications, and information systems management, all while relying on different STEM education disciplines.

The traditional positioning of informatics study programs at UNIZG FOI is based on the intersection of three key areas: Information Systems, Information Technologies and Software Engineering.

**Information systems (IS)** have been a strategic focus of UNIZG FOI since the early 1990s. Experts in this field actively participate in selecting and adapting technological platforms and infrastructure for specific applications, though they do not take responsibility for the technical aspects of

implementation. Information systems cover an entire horizontal area related to organization (see Figure 1). Informatics utilizes digital technologies while also developing methods for their application in organizations. This includes data analysis, information system development, security, business process automation, user adaptation, and digital service development.

The field of information systems involves planning, development, implementation, and maintenance of information systems. Its interdisciplinary nature requires a combination of knowledge and skills from various domains, including economics, organization, and management, while also encompassing technical aspects such as infrastructure and technical support.

**Information Technology (IT)** is a discipline focused on the application, deployment, and use of information and communication technologies (ICT), including systems, applications, platforms, and infrastructure. IT provides the foundation for the development of innovative solutions and enables the efficient use of ICT within organizations.

**Software Engineering (SE)** is a central area that deals with the systematic development of software solutions using advanced methods and reliable engineering techniques. It is based on modelling to achieve predefined quality, cost, and deadline objectives. Software engineering bridges theory and practice, aligning organizational goals and requirements with technical infrastructure and platforms.

At UNIZG FOI, software engineering is primarily focused on the development of business applications and human-centred software solutions, rather than on embedded systems, system software, or technical control systems.

The traditional positioning of informatics study programs at UNIZG FOI can be symbolically illustrated as in Figure 1, which depicts the synergy between information systems, technology, and engineering, forming a solid foundation for further development and innovation within the Faculty.

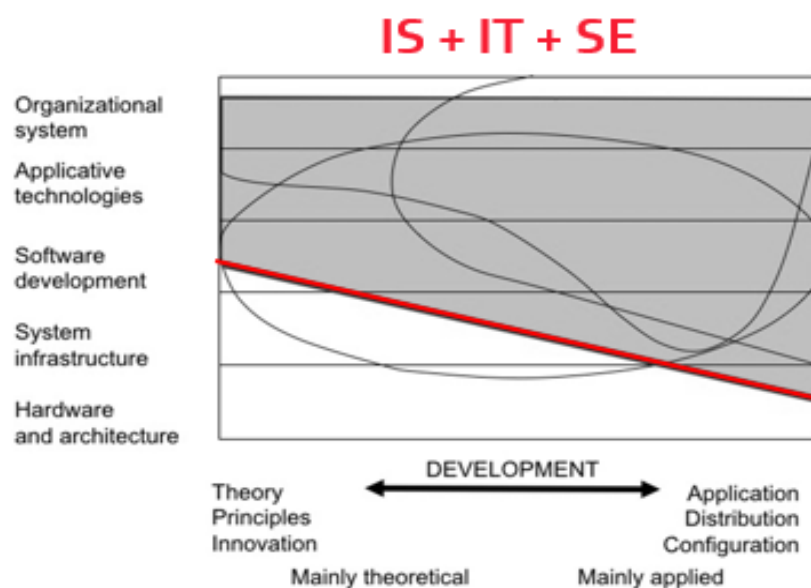


Figure 1. Strategic Positioning of Informatics Study Programs



Today, UNIZG FOI builds its strategic positioning within the informatics vertical on the convergence of several key areas that are expected to shape the development of information sciences over the next decade. The emphasis will be placed on the convergence and interdisciplinarity of these areas. Professionals in this field will need technical expertise, strategic thinking, and interdisciplinary knowledge to tackle complex challenges and create effective solutions. By integrating these trends into scientific research, curricula, and professional development, UNIZG FOI aims to prepare both the institution and future generations of students for success in this fast-evolving environment. Below are the key scientific and professional domains in which UNIZG FOI must continue to develop its competencies:

**Technology** - Technological developments are crucial to shaping the evolution of information sciences. Some of the technological trends expected to significantly impact industry and society include:

- **Artificial intelligence and machine learning:** AI will become an integral part of decision-making, process automation, and predictive analytics. AI-powered tools will enable personalized user experiences, operational optimization, and enhanced decision support.
- **Data-driven systems:** Real-time data processing and predictive analytics will allow for highly personalized services and improved organizational efficiency. Data will become a core organizational asset around which business models and strategies are developed. This is a shift from the traditional information systems paradigm, where data was merely the result of transactions used for retrospective analysis. In the new paradigm, data becomes central to predictive analytics and machine learning. This process is relevant at the level of organizations, business ecosystems, and even at the national and EU level. The concept of data sovereignty will become increasingly important, with data, information, and knowledge management becoming a strategic weapon for gaining market advantage.
- **Cloud and edge computing:** Businesses will increasingly adopt cloud-native architectures and hybrid cloud strategies to ensure scalability, cost-efficiency, and organizational resilience. Edge computing will enable faster data processing in Internet of Things (IoT) environments and systems requiring real-time responsiveness. UNIZG FOI must develop competencies related to cloud platforms and platform-based business models, as well as their integration with edge systems operating within organizations. This architectural combination is critical for scalability, real-time responsiveness, and resilience in cases of infrastructure failure.
- **Blockchain:** Blockchain technology will continue to develop and expand its use cases, enabling secure and transparent transaction management, smart contracts, and digital identity verification. It is a key enabler of trust in distributed systems, which are expected to become increasingly prevalent.
- **Internet of things (IoT) and connectivity:** IoT will expand into all areas of business, collecting large amounts of data from devices, sensors, and smart environments. This will

require decentralized information systems, making the development of such architectures a routine part of future careers in informatics.

- **Automation and robotic process automation (RPA):** RPA will simplify repetitive business tasks by integrating with ERP and CRM systems. It is becoming a standard component of business processes and a key element of digital transformation. This trend will strongly influence the process paradigm, where automation will increasingly replace human activities.

A part of this technological domain is **quantum computing**, which, while still in its experimental phase at the time of writing this document, holds significant potential—especially for solving algorithmically complex problems. While UNIZG FOI does not conduct research on the physical foundations of quantum computing, it does study potential applications in modern organizations. Once the uncertainties of quantum computing are addressed, rapid development of algorithms and use cases is expected across various domains, including business. Monitoring trends in quantum computing is thus important for UNIZG FOI's strategic positioning.

**Software engineering** - The development of appropriate software support for emerging technologies falls under the domain of software engineering, a traditional discipline that is itself undergoing significant transformation. The most noticeable change is the application of artificial intelligence in software development. Tools now exist that automate code generation, bug detection, and testing—and these tools are becoming increasingly advanced. In the future, AI agents will be capable of designing and optimizing entire systems. Low-Code and No-Code platforms will gain widespread adoption, enabling domain experts to design parts of systems. This shift will reduce the need for IT professionals to handle simpler software development tasks. Continuous Integration and Delivery (CI/CD) and DevOps practices will become even more automated, incorporating security features (DevSecOps). Faster development cycles will increase the importance of agile development methods. From an architectural perspective, there will be greater emphasis on microservices and distributed systems. Decentralization will include both cloud platforms and edge computing, making it a challenge for software engineering to ensure the coordination, integrity, and security of these interconnected systems.

**Organization** - UNIZG FOI has traditionally positioned itself in the field of information technology application within organizations. Organizations are expected to undergo significant transformations by leveraging technology to optimize operations, develop new business models, foster innovation, and achieve strategic goals. In this context, organizations are the primary environment for the application of modern technologies, and this remains a key area of focus for UNIZG FOI. The following topics are emerging as particularly important:

- **Digital transformation:** Organizations will increasingly integrate digital tools into all aspects of their operations to ensure agility and competitiveness in the market. The concept of organizational agility is becoming highly significant, as changes in the business ecosystem

are accelerating, and organizations must adapt accordingly. Therefore, the study of digital transformation is a key strategic development direction for UNIZG FOI.

- **Smart industry:** Advanced automation, combined with artificial intelligence, will enable the development of micro-factories, and the concept of smart industry will gain increasing importance. Adaptive and additive manufacturing will become industrial standards, requiring the development of a workforce familiar with relevant technologies and concepts of digital transformation.
- **Process optimization:** Business processes, the process paradigm, and business process management will remain critical components of future organizations, with an increasing emphasis on process agility and automation. Automation and systems based on artificial intelligence and robotic process automation (RPA) will simplify workflows and increase productivity.
- **Artificial intelligence in organizational management:** Companies will adopt systems that combine *AI, analytics, and human expertise* to simulate scenarios and guide strategic planning. This will become a standard functionality of information systems, and their development and application will serve as a key competitive battleground between organizations.

**Information systems** - Information systems will continue to serve as the foundation of business operations, adapting to agile business processes and new business models. ERP, CRM, and supply chain management systems will become more intelligent and modular by integrating artificial intelligence and business process automation. The decentralized business ecosystems characteristic of smart industry will require the integration of various platforms and tools. These systems will incorporate advanced security features, adopting zero trust architectures and privacy-preserving technologies to protect sensitive data. Transactional data collected by information systems will be used in real time to support advanced decision-making, combining AI, machine learning, and big data analytics.

**Green and sustainable IT** - Sustainable and environmentally conscious business practices are becoming increasingly important and are gradually being embedded into regulations. Sustainability and green operations are important topics in business informatics, driving innovation in energy efficiency and environmentally friendly practices. Two main trends will emerge: (1) energy-efficient management of the information system itself, (2) use of information systems to monitor the sustainability of organizational operations. Organizations will prioritize low-energy algorithms, efficient cloud computing, and data centre optimization. Green IT strategies will be developed to comply with regulations and meet consumer expectations. Monitoring sustainable business practices will become a key component of corporate governance, and information systems will play a central role. They will track and manage carbon emissions (carbon footprint), supporting companies in reaching sustainability goals. These systems will also support the circular economy by enabling reuse and recycling of resources to reduce waste.

**Regulatory framework** - The development and monitoring of the regulatory framework is becoming a new area of focus within informatics. The regulatory environment is growing increasingly complex as governments and organizations address issues of privacy, cybersecurity, and ethical challenges. Compliance with frameworks such as GDPR and future global standards will be mandatory. Systems will integrate privacy-by-design approaches and privacy-enhancing technologies. Regulations related to the use of artificial intelligence, as well as the ethical implementation of AI, will become increasingly important. Reducing bias and ensuring ethical data usage will require the integration of ethical frameworks into systems. All of this will need to be developed based on principles of global compliance, as companies operating globally must be adaptable to diverse regulatory environments, including issues of data sovereignty and cross-border data flows.

## **Strategic positioning of UNIZG FOI study programs in economics (Economics of Entrepreneurship)**

The strategic positioning of UNIZG FOI within the economics of education is primarily based on the university-level undergraduate and graduate study programs in *Economics of Entrepreneurship*, which combine key aspects of economics, entrepreneurship, and digital technologies as supportive and innovative tools for modern business. At both levels of education, these programs enable the development of interdisciplinary competencies required in today's labour market, providing students with a unique combination of knowledge from various economic disciplines as well as digital technologies. In response to the rapid pace of technological advancement, the *Economics of Entrepreneurship* programs equip students with knowledge of digital tools and platforms that support business models.

Upon successful completion, students acquire key competencies that facilitate their entry into the entrepreneurial world while also enabling them to manage complex business processes typical of large organizations. The strength of the program lies in its focus on the application of modern digital technologies that—amid rapid changes in the business environment—consistently contribute to overall economic development. In addition, the program prepares students for further academic, scientific, or professional advancement at the postgraduate specialist and/or doctoral level.

### **Key elements for the positioning of UNIZG FOI study programs in the field of economics:**

**Entrepreneurial competencies** - Through a combination of required and elective courses, students are provided with a foundation for understanding economic principles (micro and macro), as well as skills in identifying opportunities, managing resources, decision-making, and leading and developing entrepreneurial initiatives. Fostering *academic entrepreneurship* remains a core development direction for the program, enabling students to work on practical projects and develop business ideas in collaboration with mentors from both academia and industry.

**Digital competencies** - The curriculum equips students with knowledge and skills to effectively use digital tools, technologies, and platforms for problem-solving, communication, and adapting to digital environments.

The synergy between digital and entrepreneurial skills strengthens students' innovative capacity and job market competitiveness.

**Interdisciplinarity** - What distinguishes Economics of Entrepreneurship from other economics programs is its interdisciplinary approach—the fusion of digital and economic principles. Digital competencies empower more effective decision-making, business process optimization, and innovation in economic environments. The program integrates economic, entrepreneurial, and digital skills, along with financial, marketing, organizational, and other competencies, preparing students to manage business processes and resources, lead digitally-oriented enterprises, and focus on sustainable business practices. Students gain an understanding of how business processes function in a digital context and acquire knowledge in management and organization, as well as the technical foundations of modern business. This integration of diverse skills prepares students to design business models that promote social responsibility. The program prepares them to develop models supporting sustainable economic growth and responsible business practices, both of which are increasingly valued in the global context.

**Collaboration with industry and the public sector** - UNIZG FOI actively collaborates with partner companies and public institutions through internships and project-based work, providing students with hands-on experience and valuable professional networks that are crucial for entrepreneurial ventures and innovation. Through these projects and collaborations, students not only acquire theoretical knowledge but also develop practical skills to solve real-world problems.

## **Future expectations and focus on technologies in entrepreneurship**

The scientific branch 5.01.01 Economics of Entrepreneurship belongs to the scientific field 5.01 Economics, within the domain of social sciences. The undergraduate and graduate study programs Economics of Entrepreneurship act within this branch, playing a vital role in educating future entrepreneurs and managers capable of developing business models focused on sustainability and adaptability to challenges. The Economics of Entrepreneurship program supports learning and teaching through the use of innovative concepts, combining theory and practice in a way that empowers students to become agents of positive change—contributing to the development of their local communities and the economy as a whole.

The strategic orientation of the Economics of Entrepreneurship program at UNIZG FOI is founded on the recognition that digital skills and entrepreneurial thinking are key drivers of modern economic development. The future of this study program lies in its continuous adaptation to technological innovations and market needs, while maintaining a strong focus on interdisciplinarity and the practical application of acquired knowledge. In the coming years, the demand for economic

professionals who can combine technical and business competencies is expected to grow. The Economics of Entrepreneurship program will continue to act as a catalyst for positive changes in both education and the economy, producing leaders who will shape the future of entrepreneurship and the modern economy.

## **Development Strategy of the University of Zagreb Faculty of Organization and Informatics**

Study programs in both educational verticals (information sciences and economics) as well as research at UNIZG FOI must include topics and connections with related scientific areas, fields, and professional disciplines. These include, among others: cognitive and human factors, computer science, computer engineering, mathematics, project management, knowledge management, entrepreneurship, semiotics, linguistics, and more. There is no need to argue that interdisciplinarity, integration, and even the overlap of scientific disciplines, professions, and associated study programs are today seen as desirable features of a holistic approach—rather than as suspicious or competitively unwelcome characteristics.

The future development of UNIZG FOI will be based on these related disciplines and the predictable evolution of information sciences and economics, both of which—under the influence of new technologies and emerging development and business paradigms—have significantly moved beyond traditional IS-IT-SE (Information Systems–Information Technology–Software Engineering) frameworks. Special emphasis will be placed on anticipating the application of emerging technologies, thereby further enhancing research and teaching activities. Internal synergistic mechanisms rooted in the fields of organization and economics will be leveraged, offering a broader perspective for integrating advanced technological solutions. In this context, continuous planning, development, and improvement of teaching competencies—especially in the fields of artificial intelligence and other advanced technologies—will be a priority, ensuring the relevance of study programs and research initiatives. Existing knowledge and UNIZG FOI's recognized position will be used to further develop new academic and scientific areas essential to the long-term competitiveness of UNIZG FOI and its contribution to societal development in line with technological trends and labour market demands.

The Development Strategy of the University of Zagreb Faculty of Organization and Informatics is based on a comprehensive approach that covers all key areas identified in previous strategic documents. The strategy includes clear objectives and measures structured around three areas of activity: 1. Teaching and Students, 2. Research, 3. Innovation and Social Contribution

## **Strategic areas of the Development Strategy of the University of Zagreb Faculty of Organization and Informatics**

**Teaching and students** - In the Teaching and Students area, the Development Strategy focuses on enhancing the quality of existing study programs, improving study efficiency, integrating

contemporary scientific knowledge into teaching, adapting curricula to labour market needs, applying innovative teaching methods, and improving the overall student experience. In the domain of informatics study programs, it is essential to continue developing STEM knowledge and skills. The intended learning outcomes of each individual study program reflect the competencies required for entry into the labour market, continuation of education, or fulfilling personal or societal needs. These learning outcomes are comparable with those of similar programs in Croatia and other EU countries. Student-centred learning and teaching is achieved through appropriate teaching skills and infrastructure. The content of the study programs ensures both horizontal and vertical mobility of students within the national and European education area. To support the acquisition and enhancement of student and staff competencies, various measures have been implemented to foster international cooperation, mobility, and continuous professional development.

**Science and research** - In the Science and Research area, the Development Strategy emphasizes the advancement of research excellence by promoting research activity and strengthening cooperation with national and international research institutions. Measures include institutional and collaborative support for competitive project applications, development of human resources for research, material and financial resources for research, and expert support in project implementation. As before, mechanisms will be in place to reward research achievements, including incentives for project proposals, publication of scientific papers in journals, and more. The Development Strategy aims to create an environment that fosters research excellence, ensures sustainable research development, and increases the international visibility of UNIZG FOI as a research institution.

**Innovation and social contribution** - The third area of the strategy, Innovation and Social Contribution, focuses on strengthening UNIZG FOI's connection with both the local and broader community and on active engagement in socially responsible projects. Educational innovation plays a key role in enhancing UNIZG FOI's social impact. Through the implementation of advanced digital technologies and innovative teaching methods, UNIZG FOI continuously improves the quality of education and equips students with competencies relevant for the future labour market. Ethical principles, social responsibility, and sustainability are foundational values integrated into every process at UNIZG FOI. The Faculty actively engages in community service and supports socially vulnerable groups and individuals (including people with disabilities, the elderly, children with developmental difficulties, members of national minorities, foreign nationals, families with lower socioeconomic status, etc.) and promotes volunteer work. Measures in this area include organizing socially impactful events, encouraging volunteering among students and staff, and initiating projects that promote a culture of lifelong learning, as well as incorporating ESG principles into the curriculum. This is achieved through student projects and as a formal part of curricula in both educational verticals. The Faculty strives to operate in accordance with the highest standards of social responsibility, thereby contributing to sustainable development, raising environmental awareness, supporting the green transition, and having a positive impact on society and the community in which it operates.

## **Review of the existing strategic areas and trend analysis**

The Development Strategy of the University of Zagreb Faculty of Organization and Informatics (UNIZG FOI) for the period 2019–2024 was a key document that guided the Faculty's growth and adaptation within the dynamic landscape of higher education and science. The strategy was shaped around specific goals and guidelines and encompassed areas that continue to be recognized as essential for the ongoing development and positioning of UNIZG FOI—both in Croatia and internationally.

Rapid technological progress, shifts in educational trends, and evolving labour market demands require flexibility, agility, and readiness for change, which means that strategic documents must be regularly reviewed and updated to remain relevant and effective.

The Development Strategy for the period 2019–2024 identified the most important strategic areas through which UNIZG FOI positioned itself and on which its development is still based. These strategic areas are critical as they serve as lenses for assessing the overall growth and evolution of the Faculty. From a teaching perspective, UNIZG FOI has developed new study programs or continuously modernized existing ones to improve the quality of educational delivery. From a scientific perspective, the continued development of previously recognized areas enables the strengthening of scientific productivity. Based on these criteria, the current Strategy provides a reflection on the previously identified strategic areas of the Faculty's development and outlines guidelines for their further advancement.

## **Strategic development areas of the University of Zagreb Faculty of Organization and Informatics**

The University of Zagreb Faculty of Organization and Informatics (UNIZG FOI) has based its development over the past 50 years on the information systems paradigm, along with related technical and organizational disciplines and complementary economic knowledge that add a distinctive scientific and educational dimension to UNIZG FOI. These areas will continue to be the foundation of the Faculty's strategic orientation. Considering the emergence of new technologies and approaches that shape modern information systems—now in a mature phase of research and professional development—strategic areas identified in the previous Development Strategy remain relevant today. UNIZG FOI continues to actively operate in these areas, particularly through research groups that maintain presence in internationally recognized journals and conferences. These strategic areas are also embedded within the syllabi of existing study programs and are commonly reflected in doctoral dissertation topics. What further defines these as strategic areas is UNIZG FOI's project-based collaboration with industry as well as with international academic institutions.

The strategic areas are represented in the curricula of both educational verticals (informatics and economics), and UNIZG FOI continues to modernize existing study programs by introducing new content. Each strategic area is supported by research laboratories dedicated to scientific and



professional work. While UNIZG FOI may not have equal development capacities across all strategic areas, the recognized development potential and historical success of the Faculty allow for continued advancement in research and teaching within these defined areas. As part of the earlier Development Strategy and the DIP2Future<sup>3</sup> project, four occupational standards were developed for the following roles: Architect of Information Security and Privacy, Architect of Distributed and/or Interactive Systems, Architect of Intelligent Information Systems, Architect of Business System Transformation.

### **Information systems of the future, the internet of everything, and related disciplines**

The University of Zagreb Faculty of Organization and Informatics (UNIZG FOI) is developing the field of modern information systems, which integrates key disciplines related to the roles of systems developers, architects, and analysts. The scientific and professional focus covers the entire information systems development lifecycle, including software architecture modelling, software engineering across different platforms, system implementation methodologies in organizations, sensor technology integration, Industry 5.0, and system interoperability. Particular emphasis is also placed on technologies such as applied artificial intelligence, digital business, digital twins, augmented and virtual reality, as well as video game development, through which UNIZG FOI contributes to the growing needs of industry for digitization and support for digital transformation.

The concept of smart industry further reinforces a division of scientific and teaching disciplines into the following categories: (1) Hardware programming ("hard" informatics, close to the hardware level), (2) Software logic and data analysis ("soft" informatics, i.e., development in high-level programming languages), (3) Business process organization and operations and (4) Foundational disciplines. These disciplines rely on fundamental STEM knowledge essential for the creative development of the Internet of Things. These include: Programming, Databases, Operations research, Mathematics (e.g., graph theory, multi-criteria optimization methods, mathematical logic), Statistics and probability theory.

UNIZG FOI has long been exploring topics related to smart industry, the Internet of Everything, and digital twins through various research projects. These projects cover advanced topics such as system orchestration, product adaptability, security of autonomous systems, and big data analytics.

The growing needs of the labour market and advances in generative artificial intelligence are creating a new dynamic, shifting the focus toward the development of architectures, connectivity, and more complex aspects of information technology. UNIZG FOI will further strengthen its efforts by establishing the Regional Centre for Pre-Incubation in Smart Industry, thereby enhancing its position in smart industry research and education, while preparing students to adapt and thrive within the context of a modern, connected economy.

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<sup>3</sup> <https://dip2future.foi.hr/pocetna.html>

## **Big data analytics and artificial intelligence**

Big data analytics and data science are relatively new scientific and professional disciplines that cover a broad field of applying computing technologies to analyse large, heterogeneous, and unstructured datasets. Their main objective is to extract useful information and knowledge from data. Analytics enables the discovery, interpretation, and communication of meaningful patterns in data, relying on methods from statistics, computer programming, and operations research, as well as data visualization tools. This interdisciplinary domain encompasses many related areas such as machine learning, statistical learning, data mining, knowledge extraction, computational statistics, visualization, text mining, operations research, mathematical modelling, and learning analytics. It is supported by a diverse technological infrastructure—including heterogeneous distributed databases, data warehouses and data lakes, data spaces, data extraction and transformation, and distributed computing.

Artificial intelligence includes machine learning, federated learning, data and knowledge representation and visualization, automated reasoning, robotics, intelligent agents, and other technologies. Machine learning, in particular, enables organizations to develop new business models and optimize business processes, while fostering employee creativity and increasing user satisfaction. In many ways, AI and machine learning add value to organizations through personalization of services, increased customer loyalty and retention, enhanced employee selection processes, and better decision-making. Deep learning, a specialized subfield of machine learning, has recently achieved remarkable results in areas such as image recognition, speech understanding, and computer games, and is sometimes equated with artificial intelligence itself.

Within big data analytics, numerous domain-specific subfields have emerged, such as network analytics, business analytics, predictive analytics, healthcare analytics, learning analytics, and more. Generally, in the field of artificial intelligence, UNIZG FOI has conducted and continues to conduct various scientific and professional projects—for example, projects related to learning analytics, machine learning algorithms and computer games, AI in education, and others focused on AI applications across different domains. Additionally, UNIZG FOI faculty members participate in the work of SoLAR (Society for Learning Analytics Research), the leading global organization in learning analytics research, and regularly publish scientific papers at the highly selective (acceptance rate below 30%) global LAK conference (International Learning Analytics & Knowledge Conference).

At UNIZG FOI, there are approximately 20 courses that cover analytics and artificial intelligence—either as core subjects or as essential prerequisites for acquiring key competencies. Faculty members in this strategic area work across five laboratories.

## **Economics of entrepreneurship and innovation management**

The field of Economics of Entrepreneurship and Innovation Management at the University of Zagreb Faculty of Organization and Informatics (UNIZG FOI) represents a fusion of entrepreneurship, economics, and digital skills. It offers students a comprehensive understanding of entrepreneurship in small and medium-sized enterprises (SMEs), as well as corporate entrepreneurship within large

organizations. At the micro level, this field analyses individual entrepreneurial initiatives, while at the macro level it explores the broader impact of entrepreneurship on national and global economies. Students enrolled in the Economics of Entrepreneurship programs are trained in business planning, starting, and managing enterprises, as well as in understanding innovation in entrepreneurship—for example, through the development of new products, business models, and modern approaches to financing the growth of entrepreneurial ventures.

Development in the area of Economics of Entrepreneurship and Innovation Management at UNIZG FOI primarily occurs through the educational vertical in economics, i.e., through the university-level undergraduate and graduate study programs in Entrepreneurial Economics, where courses in economics and entrepreneurship are complemented with digital skills. This interdisciplinary approach enables students to develop key competencies that combine business knowledge with digital literacy, preparing them for successful integration into the modern labour market, which increasingly values ICT-supported business practices.

Faculty members active in this area lead or collaborate on numerous scientific and professional projects, and they transfer their acquired knowledge and experience to students through university and faculty textbooks, as well as to the broader research and academic community through research papers published in international journals and conferences. Due to the strong industry connections, the curriculum of the Economics of Entrepreneurship study programs is adapted to the demands of the modern labour market, while many success stories from alumni confirm the program's recognized excellence in educating economic professionals with entrepreneurial and digital skills.

## **Organizational and business process management**

Strategic documents on organizational and business process management clearly highlight several key disciplines that are being developed through the teaching and research activities of researchers at the University of Zagreb Faculty of Organization and Informatics (UNIZG FOI). These disciplines include organizational management, business decision-making, and business process management, and are directly linked to key professional roles.

All of these disciplines are well represented in UNIZG FOI's research and teaching activities. They are embedded within various project themes and course content, ensuring the transfer of up-to-date knowledge and skills to students. The area of Organizational and Business Process Management is present in the informatics vertical through a range of courses, but also within the economics study programs. The central focus of this area is the integration of organizational and business concepts with digital technologies, which serves as a critical foundation for innovation and social development.

Labour market demand and forecasts for new digital and green jobs across various industries clearly show that knowledge and skills related to organizational aspects of business and business process management are highly valued. This is especially emphasized through *projects focused on*

educational strategies, through which UNIZG FOI continuously monitors labour market needs and aligns its study programs with current trends.

UNIZG FOI has extensive experience in implementing research and development projects in the areas of organizational management, strategic planning, business decision-making, and business processes, thereby contributing to the advancement of science and professional practice, as well as promoting educational innovation.

## **Educational technologies**

Educational technologies represent an interdisciplinary scientific field and a highly applicable domain focused on enhancing learning, teaching, and creative research through the use of innovative tools and resources. Recently, artificial intelligence (AI) has been rapidly transforming the field of educational technologies—with generative AI tools such as ChatGPT opening up new possibilities for content creation, communication, and personalized learning in higher education. The emphasis is placed on understanding and meeting diverse student needs and creating a stimulating academic environment.

According to the Horizon Europe 2023 report, several key trends are shaping educational technologies: (1) Social trends emphasize flexibility in learning, inclusion, and equal opportunities, with particular focus on developing micro-credentials; (2) Technological trends include the application of AI for personalized learning, the development of hybrid models that blur the lines between online and physical teaching, and content creation without the need for coding; (3) Economic trends highlight the importance of cost-effective education and the increasing demand for lifelong learning and workplace-based education.

In the future, key technologies in the field of educational technologies are expected to include: AI-powered tools for predictive and personalized learning, use of generative AI, reducing the gap between various learning modalities, hybrid and flexible learning models (HyFlex), as well as enhanced student support through increased sense of belonging and connection.

Research groups at UNIZG FOI continuously monitor trends and actively steer their research toward directions recognized by the global research community. In the past five years, the Faculty has conducted around fifteen projects in the field of educational technologies, primarily funded through the EU Erasmus+ program and the Croatian Science Foundation. These projects often combine educational technologies with learning analytics and artificial intelligence.

The research of educational technologies is interdisciplinary, involving educational, computing, mathematical, and economic sciences, which enables the use of UNIZG FOI's interdisciplinary capacities. This field holds particular internal importance for UNIZG FOI, as it contributes to the enhancement of teaching processes. For this reason, UNIZG FOI can continue developing this area in three main directions: (1) Fostering innovation and expanding the application of educational technologies in teaching, (2) Strengthening and focusing research activities in educational

technologies, (3) Consolidating its leading position in Croatia and enhancing its reputation at the European level in the field of educational technologies.

UNIZG FOI is recognized for its integration of educational technologies and innovations into teaching processes and for a significant number of research projects in this domain, demonstrating its commitment to addressing the challenges of modern education.

### **Information security and open systems**

The University of Zagreb Faculty of Organization and Informatics (UNIZG FOI) has recognized information security and open systems as key strategic areas with significant potential for application in modern organizations. The development of the Internet of Things (IoT), autonomous vehicles, smart cities, and digital financial systems points to the necessity of integrating information technologies into nearly all products and business systems. Security challenges such as protecting infrastructure from cyber-attacks and ensuring confidentiality, integrity, and availability of data have become critical for the sustainability of operations—particularly considering the serious financial and reputational damage that security incidents can cause.

UNIZG FOI is steadily building research and educational capacity in the fields of information security and privacy. The Faculty offers a specialist graduate program in information security, and courses in this domain are available to students at all levels of study. In addition, in collaboration with industry and academic institutions, UNIZG FOI carries out projects that further enhance the competencies of students and staff. Research teams are currently engaged in studies related to individual privacy protection in various domains (e.g., IoT, digital twins, SMEs, LMS platforms, etc.), as well as the application of different security techniques (e.g., biometrics, forensics, etc.). These activities provide a solid foundation for further development in this field, with the aim of positioning UNIZG FOI as a leading higher education institution in information security, privacy, and open systems. New courses introduced in undergraduate and graduate study programs are designed to familiarize students with topics such as Privacy and Personal Data and Strategic Management of Information Security and Privacy. In today's digital age, personal data is collected, stored, and processed in enormous quantities. Understanding legal frameworks, ethical implications, and technical measures for privacy protection is essential for every professional. Through numerous partnerships with leading companies in the industry, UNIZG FOI enables students to acquire practical knowledge and skills that are highly in demand on the labour market.

### **Core values of the University of Zagreb Faculty of Organization and Informatics**

The core values of the University of Zagreb Faculty of Organization and Informatics (UNIZG FOI) are rooted in its long-standing tradition (62 years since the founding of the Higher School of Economics and 50 years since its transformation into the Faculty of Organization and Informatics), in general academic principles, and in contemporary understanding of the academic community's role in

societal development. These values continue to guide the Faculty's strategic priorities and direction for the upcoming period and serve as a key foundation for the implementation of its new development strategy. The structure of UNIZG FOI's values is represented as a pyramid, with basic intellectual values at the base such as: Responsibility, Ethical behaviour, Professional integrity.

The middle level consists of universal academic values shared by all higher education institutions, including: Excellence, Innovation, Freedom of research, Public engagement, Encouragement of critical thinking and diversity. UNIZG FOI also strives for sustainable development through responsible resource management, promotion of digital transformation, and inclusivity in collaboration with students and colleagues.

At the top of the pyramid, UNIZG FOI emphasizes institution-specific values that are central to its mission: Social responsibility, Academic entrepreneurship, Sustainability, Connection with industry and the community, Development of skills aligned with labour market needs. These values are integrated into UNIZG FOI's strategic goals and activities, with a strong emphasis on long-term contributions to the community, responsible use of resources, and educating students to become professionals who will drive positive societal change.

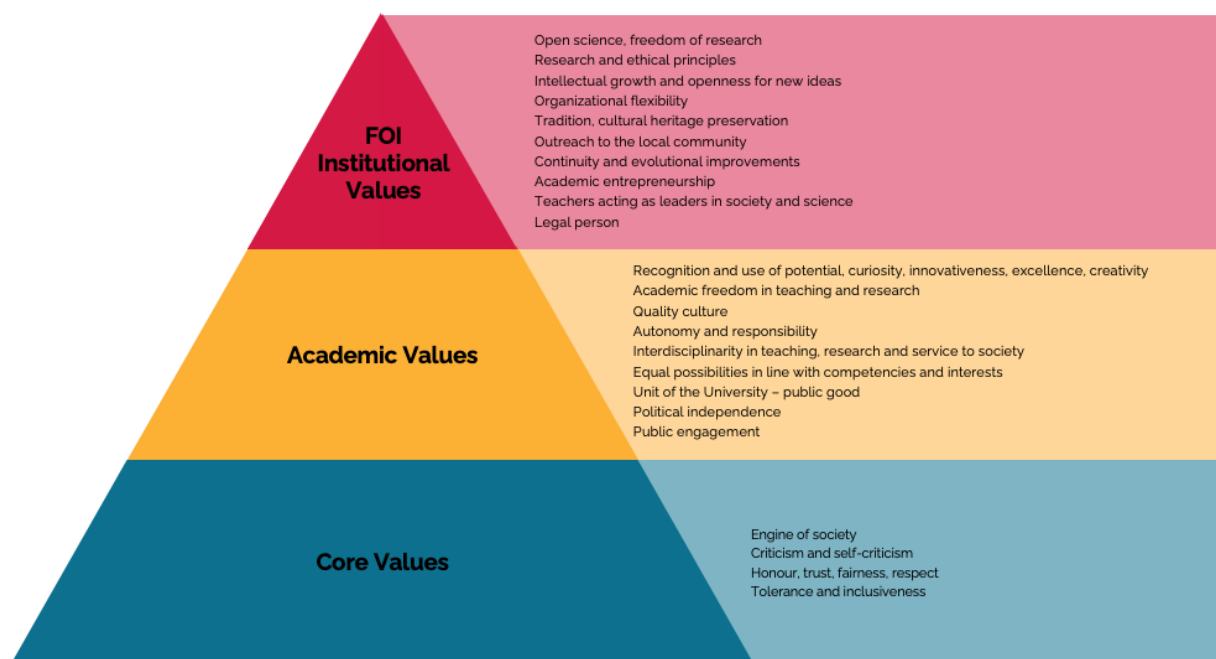


Figure 2. Pyramid of Values of the University of Zagreb Faculty of Organization and Informatics

The University of Zagreb Faculty of Organization and Informatics (UNIZG FOI) is dedicated to the development and application of its core values, which shape its identity and contribution to both the academic and broader community. As a driver of the local community and society as a whole, UNIZG FOI strives to build synergy with industry, ensuring the practical application of knowledge and support for projects. Authenticity and independence enable UNIZG FOI to shape its own vision of education and research, while curiosity, innovation, and interdisciplinarity are key drivers of new ideas and digital transformation. Through its tradition and entrepreneurial spirit, UNIZG FOI

continuously develops modern study programs and implements research initiatives aimed at achieving excellence in education, science, and professional development.

## Strategies based on the initial situation in the three core areas of activity

The Development Strategy is based on an analysis of the current initial situation elaborated through three key areas.

### Teaching and students

STRENGTHS	WEAKNESSES
S1: Interdisciplinarity in study programs	W1: Ratio of teaching staff to teaching hours at the upper limit of workload capacity
S2: Diversity of study programs – broader range of options for students	W2: Uneven teaching workload across instructors and semesters
S3: Systematic approach to curriculum development – planned progress	W3: Impact of study structure on course planning – elective courses complicate scheduling
S4: Involvement of industry professionals – brings current industry trends	W4: Inconsistent visibility and recognition of teaching staff
S5: Quality of teaching staff and continuous pursuit of excellence	W5: Insufficient use of mobility opportunities within study programs
S6: Long-standing experience and reputation – positively impacts the Faculty's image	W6: Inflexible criteria for recognizing student mobility
S7: Continuous application of e-learning (since 2007)	W7: Low number of international students – insufficient internationalization of the Faculty
S8: Innovative learning (WBL, PBL) – adapts education to real business scenarios	W8: Lengthy procedure for modifying study programs – limits quick adaptation to market needs
S9: Transfer of practical knowledge and cooperation with industry	W9: Lack of institutional conditions for entry into teaching and for continuous professional development
S10: ICT support in teaching – enables the use of modern digital technologies	
S11: Rich offering of extracurricular activities for students	
S12: Study programs and teaching that ensure high employability of students	
OPPORTUNITIES	THREATS
O1: Demand for UNIZG FOI graduate profiles – increased employability of students	T1: Shortage of teaching staff on the market – limits expansion of study programs
O2: Positive reputation – facilitates the attraction of high-quality students	T2: Rapid technological changes – require constant adaptation of curricula

<b>O3:</b> Funding for mobility and activities – increases access to international opportunities	<b>T3:</b> Competition from other institutions – increases pressure in attracting students
<b>O4:</b> New trends in learning and teaching – open possibilities for modernizing study programs	<b>T4:</b> Negative demographic trends – reduce the pool of potential students
<b>O5:</b> Joint programs with international partners – strengthen international cooperation and attract foreign students	<b>T5:</b> Loss of STEM scholarships – reduces financial resources and study program attractiveness
<b>O6:</b> Recognition of the importance of STEM education aligned with the latest scientific and technological achievements – growing societal demand	<b>T6:</b> Program contracts – may limit capacity for curriculum adaptation
<b>O7:</b> Activities of student associations – increase student engagement	<b>T7:</b> New regulations on revenue distribution – may impact the budget and investments in teaching
<b>O8:</b> International accreditations – enhance visibility and recognition	<b>T8:</b> Misalignment of tuition subsidies with inflation and actual cost growth
<b>O9:</b> Demand for online and hybrid professional study programs	
<b>O10:</b> Demand for study programs in English	
<b>O11:</b> New opportunities arising from technological developments and trends	

The SWOT analysis for Teaching and Students shows that the University of Zagreb Faculty of Organization and Informatics (UNIZG FOI) has a strong foundation for further development thanks to its interdisciplinarity, the application of innovative teaching methods, and its strong collaboration with business partners and industry. The Faculty is well-positioned to make an even greater leap forward through internationalization and adaptation to contemporary educational trends, such as online and hybrid study programs. To reach its full potential, UNIZG FOI needs to work on improving the distribution of teaching workload, encouraging continuous professional development of teaching staff, and expanding international visibility and mobility.

However, UNIZG FOI faces challenges arising from demographic changes, competition from other educational institutions, and the rapid evolution of labour market technological demands. Addressing these challenges requires greater flexibility in curriculum design, strengthening of the teaching workforce, and continued modernization of teaching methods to ensure UNIZG FOI remains competitive and continues to attract students.



## Science and research

STRENGTHS	WEAKNESSES
<b>S1:</b> The number of research projects is increasing – growth in project coordination enhances visibility and financial resources	<b>W1:</b> Uneven motivation for research mobility – limited interest in international mobility reduces opportunities for collaboration and professional development
<b>S2:</b> Strong examples of Erasmus+ strategic partnership projects with a research component – significant opportunities for international collaboration and knowledge exchange	<b>W2:</b> Insufficient collaboration with international researchers – few international co-authors limit the reach and impact of UNIZG FOI scientific publications
<b>S3:</b> Stimulating environment for scientific productivity – incentives for research activity foster a strong research culture	<b>W3:</b> Project partnerships rely on individuals – often based on personal connections, which can undermine long-term sustainability
<b>S4:</b> A large number of long-term partnerships – stable relationships with numerous institutions and industry, enabling continuity in research and cooperation	<b>W4:</b> Neglect of relevant metrics – insufficient monitoring of citations and other indicators of research quality
<b>S5:</b> Research laboratories – support research and competence development in specific fields	<b>W5:</b> Lack of a dedicated research support office – absence of centralized support for research initiatives
<b>S6:</b> Interdisciplinarity – creates opportunities for innovative research	<b>W6:</b> Weak connection between research publications and projects
<b>S7:</b> Support for research activities ensured through implemented procedures, institutional support via centres and offices, and training/workshops	<b>W7:</b> High teaching load reduces time available for research activities
<b>S8:</b> Defined research guidelines at both institutional and University of Zagreb level	
OPPORTUNITIES	THREATS
<b>O1:</b> Publications in large collaborations – participation in major international collaborations increases visibility and contribution to the global scientific community	<b>T1:</b> Unethical publishing practices
<b>O2:</b> Research publications as outcomes of projects	<b>T2:</b> Publisher policies – restrictive editorial policies can hinder publication in renowned journals
<b>O3:</b> Doctoral studies at foreign institutions – PhD candidates at prestigious international institutions enhance international recognition	<b>T3:</b> Increase in the number of specialized conferences – narrow specialization reduces opportunities for interdisciplinary collaboration and broader dissemination
<b>O4:</b> Flexibility – adapting to modern trends enables faster responses to changes in science and research	<b>T4:</b> Insufficient funding – limited research funding restricts the ability to publish results
<b>O5:</b> Availability of EU funding – EU projects provide financial support for the development and implementation of new research ideas	<b>T5:</b> Program contracts – program-based agreements impose limitations that can negatively affect long-term projects

<b>O6:</b> Emergence of new STEM initiatives in research – creates opportunities for collaboration and project funding	<b>T6:</b> High competition for EU projects and weak national funding
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SWOT analysis for Science and Research highlights significant strengths, such as the increasing number of scientific projects, a stimulating research environment, and long-standing partnerships with institutions and industry partners. However, weaknesses such as limited staff mobility, uneven motivation for collaboration, and the lack of clear support procedures constrain further progress. Opportunities include participation in large international collaborations, the availability of EU funding, and the development of interdisciplinary research initiatives. On the other hand, threats such as unethical publishing practices, restrictive editorial policies, and insufficient financial resources pose risks to more substantial research advancement.

The University of Zagreb Faculty of Organization and Informatics has a solid foundation for making significant strides in science and research. However, addressing the identified weaknesses is essential to fully leverage existing opportunities. Increasing motivation for scientific mobility, expanding collaboration with international researchers across a broader base of SUZG FOI, and establishing clear procedures and support structures are key steps toward improving the efficiency and visibility of research activities. By strengthening partnerships and placing an even greater emphasis on interdisciplinarity, SUZG FOI can further enhance its position in both the national and international scientific landscape.

## Innovations and social responsibility

STRENGTHS	WEAKNESSES
<b>S1:</b> Good practice examples of community collaboration – successful projects	<b>W1:</b> Insufficient awareness and interest in innovation and social contribution
<b>S2:</b> Innovation and strong adaptability to digital trends	<b>W2:</b> Teaching-oriented focus – staff primarily focused on teaching, maintaining the traditional perception of university teachers
<b>S3:</b> Training in project proposal writing and project management	<b>W3:</b> Diversity of staff interests – lack of focus on specific innovative projects
<b>S4:</b> Lifelong learning programs – initiatives that enable continuous education and skills development	<b>W4:</b> Limited competitiveness – challenges in achieving institutional competitiveness
<b>S5:</b> Innovative learning approaches – methods such as Problem-Based Learning (PBL) and Work-Based Learning (WBL) enhance educational quality	<b>W5:</b> Weak institutional recognition mechanisms – absence of a clear system for evaluating and acknowledging staff initiatives
<b>S6:</b> FOI Centre for Volunteering and Humanitarian Work – a centre that promotes volunteerism and social responsibility among students and staff	

OPPORTUNITIES	THREATS
<b>O1:</b> Industry partners and collaboration – opportunity to work with various industrial partners	<b>T1:</b> Rapid changes in the IT industry – technological progress requires fast adaptations that may not be easy to keep up with
<b>O2:</b> Academic partners – collaboration with institutions within and outside of Croatia	<b>T2:</b> Industrial agility – industry often responds more quickly to changes and trends
<b>O3:</b> Innovation potential – need to leverage interdisciplinarity to develop innovative solutions	<b>T3:</b> Dynamic environment – constant change poses challenges for stability and development
<b>O4:</b> EU and national support – funding available for innovation and research through EU and national programs	<b>T4:</b> Need for continuous knowledge improvement
<b>O5:</b> Pre-incubation Centre for Smart Industry – can support the development of start-ups and innovative ideas	<b>T5:</b> Innovation competition – increasing competition can make success more difficult
<b>O6:</b> Doctoral research – doctoral studies can lead to new innovations and collaborations with industry	<b>T6:</b> Talent attrition – competitive working conditions in industry may lead to the loss of talented staff
<b>O7:</b> Alumni collaboration – networking with alumni can open doors for new projects and initiatives	<b>T7:</b> Insufficient government support – lack of state support may hinder innovation development
<b>O8:</b> Recognition in sustainability – a focus on sustainability can improve the Faculty's reputation and create new collaboration opportunities	

The SWOT analysis in the area of Innovation and Social Responsibility at SUZG FOI reveals strengths such as strong collaboration with the community, institutional support for innovation, and successful lifelong learning programs. However, weaknesses such as insufficient staff interest in innovation and a dominant focus on teaching pose significant obstacles. Opportunities for improvement include potential partnerships with industry and the availability of EU funding, while threats stem from rapid changes in the industry and the lack of national support.

The University of Zagreb Faculty of Organization and Informatics has a solid foundation for making progress in the area of innovation and social contribution, but it must address the identified weaknesses and threats to fully capitalize on available opportunities. Developing additional mechanisms to encourage innovation and establishing clearer priorities will be key to strengthening SUZG FOI's impact in the academic community and the labour market.

## Mission and vision of the University of Zagreb Faculty of Organization and Informatics

This strategic document defines the new mission and vision of the University of Zagreb Faculty of Organization and Informatics (SUZG FOI). They reflect a new developmental momentum and acknowledge the significant progress SUZG FOI has made since the period defined by the previous strategy (2019–2024). The mission and vision are aligned with past achievements as well as with

recognized opportunities in areas where SUZG FOI aims to achieve strategic breakthroughs. Adaptation to changes and new opportunities aligned with the current needs of the academic and research community and global educational trends are reflected in the new vision.

## Mission

**University of Zagreb Faculty of Organization and Informatics (UNIZG FOI) is a higher education and research institution with international impact in the field of information sciences and STEM interdisciplinary field, as well as in the field of economics in the context of entrepreneurship and innovation.**

## Vision

**Our vision is to lead innovation in higher education, teaching, and research with aim to develop sustainable digital society.**

## Goals, activities, and metrics

The goals of the University of Zagreb Faculty of Organization and Informatics (SUZG FOI) are focused on achieving excellence across three key areas of activity: Teaching and Students, Science and Research, and Innovation and Social Contribution. These goals follow contemporary trends and enable alignment with international standards in the fields of education, research, and social engagement. Planned activities are based on identified priorities, and progress will be monitored through clearly defined metrics, ensuring the development of teaching capacities, improvement in the quality and visibility of research, and the encouragement of innovation and knowledge transfer.

Sustainable practices will be embedded in all efforts, enriching developmental initiatives and activities.

As a higher education and research institution, SUZG FOI can contribute to sustainable development through the integration of sustainability topics and practices into study programs, scientific research, and project activities.

### Teaching and Students

Goal	Activities (from strategies)	Metrics
Goal 1: Continue developing interdisciplinarity in teaching and learning	Launch and implementation of interdisciplinary initiatives in scientific projects and study programs	Number of new interdisciplinary initiatives and projects
	Strengthening cooperation with industry to transfer research results into teaching	Number of signed cooperation agreements with industry partners
	Promoting the role of SUZG FOI in STEM fields through study and lifelong learning programs and initiatives	Number of expanded or improved study programs in STEM fields and other lifelong learning programs

Goal 2: Innovate teaching and learning processes	Encouraging innovation in curriculum design	Number of newly developed or improved curricula and study programs
	Implementing learning analytics systems to enhance teaching	Establishment and integration of a learning analytics system
	Reviewing the application of e-learning to optimize resource use and modernize teaching.	Number of e-courses that have been revised and evaluated.
	Strengthening advanced teaching and learning approaches such as WBL, PBL, and PrBL in collaboration with IT experts	Report on the application of methods/approaches in teaching, collected via nastava.foi or BDP learning-design.eu  Percentage of courses applying advanced teaching and learning methods
	Developing and improving hybrid and/or online courses to adapt to new teaching methods	Number of hybrid and/or online courses adapted to modern educational standards
Goal 3: Continuously improve study programs through innovation and new technologies	Introduction of new digital technologies into study and lifelong learning programs	Report on the application of new technologies in teaching, collected via nastava.foi or BDP learning-design.eu
	Active participation in the development of micro-credentials and lifelong learning programs	Number of lifelong learning programs (micro-credentials)
	Development and launch of the online ITDP study program and online specialist programs	Online study program
	Collaboration with industry experts in the development and delivery of course content	Number of courses with practical content developed in collaboration with industry experts
	Increase in horizontal and virtual mobility through elective courses utilizing advanced digital tools	Percentage of horizontal and virtual mobility
Goal 4: Continuously improve employees' digital and teaching competencies	Modernization of teaching competencies through training sessions and workshops.	Number of conducted training sessions and workshops for teachers.
		Number (percentage) of teachers who attended training programs for improving teaching competencies.  Number (percentage) of staff who attended training programs for

Goal 5: Internationalize teaching and study programs		enhancing digital competencies
	Professional development activities that include practical experience.	Percentage of teachers who participated in professional development programs
	Selection of strategic partners for student and staff mobility	Number of student mobilities and international partnerships
	Initiating joint study program development with international universities	Joint program development initiative
	Ensuring international experience for all students and staff	Percentage of students who participated in mobility Percentage of teaching staff who participated in mobility
	Preparing plans to attract international students and creating an English version of a selected study program	Number of enrolled international students English version of the study program developed
Goal 6: Share best practices and knowledge with other institutions	Recognition of ECTS credits earned during mobility.	Number of recognized courses (ECTS)
	Offering SUZG FOI IT systems to other higher education institutions	Number of other institutions using SUZG FOI IT systems
	Conducting marketing campaigns that promote the teaching profession as an attractive career path.	Number of conducted marketing campaigns and initiatives promoting the teaching profession
Goal 7: Ensure quality in teaching processes	Strengthening collaboration/mentoring of other institutions in areas such as project applications, career development, etc.	Number of new mentorships and established collaborations
	Regular analysis, improvement, and documentation of business and teaching processes in accordance with national and international accreditation guidelines	Number of analyses conducted related to teaching processes Percentage of teaching process improvements Compliance with accreditation standards and obtained accreditation approvals
	Improvement of the teaching process based on feedback from teachers and students	Number of changes in the teaching process based on survey results

## Science and research

Goal	Activities (from strategies)	Metrics
Goal 1: Increase the visibility and recognition of SUZG FOI through project collaboration	Encouraging collaboration with partners on research projects for joint publication of papers	Number of published scientific papers in collaboration with partners.  Number of patents/products
	Joining consortia for applying to competitive scientific research projects	Number of joint research project applications with partners
	Promoting interdisciplinary collaboration among research groups	Number of interdisciplinary projects and initiatives  Internal conditions related to laboratories that encourage Q1 and Q2 publications
	Encouraging applications for competitive scientific research projects	Number of applications for competitive research projects
Goal 2: Redefine scientific workload and increase international mobility	Utilizing a sabbatical year for international mobility and managing international project proposals	Number of faculty members using a sabbatical year for projects and mobility
	Encouraging the use of EU funds for teacher mobility	Amount of EU funds used for mobility
	Encouraging faculty members and associates to engage in long-term international research mobility	Number of faculty members and associates involved in international mobility
	Developing new Guidelines for Scientific Research with defined priorities for activity implementation and indicators of success	New Guidelines for Scientific Research developed
Goal 3: Organize and improve scientific work through a project-based approach	Encouraging interdisciplinary and international scientific projects	Number of interdisciplinary projects  Number of international projects
	Linking research results with globally recognized scientific performance metrics	Citation count of UNIZG FOI researchers' publications in relevant databases
	Developing a system for monitoring and analysing scientific and project productivity	Developed system for monitoring and analysing scientific productivity

Goal 4: Strengthen the contribution of research laboratories and projects	Defining indicators for measuring the contribution of research laboratories	Analysis of research lab reports based on defined indicators
	Encouraging an increase in the number of project proposals and research publications	Number of project proposals and publications per laboratory
	Promoting participation in prominent international scientific conferences	Number of faculty members/attendances at relevant conferences, i.e., A-rank conferences in specific scientific fields
	Encouraging teaching and research staff to engage in project activities	Number of collaborators and faculty members involved in projects
Goal 5: Ensure ethics and integrity in scientific research	Development of rules and training on the ethical use of technologies (e.g., AI) in science and teaching	Developed rules Number of conducted training sessions
	Implementation of policies that promote academic integrity	Number of ethics-related training sessions conducted Percentage of teachers and students who participated in the training
Goal 6: Expand international scientific collaboration at the institutional level	Expanding individual collaborations into institution-level partnerships	Number of formal institutional partnerships
	Connecting groups of faculty members from the institution with international scientific collaborations and research activities	Number of joint scientific activities at the institutional level
Goal 7: Encourage the publication of scientific papers in co-authorship with international researchers	Rewarding the publication of scientific papers in indexed databases co-authored with international authors	Number of published papers in indexed databases and by quartile, co-authored with international authors Amount of financial resources spent on publishing rewards
	Ensuring a support system (human resources and finances) for project proposal submission and project management	Amount of financial resources allocated to project application support.
	Encouraging scientific work within large international research teams	Number of active collaborations with international research teams
	Institutional membership in relevant global scientific associations	Number of institutional memberships in associations



Goal 8: Establish an open science policy and research strategy	Establishing open science policy guidelines.	Developed open science policy guidelines.  Number of initiatives related to open science.
	Defining research priorities and submitting project proposals aligned with the Faculty's strategic priorities.	Number of submitted project proposals aligned with priority areas.

## Innovations and social contribution

Goal	Activities (from strategies)	Metrics
Goal 1: Encourage industry-focused doctoral studies and knowledge transfer from such doctorates	Implementation of development and professional projects in collaboration with industry	Number of new projects with industry
	Involvement of a larger number of faculty members in projects with industrial partners	Number of faculty members involved in industry collaborations
	Offering UNIZG FOI's expertise to industry partners	Catalogue of UNIZG FOI's offerings
	Connecting scientific-teaching work with project-based work of staff members	Number of research papers related to projects (CRORIS database)
	Encouraging collaboration with industry to provide students with practical skills	List of practical skills and identification of those provided within the study programme
	Strengthening cooperation with businesses and alumni through guest lectures, workshops, and teaching activities	Number of workshops and lectures held with participation of industry and alumni
Goal 2: Develop and pilot new forms of innovation-focused collaboration	Positioning SUZG FOI through innovations and professional work	Number of new innovation-focused projects
	Encouraging innovation and social contribution in line with the Development Strategy and defined teaching and research priorities	Number of innovations and societal contributions aligned with identified strategic priorities
Goal 3: Build the identity of SUZG FOI as an innovation hub for recognized strategic areas	Selection of key research areas to ensure competitiveness	Number of initiatives that build the identity of SUZG FOI as an innovation centre
	Development of strategic projects based on institutional priorities (aligned with the Development Strategy) within selected areas	Number of projects and publications related to selected strategic areas
	Encouraging entrepreneurial ventures and innovative ideas by students and faculty members in collaboration with industry	Number of student and faculty entrepreneurial ventures and innovative ideas

Goal 4: Develop a sustainability framework in accordance with ESG standards	Systematic support and mentoring of student projects with a focus on sustainability	Number of student projects that include aspects of sustainability
	Promotion of SUZG FOI activities related to social impact	Media and social media posts about projects conducted by SUZG FOI
	Introduction of short educational programs (micro-credentials) focused on specific skills	Number of enrolled participants in micro-credential programs
	Setting long-term and short-term ESG goals aligned with the mission and values of SUZG FOI	Number of environmental initiatives Gender representation Public disclosure of reports Number of trainings related to ethics
Goal 5: Identify areas of excellence for each employee and encourage their development	Development of an internal "train the trainer" system for further professional development of teaching staff, based on annual review and analysis of scientific papers, projects and journals; student evaluations and feedback on teaching quality; participation in professional and scientific projects, conferences and international collaborations; awards and recognitions for academic or professional achievements.	Number of teachers involved in the training program
	Identification of key areas of expertise for all employees and fostering specialization	Number of training sessions held to encourage excellence
Goal 6: Ensure the development and sustainability of the Pre-Incubation Centre for Smart Industry	Increasing the number of patents and start-up companies initiated by teachers and students.	Number of patents and companies developed within the Centre
	Providing support to projects focused on knowledge and technology transfer	Number of successfully completed knowledge transfer projects
	Enhancing entrepreneurial, business, and technological knowledge and skills through specialized programs	Number of participants in entrepreneurial, business, and technological skills development programs

## Strategic guidelines in digital transformation

### Trends

Technological development plays a dual role in contemporary societies: it can act either as an enabler or as a disruptor. In both cases, it has the potential to drive innovation and positive change. Analysing technological and other relevant trends affecting the organization is crucial, as it provides insights into potential opportunities and challenges. The key trends impacting the operations of the Faculty of Organization and Informatics, University of Zagreb, are as follows:

- technological awareness and presence in all collaborative processes
- rapid technological advancement and its infiltration into all spheres of society and activity
- availability of technological infrastructure (hardware, software, data, and digital processes) as determinants of competitive advantage for technological leaders and followers
- business models supported by digital platforms and online communities
- the paradigm of delivering various services online (everything-as-a-service)
- personalized approaches to learning and teaching in the digital age
- social communities within digital environments
- innovations in learning outcomes and their acquisition (e.g., project-based learning, work-based learning, critical thinking, design thinking, etc.)
- management of student experience
- management of employee experience at FOI, University of Zagreb
- open science
- interdisciplinarity, sustainability, and inclusivity
- decentralization and digital resilience
- insufficient/unreliable funding of key activities.

## **Current activities**

In recent years, the Faculty of Organization and Informatics, University of Zagreb (UNIZG FOI), has been a leader in the implementation of e-learning, setting standards for innovative approaches in education. As a pioneer in integrating digital technologies into teaching processes, UNIZG FOI developed guidelines for applying e-learning methods in teaching as early as 2007, ensuring student access to high-quality educational content and flexibility in learning. Even today, these guidelines not only facilitate knowledge acquisition but also encourage active student engagement through interactive and collaborative tools. However, there is a need to modernize this approach, incorporating artificial intelligence in education, learning analytics, and learning design, as well as systematically transferring research results into practice (ensuring teaching quality).

Additionally, in response to the disruptive potential of new technologies, UNIZG FOI was among the first institutions to promptly address the challenges posed by emerging technologies, developing a comprehensive document for responsible use of artificial intelligence (AI) in the academic community. This document covers applications in education, scientific research, and professional practice. With this document, UNIZG FOI has emphasized its commitment to ethical, responsible, and legally compliant use of artificial intelligence, aligned with relevant national and international laws and standards.

In the document titled Framework for the Use of Artificial Intelligence Tools in Teaching, Student Work, and Research at the Faculty of Organization and Informatics<sup>4</sup>, University of Zagreb UNIZG FOI defines clear guidelines that:

- support the development of competencies for the use of artificial intelligence among students, teachers, and researchers, emphasizing ethical application and a critical understanding of AI's capabilities and limitations
- ensure transparency in the use of artificial intelligence, requiring clear disclosure of when and how AI is utilized in academic work and teaching materials
- align with legislative frameworks, particularly those related to privacy protection and intellectual property, thereby preventing misuse in teaching and assessment processes
- promote responsible research practices, requiring researchers to disclose the use of AI tools, evaluate potential biases, and ensure data accuracy, thus establishing high standards of academic integrity and research quality at UNIZG FOI.

Through this document, UNIZG FOI contributes to laying the foundation for thoughtful use of artificial intelligence in higher education and research, positioning itself as a leader in regulating the application of these technologies in alignment with European and global standards.

### **Priorities for the upcoming period**

Although UNIZG FOI is already actively transforming into a digitally mature organization through various ongoing initiatives, considering the strategic guidelines of the University of Zagreb, Faculty will prioritize the following:

- Further enhancement of existing applications and the development of new ones to support business processes, teaching, and research, along with their systematic implementation and integration. The development of digital tools that enable process optimization will continue, enhancing efficiency and flexibility.
- Continued advancement of digital competencies of employees and students. Training and professional development (lifelong learning, micro-credentials) focused on digital skill-building essential for success in a dynamic work environment will be implemented, fostering innovative thinking and problem-solving skills.
- Development and provision of digital support for excellence, inclusivity, and openness in science and teaching. Development of digital platforms that enable access to educational resources (MOOCs) will continue, promoting inclusivity and collaboration among students, researchers, and broader communities.

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<sup>4</sup> Okvir korištenja alata umjetne inteligencije u nastavi, studentskim radovima i istraživanju na Sveučilištu u Zagrebu Fakultet u organizacije i informatike [https://www.foi.unizg.hr/sites/default/files/foi\\_okvir\\_koristenja\\_alata\\_umjetne\\_inteligencije-1\\_0.pdf](https://www.foi.unizg.hr/sites/default/files/foi_okvir_koristenja_alata_umjetne_inteligencije-1_0.pdf)

- Strengthening the digital visibility and recognition of UNIZG FOI. Digital marketing strategies and social media channels will be utilized to enhance online presence, attract new students, and increase collaboration with industry and the academic community.
- Integration of state-of-the-art digital technologies into curricula. Current trends will be continuously monitored, systematically embedding digital tools and technologies into curricula to prepare students for the challenges of the digital era and enhance their competitiveness in the labour market.

## **Strategic guidelines for scientific and research activities**

Until 2023, the University of Zagreb Faculty of Organization and Informatics (UNIZG FOI), based its vision of scientific development on the Guidelines for Scientific and Research Activities. The Development Strategy for the 2025–2029 period encompasses clearly articulated goals, activities, and metrics within a broader framework, aligned not only with the institution's development vision but also tailored to contemporary conditions in the scientific research field. In creating the Development Strategy, key documents such as the Open Science Policy of the University of Zagreb, the Strategic Guidelines for Scientific and Research Activities of the University of Zagreb (2023–2026), and strategic documents of the European Research Area (ERA) were analysed. The goal was to align institutional plans with strategic documents of the home university and clearly defined national and international frameworks for scientific development, emphasizing investment in research and development with a priority on scientific excellence.

The Development Strategy of UNIZG FOI for the 2025–2029 period considers this field with special emphasis on establishing goals and measures that support innovation and the enhancement of research capacities. UNIZG FOI recognizes its strengths and opportunities, which it plans to leverage to further strengthen its position within the scientific community. Considering the continuous development and adaptation of strategic guidelines, UNIZG FOI will remain a centre of excellence integrating open science and promoting interdisciplinary research projects.

Clearly defined strategic guidelines in scientific and research activities aim to actively foster research and science that enhance the academic reputation of individual researchers, as well as the institution as a whole. Additionally, research activities will include international networking through scientific research and development projects and virtual research laboratories that facilitate the exchange and reuse of research data. Planning for research data management, aligned with initiatives by the Croatian Science Foundation, will increase visibility, citations, and collaboration among researchers.

### **Current activities – research infrastructure and laboratories of UNIZG FOI**

To foster high-quality scientific work in strategic areas, the Faculty of Organization and Informatics, University of Zagreb (UNIZG FOI), has established research laboratories as temporary organizational units that ensure agility and promote innovation. These research laboratories serve as the backbone

of scientific and research activities, gathering research groups around shared research interests. The laboratories have a mission of continuously conducting research and managing projects aimed at enhancing teaching and providing systematic support for knowledge and technology transfer. Nevertheless, research laboratories face ongoing challenges, such as strengthening connections and coordination within research groups. Laboratories should not merely be formal units without clearly defined purposes; rather, they must encourage mentorship activities involving doctoral students and early-career researchers, thereby contributing to the development of scientific careers and human potential. Many laboratories currently lack activities such as applying for national and international research projects, conducting internal projects, mentoring doctoral candidates, and actively involving them in laboratory activities. The conceptual framework of laboratories is built around bringing together a critical mass of researchers specialized in particular research niches aligned with the strategic areas of UNIZG FOI's development.

### **Priorities and strategic guidelines for the upcoming period**

Identified priorities in the field of science and research emerged from a SWOT analysis, enabling a comprehensive overview of strengths, weaknesses, opportunities, and threats. Based on this analysis, goals and activities have been defined to ensure the enhancement of human potential for scientific work, optimal allocation of resources, and strengthening of research capacities. Through this approach, UNIZG FOI has established the foundations for strategic orientation and the achievement of long-term objectives in science and innovation.

#### **Enhancing research laboratories' performance and increasing their visibility within and beyond UNIZG FOI**

- Encouraging applications for competitive research projects (e.g., Croatian Science Foundation, Horizon Europe). Interdisciplinary collaboration among research groups and laboratories is essential to increase scientific productivity.
- Promoting collaboration with the Doctoral Study Council in Information Sciences and the Doctoral Study Council in Digital Innovation Management to actively involve doctoral students in laboratory activities.
- Engaging students in research laboratory activities to support the preparation of bachelor's and master's theses, as well as scientific papers for publication in journals or conferences.
- Presenting the research laboratories' activities at institutional events.
- Assigning high priority to increasing the number of national and international project proposals, particularly competitive projects such as those under Horizon Europe and the Croatian Science Foundation.

#### **Strengthening scientific research and academic reputation**

- Continuing to promote scientific research that contributes to the academic reputation of researchers, research groups, and the institution.
- Encouraging publication of research articles in high-impact journals and increasing citation counts, with an emphasis on open science.

- Enhancing interdisciplinarity in scientific publications.
- Improving the quality and visibility of the Journal of Information and Organizational Sciences (JIOS) by increasing its H-index, expanding thematic areas, and enhancing promotional activities.
- Strengthening the institution's position within the international scientific community by improving the Central European Conference on Information and Intelligent Systems (CECIIS), increasing the number of high-quality papers, and actively participating with research presentations or invited lectures at highly competitive international scientific conferences.
- Encouraging research groups to join international virtual laboratories to facilitate global knowledge exchange and collaboration.
- Continuing efforts to motivate and financially support positively evaluated project proposals, as well as publications indexed in prestigious scientific databases (WOS, SCOPUS), emphasizing Q1 and Q2 journals..

#### **Strengthening collaboration with the industry and dynamic labour market**

- Ensuring the connection between scientific research and industry, as well as the dynamic labour market, to apply knowledge practically, thus increasing the relevance and practical value of research.
- Actively involving students in research projects to acquire practical knowledge and skills for further professional development.
- Providing support to students and teachers in developing innovative ideas and concepts, and transferring technological and business knowledge.

#### **Enhancing scientific infrastructure**

- Creating a recommended list of conferences and scientific journals aligned with the highest professional standards.
- Planning and promoting research data management aligned with recommendations from the Croatian Science Foundation, thus ensuring data reusability, increased visibility, and citation impact.
- Encouraging human resources policies that support research activities and productivity.
- Promoting visibility of scientific activities.
- Monitoring and continuously improving scientific productivity.
- Focusing on promoting JIOS and CECIIS as key platforms for knowledge transfer and recognition within the scientific community.
- Developing recommendations for academic and public promotion of the Faculty's research outcomes.

## Strategic guidelines for the internationalization of teaching and research

The Development Strategy of the Faculty of Organization and Informatics, University of Zagreb (UNIZG FOI), for the period 2025–2029 clearly defines goals, activities, and metrics aimed at strengthening internationalization. Key strategic documents informed the development of this strategy, including the University of Zagreb Internationalization Strategy (2014–2025), the Strategic Guidelines for Scientific and Research Activities of the University of Zagreb (2023–2026), and the Council Resolution on a Strategic Framework for European Cooperation in Education and Training towards the European Education Area and Beyond (2021–2030)<sup>5</sup>, with a particular focus on strategic priority 2, identifying mobility as a critical element of cooperation within the European Union and a tool for enhancing quality, with the Erasmus+ program serving as a key financial instrument for advancing internationalization.

Internationalization in higher education refers to the process of integrating international perspectives, experiences, and practices into various areas of academic activity, including teaching and research. The goal of internationalization is to prepare and encourage students, teaching staff, and employees to engage internationally beyond their immediate cultural or national contexts, fostering intercultural understanding, diversity, and cooperation.

Based on the conducted SWOT analysis, priority activities have been identified to support the internationalization of education through integrating international educational content to enhance teaching and study programs, as well as promoting mobility to acquire international experience. With a specific emphasis on strengthening international collaboration, UNIZG FOI's strategic guidelines for the internationalization of education focus on increasing international mobility for students and employees, encouraging the introduction of teaching in English, enhancing research collaboration with foreign institutions through joint projects, and increasing the number of visiting lecturers from abroad. UNIZG FOI recognizes its strengths and opportunities in this area and plans to further enhance its position in the international academic environment.

Through targeted development within key areas—teaching and research—UNIZG FOI will enable the realization of specific initiatives supporting the expansion of internationalization and integration into European and global academic networks.

### Current activities – internationalization in education and research

At UNIZG FOI, internationalization represents one of the pathways toward excellence in research, enhancing the relevance and quality of study programs and teaching, while simultaneously increasing the Faculty's visibility at both international and regional levels. UNIZG FOI continuously

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<sup>5</sup> Council Resolution on a Strategic Framework for European Cooperation in Education and Training towards the European Education Area and Beyond (2021–2030) <https://op.europa.eu/hr/publication-detail/-/publication/b004d247-77d4-11eb-9ac9-01aa75ed71a1>



strives to foster internationalization and create opportunities for international collaboration among staff and students through the following processes:

- Active academic partnerships with higher education institutions worldwide
- Incoming and outgoing student mobility, including virtual mobility, blended intensive programs, study visits, student internships, etc.
- Incoming and outgoing staff mobility (academic and non-academic)
- Courses delivered in English for exchange students, with integration into classes alongside local UNIZG FOI students
- Short, intensive workshops on the Croatian language and culture organized at UNIZG FOI for international students
- Promotion of international mobility opportunities (through events aimed at students and staff, the official website, and social media)
- International project collaboration
- The FOI International Days event, organized annually since 2007, aiming at networking, sharing best practices and ideas, exploring opportunities for future collaboration, and promoting the international activities of UNIZG FOI and its partner universities.

### **Priorities and strategic guidelines for the upcoming period**

Through clearly defined priorities, UNIZG FOI aims to further increase its international visibility, contribute to the goals of internationalization in education and research, and create conditions for the continuous development of global competencies among students and employees.

#### **New strategic partnerships and mobility**

- Selecting international partners to expand opportunities for student mobility (through study-abroad programs, exchange opportunities, or internships abroad), encouraging academic and non-academic staff to participate in teaching exchanges or professional development activities in other countries, as well as fostering research collaboration within project partnerships to address global challenges, share knowledge, and develop innovations.
- Developing a system to optimize and enhance mobility processes by creating efficient solutions to overcome existing challenges, improving academic success, cultural integration, and recognition of competencies acquired through mobility.

#### **Encouraging utilization of opportunities in an international environment**

- Increasing awareness among students, teachers, and staff about academic excellence gained through the exchange of knowledge and practices in an international environment, contributing to global awareness and intercultural understanding.
- Strengthening international scientific collaboration and research activities.
- Internationalizing curricula by integrating international content, perspectives, and experiences of visiting lecturers into courses.

- Supporting language learning programs to enable students, teachers, and staff to develop foreign language skills, thus enhancing their communication and collaboration capabilities.
- Promoting cooperation with international higher education and research institutions to address diverse research questions and contribute to sustainable development.

#### **Attracting international students**

- Developing study programs in English to facilitate the integration of international students and lecturers.
- Preparing a strategy to attract international students for both semester-long mobility and longer stays, including targeted marketing activities and collaboration with foreign educational institutions and recruitment agencies to increase international student enrolment.
- Increasing access to resources and comprehensive support for international students by developing programs that facilitate their integration into academic and social life.