

SUSTAINABILITY STRATEGY 2030

**Institute for Nanomaterials,
Advanced Technology and
Innovation (CXI)**

TECHNICAL UNIVERSITY IN LIBEREC

"There are no passengers on the spaceship called Earth. We are all crew."

Marshall McLuhan

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Our Institute views sustainability as a holistic concept encompassing research, economic, social, ecological, but also educational dimension.



Prof. Dr. Ing. Miroslav Černík, CSc.
Director of CXI TUL

A handwritten signature in blue ink, consisting of the initials 'M. Č.' followed by a stylized, cursive representation of the surname 'Černík'.

Sustainable development and CXI

Human society is going through a period of globally improving quality of life, but at the same time faces many challenges related to eliminating or mitigating the negative impacts of its current functioning. These impacts directly or indirectly affect the standard of human life and may significantly reduce it in the near future (e.g. climate crisis, biodiversity loss or land degradation and related issues such as food security or increased migration). The aim is to strike a balance between developing a society that enables present and future generations to meet their basic needs and preserving the diversity of nature and the natural functions of ecosystems. This approach, known and legislated in the Czech Republic as 'sustainable development', represents a move towards a future state of 'sustainability' that harmonises economic and social progress without harming the environment.

The Institute for Nanomaterials, Advanced Technologies and Innovations of the Technical University of Liberec (hereinafter referred to as "the Institute" or "CXI") is aware of the challenges associated with sustainability and social responsibility, wants to contribute to their solution through its activities internally and externally, and thus be an example for other parts of TUL, other universities and the whole society. The activities related to sustainable development involve both Institute employees and PhD students of the University, as well as project and other contractors. The aim is to talk about the topic; to link it to research and practice in joint R&D&I activities; to answer questions or discrepancies and to highlight the importance of sustainability in our behaviour.

The 2030 Sustainability Strategy of the Institute for Nanomaterials, Advanced Technologies and Innovations of the Technical University of Liberec (hereinafter referred to as the "CXI Sustainability Strategy") is a complementary strategic document to the 2030 CXI Strategy of TUL. It is also in line with the TUL Sustainability Strategy and builds on other documents: the UN Sustainable Development Goals (hereinafter referred to as the "SDGs"), the Green Deal for Europe, the Strategic Framework of the Czech Republic 2030, the Development Strategy of the Liberec Region 2021-2027 and other documents (see Table 1). In this respect, the Strategy sets out the mission, vision, priorities, strategic and sub-objectives for CXI's sustainability by 2030.

Table 1: Documents to which the CXI Sustainability Strategy builds on

International level
UN Sustainable Development Goals (SDGs), UN Agenda 2030
Green Deal for Europe (European Green Deal)
National level
Strategic Framework of the Czech Republic 2030
Strategic Framework of the Circular Economy of the Czech Republic 2040 (MoE)
National Research and Innovation Strategy for Smart Specialisation of the Czech Republic (the so-called National RIS3 Strategy)
SMART Czech Republic
Regional level
Development Strategy of the Liberec Region 2021 - 2027
Smarter Region for Liberec Region
Institutional documents of the Technical University of Liberec (TUL)
TUL Strategic Development Plan 2020 - 2030

TUL R&D Strategy 2020 - 2030
Gender Equality Plan (GEP) 2022 - 2025
Public Procurement Guidelines
CXI TUL documents
Strategy 2030 CXI
CXI HR Awards Action Plan
CXI Human Resource Development Strategy
Enhanced international cooperation strategy
Codes of good research and administrative practice

CXI Vision and Mission

VISION:

We want to be one of the leaders in applied research in the Czech Republic with a significant international reach, in innovative solutions in the field of nanotechnology, environmental protection and machine design and manufacturing using progressive information technologies.

MISSION:

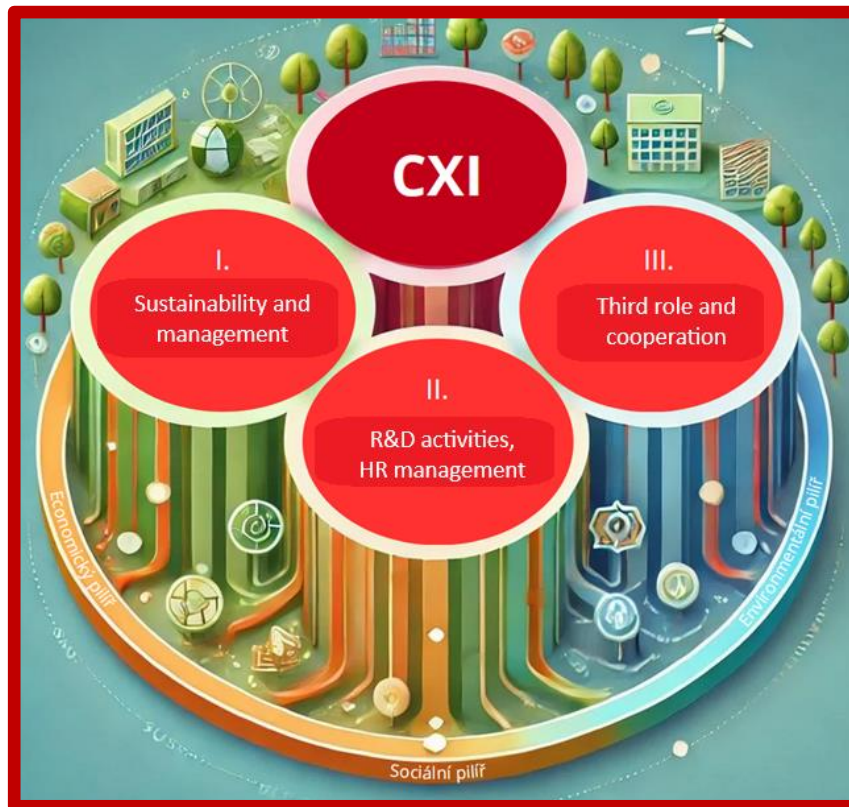
The Institute for Nanomaterials, Advanced Technologies and Innovations of the Technical University of Liberec is an internationally respected multidisciplinary centre of science and research. Our mission is to transfer innovations into real life on the basis of high-quality research and development together with our industrial partners. As part of TUL, we strive to develop human potential, education and prosperity of society. All this goes hand in hand with long-term sustainability.

Our goal is:

- Integrate the principles of environmental, social and economic sustainability in its day-to-day operations and activities (i.e. reduce its environmental footprint, be transparent in all dealings and meet human needs in supply and demand chains, behave responsibly towards its staff and students within the limits of its resources),
- to pursue cutting-edge research that can bring new innovative solutions to global, regional and local challenges; to support and educate the Institute's staff and students, developing their core competencies to enhance the quality of life and meet the needs of current and future generations,
- to play its third role as a key part of the public debate on sustainability in local and national contexts, in the civic and corporate sectors.

Priority areas

CXI's Sustainability Strategy sets out three priority areas that correspond to the Institute's substantive focus. These key areas are based on TUL's 2030 CXI Strategy, complement each other and in some aspects naturally overlap.



Each priority area has its own specific objective and deals with several sub-areas for which it sets specific sub-objectives. These areas of interest and their objectives, as well as the sub-objectives of the Strategy, are based on the latest scientific knowledge and experience of the world's leading universities. They reflect international frameworks and standards and are adapted to the needs of CXI TUL.

Proper organisation and communication on sustainable development issues, including mechanisms for obtaining feedback, will enable flexible responses to changes in society and within CXI TUL. This will help to improve and coordinate the proposed practices. The strategy will be updated every five years, in line with the current situation at national and international level. The Action Plans for each year will always form an integral part of the Strategy in the form of an annex.

I. Priority area:

Sustainable development and management of the Institute

Main objective:

Effective management and organisational support of CXI's operations, fulfilling the principles of sustainable development, i.e. achieving sustainable operation and management of CXI, reducing its environmental footprint, and taking a socially and environmentally responsible approach to its own activities.

Sub-objectives:

I.A Sustainable Development Management

- Collaboration, internal communication and awareness raising (use of existing organisation and communication on sustainable development; higher level of collaboration and awareness raising on the topic; efforts to raise awareness and reduce negative impacts on the environment and society)
- Strategic documents and CSR reporting (implementation of the set measures; regular monitoring of progress in the area of sustainable development at CXI through evaluation of annual Action Plans; updating the Strategy every 5 years; ensuring compliance with CXI TUL's Strategy 2035 and other strategic documents, including the inclusion of sustainable development elements where relevant)
- Funding (diversification of funding sources with regard to sustainability; ensuring funding for CXI's sustainability activities from internal and external sources with proven ethical origins, i.e. emphasis on transparency)
- Responsible Purchasing (applying responsible procurement principles to CXI procurement and purchasing *)

I.B Building "L" / infrastructure

- Taking environmental aspects into account in the modifications / modernisation of the existing building "L" (reduction of energy consumption, renewable energy sources, prevention of bird strikes on glass, use of secondary raw materials in renovations, etc.)

I.C Waste and the circular economy

- Monitoring waste streams at CXI (including efforts to reduce hazardous waste)
- Waste prevention, sorting and further processing (i.e. waste management in accordance with the principles of the circular economy, development and streamlining of the sorting system, introduction of waste prevention measures at CXI)

I.D Water, greenery

- Water management (monitoring of water consumption, implementation of water management at CXI)

I.E Energy, heat

- Energy management (monitoring of energy and heat consumption, implementation of energy management at CXI, reduction of energy footprint according to ISO 16064 or GHG Protocol)

* This issue is addressed in the TUL Public Procurement Guidelines

I.F Information technology and digitalization

- Introduction of IT infrastructure management and support for digitalization / computerization at CXI (reduction of energy consumption, paper, etc.)

I.G Mobility

- Business travel (setting up measures to reduce the environmental footprint of CXI employees' business travel)
- Regular travel to work (promoting the use of more environmentally friendly modes of transport for travel to work)

I.H Meals

- Provision of sustainable catering for CXI employees (packaging-free; water vending machine and the possibility to buy drinks in sustainable cups at the CXI reception; kitchenettes and shared spaces suitable for catering, i.e. the possibility to consume your own food from reusable containers, the provision of shared import of ready meals, etc.)

Indicators of achievement of Priority Area I objectives by 2030:

- ✓ monitoring the number of actions/events related to sustainability issues
- ✓ publication of the CXI CSR report (frequency: 1x per year)
- ✓ search for suitable transparent grant titles to diversify resources (especially Horizon Europe projects) with a close link to sustainable development
- ✓ Promoting high quality sustainable results according to the M17+ Methodology or developing international cooperation based on high quality CXI results
- ✓ CXI waste quantity and flow analysis 1x/year (breakdown: mixed municipal waste, plastics, paper and cardboard, packaging containing hazardous substances, solid waste, liquids containing hazardous substances)
- ✓ monitoring of water, energy and heat consumption in building "L" (frequency: once a month - <https://udrzitelnost.cxi.tul.cz/>)
- ✓ seeking synergies between the different CXI components in the digitalisation and development of IT
- ✓ monitoring forms of "green travel" (both business travel and regular travel to work)
- ✓ the creation of shared spaces suitable for meals and informal gatherings
- ✓ Participating in the development and subsequent implementation of standards for responsible public procurement in cooperation with the Public Procurement Department at TUL
- ✓ Preparation of environmental footprint reporting for CXI as an organisation (according to EC Recommendation (EU)2021/2279 of 15 December 2021 on the use of environmental footprinting methods for measuring and communicating the life cycle environmental profile of products and organisations)
- ✓ Evaluation of the annual Action Plans and preparation of the follow-up Strategy for 2031 – 2035

II. Priority area:

Research activities and personnel management of the Institute

Main objective:

Strengthening the theme of sustainable development in scientific research and personnel management.

Sub-objectives:

II.A Creative activity

- Support for research, development and innovation in the field of sustainable development at CXI (basic and applied research projects, or development of existing and new research directions and areas, supervision of final student theses, publication activities, etc.) *
- Renovation and development of existing instrumentation according to current R&D&I technological trends in accordance with the principles of sustainability

II.B Internationalisation

- Enhancing CXI's international standing (here it is necessary to mention the supporting documents: the CXI HR Award Action Plan and the CXI Enhanced International Cooperation Strategy)
- Support for the development and deepening of international cooperation and participation in international networks and R&D&I projects in the field of sustainable development

II.C Education for sustainability

- Education of employees in the field of sustainability, integration of PhD students into project teams (of a scientific research nature, but primarily focused on sustainable topics), mentoring, on-the-job training

II.D Equal opportunities, well-being of employees

- Ensuring equal opportunities and promoting the well-being of CXI employees through formal tools and informal groups (e.g. CXI4LIFE), providing attractive and quality facilities for CXI employees **

Indicators for the achievement of the objectives of Priority Area II by 2030:

- ✓ better communication between employees/departments through existing and new communication channels
- ✓ Searching for suitable subsidy titles for the renewal of R&D infrastructure
- ✓ support for domestic and international mobility with the aim of involving R&D staff in new R&D&I activities with a link to sustainability
- ✓ support for a bilingual environment on CXI (spoken and written forms)
- ✓ strengthening international standards in all activities, including digitisation
- ✓ greater involvement of research teams in international networks and platforms
- ✓ Existence of updated documents: the Gender Equality Plan, the CXI Human Resource Development Strategy, the CXI Codes of Good Research and Administrative Practice
- ✓ strengthening the sense of belonging to CXI

* this issue must be in line with the following documents: the Strategic Development Plan of TUL 2020 - 2030, the R&D Strategy of TUL 2020 - 2023, the CXI Code of Good Research Practice and the CXI Code of Good Administrative Practice

** address this topic and set other specific objectives, in particular: Gender Equality Plan 2022 - 2025, CXI Human Resource Development Strategy and other sub-documents.

III. Priority area:

Third role, cooperation and external communication of the Institute

Main objective:

Contributing to current societal developments and contributing to the dissemination of the latest scientific knowledge and values in the field of sustainable development, including the application of results in practice.

Sub-objectives:

III.A Third role CXI

- Popularising science and research in the field of sustainable development

III.B Strategic partnerships, memoranda of cooperation

- CXI's cooperation in the field of sustainable development with other national and international universities and research institutions

III.C Support for the region

- Support for regional producers and products (cooperation with the Statutory City of Liberec and the Liberec Region to develop all three pillars of sustainable development, cooperation with private sector companies, non-profit organizations, etc.; see the Liberec Region Development Strategy 2021 - 2027 and the Smarter Region for the Liberec Region)

Indicators for the achievement of the objectives of Priority Area III by 2030:

- ✓ regular information of the professional and general public about CXI activities and results in the field of sustainable development through selected media (RTM+, social media, newspaper articles, etc.)
- ✓ deepening the knowledge of R&D staff in the field of technology transfer
- ✓ greater integration of basic research, applied research and industrial development in the field of sustainable development
- ✓ Engaging primarily in local (regional) but also other events that will promote aspects of sustainable development to the public (i.e. public lectures, scientists' night, workshops, etc.)
- ✓ support for the application of R&D results in practice
- ✓ Sharing the experience gained from the implementation of measures supporting sustainable development of CXI through publicly accessible electronic media (in the Czech Republic and abroad)



Annex - Action Plan for 2024

These sub-targets set for 2024 will be evaluated on 31 December 2024:

Priority Area I.

Description of the sub-objective	Expected value	Fulfillment (A/N), comment
Number of events (implemented / attended) related to sustainability issues	5	
CSR report for 2024	1	
R&D projects focused on sustainable development	5	
Quality results according to the M17+ Methodology focusing on sustainability	10	
CXI waste analysis	10% reduction in waste	
Monitoring of water, energy and heat consumption	10% reduction in consumption for each category	
Creation of shared spaces suitable for meals and informal gatherings	1	

Priority Area II:

Description of the sub-objective	Expected value	Fulfillment (A/N), comment
Number of domestic and international mobilities related to sustainability issues	5	
Number of engagements in international networks and platforms (link to SDGs)	2	

Priority Area III:

Description of the sub-objective	Expected value	Fulfillment (A/N), comment
Number of information (articles, radio/TV spots, etc.) on CXI results and activities with a link to sustainability	3	
Number of local/regional events organized/attended that promote sustainable development (lectures, workshops, scientists' night, etc.)	3	
Number of sharing of lessons learned from the implementation of measures supporting the sustainable development of CXI through publicly accessible electronic media (in the Czech Republic and abroad)	2	