



RESEARCH AND
DEVELOPMENT

DIAGNOSTICS,
TESTING AND
CERTIFICATION

PROPRIETARY
SOLUTIONS

CORPORATE SOCIAL RESPONSIBILITY REPORT

2018

KONČAR
Electrical Engineering
INSTITUTE



Statement from senior decision maker

Letter from the Management

It is our pleasure to present the 12th CSR Report of our Institute. Now we can state that with each year and each report we have improved the way and concept of presentation of our economic, environmental and social achievements in accordance with the development of GRI guidelines and standards.

In this report we present our contributions to responsible asset management, fair and ethical business practices, diversity and equal opportunity in the workplace, environmental impacts, development of products and services, overall economic performance and generation of value added for the entire community.

This report will also show you our contribution to the UN 2030 Agenda for Sustainable Development, i.e. to the sustainable development goals in which we have achieved the greatest impacts. The sustainable development goals are a common framework for organizations in all industries and sectors whose aim is joint progress towards a better future.

In 2018 special attention was paid to communication and better cooperation with our employees through new activities. To improve diversity management, we have adopted a Diversity and Non-discrimination Policy and Action Plan for Advancement of Diversity and Non-discrimination till 2021 in order to develop a positive organizational culture and track measurable goals. For the first time we have organized a visit of employees' families and relatives in order to show them the Institute and our working environment. Majority of employees was very satisfied with the event, and we expect that the next Open Doors Day will find even greater response.

The area of greatest priority is the professional health and safety of our employees, to which we each year pay great attention and improve our activities. We cannot be fully satisfied with the achievements in this segment until we have achieved total and complete safety at workplace.

The financial results in 2018 are somewhat better than in 2017. Our core business remains the same as in the previous years: research and development, our own solutions for the monitoring of primary electrical power equipment, embedded computing systems for applications in power engineering, vehicles and railway infrastructure, laboratory and diagnostic testing services, product certification, and expert and consultancy services.

The most significant export products and services in 2018 were transformer, bushing and machine monitoring systems, laboratory testing, and SIL platform

development. Income from sales was € 10.59m, with 49% from testing, certification and diagnostic services, 31% from our own solutions, and 20% from research and development.

The planned investments for the unapproved CEKONET project will focus on the construction of a new Laboratory for Power Systems and Drives (LAVESP) and other projects for the modernization of laboratory equipment. In order to increase the efficiency of the existing Laboratories of the Institute and simplify customer access, it is planned to reorganize the Institute and consolidate all the laboratories and their activities into one Laboratory Center with a single accreditation of the Croatian Accreditation Agency. The end of the accreditation process is scheduled for April 2019.

In November 2018, a contract was signed with the Croatian Science Foundation (HRZZ) on the co-financing of the four-year project "Capacitively graded oil-paper insulation behaviour under very fast transients". Apart from this project, in 2019 we shall be working on two more important co-funded R&D projects: SafeTRAM (planned completion in 2020) and SafeLog (a Horizon 2020 project started in 2016 with completion in 2019). The Institute's activities within the SafeLog project cover the research, development and production of a SIL safety vest prototype for personnel working in robotic warehouses. The SafeTRAM project refers to the development of a system for increased driving safety in public urban rail traffic.

The long-term business strategy of the Institute in the forthcoming period is focused on top R & D services, competent and well-equipped laboratories and competitive advanced IT-based products.

In addition to investments in infrastructure for laboratory and diagnostic testing as well as in maintaining and enhancing the acquired competencies, the Institute continues to invest in competencies of the Certification Body and the Body for Inspection of Power and Measuring Equipment. These bodies, together with Institute's notification for 6 EU Directives (the Institute is Notified Body 2494), further increase the recognition of the Institute in the market of laboratory, diagnostic, certification and inspection services.

In the next period, besides great efforts to maintain economic stability, our most important priorities will as always be to meet the expectations and needs of our stakeholders.

Zagreb, May 2019

Managing Board President
Siniša Marijan, PhD



Member
Rajko Gardijan, BSc



Deputy Member
Samir Keitoue, BSc



Abbreviations used in the Report

the Institute	KONČAR – Electrical Engineering Institute Inc.
the Group, KONČAR Group	KONČAR – Electrical Industry Inc. and subsidiaries
Parent Company	KONČAR – Electrical Industry Inc.
CSR	Corporate social responsibility
GRI	Global Reporting Initiative
GRI Standards	GRI Sustainability Reporting Standards
SD	Sustainable development
SDG	Sustainable Development Goals
RDI	Research – development - innovations
TMS	Transformer monitoring system
MCM	System for machine condition monitoring and fault detection
MEP	Electromagnetic field monitoring system
TCMS	Train control and management system
HVDC	High Voltage Direct Current
LCC	Life Cycle Costs
RAMS	Reliability, Availability, Maintainability, and Safety
CENELEC	European Committee for Electrotechnical Standards
VA	Value added
SCERT	Certification Service
LAVESP	Laboratory for Power Systems and Drives



GENERAL DISCLOSURES

“The basis of our sustainable business is research, development and innovations”

ORGANIZATIONAL PROFILE

102-1,3

Name of the organization, Location of headquarters

KONČAR – Electrical Engineering Institute, Inc., with headquarters at Fallerovo šetalište 22, 10000 Zagreb, Croatia, operates in the areas of energy conversion and transmission, as well as in the use of electricity in power industry and transport.

It was founded on January 21, 1991 on market principles as an independent company within the KONČAR Group. It continued the work on core activities of the company Rade Končar – Elektrotehnički institut (founded in 1961).

102-2

Activities, brands, products, and services

The main activities of the Institute are research, development and testing in the fields of natural, technical and technological sciences, with orientation towards applied research, testing and support to development projects of the Group. Besides supporting the Group in power industry and transport, the Institute offers its proprietary solutions and services in the global market.



102-4

Location of operations

The Institute's headquarters is in Zagreb. It has neither branch nor representative offices. Important markets and countries in which the Institute is present with its products and services are specified in 102-6.

102-5

Ownership and legal form

The Institute has the status of an autonomous company wholly-owned by KONČAR – Electrical Industry Inc., which leaves the Institute its entire profit for further development. Statement of Independence of June 6, 2000 confirms its independence of any influence of its owner, manufacturers or suppliers of products, and that none of them can in any form influence test or certification results.

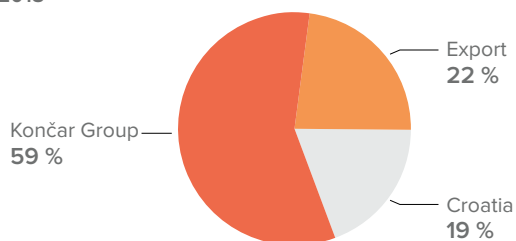
The Institute is registered in the Register of the Scientific Organisations of the Ministry of Science and Education. At the same time, being a company specialized in applied research in electrical and mechanical engineering, it has two important roles within the KONČAR Group:

- support to further development of solutions manufactured and sold by KONČAR companies based on contracts and market principles, providing expertise and R&D testing in numerous laboratories of the Institute,
- applied research at its own expense for the development of new solutions compatible to the production programme of the KONČAR Group, for which the Institute bears risks not only regarding the development but also regarding their placing on the market.

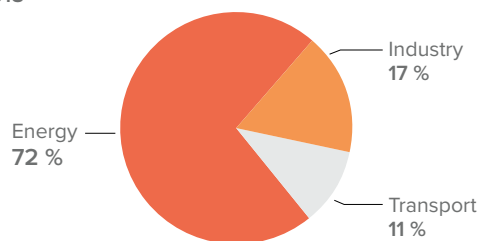
102-6 Markets served

Major companies for the power systems area, telecommunications and transport are the Institute's long-time partners on the Croatian market. The most important customers on the world market are the global companies from Sweden, Bulgaria, Germany, Republic of Korea, Serbia, Switzerland, Romania and Iran. Most important partners in R&D field are companies from KONČAR Group. Most important markets for diagnostics, testing and certification are the Croatian and EU ones.

SALES PER MARKETS
2018

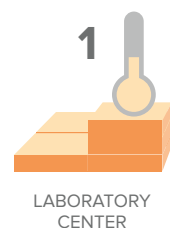
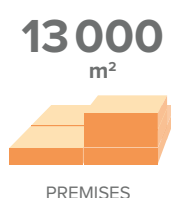


MARKET SEGMENTS
2018



102-7 Scale of the organization

By its size and boundary indicators KONČAR – Electrical Engineering Institute Inc. belongs to small and medium-sized enterprises according to the classification in the Accounting Act of Croatia.

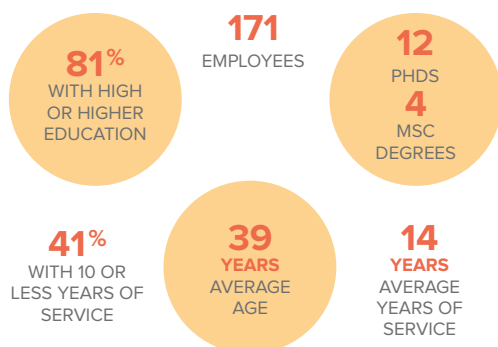


102-8 Information on employees and other workers

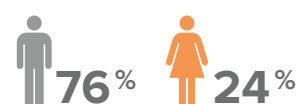
At the end of 2018, the Institute had 171 employees, what is a slight increase from 170 at the end of 2017. 139 employees have high or higher education, 12 of them are with PhD and 4 with MSc degrees. In 2018 the average age of employees decreased from 40 to 39 years, and the average years of service from 16 to 14.

(on 31. 12. 2018)

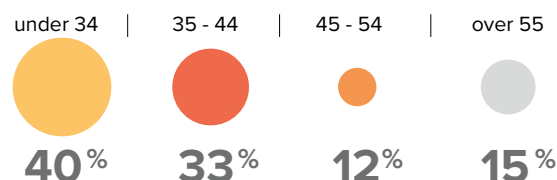
EMPLOYEE STRUCTURE
2018



EMPLOYEES
PER GENDER
2018



EMPLOYEES
PER AGE
2018



EMPLOYMENT CONTRACTS

Gender	Temporary	Permanent	Trainees	With special rights, obligations and fees	Total
M	13	107	7	3	130
F	6	34	1	-	41
Total	19	141	8	3	171

Involvement of the Institute in the Implementation of UN Global Goals for Sustainable Development

UN adopted the 2030 Agenda for Sustainable Development to end poverty in the world, ensure quality education, healthy lives, decent jobs and address key environmental challenges. We have identified seven goals closely related to the Institute's business activities, whereby we can monitor our contribution to their implementation.

We protect investments in property and primary equipment

We ensure better management of capital assets, safe and reliable risk management

Our contribution to goals 7, 8, 9, 11 and 12:

7 AFFORDABLE AND CLEAN ENERGY



We are committed to the use of renewable sources and energy-efficient solutions. The Institute's contribution is related to water, sun and wind. We help modernize, monitor and diagnose vital equipment in hydro power plants, wind power plants and photovoltaic plants. We provide expert assistance in the construction of photovoltaic power plants and develop reliable vital components, such as our innovative KonSol inverter.

Our solutions improve resource management, reduce plant maintenance costs, and extend the lifespan of primary equipment.

8 DECENT WORK AND ECONOMIC GROWTH



By participating in R&D projects, we help build an adaptable infrastructure, promote inclusive and sustainable industrialization, and foster innovation.

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



Systems with functional safety requirements ensure the highest level of protection of people's lives and safety of assets in work processes with a high potential risk.

11 SUSTAINABLE CITIES AND COMMUNITIES



Electromagnetic field monitoring system provides local communities with information about actual radiation values, thereby contributing to their safety.

12 RESPONSIBLE CONSUMPTION AND PRODUCTION



Primary power equipment monitoring systems enable better management of vital components and risk management, thus contributing to a better quality of life for everyone.

We help manufacturers to have their products tested so that they can be marketed.

We assist manufacturers in assessing compliance of their products with regulations to determine their safety and reliability for the user and the environment.

Material topics: economic performance, indirect economic impacts

We protect the environment

By responsible management of natural resources and waste disposal in a safe and secure way we protect human health and minimize environmental impact

Our contribution to goal 12:

12 RESPONSIBLE CONSUMPTION AND PRODUCTION



We reduce the risks of premature obsolescence and product rejection through our own hardware and software platforms, helping to reduce emissions and accumulate unnecessary electronic waste.

Rational consumption of energy resources and the establishment of emission control systems in environmental constituents reduce the adverse effects to the smallest possible extent.

Material topics: energy, emissions of greenhouse gases, effluents and waste

We protect people and the community

Our business activities reflect global needs and ambitions for solving complex technological challenges, protecting people and the community

Our contribution to goals 4, 5 and 8:

4 QUALITY EDUCATION



We encourage personal development and improvement of employees through professional education, foreign language learning, IT training and education for quality systems, environmental protection and occupational safety.

By exchanging knowledge and partnership, both academic community and the Institute acquire new competencies, creating new opportunities for development and value added in the wider community.

5 GENDER EQUALITY



By accepting and encouraging diversity and equal opportunities, we contribute to both organizational culture and the general goals of non-discrimination and gender equality.

8 DECENT WORK AND ECONOMIC GROWTH



Solving complex industrial challenges and participation in international and national projects encourages employment on challenging tasks and creates new desirable jobs.

Healthy and secure working environment is recognized as our greatest responsibility and contribution to creating quality jobs.

Material topics: training and education, community, diversity and equal opportunities, employment, health and safety at work

102-2

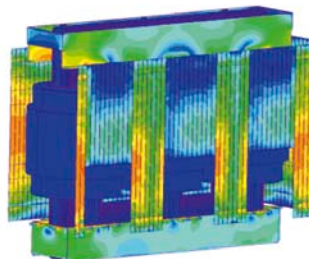
Business activities



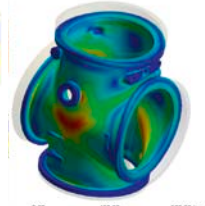
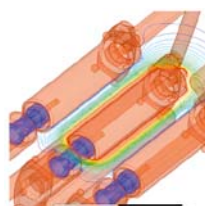
Research and development

Applied and developmental research is focused not only on acquiring new knowledge, but also on solving advanced requirements on power equipment:

- Reduction of energy consumption (losses)
- Increased dynamics (frequent starts, variable speeds...)
- Study of voltage conditions in the isolation system of power transformers including those for high voltage direct current (HVDC)
- Research of new environmentally friendly insulation materials
- Investigation of power and instrument transformer failures
- Equipment condition monitoring (sensors and monitoring)
- Controllability of equipment (measurement of process variables)



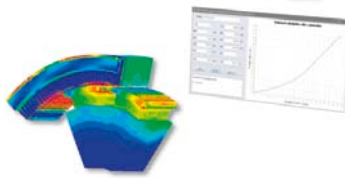
Research and applied solutions in the field of switchgear, with kinematic and dynamic analysis of mechanisms



Up-to-date computation tools, simulation and physical models, and prototyping are all used to improve characteristics of standard and special purpose electrical machines

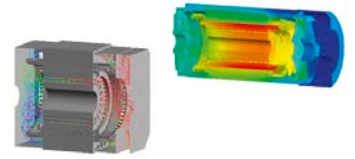
ELECTROMAGNETISM

- Machine loss disposition calculations
- Specific purpose analyses
- Optimization of active machine parts



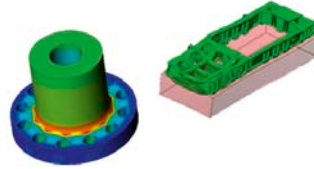
HEATH TRANSFER

- Machine temperature distribution analyses
- Computation of fluid dynamics (CFD)
- Optimization of heat transfer



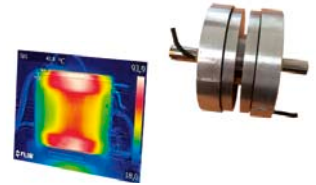
MECHANIC

- Varying load vibration calculation
- Determination of material fatigue
- Stress analyses



PHYSICAL MODELS

- Determination of precise characteristics
- Concept verification
- Prototype manufacturing



Systems with Functional Safety requirements

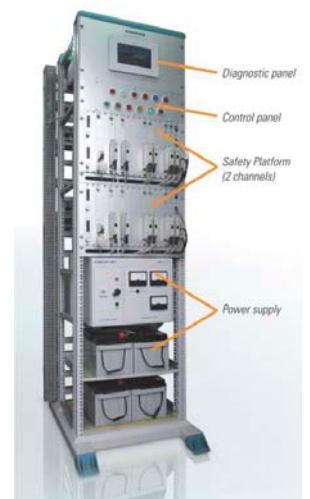
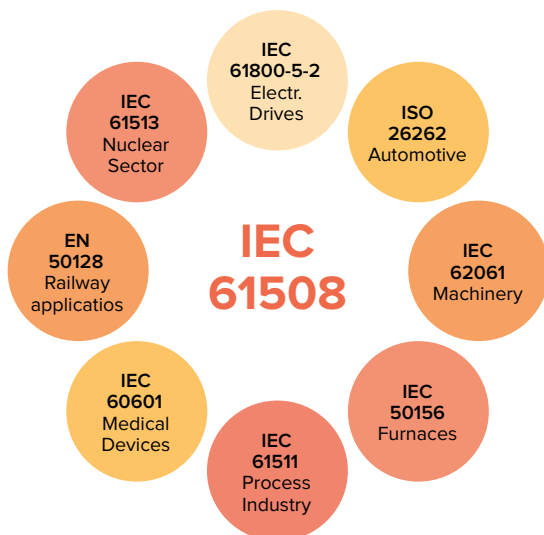
- Development of systems with functional safety requirements
- 30 years of experience in solving complex challenges related to control, electronics, communications and ICT in the rail sector

Our approach: “DEVELOP ONCE, USE MANY TIMES”.

We develop simple and modular solutions for a wide range of applications, solving obsolescence of components through hardware and software compatibility.

We are specialized in embedded control solutions according to the functional safety requirements for railways and machines.

Area	Safety level				
Railway (CENELEC 50126/128/129)	SIL-0	SIL-1	SIL-2	SIL3	SIL4
General (IEC-61508)		SIL-1	SIL-2	SIL3	SIL4
Automotive (ISO 26262)	QM	ASIL-A	ASIL-B/C	ASIL-D	-
Avionics (DO-178/254)	DAL-E	DAL-D	DAL-C	DAL-B	DAL-A



Key elements in our approach:

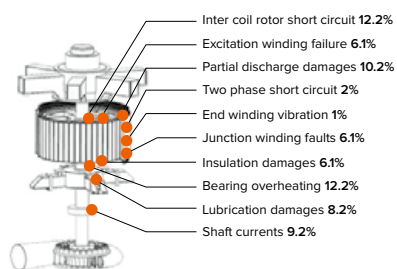
- our customers are our partners,
- experienced, highly competent and creative associates,
- harmonization of customer's requirements with the LCC, RAMS, and CENELEC.

The Institute has acquired considerable references in the development of embedded control systems based on SIL (Safety Integrity Level) HW/SW components. We offer solutions based on our proprietary components or development in accordance with customer needs.

Proprietary monitoring and control systems

In order to improve our customers' safety, reliability and sustainability of the use of primary equipment we must find new technical solutions to meet stringent requirements and growing market expectations. This means understanding the different needs of our customers, while at the same time finding sustainable ways to meet increasingly stringent requirements on equipment and the environment.

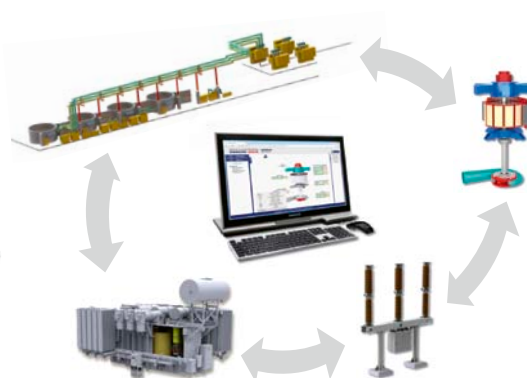
- Safe and reliable risk and primary power equipment management
- Reduction of maintenance costs
- Longer life



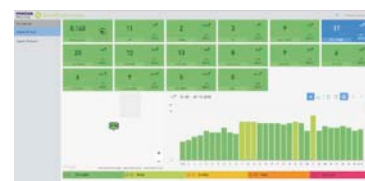
73%
OF CAUSES OF
MACHINE FAILURES
CAN BE PREVENTED
BY MCM



TMSs MONITOR
> 50.000 MVA
OF INSTALLED POWER



CONTINUOUS ON-LINE
MONITORING AND
DIAGNOSTICS OF POWER
EQUIPMENT



24hour
MONITORING OF
MAGNETIC FIELD NON-
IONISING RADIATION

Our up-to-date technical solutions are the result of many years of experience and knowledge based on the research, development, testing and diagnosis of primary power equipment and information and communication technologies.

- Centralized monitoring and protection of capital equipment in a power plant (generator, turbine, transformer, switchgear and controlgear...)
- Higher availability of equipment
- Higher safety of a power plant
- Better asset management
- Reduced cost of maintenance – predictive instead of periodic equipment maintenance
- Possible connection with other smart grid components

Features of monitoring systems:

- On-line systems
- Applicable to all kinds of primary equipment
- Modular and upgradable systems
- Long-term data storage and important events tracking (trends, waveform, alarms...)
- Local and remote data access

Transformer monitoring system – TMS

Končar TMS enables on-line monitoring and diagnostics of all vital parts of power transformers and reactors. It detects incipient faults, so that user can prevent failure by timely intervention.

Modular design enables simple adaptation to user requirements and specific features of each transformer (type, size, redundancy), i.e. better asset management and residual life assessment.

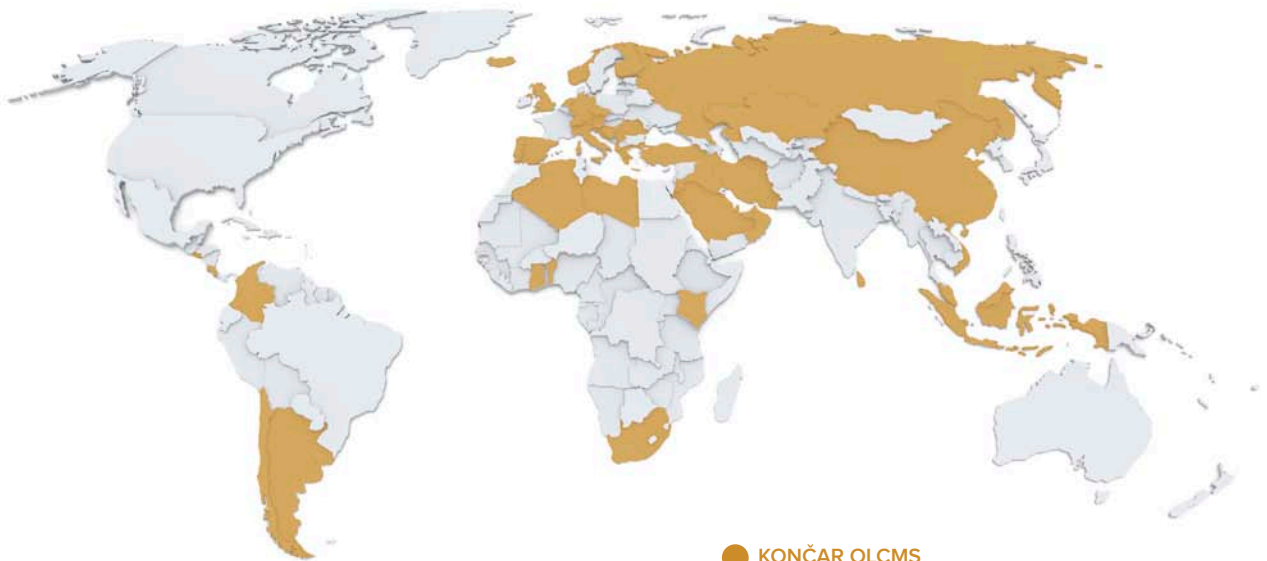
Systems for machine condition monitoring and fault detection – MCM

Stable electric power system is the backbone of any economy. Especially the production part of electric power system must be available and secure to ensure uninterrupted supply of electrical energy. Rotating electrical machines as part of a complex power system are vital elements and thus must fulfil modern and complex requirements.

To ensure reliable operation of the machines we have developed various condition monitoring systems, whose main function is early detection of possible defects and prevention of major material and financial losses.



MORE THAN **600** ON LINE CONDITION MONITORING SYSTEMS (OLCMS) DELIVERED IN **45** COUNTRIES WORLDWIDE.



● KONČAR OLCMS



Electromagnetic field monitoring system – MEP

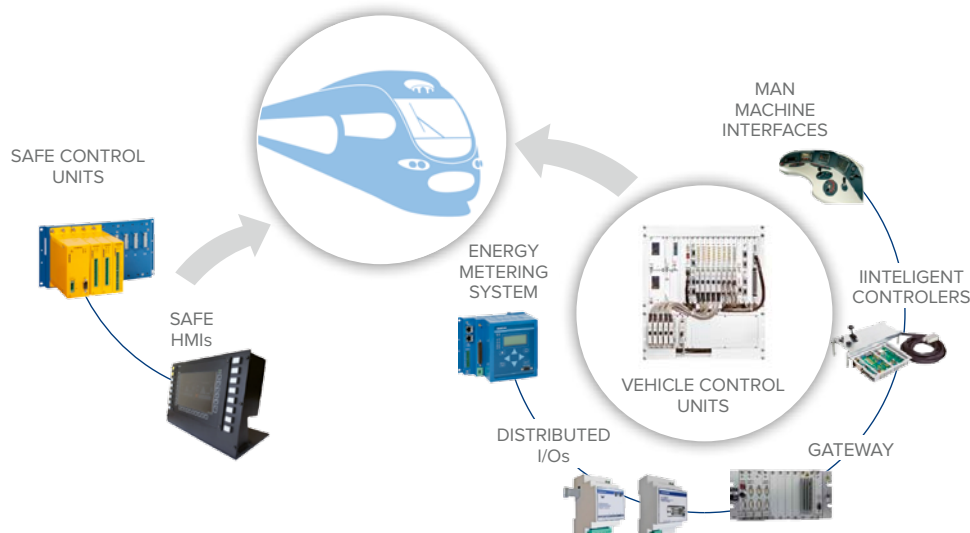
MEP is a system for continuous monitoring of electromagnetic non-ionising radiation at all frequencies. It enables local communities insight in monitoring results, i.e. in the actual radiation values. In this way all the interested can compare actual radiation values with the levels defined in the Regulations for Protection against Electromagnetic Fields.

MEP is an autonomous system that can be set up in any location. It consists of an isotropic antenna for measuring all 3 axes, spectrum analyser, GSM modems and a software application that receives data and displays them in a user-friendly form.



Train control and management system – TCMS

After successful development of embedded control systems for locomotives and trams, the Institute has developed and delivered train control and management systems for new Croatian electric and diesel trains. Almost all components of these systems are based on modular and sustainable platform which is a product of years of in-house development. The platform comprises numerous hardware and software components which enable configuration of different control systems for various purposes and of various levels of complexity. TCMS set is composed of train main computer, man-machine interface, gateway, intelligent controller, distributed energy metering system.



Power Electronics Converters

Our own solutions of **KonSol** high power photovoltaic inverter and **KonLab** high-power laboratory converters are the basis for providing special inverters for various types of industrial and electrical tests such as power and instrument transformers, pumps, various automated control systems, fans, motors, other inverters and marine equipment.

KonSol-200 high-power converter has flexible construction with various modes of operation in smart grid and an advanced photovoltaic power station monitoring system.

KonLab modular HW/SW platform enables easy customization to specific customer requirements in terms of different output power, different communication interfaces, various control module parameters, such as voltage, current, power, and frequency. One of the special features is a low noise mode that improves the quality of the work environment.



Diagnostics, testing and certification

Laboratory Center accredited under EN ISO/IEC 17025



The Institute has 13,000 m² of business and laboratory premises. Laboratory services are based on the competences of experts, quality, speed and the so-called “one-stop testing” approach. The customer obtains complete support for the testing required to place the product on the market in one place, i.e. the Laboratory Center can carry out all tests. If this is not possible, Laboratory Center organizes additional tests in partner laboratories.

The Laboratory Center consists of eight laboratories accredited for numerous test methods according to the requirements of international standards and technical specifications. It is accredited to the requirements of EN ISO / IEC 17025: 2017, which confirms the independence and competence of providing laboratory and field product testing services using modern test and measurement equipment meeting the requirements of this international standard and the needs of customers.

Laboratory testing services in the following areas:

- High-voltage and low-voltage power equipment
 - Material properties
 - Environmental impact
- Electromagnetic compatibility
 - Electrical safety
 - Radio equipment
- Gas appliances
- Sources of electromagnetic fields
- Low-voltage electrical installations and lightning protection systems
 - Acoustics (noise)
- Testing the physical-chemical properties of materials

Laboratory testing

High voltage testing of electric power equipment

- Power-frequency voltage tests
- Impulse voltage tests
- Tests in artificial pollution conditions
- Partial discharge measurements



Electric power equipment testing in High Power Laboratory

- Short-circuit withstand tests of switching devices, switchgear and controlgear, instrument & power transformers
- Breaking & making capacity tests
- Temperature-rise tests
- Voltage drop tests



Mechanical and technological testing

- Testing of mechanical and technological properties of metallic and non-metallic materials
- Metallographic and fractographic analyses
- Corrosion protection tests of metallic materials



Environmental testing

- Climatic tests
- Verification of mechanical strength and ability of components and equipment to withstand specified vibrations (sinusoidal, random, shock)
- IP and IK protection testing
- Corrosion resistance test (salt mist)
- UV resistance tests



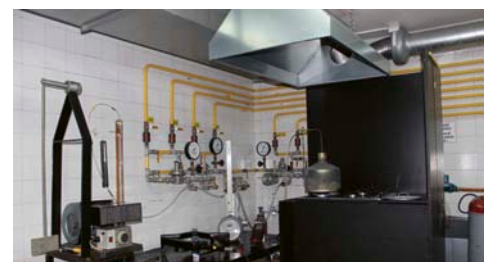
Electromagnetic compatibility and safety

- Radio Frequency Spectrum Measurement and Analysis
- EMC tests of equipment
- Safety tests of equipment



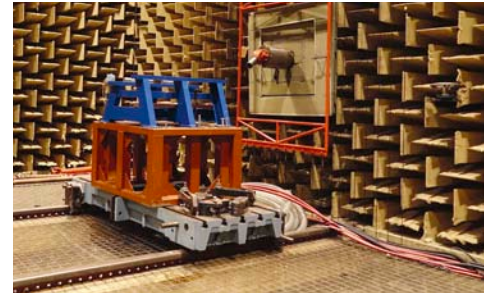
Gas safety checking

- Safety testing for household and professional gas appliances (tests with butane (G30), propane (G31) and natural gas (G20))



Noise measurement

- Testing, measurements, analyses and research of vibroacoustic characteristics of machines, electric apparatus, installations, plants and devices in anechoic chambers and on site
- Determination of acoustic power of sound source by measurements of acoustic source pressure and strength
- Usage of acoustic camera for noise emission investigation



Physical and chemical testing

- Insulating oil testing
- Testing of properties of insulating materials
- Testing of other materials



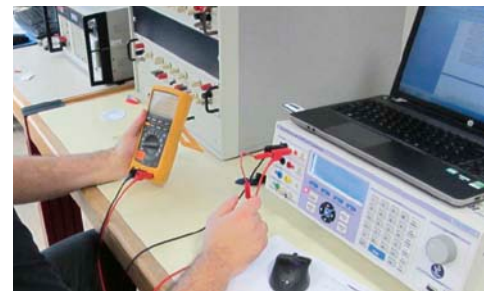
Electric motor drive testing

- Embedded computer system and power converter testing
- Rotating machine testing
- Electric motor drive testing



Calibration of measuring and test equipment

- Calibration of digital and analog multimeters, voltmeters and ammeters
- Calibration of calibrators, oscilloscopes and multichannel belts
- Calibration of metering centres and power analyser
- Calibration of EMC equipment (ESD, BURST, SURGE...)
- Certification and calibration of electrical installation testers
- Certification and calibration of insulation resistance meter, ground resistance and loop resistance
- Calibration of capacities and frequencies
- Calibration of temperature indicators and simulators
- Calibration of high voltage measurement systems



Checking the condition of power equipment and systems

- Diagnostics of power and instrument transformers
- Diagnostics of switchgears in HV plants
- Diagnostics of rotating machines
- HV cable and system diagnostics
- Acoustic diagnosis
- Energy efficiency
- Quality of electricity
- Measurements of NF and HF fields

Diagnostics of electrical power equipment and systems

Diagnostic tests are comparative measurements of the properties of power equipment and machines in order to check whether they function properly. By applying expert knowledge to high-voltage equipment diagnostics, the risk of failure is reduced to the minimum and increases the availability of power equipment. The Institute is equipped with four mobile testing stations for diagnostic testing of power equipment. The researchers use calibrated measuring equipment to assess the condition of power and instrument transformers, rotating machines, high-voltage circuit breakers and GISs.



As part of these activities, we make for our clients studies on the residual life of the electric power equipment.

Acoustic diagnostics

With special measuring instruments (acoustic camera) we provide R&D services and diagnostic noise measurements and solve acoustic problems of noise source detection and sound propagation.

Noise is a proven hazard to both health and environment. Its reduction requires continuous research, source analyses and knowledge of its characteristic variables.



LF and HF electromagnetic field measurements

- Measurements of non-ionizing radiation from the magnetic resonance devices
- Measurements of 50 Hz frequency in households and business objects near power lines or power substations
- High frequency electromagnetic field measurements of GSM base stations
- Assessments, calculations and measurements of electromagnetic fields for obtaining construction permissions.



Notified Body and Product Certification Body (SCERT) accredited under EN ISO/IEC 17065



KONČAR – Electrical Engineering Institute, as a Notified Body (NB), assists manufacturers in conformity assessment and certification of their products in accordance with European standards and directives, before CE marking and placing on EU market.

KONČAR – Institute is a Notified Body NB 2494 of the European Commission for the following regulations:

- electromagnetic compatibility (Directive 2014/30/EU)
- machinery (Directive 2006/42/EC)
- noise emission in the environment by equipment for use outdoors (Directive 2000/14/EC)
- gas appliances (Regulation (EU) 2016/426)
- radio equipment (Directive 2014/53/EU)
- welding procedures of pressure equipment (Directive 2014/68/EC)

In addition to conformity assessment as a Notified Body, the Institute assesses product conformity as an authorized/ accredited Certification Body (SCERT) for products and processes in the areas of LV and HV equipment, corrosion or IP/IK protection, ecological design, energy labelling, welding procedures for metal materials, and signalling and traffic regulation equipment. It is also equipped for assessment of product conformity to climatic conditions and noise and vibrations.

Accredited certification schemes of Institute enable conformity assessments and certification of products intended for markets other than EU that are made in accordance with ISO and IEC standards or manufacturer specifications.

Product conformity assessment

Well-equipped laboratories and a wide range of accreditations, authorisations and notifications of the Institute enable numerous and diverse services:

- Type testing of products in our test laboratories
- Verification of test reports issued by other laboratories
- Expert supervision of tests in external laboratories
- Assessment of completeness of technical documentation
- Conformity assessment of technical documentation
- Assessment of product design
- Type examination of products for certification purposes
- Certification
- Auditing compliance with the type of product



Certification (SCERT) and Inspection Bodies

Product Certification Body – SCERT is an independent unit within KONČAR - Institute that impartially certifies products.

Inspection Body impartially inspects and calibrates power and measuring equipment used in testing electrical installations.



102-9

Supply chain

Business activities of the Institute are based on a wide scope of suppliers and business partners mostly from electrical industry, but also from numerous other fields. Code of Business Ethics is the basis on which the Institute develops its relations with suppliers, business partners and all the stakeholders. Partners in the supply chain, apart from required quality, should also observe the best of human rights and working conditions, occupational health and safety, and environmental and ethical concerns.

Because of very stringent requirements on products and services, the purchasing processes in the Institute are mostly based on agreements and contractual arrangements oriented towards quality, competitive prices, respect and integrity. Choice of suppliers is based on their professionalism and competence, and the purchasing process and choice of suppliers are implemented in an objective and transparent way.

Suppliers are selected according to the following criteria:

- technical and functional characteristics and capabilities
- delivery time and mode of transport
- proofs of quality assurance (certificates, test reports...), instructions
- reaction speed and cooperativeness
- price and payment terms.

Providers of outsourced services are selected according to their technical capabilities and competences (references, cooperation so far). If necessary, periodic audits of suppliers are carried out to check their competencies and ensure the continuous quality of their services.

Suppliers are evaluated and approved by the laboratories. At least once a year, suppliers are re-evaluated on the basis of the same criteria and quality of their deliveries to ensure quality of the tests.

When evaluating suppliers, numeric and statistical methods can be used (e.g. grading from 1 to 5 for each criterion). This kind of assessment is recommended if there is a problem and if the supplier should improve the service or the product. In that case, the supplier is informed about the grade and need to improve.

A supplier is removed from the list if he does not meet the criteria to such an extent that it may jeopardize the quality of the work for which his service or product is intended, in particular if it could jeopardize the quality of the test or calibration or affect the customer's satisfaction.

102-10

Significant changes to the organization and its supply chain

CEKONET project excluded from further procedure

In 2018 the Central Finance and Contracting Agency (CFCA) excluded the CEKONET project in the third stage of administrative verification from further procedure due to the inadmissibility of one of the project partners. Centre of Competence for Advanced Power Equipment (CEKONET) was planned to be the most important investment of the

Institute in the coming period, a joint platform that would bring together key companies, system operators and the academic community in the area of power equipment and power systems.

It is planned that the LAVESP project, i.e. construction of a new Laboratory for Power Systems and Drives, will largely be the continuation of the CEKONET project.

Laboratory Center

Within the Institute there are 8 laboratories. To increase their efficiency and simplify access to customers, the reorganization of some laboratories and the integration of laboratory services into one Laboratory Center with a single accreditation according to ISO/IEC 17025 is ensured, guaranteeing the credibility of test results in laboratories.

Change of auditor

In 2018, a decision was made to change the auditor to improve the integrated management system. After 20 years of cooperation with Quality Austria, a recertification audit related to changes in management systems under ISO 9001: 2015 and ISO 14001: 2015 has been entrusted to the auditor SGS Adriatica d.o.o.

Governance and Social Responsibility Policy

The Management has adopted the Policy of Governance and Social Responsibility to express its undeniable focus on the implementation of a system based on the application of the principles of sustainable development and social responsibility.

The Policy is a separate document published on the intranet and on the official website of the Institute and available to all interested parties.

Diversity and Non-discrimination Policy

In 2018, the Diversity and Non-Discrimination Policy and the Action Plan for the Promotion of Diversity and Non-Discrimination were adopted. All the employees participated in their creation to jointly develop an organizational culture based on mutual respect and individual diversities. The Action Plan includes measures, responsibilities and timelines and provides measurable performance indicators.



102-11

Precautionary Principle or approach

Through commitment to sustainable development strategy, the Institute is guided in its business processes by Precautionary Principle in accordance with Act on Environmental Protection and its actual capabilities. Precautionary Principle means that in case when scientific and objective evaluation indicates that there is a possible environmental or health risk, measures for its prevention are implemented although the damage is not fully certain.

102-12

External initiatives

Diversity Charter

In 2017 the Croatian Business Council for Sustainable Development (HR PSOR) launched the signing of the Charter of Diversity Croatia. The Institute, together with more than 30 other companies, publicly supported the action, committing themselves to adopt a policy of observing, implementing and promoting diversity and non-discrimination principles at work place and to report on the activities in the area.

The Diversity Charter is a voluntary initiative launched in 16 EU countries. The Charter on Diversity Croatia has been developed within the joint project of the Croatian Business Council for Sustainable Development (HR PSOR) with partners from Slovenia and Romania.



Principles of corporate management

As a part of KONČAR Group, the Institute supports the principles of corporate management adopted by the Management and Supervisory Boards of KONČAR – Electrical Industry on 17 April 2008 concerning:

- Socially responsible management,
- Defining a procedure of corporate management based on recognizable adopted international standards, and
- Supervision of business activities to establish high standards of corporate management and business transparency as the basis for protection of shareholders, investors and other stakeholders, and for care for workers, sustainable development and environmental protection.

Integrated management system

The market competence of the Institute and its recognisability in social community are based on the Integrated Management System which covers quality management system (ISO 9001), environmental management system (ISO 14001), occupational health and safety management system (OHSAS 18001), system for management of testing and calibration laboratories (EN ISO/IEC 17025), and system for management of certification bodies (EN ISO/IEC 17065).

Integrated management system enables the Institute to apply principles of corporate social responsibility with balanced relation to customers, employees, owners, suppliers and social community. It defines roles and responsibilities, organization and processes that are important for achievement of high level of quality of our products and services. Through such processes the Institute communicates with customers and other stakeholders, realizes products, achieves goals, learns, and makes continual improvements.

ISO 14001

Environmental management system (EMS) – focused on environmentally friendly activities and products with a view to improving positive environmental impact

ISO/IEC 17025

Competence of testing and calibration laboratories

General requirements for the qualification of test and calibration laboratories carrying out tests or calibrations. The results obtained are shown in test reports or calibration certificates.



ISO 9001

Quality management system (QMS) – focused on processes to meet stakeholder expectations and ensure permanent improvement

OHSAS 18001

Occupational health and safety management system (OHSMS) – health and safety at work ensures a safe and healthy work environment for creating reliable and efficient technical solutions

ISO/IEC 17065/ISO/IEC 17020

Competence of certification and inspection bodies General requirements for the training, impartiality and consistency of the body carrying out the certification of the product.

General requirements for the competence of the body conducting the inspection and for impartiality and consistency in the conduct of inspection work.

Nuclear safety requirements

for product and service providers classified as Safety Related (SR)

102-13

Membership in associations

- Croatian Academy of Engineering (HATZ)
- Croatian Automotive Industry Competitiveness Cluster
- Croatian Business Council for Sustainable Development (HR PSOR)
- Croatian Chamber of Economy (HGK)
- Croatian Chamber of Electrical Engineers (HKIE)
- Croatian Chamber of Mechanical Engineers (HKIS)
- Croatian Defence Industry Competitiveness Cluster
- Croatian Electrical and Mechanical Machinery Industry and Technology Competitiveness Cluster
- Croatian Exporters Association (HIZ)
- Croatian ICT Industry Competitiveness Cluster
- Croatian Laboratories (CROLAB)
- Croatian Maritime Industry Competitiveness Cluster
- Croatian National Committee of the International Council on Large Electric Systems (HRO CIGRÉ)
- Croatian Standards Institute (HZN)
- Electrotechnical Society Zagreb (EDZ)
- European Committee for Electrotechnical Standardization (CENELEC)
- International Conference on Electricity Distribution (CIRED)
- International Council on Large Electric Systems (CIGRÉ)

The Institute is a member of Croatian Business Council for Sustainable Development since 2010.



Hrvatski poslovni savjet za održivi razvoj
Croatian Business Council for Sustainable Development

STRATEGY

Mission

Through application of knowledge and state-of-the-art technologies we develop solutions for efficient energy conversion and power transmission, on the principles of Corporate Social Responsibility.

Vision

To become a globally recognizable partner in the fields of power engineering and rail vehicles, and in that way to contribute to the success of KONČAR Group.

Policy of governance and social responsibility

The policy of governance and social responsibility expresses the unambiguous orientation of the Management Board to the application of a management system based on the principles of sustainable development and social responsibility and the permanent improvement of the system.

Strategy of Sustainable Development of the Institute

- 1 Permanent increase of productivity with intense investments in the development of new products and services, life-long learning of employees, and construction of new laboratories or upgrading the existing ones
- 2 Business based on sustainable development, fostering and promoting partnership relations with all stakeholders
- 3 Fostering collaboration with academic communities and public institutes through joint scientific-research projects
- 4 To be a scientific organization with status of an independent company within the KONČAR Group, whose owner leaves its entire profit for its further development.

ETHICS AND INTEGRITY

102-16 Values, principles, standards, and norms of behaviour

Within its sphere of influence the Institute supports and implements all the measures and obligations prescribed by law and international standards for the areas of business ethics, workers' rights, occupational health and safety and environmental protection.

Our values reflect our goals, priorities and convictions that guide us. By adhering to fundamental values and ethical standards we can focus on sustainability.

Our fundamental values



Code of business ethics

The Institute is a signatory of the CODE OF BUSINESS ETHICS of the Croatian Chamber of Economy.

The Code defines ethical behaviour and standards we observe in our work. In our business practice, we follow the highest ethical standards, and build our reputation on expertise, trust and reliability. All our employees are obliged to treat all the stakeholders with due care and attention.

All employees are encouraged to follow the Code in their work and everyday activities, and the Code covers rules and procedures, guidelines for decision making and examples of potential ethical dilemmas related to business activities.

In case of behaviour contrary to law, unethical behaviour, or breaches of labour duties and obligations, the Management applies a decision that defines procedures and responsible persons. In case of doubt or questions related to this decision, employees can contact Personnel and Legal Service whether directly, via e-mail, or anonymously through the „Irregularities “box.

The Institute observes and protects intellectual property rights of third parties and confidential information of its clients.



Anti-corruption policy

Anti-corruption policy of the Institute is implemented by doing the entire business in accordance with laws, international regulations and rules of profession in an honest, fair and ethical way, with zero tolerance to bribery and corruption. The policy defines the reporting procedure, and every employee shall report any knowledge or doubt of bribery or any form of corruption inside or outside the Institute to the head of their department or service. Employees can report their knowledge or observations either orally, by mail or by an anonymous note put in a special box.

No case of corruption has ever been noticed in the Institute.

GOVERNANCE

102-18

Governance structure

KONČAR – Electrical Engineering Institute is a joint stock company fully owned by KONČAR – Electrical Industry Inc. Companies within KONČAR Group are independent legal entities. The parent company monitors, strategically directs and supports the Institute through supervisory boards and meetings of shareholders in accordance with the Croatian Companies Act and Articles of Incorporation of both KONČAR – Electrical Industry and KONČAR – Electrical Engineering Institute.

Supervisory Board of the company appoints and dismisses the Managing Board and decides about the number of its members and duration of their term of office. Supervisory Board has five members, three of them are elected at the annual general meeting, one member is appointed by employees, and one by the majority shareholder. The length of term of members of the Supervisory Board is four years.

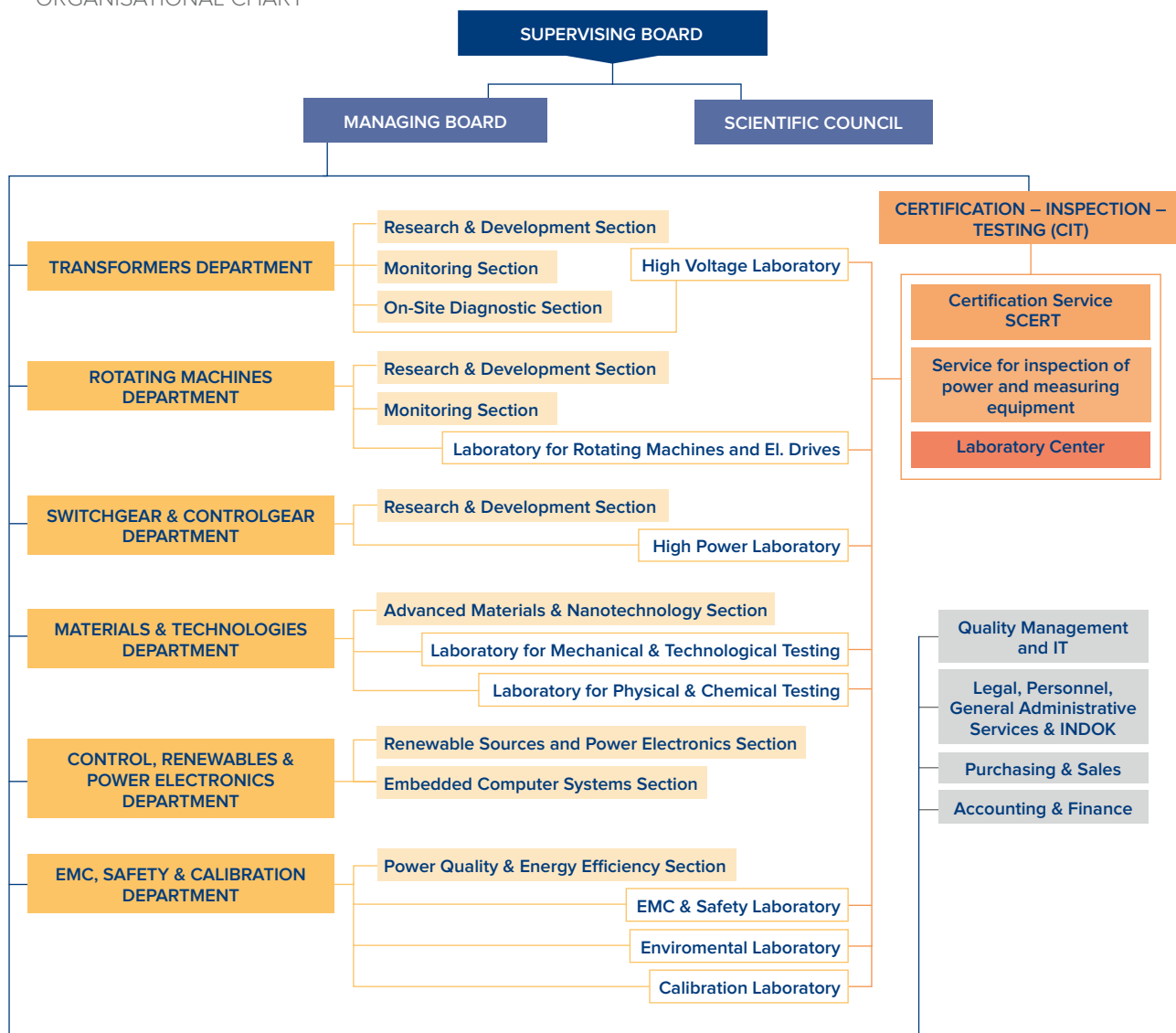
In accordance with the Companies Act and Articles of Incorporation, the Managing Board manages the business of company on their own responsibility. In doing so, the Board is obliged and authorized to make decisions necessary for successful management of the company. There are certain kinds of decisions prescribed by Articles of Incorporation that require approval by the Supervisory Board. The basic organisational structure of the Institute is set down by the Managing Board and approved by the Supervisory Board.

Organizational structure

Departments of the Institute as centres of key competences for individual groups of products are profit centres, and the only measure of their business efficiency is value added, which is also the basis for determination of workers' income in departments. The success of individual or team work is rewarded by personal stimulation or one-off payment, depending on contribution to overall business of the Institute or creation of conditions for future successful business.

Business activities of the Institute are carried out by departments, with support of common administrative units. Common services (units) provide support and consolidate the work of the departments, so that their rewards depend on common success of all the departments.

Within the Institute there is the independent, accredited Certification and Inspection Body. The work of Product Certification Service – SCERT is supervised by representatives of government bodies and consumer associations. Certification Service – SCERT is accredited under EN ISO/IEC 17065:2012 Conformity assessment – Requirements for bodies certifying products, processes and services, and the Inspection Service for Power and Measurement Equipment under EN ISO/IEC 17020:2012.



STAKEHOLDER ENGAGEMENT

102-40 List of stakeholder groups

The nine key stakeholders of the Institute have been identified: customers, employees, owners, suppliers and partners, Workers' Council, business and professional associations, academia, state institutions and the local community.

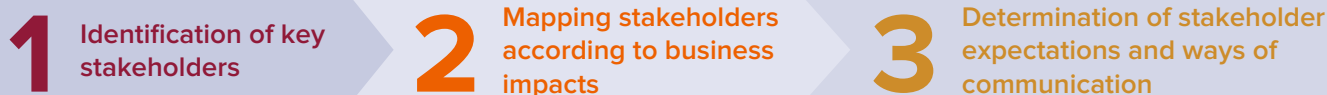
102-41 Collective bargaining agreements

Rights defined in Collective Agreement are guaranteed to all the employees.

102-42 Identifying and selecting stakeholders

Internal procedures were established for recognition of particular stakeholders with which departments and services mostly interact in their everyday activities, stakeholders' requirements, frequency of interaction, way of communication, and relevance of stakeholders in regard to Institute's sustainable development.

The recognition process has three steps:



LIST OF STAKEHOLDER GROUPS, THEIR NEEDS, EXPECTATIONS, WAY AND FREQUENCY OF COMMUNICATION

Stakeholders	Stakeholder needs and expectations	Type and frequency of communication
CUSTOMERS	Quality of products and services Observing delivery times Customer relationship management and methods of complaint solving Responsible resource management Ethical principles Customer privacy	Regular meetings, workshops, consultations Professional training when necessary Solving and analysis of complaints, requests and suggestions, when necessary Annual customer satisfaction survey Fairs, conferences, gatherings Official website, e-mail (continuous) Annual visits to customers Annual CSR Report
EMPLOYEES	Salaries and allowances Good working environment Personal development, respect and rewarding Stable business Occupational health and safety Training and education Non-discrimination	Annual employee satisfaction survey Training and education, continuous Intranet, continuous E-mail, continuous Annual CSR report
SHAREHOLDERS AND INVESTORS	Corporate business strategy Value added Sustainable business	Annual general meeting Letters, e-mail, when necessary Annual CSR report
SUPPLIERS AND PARTNERS	Mutual benefits and long-term relations Management systems Ethical behaviour	Participation at conferences Mutual annual audits Official webpage, continuous Annual CSR report
LABOUR COUNCIL	Participation in management Legal compliance Freedom of association and right to collective bargaining	Regular and extraordinary meetings Notice boards, continuous Annual CSR report
BUSINESS AND PROFESSIONAL ASSOCIATIONS	Financial support Strengthening competences	Membership, continuous Working groups, working bodies, continuous Participation at conferences Annual CSR report
ACADEMIC COMMUNITY	Applied R&D Transfer of knowledge Joint projects	Scientific and professional papers Seminars and workshops, when necessary Participation at conferences and gatherings Joint activities Annual CSR report
PUBLIC ADMINISTRATION BODIES	Paying taxes, contribution and charges Compliance with laws and regulations Reporting	Working groups, continuous Letters, e-mail, continuous Official webpage, continuous Annual CSR report
LOCAL COMMUNITY	Investments in local initiatives Protection and rational use of resources (economic, environmental and social)	Regular visits and joint activities Donations and sponsorships Official webpage, continuous Annual CSR report

Communication with stakeholders

Internal and external communication of the Institute is constantly improved, and new media are introduced to widen sales and marketing activities and cover all the stakeholders. Some of major means of communication and stakeholder involvement in 2018 were:

Fairs and conferences

In synergy with other companies of KONČAR Group the Institute participates in international and domestic specialized fairs and professional conferences. In 2018, the Group's companies participated in 9 fairs and 9 meetings, nearly 600 m² of exhibition space was leased, and 390 associates from 11 companies were involved. Out of the Institute there were 57 associates present, and 18 publications (scientific, expert or referral) were published in various publications.

Official webpages

The web site of the Institute is constantly improved and aligned with new requirements. From the first web site www.koncar-institut.hr in 1996, then in 2017 and in 2018, the design and contents have been changed and new features added. Information on business activities, orga-

nization of the Institute, solutions and services, references and numerous useful information regarding the field of electrical and mechanical engineering, electronics and other technical sciences are provided.

In 2016 an additional webpage www.koncarmonitoring.com was made for promotion of monitoring systems and machine diagnostics.

Social networks

The largest global business network LinkedIn is used to maximize presence in virtual world and interaction with stakeholders. There the Institute makes public its business information, information about new projects, products, services, and participation at fairs and conferences. The page KONČAR Electrical Engineering Institute, Inc. has more than 4.800 followers, and each month there are five new releases.

Intranet

For the purpose of efficient internal communication, and process and documentation management the Institute has implemented its own intranet, which is constantly upgraded. In 2008 MS Office SharePoint Server - MOSS was bought, which provides a platform for data management, archiving and searching, team work and creation of data bases. In 2017 MOSS was upgraded to meet the requirements of new technologies.

Employee satisfaction survey

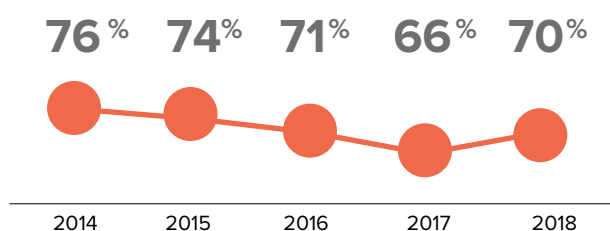
Annual employee satisfaction surveys are being conducted at the Institute since 2011. In them employees assess the degree of agreement with the offered statements in order to identify the areas that are important for workplace and efficiency improvement.

Based on the results of December 2018, the employees of the Institute are highly committed to their work. Even 98% are willing to make additional efforts when the job demands so, and 96% have said they take their job very seriously.

Employees also have a positive attitude toward work. 80% are satisfied with workplace conditions, 70% with the equipment and tools they need to work. Employees assessed positively the five items that measure job satisfaction and interpersonal relationships. Among them, 79% are satisfied with job security, which is also the most important feature for better work.

Employees are mostly dissatisfied with information on events and activities in the Institute (58%), then with the criteria (51%) and promotion system (46%), and 41% think they are not appropriately rewarded for extra efforts at work.

EMPLOYEE SATISFACTION RATE



102-43 Approach to stakeholder engagement

The procedure refers to the collection, storage and processing of stakeholder requirements related to their satisfaction and expectations related to the information on Institute's impacts as well as to the information provided in the previous report.

The content of the report includes all the expectations, expectations and satisfaction ratings related to the topics of sustainable development, which were received from the involved stakeholders during the reporting period.

Involved stakeholders: employees, shareholders, customers, suppliers and partners, academic community.

102-44 Key topics and concerns raised

In the reporting period, the following stakeholders' demands and interests were initiated as key and material:

- key economic indicators, investment in development (employees, customers, shareholders) → GRI 201 Economic Impact
- the interest of suppliers and partners in the relationship between the Institute and the environment, and the establishment of a complete emission management system in the environmental constituents (shareholders, suppliers and partners, employees) have fuelled the materiality of the environmental themes – GRI 302 Energy, GRI 305 Emissions and GRI 306 Effluents and Waste
- requests for promotion of connections between science and economy (partners) → GRI 406 Community

102-45 Entities included in the consolidated financial statements

Not applicable. The Institute has no entities included in the consolidated financial statements.

REPORTING PRACTICE

102-46 Defining report content and topic boundaries

In order to focus on the most important issues of sustainability for our stakeholders and our business, we apply the GRI principle of materiality. In 2016, the first process of identifying the most important material issues of sustainability in 5 steps was carried out: identifying, prioritizing issues, stakeholder involvement, analysis of relevance for the reporting period and confirmation.

Harmonizing the business activities of the Institute with expectations and needs of stakeholders, the following issues of particular interest are identified:

- stable and sustainable economic growth (employees, shareholders, suppliers and partners)
- investment in development and value added (shareholders, suppliers and partners, academic community)
- responsible energy consumption and environmental impacts (employees, shareholders, customers)
- fair employment and job creation (employees, shareholders, academic community)
- investing in competence and expertise (employees, customers)
- transfer of knowledge and innovation (buyers, academic community).

The Institute is influenced by its own activities, but also by the activities that are the result of business relationships with other organizations.

102-47

List of material topics



1102-48

Restatements of information

None

102-49

Changes in reporting

With respect to the previous report, the number of material topics has been reduced and revised according to feedback from stakeholders. In addition to each material topic, management approaches have been added.

The special features of this report include the integration of the business activities of the Institute into the achievement of the Global Sustainable Development Goals 2030.

102-50 – 102-54

This 12th Report covers the period from 1 January to 31 December 2018.

The previous report was published in April 2019, and the next is planned for April 2020.

CSR Reports are published annually, and each contains results from the previous calendar year.

Contact person for CSR Report and its content: Irena Šinko, Assistant for CSR and Communication, isinko@koncar-institut.hr

This CSR Report for 2018 has been prepared in accordance with GRI standards: Core option. The application of internationally recognized Global Reporting Initiative (GRI) methodology ensures a balanced and transparent representation of the Institute's sustainability performance.

102-56

External assurance

External assurance of the Report was not made.



TOPIC-SPECIFIC DISCLOSURES

“ We observe highest principles of professional ethics and good business practices ”

Explanation of the material topic and its Boundary



The Institute's economic growth is based on cutting-edge R & D services, competent and well-equipped laboratories, and competitive advanced IT-based solutions.

It participates in research, development, testing, supervision and expertise on a large number of Končar Group projects. It also plays an important role in the development of key electronic and energy components and communication equipment of Končar's production program. In addition to providing support to Končar Group companies, the Institute's experts cooperate globally in the development of transformers and security critical embedded computing systems for a foreign customer.

The export potential for the global market are also transformer, bushing and machine monitoring systems and laboratory testing.

The topic is material due to the significant interest of the involved stakeholders – employees, customers, shareholders and partners and the Institute.

The company is influenced by its own activities, but also by the activities that are the result of business relations with other Končar Group companies and the situation in the Croatian and global markets.

The management approach and its components

The Institute manages the economic effect of its business policy based on the diversification of market risk. Of the six core businesses, some always bring higher revenues than others due to market conditions and contracts. The Institute is constantly trying to develop new products and services in order to compensate one reduced activity with another.

It is also investing in the reconstruction of the existing and construction of new laboratory infrastructure. The modernization of laboratory infrastructure is a prerequisite for improving the testing and the market position of the Institute. The strategy of providing laboratory services is based on competences, quality, speed and the so-called "one-stop testing" approach.

Evaluation of the management approach

The Institute is funded exclusively by its own resources and is not exposed to interest rate, credit and liquidity risks. The Institute's short-term assets are 7.9 times higher than short-term liabilities, and in short-term assets 72% include financial assets and cash that, together with open liabilities, after the end of the business year, ensure stable operations of the Institute in the forthcoming period.

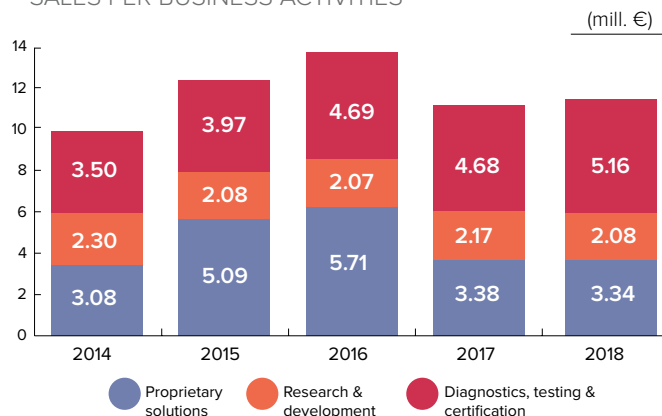
Direct economic value generated and distributed

Component	(mill. €)
2018	
Direct economic value generated	10.56
Sales	10.52
Financial income	0.01
Asset income (rental and sales)	0.03
Income from co-financed projects	0.75
Direct economic value distributed	10.33
Suppliers of materials and services	3.89
Education & training	0.12
Services of academic community	0.24
Other costs	0.42
Salaries & allowances	3.43
Taxes, contributions, insurances	2.23
Donations	0.01
Retained earnings	0.23

The most significant export products and services of the previous year were the laboratory testing of high-voltage equipment, transformer, bushing and machine monitoring systems, and development services in the field of security critical computer hardware systems.

The following figure shows sales revenue for key business activities for the past five years. In 2018, revenues from diagnostics, testing and certification increased by 9.8% compared to 2017, while revenues from own products were down by 2% and research and development by 4.8%.

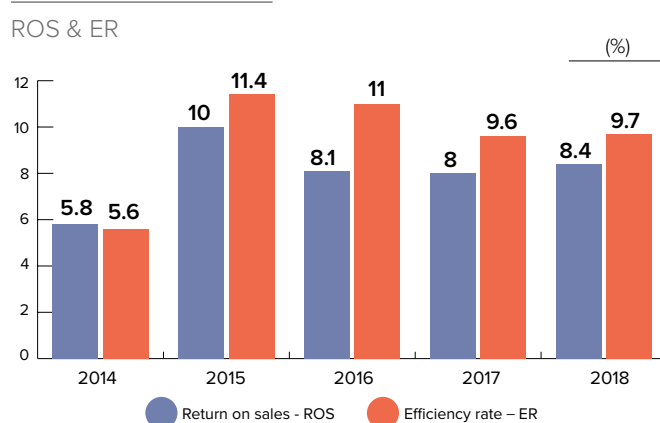
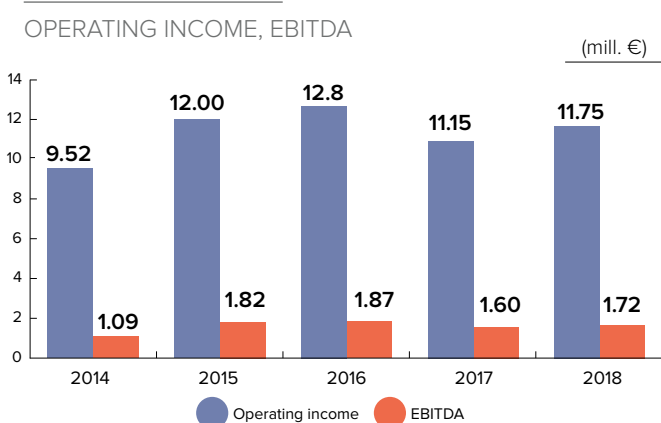
SALES PER BUSINESS ACTIVITIES



Key business indicators

In 2018, operating income was 11.75 million €, while EBITDA amounted to 1.72 mill. €. Return on sales was 8.4%, while the level of general economic efficiency was 9.7%.

Productivity measured by value added per employee in 2018 was € 38.136, a decrease of 2.8% compared to 2017 and 7.5% compared to 2016.



Trends in total income, sales, value added*, total personnel cost, and number of employees

Trends in total income, sales, value added, total personnel cost, and number of employees in the last 15 years are shown below.

Investment in the development

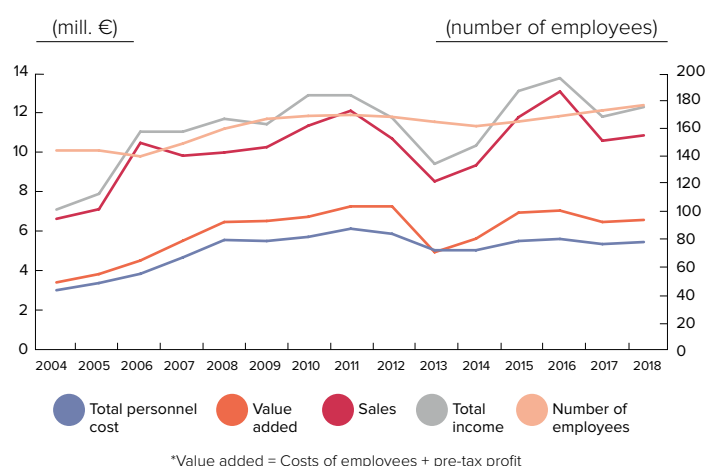
Investments in non-current assets amounted to 0.78 mill. €, of which 0.66 mill. €, and in software 0.01 mill. €. Investment maintenance of equipment and buildings amounted to 0.08 mill. €. Investments in education with total eligible costs (tuition fees, registration fees, professional literature and official trips related to training) amounted to 0.12 mill. €. The license and maintenance cost of the software was 0.15 mill. €.

Investments in R & D

Numerous projects are underway where the Institute conducts co-financed R & D and innovation activities or invests exclusively in its own resources. In 2018 investments in R & D were 1.29 million euros.



TRENDS IN TOTAL INCOME, SALES, VALUE ADDED*, TOTAL PERSONNEL COST, AND NUMBER OF EMPLOYEES



INVESTMENTS

	(mill. €)				
	2014	2015	2016	2017	2018
Investments in equipment & refurbishments	0.21	1.71	0.95	0.82	0.66
Investment maintenance	0.14	0.05	0.11	0.08	0.08
Software license and maintenance	0.11	0.14	0.13	0.13	0.27
Investments in R&D	0.56	0.32	0.80	0.97	1.29
Education	0.10	0.11	0.11	0.13	0.12

In 2018 the most significant realized investments were:

- renovation of network IT infrastructure
- extension of the existing and acquisition of new software licenses
- plate insulating tape resistance tester
- magnetic measurement equipment
- transient recorder
- digital bridge for accuracy class measurements
- extension of capacities for measuring electromagnetic fields
- frequency calibration equipment.

LAVESP PROJECT

Increase of laboratory capacities by our own investment

The most significant investment planned in the coming years is related to the project for the construction of a new Laboratory for Power Systems and Drives – LAVESP and the expansion of R&D and testing facilities of the existing laboratories within the Institute. The value of the planned LAVESP project and the renovation of the other laboratories is about 8.1 million euros.

The purpose of the Laboratory is the implementation of R&D studies necessary for the development of new, innovative products and services such as power equipment and services related to their use or application. The development of new and innovative products and services will significantly increase the competitiveness of the entire power sector in Croatia.



201-3 Defined benefit plan obligations and other retirement plans

In the preparation of the annual financial statements for the year 2018, provisions for jubilee awards and severance payments amounting to 0.21 million euros were made. The amount includes the estimated amount of regular employee benefits in accordance with the Collective Agreement. The present value of the provision is calculated on the basis of the number of employees, the amount of the pension, the working life on the balance sheet date and the discount rate of 1.7%. The reserve amount fully covers the anticipated severance grants and rewards of employees who have been eligible for this in 2018.

The companies of the KONČAR Group regularly pay contributions for all workers in the system of generational solidarity at the rate of 20% for the 1st pension pillar. For insured persons who are insured in both mandatory pillars, the contribution rate for the 1st pillar is 15%, and for the 2nd pension pillar the contribution of 5% is paid to personal accounts in mandatory pension funds.

201-4 Financial assistance received from government

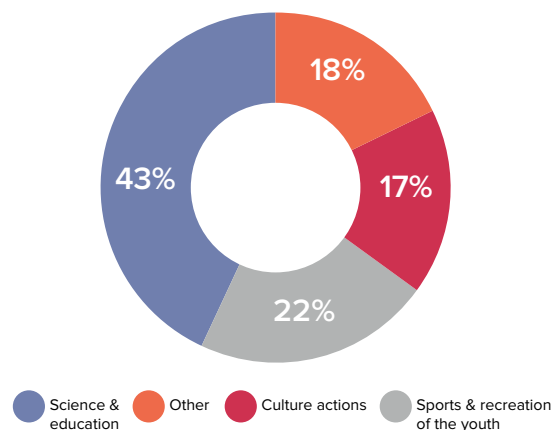
In 2018, the Institute received the state aid in the amount of 58,128.72 euros through the reduction of the profit tax base (education and training grants). The Ministry of the Economy, Entrepreneurship and Crafts co-funded the SafeTram R&D project, which the Institute conducts in co-operation with the Faculty of Electrical Engineering and Computing, in the amount of 926,383.16 euros.

Donations and sponsorships

In 2018 the Institute invested most funds (43%) in partnerships and fostering relations with engineering faculties, development and exchange of knowledge in natural sciences and electrical engineering. Strategic approach with funds invested in areas closely related to corporate business provides value added for the entire community.

Donations and sponsorships were 0.68% value added.

DONATIONS AND SPONSORSHIPS
2018



Indirect economic impacts

MANAGEMENT APPROACH

Explanation of the material topic and its boundary

Scientific-research organizations should be involved in national and international projects to ensure co-financed funding and the ability to adopt state-of-the-art scientific methodologies and procedures, create innovations and evaluate their own work.

The topic is material due to the significant interest of stakeholders – employees, shareholders, partners and the Institute.

The company is influenced by its own activities, as well as by the activities that are the result of business relationships with other Group companies and the academic community.

The management approach and its components

The Institute is an accredited scientific organization in the field of technical sciences, whose sole owner (shareholder) leaves the overall profit for its development. The tradition of applied research and development of products and technology at the Institute has been developed for 58 years and has played a major role in the production program of KONČAR Group. Examples are the development of key electronic and power components and communication equipment and solutions for low-end trams and electric and diesel trains. Knowledge acquired by participating in R & D projects and product creation has enabled the development of new business activities, further growth and acquisition of new competencies, creation of desirable jobs and innovation. Acquired references as added value keys are the ones that open the door to new business opportunities.

Evaluation of the management approach

The importance of scientific and technological development for the overall economic development has been recognized through numerous researches that show that social benefit from investment is considerably higher than private benefit, which is one of the most important reasons for state incentives and financing of this activity.

Value-added products – innovations that ensure a sustainable development and a competitive economy – are produced through scientific research and experimental work.

Innovation awards in 2018

The Silver Medal for Innovation ARCA 2018 has been awarded the SafeHMI Visualization System for Critical Security Applications at the 16th International Exhibition of ARCA Innovations, Products and Technologies in Zagreb, 2018. The system has the highest security level (SIL4) for rail infrastructure applications and represents an advanced visualization method of security display.



The Gold Medal with Nikola Tesla's portrait of the Belgrade Association of Inventors has been awarded the visualization system for conical vehicle drivers - KonHMI. The system is based on the Quad core ARM platform, meets all current standards for use in track vehicles and is designed for extreme climatic conditions.



Significant indirect economic impacts

Sudjelovanjem u nacionalnim i međunarodnim projektima i radom na istraživanjima koja su usmjerena prema konkretnim problemima i traženju praktičnih rješenja dobivaju se originalna rješenja primjenjiva u praksi, a cilj im je razmjena znanja i u konačnici inovativan proizvod konkurentan na svjetskom tržištu.

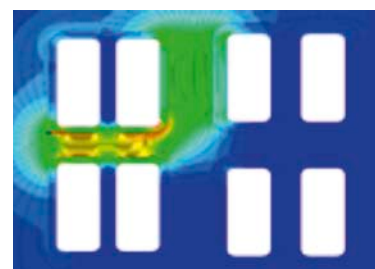
Project funded by Croatian Science Foundation



In 2018 the Croatian Science Foundation approved the allocation of funds for the project IP-2018-01-3670 "Capacitively graded oil-paper insulation behaviour under very fast transients". The CROPIBUFT

project was announced within the framework of the "Research project, deadline 01-18", with an expected duration of 4 years and ending at the end of 2022.

The expected contribution of the project is to expand knowledge on the behaviour of capacitively graded oil-paper isolation under very fast transients, what



can contribute to the optimization of design of electrical devices and their monitoring, thereby increasing their safety and reducing environmental impact.

Project activities will take place in 5 stages, with total funding of 120,905.12 euros.

Projects co-funded by European Regional Development Fund

SafeTram

In 2017 the Institute has signed a contract with the Ministry of Entrepreneurship and Crafts for the SafeTRAM project ("System for increased driving safety in public urban rail traffic") within the Call for Proposals "Increase of the development of new products and services which supervene from research and development activities". The Institute is the project leader, and the Faculty of Electrical Engineering and Computing in Zagreb project partner.

The SafeTram Project – a system for increasing the safety of public urban rail traffic – was initiated in 2017 and co-financed by the Croatian Ministry of Entrepreneurship and Crafts. The Institute as a holder announced the project as part of the call for "Increasing the development of new products and services arising from research and development activities" and his partner is the Faculty of Electrical Engineering and Computing from Zagreb.

The aim of the project is to develop electronic devices and associated software algorithms that will help the tram driver in terms of increasing the safety of tram traffic. The system should alert the driver to danger and help to respond faster or avoid collision with other traffic participants. Project duration is projected by 2020.



EU programmes – HORIZON 2020

SafeLog

In the beginning of 2016 the Institute joined the implementation of the Horizon 2020 project "Safe human-robot interaction in logistic applications for highly flexible warehouses" (abbr. SafeLog). Project coordinator is Karlsruhe Institute of Technology. Apart from the Institute, other partners are Fraunhofer IML, Czech Technical University of Prague, Swisslog and Faculty of Electrical Engineering and Computing in Zagreb. Activities of the Institute are related to research, development and prototyping of a safety vest for warehouse personnel and its certification.



GRI 300

ENVIRONMENTAL



We want to be a responsible company in all the areas we affect

GRI 302

Energy

| Energy costs were 3.88% value added

GRI 103

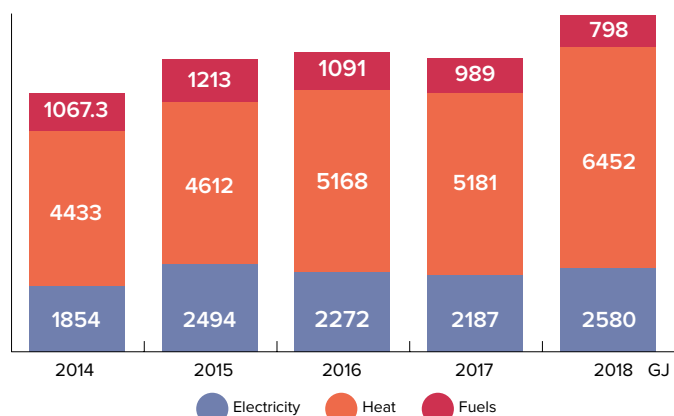
MANAGEMENT APPROACH

103-1

Explanation of the material topic and its boundary

The infrastructure project "Establishment of a comprehensive inspection / monitoring system of discharges in environmental components at the level of the KONČAR Group – Discharge Cadastre" was launched in 2018. The company KONČAR – Infrastructure and Services Ltd., a member of the KONČAR Group, is the project holder responsible for coordination and collecting information on emissions in all the environmental components, and also for investments in the environment of the Group.

CONSUMPTION OF ENERGY PRODUCTS



The topic is material due to the significant interest of stakeholders – employees, shareholders and partners and the Institute.

The company is influenced by its own activities, but also the activities that result from business relationships with other Group companies.

103-2 The management approach and its components

Business activities of the Institute affect energy consumption. The consumption and its costs are monitored and measured, all major deviations are analysed, and risks assessed.

103-3 Evaluation of the management approach

The Institute purchases electricity and heat from the distributor KONČAR – Infrastructure and Services Ltd., a company within the KONČAR Group, which supplies Končar's locations with energy (electricity, gas, heat and compressed air), water (cold, warm, technological) and provides drainage systems.

302-1 Energy consumption within the organization

In 2018 electricity and heat consumption increased, as the High Voltage Laboratory expanded its laboratory capacities to A hall. Fuel consumption of official cars was slightly decreased, because there were fewer activities that required the use of personal automobiles for official purposes.

GRI 305 Emissions

GRI 103 MANAGEMENT APPROACH

103-1 Explanation of the material topic and its Boundary

The same description applies as to GRI 302 Energy, GRI 305 Emissions and GRI 306 Effluents and Waste.

103-2 The management approach and its components

Direct and indirect emissions include fuel consumption of company-owned vehicles, fuel consumption of privately-owned vehicles used for business purposes and fuel consumption of planes are also included.

To promote energy efficiency in traffic, consideration is being given to procurement of official hybrid and/or electric cars recommended to the Group companies.

103-3 Evaluation of the management approach

The Institute purchases electricity and heat from the distributor KONČAR – Infrastructure and Services Ltd., a company within the KONČAR Group, which supplies Končar's locations with energy (electricity, gas, heat and compressed air), water (cold, warm, technological) and provides drainage systems.

305-1/2 Total direct and indirect greenhouse gas emissions per weight

Annual fuel consumption of vehicles and planes is directly dependent on business activities and increased number of travels and diagnostic tests on site (transport of measuring equipment and test engineers).

INDIRECT ENERGY CONSUMPTION

Consumption of electricity

	MWh	GJ	t CO ₂ *
2014	515	1854	143
2015	693	2494	192
2016	631	2272	175
2017	607	2187	168
2018	716	2580	198

* Specific CO₂ emission per produced kWh of heat is 269.39 [g/kWh]. From the Manual for Energy Consultants, UNDP.

Heat consumption

	MWh	GJ	t CO ₂ *
2014	1231	4433	332
2015	1281	4612	345
2016	1435	5168	387
2017	1439	5181	388
2018	1792	6452	483

* Specific CO₂ emission per produced kWh of heat is 269.39 [g/kWh]. From the Manual for Energy Consultants, UNDP.

TOTAL DIRECT AND INDIRECT GREENHOUSE GAS EMISSIONS PER WEIGHT

	Fuel CO ₂ (t)*	Electricity CO ₂ (t)*	Heat CO ₂ (t)*	Flights CO ₂ (t)*	Emissions total CO ₂ (t)*
2014	79.9	142.5	331.7	23.8	577.9
2015	92.7	191.7	345.1	28.4	658.0
2016	82.5	174.6	386.7	36.0	679.8
2017	74.8	168.1	387.7	36.7	667.3
2018	60.3	198.4	482.8	48.7	790.2

*From the Manual for Energy Consultants, UNDP.

Effluents and Waste

MANAGEMENT APPROACH

Explanation of the material topic and its boundary

The same description applies as to GRI 302 Energy, GRI 305 Emissions and GRI 306 Effluents and Waste.

The management approach and its components

Since introduction of Environmental Management System (EMS) in 2002, waste has been disposed in the Institute in accordance with Croatian laws and regulations. EMS applies to all organizational units (departments and services), all working areas, all places of work and work resources, all workers and other persons who have access to or stay in the Institute's premises for any reason whatsoever.

In Laboratory for Physical and Chemical Testing the work with chemicals is under constant monitoring, and the prescribed environmental measurements and testing are carried out. All the employees in the Laboratory are technically competent for work with poisons, have completed courses in toxicology in accordance with the applicable legislation, so that there is full compliance with legal requirements. Safety data sheets for dangerous substances, instructions and other documentation are maintained and compliant with GHS and REACH directives.

Evaluation of the management approach

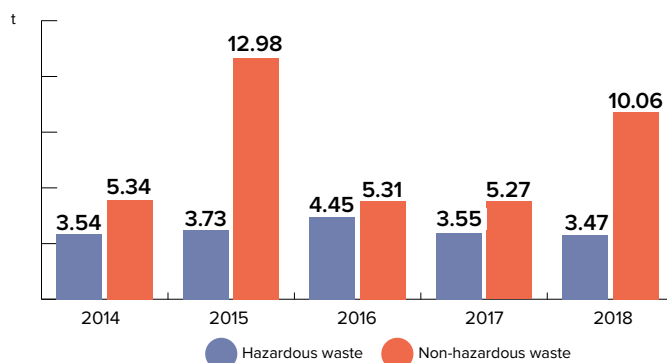
The Institute was neither fined nor sanctioned in any other way for non-compliance with environmental laws and regulations.

Waste by type and disposal method

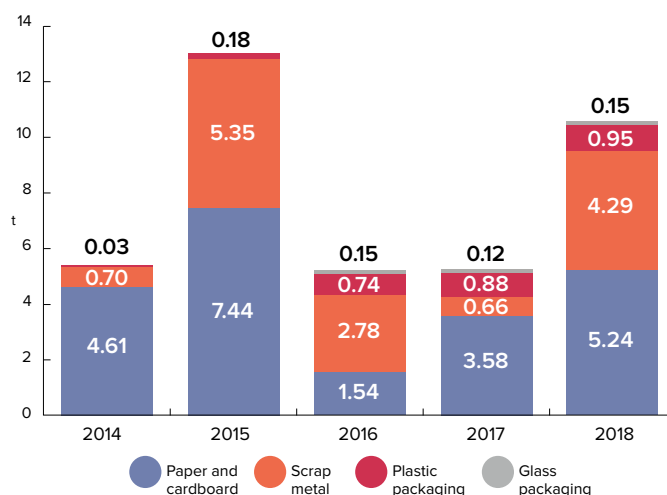
Our work processes generate waste that requires special disposal methods including recognition of hazardous waste, collecting, temporary storage, disposal by the authorized waste disposal contractors, keeping prescribed records and delivery of data about waste.

There is a permanent reduction of mixed municipal waste. The quantity of waste metal and cardboard is directly influenced by business processes, i.e. by increase of purchases, deliveries and investments in the current year.

HAZARDOUS AND NON-HAZARDOUS WASTE



NON-HAZARDOUS RECYCLABLE WASTE



WASTE TYPE	2014	2015	2016	2017	2018
Municipal waste (mixed) (m³)	160	133	126	127	112
Hazardous waste (t)	3.54	4.31	4.45	3.55	3.47
Non-hazardous waste (t)	5.34	12.98	5.31	5.27	10.60

SOCIAL

Employment

MANAGEMENT APPROACH

Explanation of the material topic and its boundary



Satisfied and motivated employees are the basis of our long-term business success, and well-educated and competent experts are our greatest asset. The Institute mostly employs young and college-educated people, and by working on research and development tasks together with experts from other KONČAR companies or in partnerships at national and international projects they gain new knowledge and team work experience.

This topic is material due to the significant interest of stakeholders – employees, shareholders and the Institute. The company is influenced by its own activities.

The Institute offers its employees the acquisition of expert knowledge, challenging jobs and fair working conditions. They include fair compensation for their work, additional benefits, and flexible work practices to meet individual employee needs. All employees are provided with continuous personal and professional development through education and training programs.

Motivation of employees for scientific and professional development, personal advancement and their focus on the areas of interest of the Institute are a huge force for technical creativity and competition at the global level.

Workers' Council

All employees have the freedom of association and the right to collective bargaining. Through the Workers' Council, employees have the opportunity to participate in decision-making on issues related to their economic and social rights and interests. The representative of the Workers' Council participates in the regular work of the Institute's Supervisory Board, and annual meetings of the Management where business plans are presented for the next period. On the Intranet there is a special section of the Workers' Council with information about the conclusions of the Works Council's meetings, valid contracts and news related to employee interests.

Employee satisfaction survey

Employee satisfaction surveys have been introduced as an important tool by which employees can point to realized improvements and possibilities for further improvements, so that the Institute can achieve the best working conditions possible. Strong employee engagement is essential for successful long-term operations of the Institute and the quality of products and services provided to its customers (more on page 24).

Open Doors Day

In 2018 the Institute opened for the first time its doors for an organized visit and meeting of the employees, their families, close friends and friends. On the first Open Doors Day, the most inquisitive visitors were the children of employees, who had the opportunity to look at their parents' everyday life, make interesting experiments, visit some of the labs and learn something about technology and technology.

The Open Doors Day was organized on the initiative of the employees, to encourage a sense of unity in the workplace and the relationship with the families and the community. The satisfaction of about one hundred visitors is a sufficient reason for the organizer to continue organizing this event in the future.

The risk of leaving key employees has been identified. An analysis of the situation over the past period has been made, and measures prepared for keeping the key staff.



103-3 Evaluation of the management approach

Job recruitment, selection and retention procedures are constantly being promoted and aligned with new challenges. External and internal communication and improvements in two-way inclusion process require additional attention in the coming period.

401-1 At the end of 2017 the Institute had 170, and at the end of 2018 171 employees. During the reporting period 21 new employees were hired, and 20 left the Institute: 8 retired, 7 consensually terminated their employment, 1 passed away and 4 were with expired employment contracts.

In the last ten years 108 employees left the Institute, and 113 were hired.

EXPENSES OF OCCUPATIONAL HEALTH AND SAFETY IN 2018

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
New employees hired	13	10	10	8	7	9	9	11	15	21
Employees who left the Institute	6	14	6	12	14	7	5	12	12	20
Total number of employees on 31 December	173	169	173	169	162	164	168	167	170	171

401-2 Benefits provided to full-time employees

Additional benefits create a positive atmosphere that favours the climate of unity and cohesion in the Institute, despite differences in monthly wages that are related to the success of performance of each department:

- Educational and professional programmes for improvement of knowledge and skills
- Paid business trips and participation in international conferences
- Christmas and Easter bonuses, holiday cash grants
- Jubilee financial rewards for 10, 15... years of service in the Institute
- Money reward for completion of graduate and postgraduate studies
- Financial aid in the case of sick leave exceeding 90 days
- Allowance in the case of death of immediate family member
- Allowance for each new-born baby
- Regular medical check-ups
- Leisure time recreation
- Mobile phone.

There are special bonuses for each successfully completed job. Corporate loyalty is fostered and each employee who wishes to improve their knowledge in the areas that are of interest for the Institute will have paid expenses of such training or education.

401-3 Parental leave

All female employees have the right on parental leave, and male employees have the same right in accordance with the decision of the Croatian Institute for Health Insurance (HZZO). During the reporting period 4 women and 1 man used their right to parental leave. All the employees (100%) were back to their work after termination of the leave and continued working for the next 12 months.

GRI 403 Occupational health and safety

GRI 103 MANAGEMENT APPROACH

103-1 Explanation of the material topic and its boundary



Occupational health and safety risk management is the overall process of identifying, assessing and monitoring the risks, and in accordance with them taking the necessary measures and controls for the purpose of eliminating risks, reducing risks and / or controlling them.

The topic is material due to the significant interest of the involved stakeholders – employees and the Institute.

The company is influenced by its own activities, as well as activities outside the boundaries of the Institute's influence.

103-2 The management approach and its components

Ensuring a healthy and secure work environment for employees through the OHSMS management system has been recognized as our major responsibility and consequently gained the trust of users, customers, foreign investors and improved global competitiveness of the company in the market.

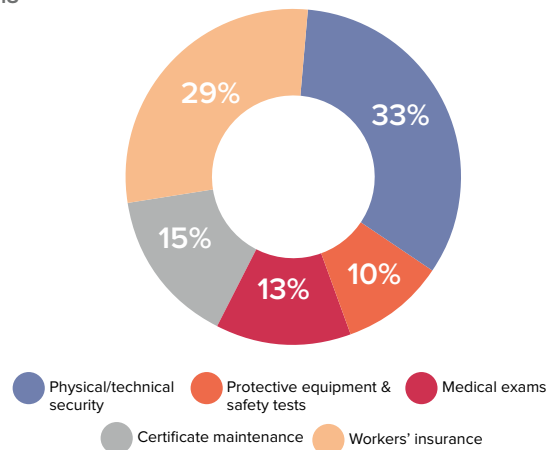
103-3 Evaluation of the management approach

Safety at work and occupational health care are essential elements of working conditions governed by applicable Croatian regulations and OHSMS procedures.

403-1 Occupational health and safety system

OHSMS is a part of the integrated management system defined by the OHSAS 18001: 2007 and represents a mechanism for occupational health and safety. The fundamental goal of the system is to ensure a healthy and safe working environment, i.e. to remove or reduce the risk of work injury and occupational illness for all employees of the Institute and other persons to whom the activities of the Institute may have an adverse effect.

EXPENSES OF OCCUPATIONAL HEALTH AND SAFETY 2018



Expenses of occupational health and safety were 1.67 value added

403-2 Hazard identification, risk assessment, and incident investigation

In accordance with Croatian regulations and OHSMS procedures, dangers are identified, risks assessed and monitored (both those affecting health and safety of employees and third parties), and accidents and injuries at work investigated and analysed. Controls and audits are conducted in accordance with OHSAS 18001: 2007, and they include a complete OHSMS system: estimates, goals, analysis, measurement, stakeholder feedback and results, undertaken activities and improvements.

403-3 Occupational health services

The Institute has a contract with a medical specialist who regularly monitors the health status of workers through periodic and extraordinary medical examinations. Examinations are carried out during working hours, and the health institution in which the examinations are conducted is located directly next to the Institute's location.

403-4 Worker participation, consultation, and communication on occupational health and safety

Workers are involved in health and safety during risk assessments. All workers can initiate or suggest improvements, more practical solutions, eliminate omissions and irregularities in the implementation of workplace safety regulations or improve the management of occupational health and safety through communication channels: representatives at the Workers' Council and the Commissioner for Occupational Safety, either publicly (verbally or in writing) or anonymously (polls and mailbox).

403-5 Worker training on occupational health and safety

The following trainings have been carried out:

- safe work and starting fire extinguishing of all new employees
- operation of forklifts, crane lifts, self-propelled lift platform and scaffolding
- handling hazardous chemicals
- for authorized persons in the field of occupational safety.

403-6 Promotion of worker health

Once a year, all employees can have a systematic medical examination at a selected healthcare facility.

403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships

Occupational health and safety risk management is carried out in accordance with OHSMS procedures, with a view to defining the methodology for permanent and timely hazard identification (potential / current), risk assessment of possible adverse effects on health and safety at work and determination of control mechanisms.

403-8 Workers covered by an occupational health and safety management system

OHSMS refers to all organizational units (departments and services), all working spaces, all places and means of work, all employees and other persons who have access to or stay in the Institute's premises for any reason.

403-9 Work-related injuries

In 2018 4 injuries occurred at work and were reported according to the regulation and the OHSMS procedure. Three lighter injuries occurred at the workplace, and one severe injury on the way from home to work.

In 2018 the injury rate at work with severe consequences (based on 200,000 working hours) was 130.8, while the injury rate at work that can be recorded (based on 200,000 working hours) was 135.6.

403-10 Work-related ill health

None

WORK INJURY INFORMATION

	2014	2015	2016	2017	2018
Average number of employees	161	165	167	169	172
Number of fatal injuries	-	-	-	-	-
Number of group injuries	-	-	-	-	-
Number of severely injured at work	3	-	1	1	1
Number of light injuries at work	0	-	1	2	3
Total number of injuries	3	-	2	3	4
Number of lost working hours	880	-	64	408	1008

Explanation of the material topic and its boundary



Personal development and improvement of employees are very important for the Institute, because business activities and development are based on the application of knowledge, i.e. on good knowledge of problems and ways of solving by applying new techniques and technologies. With additional training, active participation in international conferences and exhibitions employees gain specialist knowledge and make innovations that create a competitive edge and contribute to the success of developing new products and services.

The topic is material due to the significant interest of stakeholders - employees, customers and the Institute.

The company is influenced by its own activities.

The management approach and its components

Employees are given the opportunity of professional education, foreign language learning, IT training and education for quality systems, environmental protection and safety at work. New knowledge is gained through postgraduate doctoral and specialist studies as well as work on research development tasks in mixed teams of KONČAR Group companies, at seminars and in active participation in international congresses and exhibitions. Creativity and leadership development are encouraged through management education programs.

Internal processes are continually improved in the HRM system (the system of monitoring the staff of the Končar Group), and effects and costs are monitored through the procedures in the Annual Education Plan and the Program of Training and Education.

Evaluation of the management approach

Processes of knowledge management and digitization of the expert knowledge and competencies database are of utmost importance to the Institute, and an area where significant improvements can be made.

Average annual number of training hours per employee

In 2018 74% of employees attended some form of training or education, and average lesson time was 76 hours per employee.

The difference in the average number of hours of training in 2018 in favour of men resulted from an increased number of hours of training for types of jobs mostly made by men (work with a forklift, crane and self-propelled lifting platform).

AVERAGE HOURS OF TRAINING AND EDUCATION
CATEGORY
IN 2018

Category	Hours
Management Board (Top management)	146
Heads of departments (Middle management)	78
Heads of laboratories and sections (Lower management)	50
Employees	78

AVERAGE HOURS OF TRAINING AND EDUCATION
PER GENDER
IN 2018

Programs for upgrading employee skills and transition assistance programs

Program for new employees and trainees

The program for new employees and trainees enables familiarization with the Institute's legal acts, management systems, health and safety protection, and the basic concepts of corporate social responsibility and the application of sustainability principles at the Institute.

Acquisition of specialist knowledge and scientific vocation

Postgraduate doctoral studies are attended by 9 associates at three technical faculties of the University of Zagreb, 4 attendees are studying postgraduate specialist studies and 2 undergraduate and graduate studies. The Institute has 16 scientists enrolled in the Register of Scientists, 6 of them with the status of research associate and 1 senior research associate. In 2018 21 employees attended German and Spanish language courses.

Doctoral thesis

In 2018, Eduard Plavec successfully defended his doctoral thesis titled "Electromagnetic actuator optimization for high-voltage circuit breakers" at the Faculty of Electrical Engineering and Computing at the University of Zagreb.

Dr. Sc. Eduard Plavec received the KONČAR Award for his doctoral thesis, which is traditionally awarded for outstanding scientific achievements in the field of technical science with application in industry. Zagreb, 2018.



KONČAR Academy

KONČAR Group conducts the programme Fundamentals of Business Administration (FBA) with candidates up to the age of 35 who are capable of modern management. The aim of the program is to provide opportunities for developing work independence and creating a base for potential young managers. Six generations were educated under this programme, and an advanced education cycle was carried out to stimulate business thinking and develop specific managerial competencies. So far, 21 associates of the Institute have attended a training program for management candidates.



GRI 405

Diversity and Equal Opportunity

GRI 103

MANAGEMENT APPROACH

103-1

Explanation of the material topic and its boundary



Diversity includes differences in ethnicity, gender, function, competence, language, religion, lifestyle, culture, intellectual and other abilities of employees.

Accepting and promoting diversity and non-discrimination as key values for the Institute's sustainable development takes place through three important segments: organizational culture, management and employees.

Management in the context of diversity is a voluntary effort of the Institute to recognize and involve people of different characteristics to ensure innovation, creativity and adaptability through such an approach and achieve long-term business success, and also to contribute to the goals of anti-discrimination.

This topic is material due to the significant interest of stakeholders – employees, shareholders and the Institute. The company is influenced by its own activities.

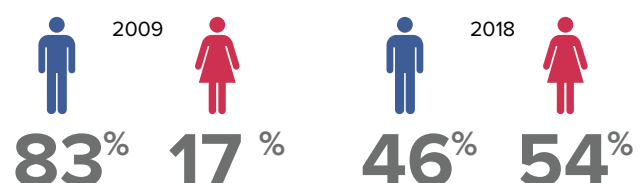
103-2

The management approach and its components

In 2018, the Institute adopted the Diversity and Non-discrimination Policy, clearly expressing its attitude and focus on a better understanding of the impact of diversity on all stakeholders of the Institute, defining goals, roles and responsibilities and monitoring measurable performance indicators. Policy provides guidelines for creating and implementing diversity management practices and promoting positive culture at work and employment based on personal abilities and qualifications, without discrimination and harassment.

The Diversity and Non-discrimination Policy is available to all stakeholders on the Institute's website and intranet. The Action Plan for the Promotion of Diversity and Non-Discrimination is available to the Institute's employees on the website and intranet.

COMPARISON OF PERCENTAGES OF FEMALE EMPLOYEES IN THE MANAGING BOARD AND MIDDLE MANAGEMENT IN 2009 AND 2018



103-3 Evaluation of the management approach

Each year the progress in achieving measurable goals under the Action Plan for Promoting Diversity and Non-Discrimination and reporting changes is reviewed.

405-1 Diversity of governance bodies and employees

Due to specific business activities of the Institute most employees are male. Percentage of female employees is almost the same for many years, and it is about 24%. However, the management structure has been largely changed. In 2009 there were 17% female middle managers, while in 2018 it reached the high 54%.

In the last ten years also the age structure has been essentially changed. In 2009 the average age of the employees was 42, and in 2018 it was 39. This is a result of systematic "rejuvenation" of the Institute, however taking care to transmit and preserve knowledge of older generations for the new ones. Also, since 2009 the structure of the top management has almost completely changed, so that now the average age is 44.

PERCENTAGE OF FEMALE EMPLOYEES PER CATEGORIES AND TOTAL NUMBER OF EMPLOYEES

Category	2009	2014	2018
The Managing Board and middle management (heads of departments)	17%	36%	54%
Lower management (heads of laboratories and sections)	6%	10%	17%
Employees	25%	24%	24%

AVERAGE AGE PER CATEGORIES

Category	2009	2014	2018
The Managing Board and middle management (heads of departments)	52	51	44
Lower management (heads of laboratories and sections)	49	48	42
Employees	42	40	39

405-2 RATIO OF BASIC SALARY AND REMUNERATION OF WOMEN TO MEN PER CATEGORIES AND GENDER

In 2018	M/F
Heads of departments (Middle management)	1.14
Heads of laboratories and sections (Lower management)	0.99
Employees	1.09

GRI 404 Communities

GRI 103 MANAGEMENT APPROACH

103-1 Explanation of the material topic and its boundary



The collaboration of the Institute and the academic community has been fostered for many years through various activities and is constantly improving. Encouraging science and economy cooperation directs the academic community to address scientific research topics that could bring benefits to the economy. It also demonstrates how the academic community can contribute to the development of society not only through education but also through applied research for the sake of innovation.

Joint activities of the Institute and the academic community:

- Partnership on joint scientific research projects
- Participation in the curriculum
- Mentoring, membership in professional commissions, boards, jury
- Education (graduate, postgraduate and specialist)
- Awarding the best students to three technical faculties
- Professional student and student practice, professional visits
- Exchange of knowledge from which scientific papers, conferences, expert meetings emerge.

The Institute invests in activities contributing to the sustainable development of the academic community:

- Applied scientific research
- innovations
- Inclusion of the academic community in the development of the economy.

Connecting the economy with the academic community is also strongly encouraged by the EU with a view of to transferring new technologies and knowledge from faculties to industry, aiming at improving the existing and developing new high technology products and services.

The topic is material due to the significant interest of the involved stakeholders – the employees, the academic community and the Institute.

The company is influenced by its own activities.

103-2 The management approach and its components

The Institute gains new knowledge by linking with the academic community, encourages the publication of professional and scientific papers, exchanges the existing knowledge of scientists and new knowledge gained through research on concrete technical problems, innovation is being created and costs are reduced as European and national resources are used for research according to the needs of the economy.

The impact of collaboration between the academic community and the Institute can be seen in several aspects: material benefits in the final results of successfully implemented projects with industrial application, exchange of knowledge and education, and expert and scientific papers.

By joint work on research and development projects, the Institute and the scientific community jointly take the risk regarding project results, commit themselves to deadlines for implementation of the results, and responsibility for the development of the economy and society.

	2014	2015	2016	2017	2018
Co-financed projects with academic community	2	2	3	3	2
Published papers	27	31	10	50	18
Attendants of postgraduate doctoral studies	22	21	11	10	9
Defended PhD theses	2	0	1	1	1
Members of the Institute teaching at faculties	9	10	12	10	10

103-3 Evaluation of the management approach

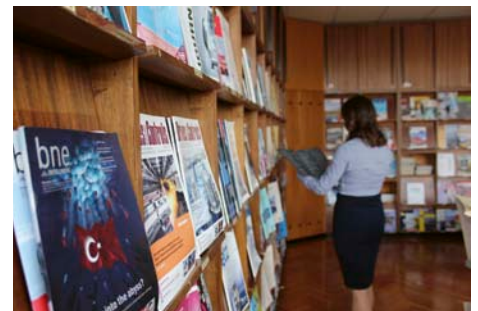
The stronger involvement of the academic community with the economy in more developed societies is the driver of the society as a whole. The partnership between the Institute and the academic community and the experience gained were the basis for proposing measures to strengthen the innovative activities in the National Innovation Strategy 2014 - 2020. Measures to promote mobility between the education, science and industry sectors have been proposed and stimulate synergies in innovation between two and more sectors.

413-1 Operations with local community engagement, impact assessments and development programs

Information-documentation service (INDOK) and library

INDOK and the library share resources with the local and international community and provide access to information. They have a key role in ensuring access to information, supporting research and development, as well as in safeguarding and protecting professional knowledge.

INDOK has more than 20,000 printed professional books, and more than 800 scientific and professional journals in the fields of electrical engineering, electronics, energy, transport and natural sciences. Users can access databases of scientific and professional e-books, e-proceedings, e-papers, PhD, MSc and BSc theses.



Support for engineering sciences and awards for best students

The Institute builds up partnership with the academic community, develops and supports both professionally and financially organisation and participation at scientific meetings, conferences and symposia that enable exchange of experiences and development of science, and also awards best students at three faculties of engineering.

For a number of years, the Institute has been financially supporting the Lifetime Achievement Award “The Power of Knowledge”. This award is given by the Croatian Academy of Engineering to outstanding scientists for their entire R&D work in engineering/biotechnical sciences and for life-long contribution to the progress of profession, with special emphasis on application of results of research work.

In 2018, as in every year, the Institute has financially awarded the best students at the Faculty of Electrical Engineering and Computing in Zagreb (Josip Lončar Award), and the Faculty of Chemical Engineering and Technology in Zagreb (Vjera Marjanović-Krajovan Award).

Practical training

In 2018 17 pupils and students successfully completed practical training. Under the guidance of expert mentors, they had the opportunity to acquire practical knowledge and skills. Mandatory training gives them the opportunity to take part in solving concrete every-day problems, and their teachers get feedback on knowledge and skills which the contemporary market expects from future engineers, what in turn enables better adaptation of the curriculum to current needs of industry and technology trends.

Erasmus+ internship program

Since 2016 the Institute has been involved in the Erasmus+ program in co-operation with the School of Electrical and Mechanical Engineering in Zagreb. In 2018 the Institute hosted a student from the Berlin Higher School Centre for Technical Informatics, Industrial Electronics and Energy Management (OSZ-TIEM). The EU Erasmus+ is a program for education and training, aimed at strengthening knowledge and skills and connecting with the business sector.



Visits of pupils and students

In 2018 the Institute hosted numerous groups of students and pupils from Croatia and surrounding countries. In laboratories of the Institute they got familiar with production processes and up-to-date laboratory equipment. Practical knowledge and concrete solutions are the most important segments of successful training especially in engineering.

ELEKTROBOJ – Student competition

The Institute has been supporting for six years the student competition ELEKTROBOJ – a competition of students in the development of HW/SW solutions. Its objective is to stimulate students to independent work on extracurricular activities, thus improving their creativity and technical competences. The Institute is included in the jury of experts, and during the competition students visit laboratories, have lectures on product certification, and take part in testing under EU directives and standards.

GRI content index: Core option

GRI standards are globally accepted tool for sustainability and sustainable development reporting, and they are periodically revised to enable companies to communicate most appropriately the impacts of their economic, environmental, social and governance performance.

Set of modular GRI standards were created with a view to improving global comparability and quality of information, what ensures higher transparency and responsibility of the company.

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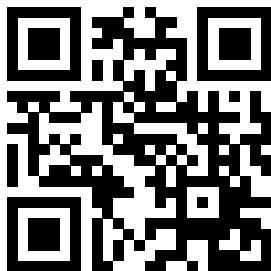
ENERGY AND TRANSPORT	INDUSTRY AND TRADE	DEVELOPMENT AND SERVICES	AFFILIATED COMPANY
POWER PLANT AND EL. TRACTION ENGINEERING	HOUSEHOLD APPLIANCES	ELECTRICAL ENGINEERING INSTITUTE	POWER TRANSFORMERS
GENERATORS AND MOTORS	SMALL ELECTRICAL MACHINES	INFRASTRUCTURE AND SERVICES	
SWITCHGEAR	LOW VOLTAGE SWITCHGEAR AND CIRCUIT BREAKERS		JOINT VENTURE
DISTRIBUTION AND SPECIAL TRANSFORMERS			KONČAR - XD HIGH VOLTAGE SWITCHGEAR
INSTRUMENT TRANSFORMERS			
ELECTRONICS AND INFORMATICS			
METAL STRUCTURES			
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