

# NATIONAL REPORT ON EXISTING STRUCTURES FOR SUPPORT OF ECO- INNOVATION – CROATIA



<b>WP3</b>	<b>Strategy for eco-knowledge</b>
<b>ACTIVITY 3.2</b>	Analysing the environment for ecoinnovation in partner countries
<b>DELIVERABLE 3.2.3</b>	National report on existing structures for support of Ecoinnovation

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<b>Author</b>	ERDF PP7 REDEA - Regional Development Agency Međimurje
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# 1. Abstract

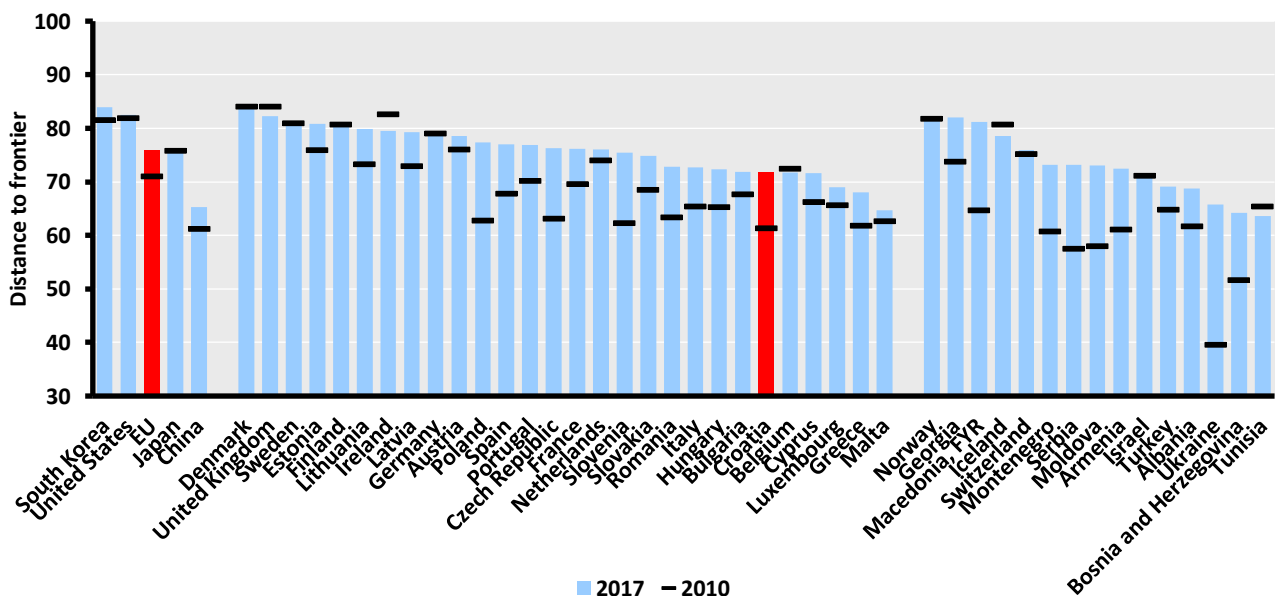
Framework conditions have a significant role to play in shaping investment behaviour and the innovation capacity of economies. Favourable framework conditions are expected to positively affect innovative investments and their impact on productivity as they help to allocate and reallocate resources towards innovative activities that support productivity growth.

The definition of good and supportive framework conditions encompasses different dimensions. The most common dimensions are:

- existence of robust and well-functioning public institutions;
- efficiency of the products market;
- functioning of the labour market;
- extent to which financial markets grant access to resources to innovative businesses.<sup>1</sup>

The World Bank's '*Ease of doing business*' index ranks economies by the attractiveness of their regulatory frameworks for the creation of new businesses. According to this index, Croatia has made a progress in last 7 years. However, its performance is still among the worst in European Union (**Figure 1**).

Figure 1 Ease of doing business - distance to frontier, 2010 and 2017



Source: Science, Research and Innovation performance of the EU 2018  
 Data: Ease of Doing Business Indicator (World Bank)  
 Formatting: Redea

<sup>1</sup> Science, Research and Innovation Performance of the EU 2018, Strengthening the foundations for Europe's future - European Commission, Directorate-General for Research and Innovation

More specifically, the Ease of doing business index ranks countries in 10 categories. Some of the biggest issues in Croatia revolve around getting construction permits, starting a business and getting a credit (**Figure 2**).

*Figure 2 Ease of doing business indicator sets*



Source: Ease of Doing Business, World Bank  
 Formatting: Redea

However, there are regional differences in some categories, especially in issuing construction permits and getting the electricity. According to the Ministry of Construction and Physical Planning statistics (<http://www.mgipu.hr/doc/Graditeljstvo/eDozvola/22.1.2018.statistika.dozvole.pdf>), the average number of days required for construction permits in Croatia is 30. Međimurje county is the fastest with 15 days whereas Dubrovnik-Neretva county is the slowest with an average of 53 days. The same pattern can be found when comparing regional centres. City administrations of northern part of Croatia achieve better results than cities in other parts of Croatia. Due to high centralization of Croatia, local and regional authorities have rather limited resources to influence business environment. Local authorities can offer some benefits to entrepreneurs but the size of administrative units and legal framework in many cases prevents them to articulate regional smart specialization.

Eco-innovation is not specifically addressed as an area of special interest or given any priority over other sectors. Although Croatia has an Innovation strategy 2014 – 2020 in place, this strategy is rather

sector-neutral. There are no dedicated support structures or sources for eco-innovation sector hence no special emphasis onto energy related innovation eco-systems.

Starting a private limited company (Ltd) as most prevalent legal form in Croatia costs around 24.000 HRK (€3.200,00). To lower the financial entry barrier, there is also possibility to start a so called “simple” Ltd (Croatian abbreviation ‘j.d.o.o.’). The costs for establishing ‘j.d.o.o.’ is significantly lowered to 1.070 HRK (€140,00), however the law requires owners to gradually invest profits in the capitalization of the company.

In general, the banking sector in Croatia is very liquid but commercial banks mitigate their risks by imposing barriers that are not simple to overcome by owners. That is why Croatian Bank for Reconstruction and Development (HBOR) has come up with various programmes to support development of businesses, including start-ups. Programmes are implemented either through HBOR or commercial banks.

Croatian labour policies are considered as one of main barriers for doing business<sup>2</sup>. Croatia’s Labour law makes it relatively expensive to hire and dismiss employees in comparison to other countries in Europe at the same level of development. Tax changes in 2017 caused an increase in net salaries and somewhat helped companies to retain their most talented employees. However, Croatia is facing an unprecedented emigration of citizens to EU countries. The impact of emigration is causing shortages in workforce predominantly in construction and transportation industry but also in capacities of innovative companies that struggle with brain drain.

Although unemployment rates are slowly decreasing, Croatia has the 5<sup>th</sup> highest unemployment rate in the EU. Croatian Employment Service (CES) and Ministry of Labour and Pension System recently started with implementation of the programme to support self-employment. The programme is financed by the European Social Fund. There are no comprehensive reports on results of this programme, so it is hard to estimate its effect.

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<sup>2</sup><http://www3.weforum.org/docs/GCR2017-2018/05FullReport/TheGlobalCompetitivenessReport2017%E2%80%932018.pdf>

## 2. Support structures and sources for facilitating eco-innovation

Croatia does not have dedicated supporting structures or sources for facilitating eco-innovation. Due to various reasons but mainly due to extremely centralized government, lack of or complete absence of smart specialization, supporting structures try to equally cover a broad set of business sectors. Several key supporting institutions have been established to provide various supporting mechanisms to entrepreneurs and R&D and the most important of them is **Croatian Agency for SMEs, Innovations and Investments (HAMAG-BICRO)**. HAMAG-BICRO was founded with the aim of supporting the development of small and medium-sized enterprises, improving the innovation process and encouraging investments. HAMAG-BICRO's area of support includes wide variety of programmes and services to the SME sector. There are also other supporting structures but with limited impact. HAMAG-BICRO is also one of the main institutions in Croatia when it comes to management of financial sources dedicated to SMEs and innovation. Recently, HAMAG-BICRO has taken over additional roles and has become a body responsible for implementation and monitoring of the European Structural and Investment Funds (ESIF)<sup>3</sup>.

In this section supporting structures are presented and referred to in terms of accessibility, frequency, stability, impact and replicability.

### Accessibility

Accessibility of support structure and sources is relatively modest in Croatia. Geographical coverage of business support institutions is very well. However, services they provide are rather limited, especially for innovative companies.

HAMAG-BICRO is central business support institution in Croatia. Local and regional authorities have established local and regional development agencies to help various stakeholders including SMEs in their development processes. The **Environment and Energy Efficiency Fund (FZOEU)**, until recently was the only national institution that supported R&D projects in the energy and ecology sector. However, due to uncontrolled overspending and collapse of emission trading scheme the Fund has stopped or heavily reduced financing of all projects.

In many parts of Croatia, business incubators have been established to support specific, usually technical oriented sector (eg. TICM Čakovec, TP Varaždin, BIOS Osijek, ZIP etc.).

Technology transfer and commercialization offices are institutions established to link universities with the market and provide competences related to transfer of technologies and innovations from various R&D projects to the market. Unlike local and regional development agencies and business

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<sup>3</sup> <https://strukturnifondovi.hr/wp-content/uploads/2017/03/Izmjena-uredbe-o-tijelima-ESF-EFRR-i-KF.pdf>

incubators, TTCs usually have a longer reach and have the broad network of relevant stakeholders in the innovation eco-system.

Other stakeholders include non-governmental and private organisations like regional energy agencies, Croatian Association of innovators, Croatian business angels network (CRANE) and many private consulting companies that could provide various means of support to entrepreneurs.

A wide variety of institutions in Croatia would imply good accessibility of supporting structures to SME's and in particular those dealing with eco-innovation. However, many of these organisations have rather limited resources, both in terms of finance as well as availability of subject matter experts. Many of these institutions do not have constant and sufficient influx of resources that would give them the opportunity to improve their competences and perhaps specialize in certain sectors. Therefore, they usually offer some basic services and try to use their networks to give entrepreneurs at least contact points where they could get more value-added support. Eco-innovation is not an exception and usually companies in eco-innovation area rely on themselves and their abilities and resources to either acquire the required knowledge or try to find experts that could support them in their projects.

## Frequency

Frequency is primarily connected to programmes that provide direct financial support to beneficiaries or indirect support through specialized programmes implemented by various supporting institutions that act as beneficiaries on behalf of the grant management body. HAMAG-BICRO is the oldest government institution to support SME sector for more than 20 years. It conducted various programmes, but the frequency and life-cycles of these programmes varied throughout the time. The resources allocated to these programmes (and specific calls) were usually not enough for the large-scale support of the innovation sector especially giving the consideration that private sector was and still is under heavy tax and regulatory burden.

Other institutions not established by the national government regularly provide basic services and sporadically organise specialised events and training programmes. The activities of these institutions usually intensify when they were granted with financial support through national programmes or more often from European projects.

## Stability

Stability of supporting structures is tightly related to the frequency of programmes. The initial impetus from establishing non-governmental supporting institutions and a long-year economic crisis that forced local and regional authorities and other public institutions to slash the budget for business support institutions have affected the stability of these organisations. However, with the implementation Operational Programme Competitiveness and Cohesion and abundance of calls within various EU programmes, one could say that the stability of involved stakeholders will improve due to more available money but with 7-year programming period coming to its end, many

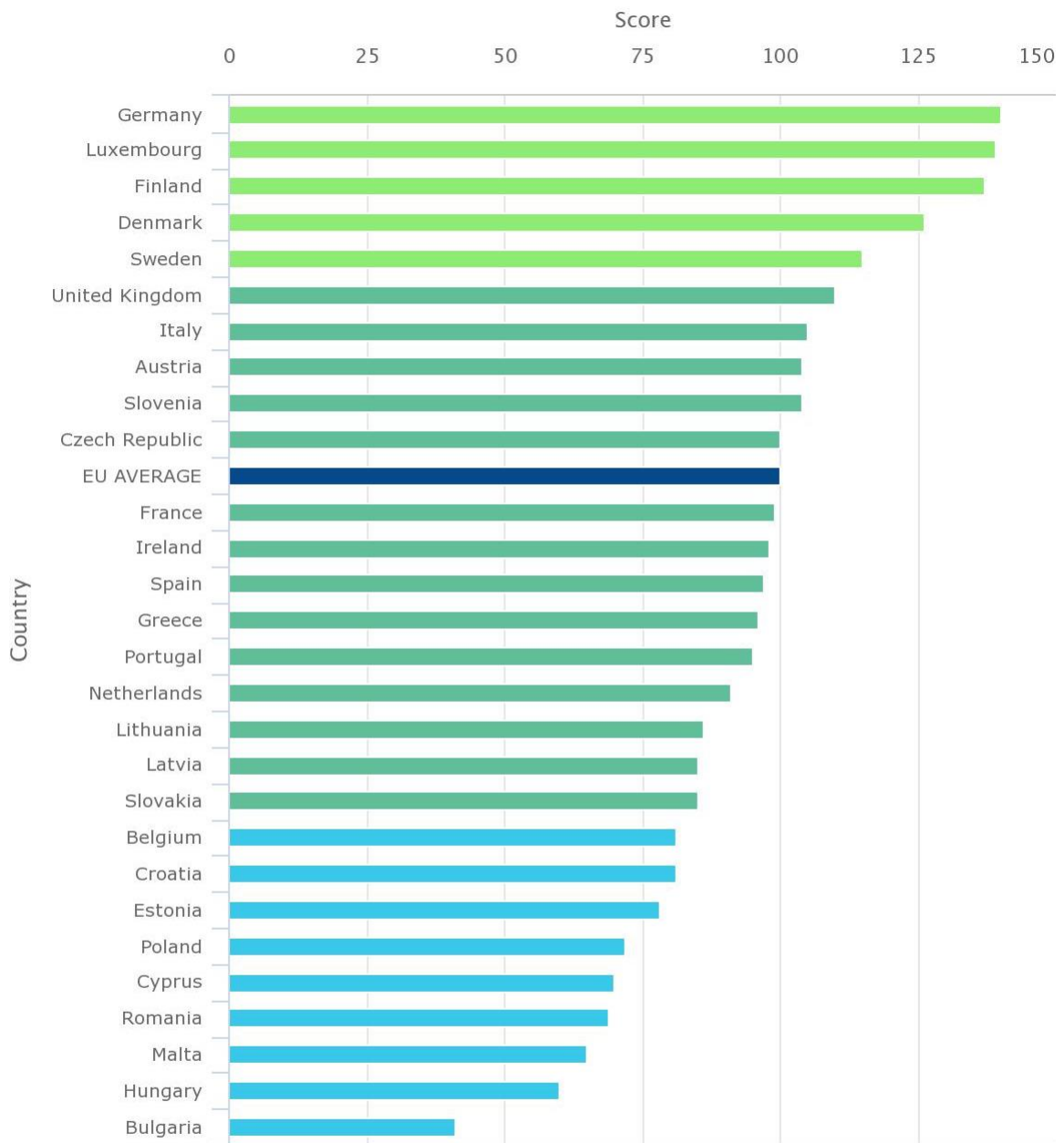


institutions will struggle to keep its service portfolio intact. Moreover, if institutional framework that hinders private sector to allocate more of their resources to (eco-)innovation does not change it is fair to say that trends of eco-innovation indices will diverge from other EU countries with more favourable business environment.

## Impact

The Eco-Innovation Scoreboard (Eco-IS) and the Eco-Innovation Index illustrate eco-innovation performance across the EU Member States. They show different aspects of eco-innovation by applying 16 indicators grouped into five dimensions: eco-innovation inputs, eco-innovation activities, eco-innovation outputs, resource efficiency and socio-economic outcomes. The Eco-Innovation Index shows how well individual Member States perform in different dimensions of eco-innovation compared to the EU average and presents their strengths and weaknesses. Croatia is well under the average and is qualified in the performance group named *Countries catching up with Eco-I*. Monitoring of Croatian eco-innovation performance started only 4 years ago and the trend shows that the performance varies significantly which implies that certain important components of the innovation eco-system are not stable enough (**Figure 3** and **Figure 4**).

Figure 3 Eco-Innovation Index, 2016

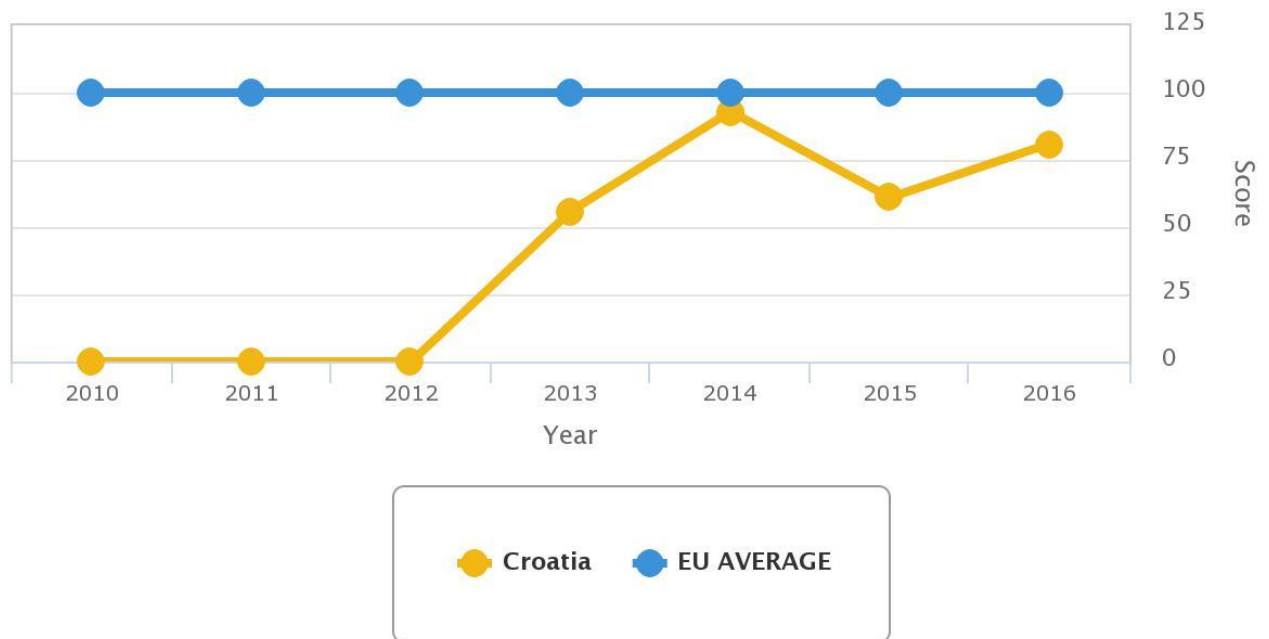


**Performance groups**

- Eco-I Leader
- Average Eco-I performers
- Countries catching up with Eco-I

Source: THE ECO-INNOVATION SCOREBOARD AND THE ECO-INNOVATION INDEX  
[https://ec.europa.eu/environment/ecoap/indicators/index\\_en](https://ec.europa.eu/environment/ecoap/indicators/index_en) , European Commission  
 Formatting: Redea

Figure 4 Eco-Innovation Index, 2016, Croatia and EU Average



Source: THE ECO-INNOVATION SCOREBOARD AND THE ECO-INNOVATION INDEX ([https://ec.europa.eu/environment/ecoap/indicators/index\\_en](https://ec.europa.eu/environment/ecoap/indicators/index_en)), European Commission  
 Formatting: Redea

## Replicability

Because there is still no significant specialisation of supporting structures and the fact that implementation of the smart specialization strategy has not really started, it is hard to determine if it can be easily adapted and/or replicated. Unique skills and competences are hard to replicate, and they could be achieved once centres of competences come fully to the fore.

As for the financial sources, the large portion comes from the OP Competitiveness and Cohesion and cannot be changed easily, so it would be very difficult to make some swift changes especially considering that national institutions and their organisation cannot be adapted quickly to answer the challenges that might arise in near or far future.

## 2.1. Government support

*Ease of doing business index* measures sets of criteria that strongly influence business environment of a country.

Croatia adopted several key documents related to development of entrepreneurship and more specifically to innovation:

1. Strategy for innovation encouragement of Croatia 2014-2020

2. Smart Specialization Strategy (S3) 2016-2020
3. State aid support for research and development law
4. Public Procurement law – innovation partnership

In addition to laws aimed at innovation encouragement, Croatia needs to implement various reforms to close the widening gap to developed countries. Labour policy, tax incentives and development of 21<sup>st</sup> century skills are some of most important areas of action.

### Active or passive labour policy

After accession to EU in 2013 and opening of EU labour markets to Croatian citizens it is conservatively estimated that at least 70.000 citizens have emigrated out of Croatia. Emigration of citizens, especially those with higher education (commonly known as **brain drain**) directly implies that capacities for research and innovation will erode and thus additionally limit the competitiveness of Croatian economy. The magnitude of emigration affects not only current economic capacities but also put a major burden to quality of public services, especially health services and sustainability of pension and social aid systems.

Croatian entrepreneurs are constantly urging the Government to act on labour policies, both in terms of relaxation of labour policies (primarily Labour law) as well as increasing quotas for foreign labour licences. Companies report that Croatia's Labour law makes it relatively expensive to hire and dismiss employees in comparison to other countries in Europe at the same level of development. Although unemployment rates are slowly falling, Croatia has the 5th highest unemployment rate in the EU. However, the government has committed to increasing jobs, especially for youth, through various programs funded by the EU.

Ministry of Labour and Pension System in association with Croatian Employment Service have initiated a programme of active employment policy financed by the European Social Fund within the OP Human Resources Development. Nine measures provide various means for both entrepreneurs as well as unemployed persons to receive financial support, obtain education and professional development, get support for internship etc. However, most of the measures are aimed to reduce unemployment rate whereas most companies investing in research and development are fighting for highly skilled employees.

In 2017 a new tax policy aimed to reduce tax burden on salaries came into force. It resulted in increase of net salaries and slightly helped companies to retain its most valuable employees.

### Available tax incentives

On September 25<sup>th</sup> 2015 the Investment Promotion Act has been adopted by the Croatian Parliament and has come into force at the beginning of October 2015 with the aim of harmonization with EU legislation for the new programming period 2014 – 2020. The authorities responsible for the enforcement of this Act were the Ministry of entrepreneurship and crafts and the Ministry of Economy.

The Investment Promotion Act is governing state aid and incentives on behalf of the Croatian state with the aim of encouraging new foreign and domestic investments all with the aim of successful and time defined realization of investment projects in Croatia aimed at the improvement and growth of Croatian economy.

The beneficiary of the state aid can be either an individual person subject to corporate income tax, or a legal entity: micro, small, medium or large entrepreneur, registered in Croatia.

The following types of state aid forms are anticipated by the Act: tax related aid, aid for the eligible expenses of creating new jobs and the eligible expenses for training and education, aid for development and innovation activities, activities of business support and activities and high value added services, aid for projects' capital expenditure, aid for labour - intensive investment projects, and a new measure for investments of minimum 13 million EUR and 10 new university degree job positions.

**Micro enterprises** tax incentives (state aid forms) are related to 50% tax rate deduction on corporate income tax with duration of maximum 5 years under condition that company invests a minimum of €50.000 into long term assets; that investment will create at least 3 new jobs directly related to the project within the first year from the investment start.

**Small, medium and large enterprises** can obtain corporate income tax reduction rate of 50 to 100% in a 10-year period if it fulfils conditions as presented in **Table 1**.

*Table 1 Tax incentives for small, medium and large enterprises*

Total investment (euro)	Min. number of jobs created	Tax rate deduction	Max. duration of tax incentive	Min. time to retain investment and created jobs
≥ 50.000 €	3	50%	5 years	3 years
150.000 – 1 mil. €	5	50%	10 years	5 years for LE 3 years for SME
1 – 3 mil. €	10	75%	10 years	5 years for LE 3 years for SME
>3 mil. €	15	100%	10 years	5 years for LE 3 years for SME

Source: HAMAG-BICRO Tax Incentives (<http://www.investcroatia.hr/investment-incentives/investment-promotion-act-overview/tax-incentives/>)

Formatting: Redea

Average corporate income tax rate in Croatia is 18%.

Further tax incentives (state aid forms) are expected when the new Law on state aid support for research and development projects comes into force. The main aim of this law is to boost private investments in research and development to achieve a year 2020 goal of 1.4% of GDP spent on R&D. The law foresees additional deduction of corporate income tax for maximum €300.000 and €50.000 for feasibility studies. Ministry of Economy, Entrepreneurship and Crafts will be responsible for evaluation of applications for tax deduction.

### Accessible trainings and seminars for skill development

Numerous trainings and seminars to increase knowledge and skills are available. They are organised by various institutions – private companies, chambers of various engineering disciplines (architects, construction, electrical, machine, chemical etc.), universities, expert associations, chamber of economy, national authorities, energy agencies etc. Thematic trainings revolving around energy efficiency and renewables are organised throughout the year and because energy related topics are an attractive subject in Croatia, all stakeholders can find some relevant content to fulfil their needs.

## 2.2. Domestic support funds

EU structural and investment funds almost completely replaced national funding for various programmes intended to support entrepreneurship. Small fraction of programmes funded by national component remained available to micro- and SMEs as well as science and research institutions. Although not focused on any sector, these programmes are an opportunity for companies in the eco-innovation sector to improve their capacities for research and development in various phase of their innovation process.

### Innovation support programmes

- **EUREKA** – main aim is to enhance European competitiveness by fostering innovation-driven entrepreneurship in Europe, between small and large industry, research institutes and universities. EUREKA projects are financed from national budgets and managed by and each partner country preserves the right to define its own rules about eligible partners, intensity of support and the evaluation process. Croatia decided that eligible partners are micro, small, medium and large enterprises. Science and research institutions are not eligible partners, but they can participate in the project as external associates. One company can implement only one project at the same time. Types of projects include:
  - Network projects
  - Clusters
  - Eurostars
  - Umbrellas

EUREKA is managed by HAMAG-BICRO.

- **Innovation process support programmes**

Croatian government started several programmes with main aim to directly or indirectly support development of start-ups and/or innovative projects. Programme is not focused on any particular sector but several companies in eco-innovation sector managed to use the programme for their innovation projects. Main programmes that are still available include:

- **Proof of concept (POC)** – main aim is to support innovative companies in commercialization process of their R&D results
- **Knowledge based companies' development (RAZUM)** – secure initial financing to start-ups or initial financing of new products or services to existing SMEs; finance innovative precommercial technology-based projects
- **Research and development programme (IRCRO)** – main aim is to support the innovation process where private companies co-operate with public science and research institutions

All programmes are managed by HAMAG-BICRO. **Table 2** shows main characteristics of each programme.

*Table 2 Innovation support programmes managed by HAMAG-BICRO*

Programme	Eligible partners	Duration (months)	Maximum financing (HRK)	Co-financing rate
<b>POC</b>	SMEs; Scientists and researchers	Max. 12	35.000 – 350.000 HRK	60 – 70%; 90%
<b>RAZUM</b>	Micro, small and medium	Max. 24	Not defined	50 – 70%
<b>IRCRO</b>	SMEs	Max. 24	900.000 HRK	50%

Source: HAMAG-BICRO (<http://hamagbicro.hr/e-knjiznica/prezentacije/>)

Formatting: Redea

## Human Resources development funds

Ministry of Economy, Entrepreneurship and Crafts manages the *Lifelong Learning for Trade and Craft* aimed at SMEs. Although programmes mainly aim at acquisition of professional certificates in all sectors, SMEs can use this programme to cover some of their costs.

National scholarship funds that could be targeted to eco-innovation do not exist in Croatia.

## Fund for co-financing of EU projects on local and regional level

Ministry of Regional Development and EU Funds supports project implementation by co-financing own project financing of public institutions (usually 15% of the total budget).

Eligible users of the Fund are local/regional authorities (L/R), legal entities or public institutions established by L/R authorities. Although SMEs are not eligible, business supporting institutions can use the Fund.

### Local/regional development funds

Many local and regional authorities in Croatia support SMEs via annual entrepreneurship encouragement programmes where entrepreneurs located in the geographical area of pertinent local/regional authority can get financial support for various activities.

For instance, Međimurje County supports development of essential project documentation for application on EU funded programme calls without restrictions for particular sectors. Financial support depends on the main project size and is divided in two groups:

1. Project value  $\leq$  300.000 HRK (€40.000) – 50% of eligible costs and maximum amount up to 3.000 HRK
2. Project value  $>$  300.000 HRK
  - a. 50% of eligible costs and maximum amount up to 15.000 HRK for micro and small enterprises
  - b. 40% of eligible costs and maximum amount up to 12.000 HRK for medium enterprises

Another recent and rather different example can be found in the City of Bjelovar<sup>4</sup>. The City organizes a competition *Bjelovar Startup 2018* with aim to award startups with innovative and unique business ideas. With this business support measure, the city administration wants to support entrepreneurs by offering them a comprehensive development programme that includes 100.000 HRK financial award, scholarship and mentorship.

## 2.3. ESIF

Operational Programme *Competitiveness and Cohesion* (OPCC) offers best funding opportunities for SMEs. OPCC is co-financed from the European Regional Development Fund (ERDF) and Cohesion Fund (CF), while its strategy is based on the concentration of investments into 9 thematic objectives (TOs 1, 2, 3, 4, 5, 6, 7, 9 and 10) of the Common Strategic Framework and their respective investment priorities (IPs). This document will only cover most attractive investment priorities for SMEs. Investment priorities are generic and don't specifically address sectors. Following is an overview of

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<sup>4</sup> <https://www.bjelovar.hr/bjelovar-startup-2018/>



priority axes that can also be considered by eco-innovative organisations.

## PA 1 Strengthening the Economy through Application of Research and Innovation

Two investment priorities are identified under this priority axis:

1. Enhancing research and innovation (R&I) infrastructure and capacities to develop R&I excellence, and promoting centres of competence, in particular those of European interest.
2. Promoting business investment in R&I, developing links and synergies between enterprises, research and development centres and the higher education sector, in particular promoting investment in product and service development, technology transfer, social innovation, eco-innovation, public service applications, demand stimulation, networking, clusters and open innovation through smart specialisation, and supporting technological and applied research, pilot lines, early product validation actions, advanced manufacturing capabilities and first production, in particular in key enabling technologies and diffusion of general purpose technologies.

**Specific objectives** include:

- Increased development of new products and services resulted from R&D activities will cover R&D projects of business sector in one or more of the following categories: industrial research, experimental development and feasibility studies, and fundamental research where it represents a necessary component of an R&D project leading to result identified for this specific objective (introducing new products, services, processes).
- RDI activities of business sector increased through creation of favourable innovation environment will cover further development of supporting infrastructure and capacities for innovation.

## PA 3 Business Competitiveness

Investment priorities under this axis include:

1. Promoting entrepreneurship, in particular by facilitating the economic exploitation of new ideas and fostering the creation of new firms, including through business incubators

**Specific objectives** include:

- Better access for finance to SMEs;
  - Enabling favourable environment for business creation and development.
2. Supporting the capacity of SMEs to grow in regional, national and international markets, and to engage in innovation processes

**Specific objectives** include:

- SMEs' development and growth improved in domestic and foreign markets;

- SMEs innovativeness enhanced.

## 2.4. Framework programmes

### HORIZON 2020

Horizon 2020 is by far the most attractive EU programme for organisations and institutions working on research and innovation. In total 2400+ Croatian partners have been awarded with more than €42 mil. for 200+ projects<sup>5</sup>.

90% of partners in projects are coming from higher education institutions, research institutions and private companies<sup>5</sup>.

According to the type of financed activities, most projects (46%) are related to research and innovation, and 16% to innovation activities<sup>5</sup>.

Programme is characterized by wide eligibility but what makes it so popular is the simplicity of application and reporting processes as well as up to 100% co-financing rate, depending on the type of project and legal form of the applicant.

In addition, Ministry of Science and Education has decided to co-finance preparation costs of project applications for H2020 programme. According to the Decision<sup>6</sup>, all registered scientists and exceptionally micro and small and medium enterprises will be eligible for these costs.

#### **SME instrument**

As part of the Horizon 2020 programme the SME Instrument will invest almost € 3 billion in 7500 projects by 2020 in highly innovative small and medium-sized businesses.

The **SME Instrument** addresses small and medium-sized enterprises (SMEs) with a radically new idea underpinned by a business plan for rolling out marketable innovation solutions and with ambitions to scale up. It supports high-risk, high-potential SMEs to develop and bring to market new products, services and business models that could drive economic growth.

The SME Instrument is designed for For-profit SMEs, including young companies and start-ups, from any sector established in an EU Member State or a Horizon 2020 associated country.

Selected companies receive funding and are offered business coaching to scale up their innovation idea and can also receive mentoring. They are helped in networking with other companies of all sizes, and with potential co-investors and follow-up investors across Europe. Until 2020 around 4000 small companies will be selected for funding.

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<sup>5</sup> <http://www.obzor2020.hr/rh-u-obzoru-2020>

<sup>6</sup> <https://mzo.hr/hr/poziv-na-dostavu-prijava-za-potpuru-na-temelju-odluke-o-poticanju-prijave-na-medunarodne>

The SME Instrument provides **full-cycle business innovation support**. It has three phases, including a coaching and mentoring service. **There are no set topics** - innovative companies across the board are welcome to submit their bright ideas. More details can be found at <https://ec.europa.eu/easme/en/sme-instrument> ).

**Enterprise Europe Network (EEN)** can provide specific support for SMEs willing to use the instrument.

## NER 300

NER 300<sup>7</sup> is a funding programme for innovative low-carbon energy demonstration projects. Funded through the EU emissions trading system (ETS), it provides €2.1 billion in co-funding to projects demonstrating environmentally safe carbon capture and storage (CCS) and innovative renewable energy (RES) technologies on a commercial-scale within the European Union.

### Objective

NER 300 aims to establish a demonstration programme covering the best possible CCS and RES technologies. By supporting commercial-scale demonstration projects, NER 300 bridges the gap between the end of the research and development phase and the full commercialisation of its results, hence providing low-carbon technologies with financial support in a crucial stage of their development.

The European Commission is responsible for the overall implementation of the NER 300 programme. It is supported by the European Investment Bank (EIB) and Member States. The EIB evaluated project proposals, sold the NER 300 allowances and manages now the revenues, whereas Member States liaise directly with the project sponsors.

### The future

The Commission's proposal for the revision of the EU emissions trading system after 2020 proposes an Innovation Fund to support innovative technologies in carbon capture and storage, renewable energy and energy intensive industry. Endowed with 450 million emission allowances, the Innovation Fund will build on the experience of NER 300 while having more funds and a wider scope. 50 million allowances should already be available before 2021.

### Croatia

One of 35 funded projects (with €14.7 mil. EU funding) comes from Croatia in Međimurje County where company **Geothermae** Ltd. builds an innovative advanced geothermal power plant driven by full energy content of the geothermal brine, consisting of heat of thermal water and the energy of aquifer gasses such as methane dissolved in the same water in a closed loop process.

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<sup>7</sup> [https://ec.europa.eu/clima/policies/lowcarbon/ner300\\_en](https://ec.europa.eu/clima/policies/lowcarbon/ner300_en)

## LIFE

The LIFE programme is the EU's funding instrument for the environment and climate action. The general objective of LIFE is to contribute to the implementation, updating and development of EU environmental and climate policy and legislation by co-financing projects with European added value. Croatian partners became eligible after Croatia's accession to EU. Two main priority areas are covered by the programme:

1. Environment – priority includes environment and resource efficiency, nature and biodiversity, and governance and information sub-programmes
2. Climate action – priority includes adaptation, mitigation and governance and information sub-programmes.

SMEs as well as public institutions are eligible partners in the programme where EU co-financing rate of up to 60%.

Ministry of Environment Protection and Energy issues annual calls for additional funding of approved project proposals. In the 2017 call, additional maximum 16% of total budget of the Croatian partner can be covered by the Ministry for projects coming from the water sector.

In addition to action and operating grants, LIFE funding is channelled through two new financial instruments, the Private Finance for Energy Efficiency (PF4EE) and the Natural Capital Financing Facility (NCF). Management of both instruments is entrusted to the European Investment Bank (EIB). The **Private Finance for Energy Efficiency (PF4EE)** aims to increase private financing for investments in energy efficiency enhancing projects. The PF4EE will combine lending from the EIB to financial intermediaries (**Zagrebačka banka** in Croatia) with protection against losses associated with making loans for energy efficiency projects. Final recipients will be private investors in Member States investing into energy efficiency enhancing projects. The beneficiaries could include SMEs and private individuals (e.g. house or hotel owners) as well as small municipalities or other public sector bodies. The size of the loans could range from €40,000 to €5 million and higher in exceptional cases. The **Natural Capital Financing Facility (NCF)** aims at financing projects carried out by small and medium-sized enterprises, local authorities, targeting pro-biodiversity, climate adaptation and green infrastructure investments and other activities. Financial intermediary for this instrument in Croatia will be HBOR with total amount of €15 mil. reserved for financing NCF projects.

## COSME financial instruments

The programme for the Competitiveness of Enterprises and Small and Medium-sized Enterprises (COSME) is improving access to finance for SMEs through two financial instruments: the Loan Guarantee Facility (LGF) and the Equity Facility for Growth (EFG). The financial instruments are managed by the European Investment Fund (EIF) in cooperation with financial intermediaries in EU

countries (Privredna banka Zagreb for LGF in Croatia<sup>8</sup>).

LGF funds guarantees and counter-guarantees for financial intermediaries (e.g. guarantee organisations, banks, leasing companies) to help them provide more loan and lease finance to SMEs. This facility will also include the securitisation of SME debt-finance portfolios.

There is no EFG intermediary in Croatia.

## Interreg V - European Territorial Co-operation

Croatian organisations and institutions can also use various territorial co-operation programmes to finance their projects. However, not all programmes foresee SMEs as eligible partners, but they are still open to public science and higher education institutions.

Following programmes from Interreg V are eligible for Croatian legal entities:

- European Cross-border Cooperation
- IPA Cross-border Co-operation Programmes
- Transnational Cooperation
- Interregional Cooperation

**Table 3** shows the overview of Interreg V programmes eligible to Croatian partners.

*Table 3 Overview of Interreg V programmes*

Interreg Programme	Eligible countries	Eligible partners
Europe	EU Member States	Local, regional, national authorities Bodies governed by public law Private non-profit organisations
Central Europe	Austria, Croatia, Czech Republic, Germany*, Hungary, Italy*, Poland, Slovakia, Slovenia	National, regional and local public bodies (including EGTCs) Private institutions, including private companies, having legal personality International organisations acting under the national law of any Member State participating in the programme or, with restrictions, under international law

<sup>8</sup> <https://www.pbz.hr/hr/pbz-cosme-kredit-za-obrtna-sredstva-investicije>

Danube	Austria, Bulgaria, Croatia, Czech Republic, Germany*, Hungary, Romania, Slovakia, Slovenia	<p>National, regional and local public bodies (including EGTCs)</p> <p>Private institutions, including private companies, having legal personality</p> <p>International organisations acting under the national law of any Member State participating in the programme or, with restrictions, under international law</p>
Mediterranean	Portugal*, Spain*, France*, Malta, Italy, Slovenia, Croatia, Bosnia and Herzegovina, Montenegro, Albania, Greece, Cyprus	<p>National, regional and local public bodies (including EGTCs)</p> <p>Private institutions, including private companies, having legal personality</p> <p>International organisations acting under the national law of any Member State participating in the programme or, with restrictions, under international law</p>
Adriatic-Ionian	Italy*, Slovenia, Croatia, Greece	<p>National, regional and local public bodies (including EGTCs)</p> <p>Private institutions, including private companies, having legal personality</p> <p>International organisations acting under the national law of any Member State participating in the programme or, with restrictions, under international law</p>
Interreg-V-A - Hungary-Croatia	Hungary*, Croatia*	<p>Public authorities</p> <p>Bodies governed by public law</p> <p>Non-profit organisations governed by private law</p> <p>For-profit business entities owned</p>

		<p>to a 100 per cent extent by the state, a local government or another public non-profit organisation</p> <p>Private companies (SMEs) for Priority 1</p>
Interreg-V-A - Italy-Croatia	Italy*, Croatia*	<p>Local, regional and national public authorities</p> <p>Regional and local development agencies, chambers of commerce and other business support organisations</p> <p>SMEs</p> <p>Universities</p> <p>Technology transfer institutions</p> <p>Research institutions</p> <p>Centres of R&amp;D excellence, NGOs, associations, innovation agencies, business incubators, cluster management bodies and networks</p> <p>Education and training organisations as well as social partners and labour-market institutions</p> <p>Emergency services and coast guard centres</p>
Interreg-V-A - Slovenia-Croatia	Slovenia*, Croatia*	<p>Local, regional or national authorities (e.g. municipalities, counties, ...)</p> <p>Non-profit organisations established by public or private law</p> <p>NGOs, R&amp;D institutions, regional development agencies, forest</p>

		<p>institutes, rural development centres, etc.)</p> <p>SMEs (Priority 6c)</p>
IPA CBC Croatia - Serbia	Croatia*, Serbia*	<p>NGOs (e.g. citizens associations, development agencies, local action groups, chambers of commerce, chambers of trades and crafts, chambers of agriculture, expert associations, clusters, producers' associations, sector associations, and SME networks, etc.)</p> <p>Public institutions (e.g. institutes and other research organisations, development agencies, national/regional/local institutions responsible for economy, research and training institutes, etc.)</p> <p>Educational institutions (e.g. universities, faculties, open universities, colleges, adult education institutions, primary and secondary schools etc.)</p> <p>Local and regional public authorities, local and regional government bodies,</p> <p>Business supporting organisations (e.g. entrepreneurship centres and incubators, business zones and parks, etc.)</p> <p>Cooperatives</p>
IPA CBC Croatia – Bosnia and Herzegovina – Montenegro	Croatia*, Bosnia and Herzegovina*, Montenegro*	<p>NGO's, public companies (e.g. water management companies, public electrical companies, etc.), public energy agencies, public institutions (e.g. institutes and other research organisations,</p>



		<p>development agencies, national/regional/local institutions responsible for environment and nature, etc.), educational institutions (e.g. example universities, faculties, open universities, adult education institutions, primary and secondary schools etc.), local and regional authorities, business supporting institutions, etc.</p>
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\*only certain regions eligible

## Foreign aid

### EEA and Norway Grants

The EEA Grants and Norway Grants represent the contribution of Iceland, Liechtenstein and Norway to reducing economic and social disparities and to strengthening bilateral relations with 15 EU countries in Central and Southern Europe and the Baltics.

The relevant priorities for the 2014-2021 include<sup>9</sup>:

- Innovation, Research, Education and Competitiveness
- Environment, Energy, Climate Change and Low Carbon Economy

A wide range of institutions and organisations can benefit from the funding:

- National and local authorities
- NGOs and civil society organisations
- Private and public enterprises, and public-private partnerships
- Educational and research institutions
- Students and educational staff

In projects: Private businesses, research groups, municipalities, employee and employer organisations, and NGOs from the donor and the beneficiary countries are encouraged to enter into cooperation to implement joint projects.

The contribution from the EEA Financial Mechanism 2014-2021 shall not exceed 85% of eligible expenditure of the programme.

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<sup>9</sup> <https://eeagrants.org/Results-data/Documents/Legal-documents/Regulations-with-annexes/EEA-Grants-2014-2021>

## Swiss-Croatian Research Programme<sup>10</sup>

The Swiss Agency for Development and Cooperation (SDC) has mandated the Swiss National Science Foundation (SNSF) and its Croatian counterpart, the Croatian Science Foundation (CSF), to issue a call for Joint Research Projects (JRPs), conducted within the Croatian-Swiss Research Programme 2017 – 2023 (CSR). The purpose of the thematically open call is to finance ten to twelve projects, provided that sufficient high-quality proposals are submitted.

The joint research initiatives pursue the following aims:

- to further the integration of Croatian researchers within international networks;
- to facilitate the exchange of knowledge and know-how among researchers;
- to develop specific expertise at the CSF by running an exchange programme with the SNSF.

Eligible partners from Croatia include:

- Public universities;
- Public Research institutes;
- Croatian Academy of Sciences and Arts.

The maximum grant for a single project is 400,000 CHF (total of Swiss and Croatian contributions). For each project, a maximum of 50% of the grant may go to the Swiss partner.

## 2.5. Business incubators

Croatian business support infrastructure can be divided in two categories: industrial/business zones and business support institutions<sup>11</sup>.

Business support institutions encompass following institutions:

- Development agencies
- Business support centres
- Business incubators
- Business accelerators
- Business parks
- Science and technology parks
- Competence centres.

Business incubators' mission is to help and give support to entrepreneurs in early development of their projects/initiatives. Incubators provide expert, technical, financial, legal, educational and other support to entrepreneurs.

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<sup>10</sup><http://www.snf.ch/en/funding/programmes/enlargement-contributions/croatia/Pages/default.aspx#Participation%20requirements>

<sup>11</sup> <https://www.zakon.hr/z/652/Zakon-o-unapre%C4%91enju-poduzetni%C4%8Dke-infrastrukture>

## Local incubators

There is an overwhelming number of local incubators in Croatia. Many of them are legally independent institutions but there are also cases where incubators are part of other type of business support institutions like development agencies, technology parks etc. Ministry of Economy, Entrepreneurship and Crafts runs a register of business support institutions established mainly by local/regional authorities. In total, there are 34 business incubators all over Croatia<sup>12</sup>.

In most cases, local incubators primarily support entrepreneurs by offering business space at affordable prices. Most of the tenants come from ICT industry and usually there is no sectoral focus in incubators and eco-innovation is hardly addressed as a focus of any incubator in Croatia.

Apart from business incubators located in main regional centres of Croatia (Zagreb, Rijeka, Osijek and Split) local/regional incubators rarely provide full scope of services entrepreneurs need in their initial development phase. There are only isolated cases when incubators offer e.g. legal or accounting or financial services to their tenants. Some regional authorities recognized this issue and started with activities to map competences and identify gaps to consolidate incubators and provide full scale services to entrepreneurs or to support creation of eco-system that could provide full scale support. However, this process is still not recognized as a priority to incubators' managers. There are several reasons for that, but the main include lack of vision, competences, absence of focus, usually more expensive services than on the market but most often lack of local/regional political support.

## National incubator network

There is no formal national incubator network in Croatia. Business supporting institutions try to form clusters based on geographical proximity and principles of complementarity but stronger ties between incubators/supporting institutions are largely influenced by political agenda of their constituting authorities and decision makers. That is one of main barriers to largely improve (eco)innovations landscape in Croatia because politicians see other cities and counties as competition rather as partners.

## Mentorship programmes

Mentorship programmes are usually connected to business accelerators as their core activities. The significant growth of business accelerators in EU started from 2010 onwards. Business accelerator with its mentorship programmes offers the immersive education, where a period of intense, focused attention provides company founders an opportunity to learn at a rapid pace. Learning-by-doing is vital to the process of scaling ventures, and the point of accelerators is to accelerate that process. In this way, founders compress years' worth of learning into a period of a few months.

Only 3 business accelerators are officially registered in Ministry of Economy, Entrepreneurship and

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<sup>12</sup> <https://poduzetnistvo.gov.hr/arhiva/stranice/poduzetnicke-potpodne-institucije/poslovni-inkubatori/151>

Crafts register:

1. Poduzetnički akcelerator Split
2. Poduzetnički inkubator ZIP, Zagreb
3. Technology park Zagreb.

Mentorship programmes in Croatia emerged only recently. Couple of competitions that can be connected to eco-innovation, especially energy sector took place recently or are planned in the near future:

1. **Startup Factory Zagreb** (<http://startupfactory2017.tehnopark.hr/eng/>) by Technology park Zagreb – focused on smart city solutions
2. **PowerUp!** by KIC InnoEnergy (<http://powerup.innoenergy.com/en/page/croatia-en-1>) - competition for energy, cleantech, mobility, cybersecurity and smart city start-ups with financial awards up to €20,000 and an opportunity of €150,000 investment. Rijeka based company **Balmaris** (<https://balmaris.eu/>) was the winner of the 2017 Regional Final in Croatia. PowerUp! will also be organised in 2018.

## Co-working initiatives and fab-labs

Local/regional authorities via their business support institutions increasingly adopt the initiatives of Co-working. Usually they use existing building stock or available office spaces and adapt them for co-working. Recently, a group of enthusiasts established **Coworking Croatia, Croatian National Coworking Association**. Mission of Coworking Croatia (<http://coworking.hr/>) is to encourage establishing and co-operation between co-working spaces/owners. Apart from other services, Coworking Croatia provides a non-exhaustive list of co-working spaces (<http://coworking.hr/coworking-prostori-u-hrvatskoj/>) in Croatia but also useful links to global co-working associations and services to help (mobile) entrepreneurs finding the vibrant and attractive places to work. Several Croatian cities also announced their plans to open co-working spaces to provide additional support to entrepreneurs.

**Fab-Labs** available to SME-business community are a rarity in Croatia. Only recently, business incubators started to put fab-labs in their development strategies. Many business incubators that were awarded with ESIF financing to build new buildings included equipment for fab-labs as integral parts of the project, so it is expected that entrepreneurs will have serious opportunity to use them in one or two years once new buildings are put into function. However, due to lack of clear vision of real regional requirements it is still unknown whether there will be significant overlapping of similar equipment on rather small geographical area. One of the most active player and proponent of fab-lab concept is **FABLAB.HR** (<https://fablabhr.wordpress.com/>), a NGO with a mission to encourage and promote digital fabrication, education and research of fab-lab concepts. FABLAB.HR is a partner in the Interreg Central Europe project called **FABLBNET** (<http://www.interreg-central.eu/Content.Node/FabLabNet.html> and <http://www.fablabnet.net/>) with aim to establish the network of fab-labs in Europe.

## 2.6. Support by companies (internal and external)

Companies in Croatia are increasingly following trends in pursuit for new employees and ideas by establishing structured and targeted programmes to attract new employees or organising focused events like hackathons to try finding solutions to the challenges they might have.

It is also important to note that companies indirectly support eco-innovations through buying products and solutions to reduce their CO<sub>2</sub> footprint by decreasing energy consumption, waste, water consumption, using renewable energy sources etc.

### Apprenticeship programs

Apprenticeship and internship programs aim at development of new employees. They are usually structured so that companies can benefit from new employees in a relatively short time and according to their needs. Apprenticeship programs differ in terms of required education level – larger companies usually search for highly educated and skilled workforce, whereas most SMEs' requirements are directed towards craftsmanship programmes. Some examples of apprenticeship/internship programmes in Croatia include:

1. 'Growww' by Ina<sup>13</sup>
2. 'Shape Your Future With a Heart' by Podravka<sup>14</sup>
3. 'The Future in Adris' by Adris<sup>15</sup>.

No specific programmes supporting the sector of eco-innovation have been established in Croatia.

### Private scholarships/fellowships

Private scholarships are not so popular anymore in Croatia because companies do not want to spend a lot of money on longer term education unless they are in the industry with significant shortage of the labour force.

One of the reasons for many companies not to invest in scholarships is that local and regional authorities have programmes to support students and pupils. Programmes for supporting students are usually not focused on a specific sector and they merely present a form of social aid. Furthermore, with inception of the programme called "Scholarships in craft professions" managed by the Ministry of Economy, Entrepreneurship and Crafts that is specifically focused on deficit professions.

Some (usually multinational) companies prefer to organise student (summer) camps. Camps are targeted mainly at senior students where they are confronted with real challenges and working with senior colleagues. Companies use camps to cease the opportunity to lure students and perform a

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<sup>13</sup> <https://www.ina.hr/career/youth-projects/growww-10066/10066>

<sup>14</sup> <https://www.podravka.hr/kompanija/karijera/shape-osvoji-svijet-s-podravkom/>

<sup>15</sup> <http://www.adris.hr/odnosi-s-javnoscu/buducnost-u-adrisu/o-programu/>

preliminary candidate selection procedure without facing big risks related to new employment.

## Organizations of hackathons

Hackathons and other similar problem-solving competitions are becoming very popular in (especially) technology companies. These events tend to attract more and more (predominantly) young people/students trying to offer solutions to the companies' challenges. Companies use hackathons and competitions to both get fresh ideas but also find new talents. Companies usually partner with business incubators or angel investor organisations to organise such events and reap full potentials of the start-up community. In Croatia, hackathons only rarely address challenges in eco-innovation sector and more specific energy. In 2017, only one hackathon related to energy (Energy Codefest) was organised by energy company RWE and a local business incubator.

Ina-MOL, an energy company, established a competition called 'Freshhh' (<https://www.ina.hr/career/youth-projects/freshhh-10068/10068>) to challenge students in the oil industry.

## 2.7. Crowdfunding

Croatian business owners are still cautious about crowdfunding although in 2017 Croatian companies managed to raise over €2 mil. That is half of the total amount raised through crowdfunding so far in Croatia. Apart from being able to raise more money it is important to note that number of campaign supporters from Croatia has doubled from 2016 (<http://www.crowdfunding.hr/2017-crowdfunding-infografika-3771>) showing that Croatian investors recognized the importance and opportunities of backing start-ups and smaller companies. So far, entrepreneurs mainly use largest international platforms but there are also national crowdfunding platforms that managed to support Croatian companies in their campaigns.

### National platforms

**Croinvest** (<http://croinvest.eu/>) is the first Croatian crowdfunding platform established in 2014. The Platform is used by small fundraisers coming mostly from civil sector.

**Croenergy.eu** (<http://www.croenergy.eu/>) is a platform established by Regea ulaganja ltd., a daughter company of Regional Energy Agency of North-West Croatia (REGEA). Croenergy.eu is the first and only platform dedicated to social responsible projects in energy and environment protection sector. So far, 6 campaigns have been organised, mostly supporting smaller public sector projects aimed to improve the quality of life of children.



**Funderbeam SEE** (<https://www.funderbeam.com/see>) is a UK blockchain based equity crowdfunding platform that teamed up with Zagreb Stock Exchange to offer the possibility to invest into fast growing Croatian companies. Four Croatian companies decided to use Funderbeam to raise capital and managed to raise more than €2 mil. **Include** ltd. is an eco-innovation company producing smart

street furniture.

## International platforms

There are many crowdfunding platforms worldwide but most popular are **gofundme**, **Kickstarter** and **Indiegogo**. In 2017, Croatian fundraisers initiated 78 projects out of which 26 were successful. Croatian fundraisers predominantly used **Indiegogo** and to a lesser extent **Kickstarter**. **Table 4** gives a short overview of top three platforms.

*Table 4 Overview of crowdfunding platforms*

Site	Total raised	Supporters	Platform fee	Payment fee
	\$5 billion	50 mil.	0%	2.9% + \$0.3
Important facts	Can withdraw immediately and deposits take 2-5 business days 24/7 rapid email support, mobile app, superior add beneficiary feature GoFundMe Guarantee protects donors and beneficiaries from fraud			
<b>KICKSTARTER</b>	\$ 3 billion	14 mil.	5%	3.0% + \$0.2
Important facts	Specializes in creative projects with robust reward level feature 14-day wait to withdraw, and deposits take 5-7 business days Limited email support hours, requires Kickstarter approval to launch			
	\$1 billion	9 mil.	5%	3.0% + \$0.3
Important facts	Offers "flexible funding" pay more fees to not hit goal 3-week wait to withdraw, and deposits take 2-5 business days. Limited email support hours			

Source: <https://www.crowdfunding.com/>

Formatting: Redea

## 2.8. Events and networking

Events are great opportunity for suppliers to present their products and solutions to prospect partners, investors and buyers. Usually, events take form of workshops, one-to-two days thematic conferences and B2B matching.

Private companies aiming to increase their visibility usually participate as sponsors or co-organisers of events. Public institutions ranging from ministries, local/regional authorities, national agencies, chamber of commerce, universities, energy agencies etc. organise events that are less focused on commercial activities but nevertheless give limited opportunity for private companies to present

themselves.

In recent years, media companies are increasingly involved in thematic conferences using their large customer base and influence to cover contemporary subjects like energy efficiency and renewables, smart cities, digital transformation, sustainable development etc. and attract both interesting national and international speakers as well as influential persons in Croatia.

Events are also organised by foreign countries chambers of commerce representative offices in Croatia. Austrian, German and Danish companies are given the opportunity to establish partnerships and penetrate Croatian market with their products.

## Local workshops

Local workshops are very often organised in the framework of various European initiatives (e.g. EU Mobility week, EU Sustainable Energy Week, EU Green Week), EU financed projects, international anniversaries (e.g. World Water Day, International Mother Earth Day etc.) and thematic. Local authorities and business support institutions are predominant organisers of such events where (local) SMEs are given the opportunity to present themselves to the local community. A number of cities and counties organise Sustainable energy days/week to raise awareness and promote various perspectives of sustainability.

## International seminars and conferences

International conferences are mostly organised in Zagreb and they usually target surrounding countries of Croatia. However, only a few of these seminars or conferences has a tradition and big reach. The proximity of Vienna, Budapest and recently Belgrade greatly influence on the number and attractivity of international events in Croatia.

Following is the list of some relevant thematic events in 2017 and 2018:

1. International Wood Energy Conference on Biomass and Renewable Energy Sources, Zagreb (<http://www.wood-energy.info/en/> )
2. Croenergy Summit, Zagreb (<http://summit.croenergy.eu/> )
3. Zagreb Forum, Zagreb (<http://2017.zagrebforum.eu/> )
4. Leap Summit 2018, Zagreb (<https://www.leapsummit.com/> )

## 2.9. Promotion and marketing

Promotion and marketing is an extremely challenging activity for small businesses and start-ups due to tight budget but also customers they want to reach. Traditional channels of promotion like fairs, newspapers or TV do not work for everyone. Companies producing tangible products and solutions still prefer specialized fairs and expos to promote their business whereas service-oriented companies and start-ups try to intensively rely on digital marketing.

**Croatian Chamber of Economy (HGK)** and **Croatian Chamber of Trades and Crafts (HOK)** are still



dominant organisations when it comes to support of companies looking for traditional ways to promote themselves or trying to find business partners. Digital marketing (excluding traditional Tv advertising) requires completely different approach and there are no dominant players in that area in Croatia. However, digital marketing share in the market is constantly rising and will become more important in the future.

## Promotion on international fairs and expos

Both HGK and HOK have tradition of organizing and supporting companies in their promotion on national and international fairs and expos. Both institutions announce their annual calendars of fairs and plans to promote Croatian economy. Promotions are based on three main pillars:

1. own promotional activities include organisation of national or regional fairs in Croatia
2. joint international exhibition where HGK/HOK organise and financially support Croatian companies asking for promotion abroad and
3. support for specialized fairs and expos and B2B matchmaking events where members of chambers can get advisory or financial support for their presence at specialized events

## Promotional and marketing support, competitions and commercial programs

In terms of structured marketing support to certain sector and organisation of various promotional events apart from traditional fairs and expos, Croatian companies do not have many options.

The only specialized TV show in eco-industry sector called **Eko zona** is broadcasted weekly on Croatian national television (HRT). In 2014, HRT broadcasted a show called **Snaga volje** that had a format similar to start-up competitions with fraction of accelerator programme activities, but the show is not on the air anymore.

Competitions are usually organized as part of larger conferences and in terms of eco-innovation the one that stands out in Croatia is the annual **PowerUp!** competition. KIC InnoEnergy organises annual **PowerUp!** competition for energy start-ups, where start-ups can win prizes in cash and investment! Participants qualified for the second stage of the Contest can take part in workshops to boost their businesses during business coaching. KIC InnoEnergy is programme of the EIT which is the first EU initiative to fully integrate all three sides of the Knowledge Triangle (higher education, research and business) by way of so-called Knowledge and Innovation Communities (KICs). The EIT Regional Innovation Scheme (EIT RIS) is the EIT Community's outreach scheme. The scheme enables the transfer of good practices and know-how from the EIT's unique approach to boosting innovation. Hub Croatia @ InnoEnergy is the place where entrepreneurs can receive all relevant information about KIC InnoEnergy, its products and services, the offering available for entrepreneurs in Croatia and how to get connected to KIC InnoEnergy activities. It is also the place where entrepreneurs can receive local services for ventures and find matches between KIC InnoEnergy offering and all local instruments available.

In terms of marketing support for micro companies, HOK and its regional affiliates started to work on

education of their members in digital marketing to enhance their marketing capacities.

### 3. Support structures and sources for energy efficiency, renewable energy and environment conservation

After its accession to EU, Croatia started its first 7-year EU structural funding period. The **Operational Programme Competitiveness and Cohesion (OPCC)** is the most important programme for many stakeholders and although eco-innovation and more specifically innovations in energy efficiency, renewable energy sources and environmental purchases are not explicitly addressed in any priority, there is an opportunity for the innovation eco-systems' stakeholders to receive financing for their projects. Unfortunately, OPCC and EU funds have literally put on hold almost every national programme either by completely shifting the sources from national to EU funded or drastically reduced existing programmes both in terms of scope as well as available funding. Furthermore, given the nature of EU funding that promotes equal development, in some cases, entrepreneurs from more developed parts of Croatia (and thus more prone to innovation) will not have equal opportunity to receive financial support for their projects.

Following is an overview of the most important programmes.

#### **Operational Programme Competitiveness and Cohesion**

**Duration:** 2014 – 2020

**Managing Authority:** Ministry of Regional Development and EU Funds

**Funding sources:** ERDF, CF

**Supported areas:**

- Promoting business investment in R&I, developing links and synergies between enterprises, research and development centres and the higher education sector, in particular promoting investment in product and service development, technology transfer, social innovation, eco-innovation, public service applications, demand stimulation, networking, clusters and open innovation through smart specialisation, and supporting technological and applied research, pilot lines, early product validation actions, advanced manufacturing capabilities and first production, in particular in key enabling technologies and diffusion of general purpose technologies.
- Promoting entrepreneurship, in particular by facilitating the economic exploitation of new ideas and fostering the creation of new firms, including through business incubators
- Supporting the capacity of SMEs to grow in regional, national and international markets, and to engage in innovation processes
- Promoting energy efficiency and renewable energy use in enterprises
- Supporting energy efficiency, smart energy management and renewable energy use in public

infrastructure, including in public buildings, and in the housing sector.

## ERA-Net Smart Grids Plus initiative

**Duration:** 2014 – 2020

**Managing Authority:** Environment Protection and Energy Efficiency Fund (FZOEU)

**Funding sources:** Horizon 2020

### Supported areas:

- Sustainable cooperation structure between national and regional Smart Grids programs in Europe as well as to enable the coordination with the relevant initiatives on a European Level. ERA-Net SG + promotes applied research, piloting and demonstration in the field of smart grids, with a focus on validation, scaling-up and replication, integrating the layers “technology”, “marketplace” and “adoption”, aiming at pushing solutions meeting TRL 5-6 to TRL 6-7.

## FZOEU

**Duration:** Annual calls, project duration – 18 months

**Managing Authority:** Environment Protection and Energy Efficiency Fund (FZOEU)

**Funding sources:** National

### Supported areas:

- research projects aimed at establishing new knowledge and/or research on new or improved technologies, products, processes, services or solutions; development – projects aiming at design of plans and solutions or design of new or improved technologies, products, processes, services or solutions.

## 4. Summary

The Eco-Innovation Scoreboard (Eco-IS) and the Eco-Innovation Index illustrate eco-innovation performance across the EU Member States. They aim at capturing the different aspects of eco-innovation by applying 16 indicators grouped into five dimensions:

1. eco-innovation inputs;
2. eco-innovation activities;
3. eco-innovation outputs;
4. resource efficiency and;
5. socio-economic outcomes.

The Eco-Innovation Index shows how well individual Member States perform in different dimensions of eco-innovation compared to the EU average and presents their strengths and weaknesses. The Eco-IS and the Eco-Innovation Index complements other measurement approaches of innovativeness of EU countries and aims to promote a holistic view on economic, environmental and social performance.

**Table 5** presents values for Croatia. Croatia is placed into *Countries catching up with Eco-I* group. It is lagging in all relevant indicators. Calculation of indicators where Croatia scores above average probably differs from other countries and it should be thoroughly tested.

*Table 5 Eco-innovation Scoreboard Values for Croatia, 2016*

Indicator	Unit	Value for Croatia
<b>Eco-innovation inputs</b>		
Governments environmental and energy R&D appropriations and outlays	% of GDP	0
Total R&D personnel and researchers	% of total employment	34
Total value of green early stage investments	USD/capita	15
<b>Eco-innovation activities</b>		
Firms declaring to have implemented innovation activities aiming at a reduction of material input per unit output	% of total firms	77
Firms declaring to have implemented innovation activities aiming at a reduction of energy input per unit output	% of total firms	98
ISO 14001 registered organisations	per mln population	97
<b>Eco-innovation outputs</b>		
Eco-innovation related patents	per mln population	11
Eco-innovation related academic publications	per mln population	73
Eco-innovation related media coverage	per numbers of electronic media	246
<b>Resource efficiency outcomes</b>		
Material productivity	GDP/Domestic Material Consumption	77

Water productivity	GDP/Water Footprint	164
Energy productivity	GDP/gross inland energy consumption	86
GHG emissions intensity	CO2e/GDP	125
Socio-economic outcomes of eco-innovation		
Exports of products from eco-industries	(% of total exports)	48
Employment in eco-industries and circular economy	(% of total employment across all companies)	140
Revenue in eco-industries and circular economy	(% of total revenue across all companies)	153

Source: THE ECO-INNOVATION SCOREBOARD AND THE ECO-INNOVATION INDEX ([https://ec.europa.eu/environment/ecoap/indicators/index\\_en](https://ec.europa.eu/environment/ecoap/indicators/index_en)), European Commission

Formatting: Redea

Croatia is a heavily regulated country with many weaknesses cumulated over 20+ years. Large and inefficient administration requires and causes heavy tax pressure to both citizens and entrepreneurs. Structural reforms are slow and insufficient to push growth of economy<sup>16</sup>. This makes investments in research and development harder and riskier than in other countries. In addition, brain drain and inadequate education system will inevitably cause lack of capacities for a breakthrough in innovation eco-system.

Support structures in terms of available financial resources from ESIF are well planned but deficiencies in the legal framework, poor public services and inefficient public administration are main reasons for stagnation. Centralization of resources in state agencies are significantly slowing down processes and hinder development of capacities of local and regional business support institutions. Croatia is still in its learning phase when it comes to management of EU structural and cohesion funding resources.

Current EU funded operational programmes directed to support SME sector provide opportunity for eco-innovative companies but most probably these companies along with (public) science and research institutions will continue to rely on centrally managed programmes like Horizon 2020 because this is probably the best way for them to get in touch with far more developed environment and partners, which is they also see as opportunity to learn and build capacities.

Unfortunately, there is no proper supporting infrastructure on any administrative or geographical level that would focus on eco-innovation. This is a result of poorly planned Smart Specialization Strategy, and even more, inconsistent implementation of this strategy. Centres of competence that could converge and aggregate competences required for improvement of innovation eco-systems are still not in place. The **Energy Efficiency and Environment Protection Fund (FZOEU)** was established with purpose to be the central support structure for management of eco-related programmes. Since its inception, financial (and operational) stability of FZOEU has been jeopardized

<sup>16</sup> <https://ec.europa.eu/info/sites/info/files/2018-european-semester-country-report-croatia-en.pdf>

twice by poor and dangerous political decisions. Currently, FZOEU is struggling to restore its financial stability that would guarantee normal development and implementation of eco-related programmes and projects. It has become just another implementation body of operational programmes and lost its focus. Eco-innovation firms and institutions therefore do not have a dedicated institution that could support them in their research and innovation activities. Knowing that eco-related industry has usually strong government support all over EU, strengthening FZOEU is a precondition to further development of the (eco-) innovation system.