Public Disclosure Authorized

Project Information Document (PID)

Concept Stage | Date Prepared/Updated: 13-Mar-2023 | Report No: PIDC35610

BASIC INFORMATION

A. Basic Project Data

Country	Project ID	Parent Project ID (if any)	Project Name
Croatia	P180755		Digital, Innovation, and Green Technology Project (P180755)
Region	**Estimated Appraisal Date**	**Estimated Board Date**	**Practice Area (Lead)**
EUROPE AND CENTRAL ASIA	Apr 18, 2023	Jun 22, 2023	Finance, Competitiveness and Innovation
Financing Instrument	**Borrower(s)**	**Implementing Agency**	
Investment Project Financing	Ministry of Finance	Ministry of Science and Education	

Proposed Development Objective(s)

The project development objective is to advance research and innovation with a digital and green focus through enhancing institutional infrastructure and research performance of research organizations and firms.

PROJECT FINANCING DATA (US$, Millions)

SUMMARY

Total Project Cost	115.00
Total Financing	115.00
of which IBRD/IDA	115.00
Financing Gap	0.00

DETAILS

World Bank Group Financing

International Bank for Reconstruction and Development (IBRD)	115.00

Environmental and Social Risk Classification	Concept Review Decision
Substantial	Track II-The review did authorize the preparation to continue

B. Introduction and Context

Country Context

1. **A decade after EU accession, income in Croatia continues to lag the European Union (EU) average in terms of productivity and growth.** Since 2014, the gap in per capita income between Croatia and the EU has widened from EUR 16,210 to 17,600[1], driven by a later and weaker recovery from the global financial crisis (GFC) than in other Central and Eastern European (CEE) countries.[2] After a seven-year recession, a more favorable external environment, along with the positive effects of EU accession in 2013, helped to reignite growth in the 2015-19 period and to reduce unemployment. While average GDP growth was lower compared to pre-GFC period, averaging slightly above 3 percent, the growth composition became more balanced, shifting from debt-financed domestic demand toward more export-led growth. However, between 2015 and 2019, Croatia's potential output growth rate continued to average only 1.6% per year, half the average for the CEE region, stemmed from sluggish productivity growth.[3] The COVID-19 pandemic derailed Croatia's growth path and caused the deepest recession in the country's history, and the country also suffered from two earthquakes in 2020, with significant damage to infrastructure in the central-north part of the country, including the capital Zagreb. Croatia reached about 70 percent of the average EU27 income per capita level in 2021.

2. **Croatia recently made several positive steps to further integrate into the European and global economy that advances the growth environment. Raising economic resilience and growth will require continued and sustained reforms that enhance productivity.** Croatia simultaneously adopted the euro as its national currency and joined the Schengen area in 2023. Eurozone accession is expected to provide access to more affordable liquidity in the long run, albeit in the context of geopolitical uncertainty that may dampen the immediate effects of Euro adoption. Being part of the Schengen area further facilitates the free movement of people, goods and services with Croatia's most important trading partners. While these are positive developments, Croatia continues to face challenges related to the business environment, competition between firms, investment, and the negative economic impact of a declining and aging population. Low firm productivity in Croatia reflects insufficient R&D investments and innovation and technology adoption, lagging managerial and organizational practices, as well as constraints on competition.

Sectoral and Institutional Context

3. **Research, development, and innovation (RDI) drive productivity.**[4] The link between public spending on RDI and aggregate productivity flows through two main channels: through public research organizations and through firms. Public research organizations that achieve research excellence create the preconditions for the commercialization of research through spin-offs, patents, and licensing. Public investments through the research sector can also generate positive spillovers through research excellence and technology and knowledge transfer, if the research is effective and articulated with private sector demand. The other channel goes through firms. Firms can improve their production processes and increase efficiency and productivity by investing in research and development (R&D); creating new products, services, or technologies; or adopting existing ones. Croatian firms that invest in R&D have 2% higher productivity growth compared

[1] Eurostat.
[2] CEE countries include Bulgaria, Croatia, Czechia, Estonia, Hungary, Lithuania, Latvia, Poland, Romania, Slovenia, and Slovakia.
[3] World Bank (2023). Croatia Country Economic Memorandum. Potential output is output that fully uses available factors of production and is consistent with stable inflation. The output gap is the difference between current and potential output and helps distinguish cyclical and trend components of GDP growth.
[4] Mohnen, P., Hall, B.H. Innovation and Productivity: An Update. Eurasian Bus Rev 3, 47–65 (2013).

to firms that do not, and a 1% increase in investment in R&D is associated with a productivity growth of 0.6%.[5] This relationship is especially strong among smaller and younger firms.[6]

4. **The research sector has struggled to produce high-quality research and to establish effective linkages with the private sector. Furthermore, outcomes in digital and green research and innovation are especially sparse.** The current governance and institutional framework stifles R&D activities of public research organizations and disincentivizes collaboration both between research organizations and with the private sector. As a result, Croatia stands out compared to other countries in terms of overproduction of low-quality publications, with the highest average of uncited papers in Europe. Participation in competitive international R&D funding is low and Croatian research organizations and firms have struggled to access the competitive and prestigious Horizon 2020 funds. In the digital and green space, research and innovation is particularly limited: only 9.5% of patents are in environment-related technologies and, between 2015 and 2018, the Croatian research sector produced almost no patents related to Industry 4.0 technologies.

5. **Fragmentation and governance deficiencies hold back the performance of the public research system.** As of 2019, there were 119 public research organizations in Croatia, which made the enactment of major reforms very challenging.[7] Past attempts to reform the financing of public research organizations did not trigger major changes in the system as the funding model remained in essence input-based, while the share of budget allocated through performance-based mechanisms remains negligible. A performance-based funding reform is currently underway to address these shortcomings, but systemic fragmentation remains an obstacle to efficient implementation.

Relationship to CPF

6. **The project contributes to the World Bank Group's Country Partnership Framework (CPF) for Croatia for 2019–2024.** The CPF highlights the country's need to strengthen market institutions to enable dynamic and innovative enterprise. The project will contribute to institutional capacity building (Objective 1) for innovation policy, as well as to the low carbon and equitable growth agendas (Objective 3; Objective 4). The project also contributes to the achievement of CPF Objective 7 *Promoting entrepreneurship, competition, and innovation*. By supporting green research and innovation, the project is complementary to objectives under CPF Focus Area 2 *Preserving and leveraging natural capital to ensure low carbon growth*, which aim to protect Croatia's natural capital, address climate vulnerabilities and reduce the energy intensity of the economy.

C. Proposed Development Objective(s)

The program development's objective is to advance research and innovation with a digital and green focus through enhancing institutional infrastructure and research performance of research organizations and firms.

Key Results (From PCN)

The project will build the capacities and resources of institutions to deliver digital and green research and innovation, complement and enhance the effectiveness of EU funds, and finance digital and green research and innovation. Firms and researchers will benefit from better public services, more resources to conduct digital and green research and innovation, and more effective government support, while institutions will improve the effectiveness of their policies.

[5] Ibid.
[6] World Bank. 2019. Croatia Public Expenditure Review in Science, Technology, and Innovation: Analysis of the Quality and Coherence of the Policy Mix. Analytical report. Zagreb: World Bank.
[7] Out of 119 public research organizations, 94 were higher education institutions and 25 were public research institutes.

D. Concept Description

7. **The project is structured into two components.** Component 1 aims to strengthen institutional capacities and support the efficient use of EU funds. Component 2 aims to cover the gaps in research and innovation funding and improve the targeting of research and innovation support to digital and green technology.

8. **Component 1 activities focus on strengthening institutional capacities and bolstering the effectiveness of EU funds.** Subcomponent 1.1 aims to improve the institutional capabilities and infrastructure for RDI, including through strengthening the capacity to deliver on the green and digital mandates. Subcomponent 1.2 provides complementary resources to enhance the effectiveness of research and innovation financing, aiming to boost the impact of EU funds for research and innovation.

9. **Component 2 provides financing to accelerate the digital transformation and green transition of the economy through research and innovation.** The financing addresses critical gaps in the current program mix that inhibit digital and green research and innovation. These gaps are reflected in the types of projects that can be financed and the design, implementation, and governance of the available instruments. The choice of instruments is informed by evidence-based recommendations for addressing market and system failures that hold back innovation.

Legal Operational Policies	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Areas OP 7.60	No

Summary of Screening of Environmental and Social Risks and Impacts

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APPROVAL

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