



Strengthening the regional ecosystem for industrial transition of SMEs in Croatia

Assessing the Entrepreneurial Support and Research and Technology Infrastructure in Pannonian, Northern and Adriatic Croatia

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We mapped the institutions that can help SMEs upgrade

Pannonian Croatia

Northern Croatia

Adriatic Croatia

250+

**Entrepreneurial Support
Infrastructure (ESI) & Research and Technology
Infrastructure (RTI)**

Data and methods

- ❖ Ministry of Economy register (up to July 2026)
- ❖ Ministry of Regional Development and EU Funds “Mapped Stakeholders of RVCs” database
- ❖ Structured web-scraping from CroRIS, R&I Support Institution database (Ministry of Economy) and other public sources;
- ❖ Targeted Survey (30 completed responses)
- ❖ Interviews with 50+ stakeholders from 30 institutions (OECD fact finding mission in June 2026)

The question: how well do these assets support SME upgrading, technology adoption and participation in regional value chains?

ESI comprises seven types of support organisation

Croatian law defines ESI as organisations that create a high-quality, user-oriented entrepreneurial environment and run programmes for business development.

01 Development agencies

05 Business parks

02 Entrepreneurship centres

06 Science and technology parks

03 Business incubators

07 Competence centres

04 Entrepreneurial accelerators

RTI covers research and technology facilities

RTI means the facilities, tools and resources used for scientific research and innovation.

Research infrastructure

Primarily supports fundamental research

Single-site facility

Distributed facility

Mobile facility

Virtual facility

Technology infrastructure

More directly addresses industry needs

Testbeds and test facilities

Cleanrooms

Pilot plants

Demonstration facilities

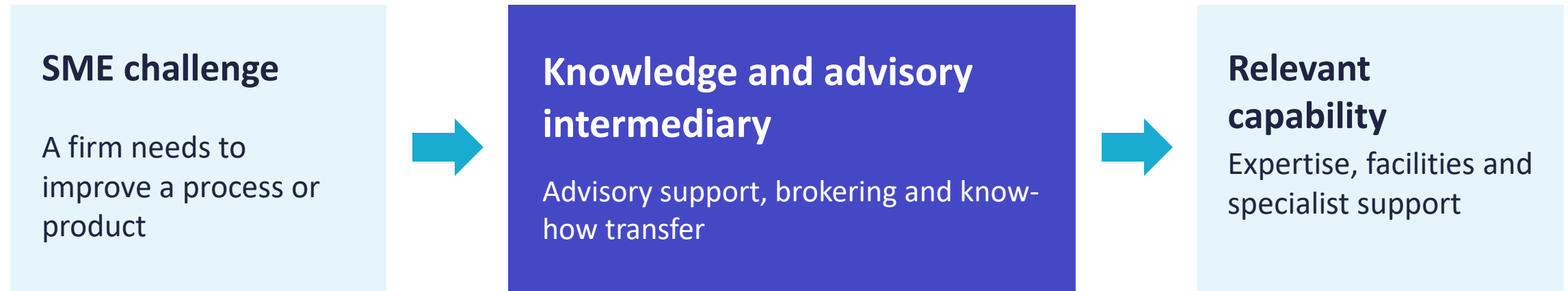
Digital infrastructures

Living labs

The mapping is aligned with EU priorities on competitiveness, innovation, industrial transition and the uptake of **STEP-relevant technologies** by SMEs.

Intermediaries help SMEs turn business problems into technology needs

The mapping identified valuable actors outside the ESI and RTI classifications.



This additional category covers actors that meet neither the ESI nor the RTI criteria but perform intermediary functions that facilitate SME access to innovation expertise and support.



Cross-regional overview and key messages

Entrepreneurial support and research and
technology infrastructure



Each region starts its transition from a different productive base

REGION	PRODUCTIVE BASE	UPGRADING NEED
Pannonian Croatia	Agri-food, wood, metals and machinery across a large rural territory	Diffuse practical technologies in established sectors
Northern Croatia	Export-oriented manufacturing and supplier networks in metals, machinery, vehicle components, textiles, agri-food and pharmaceuticals	Turn manufacturing strength into higher-value products
Adriatic Croatia	Tourism and services alongside port, maritime and coastal assets	Connect marine and scientific assets to more SMEs

Shared challenge: extend innovation beyond leading firms and urban nodes to established SMEs.

Skills shortages take a different form in each region

Across the regions, skills provision is not yet systematically linked to technology adoption and RTI use.

Pannonian Croatia

Outmigration, lower wages and thin labour markets constrain firms and support providers, especially outside main centres.

Northern Croatia

Technician and middle-manager gaps combine with weak succession planning and a pull towards Zagreb.

Adriatic Croatia

Talent and advanced support concentrate in larger coastal cities, leaving islands and hinterlands with thinner local pools.

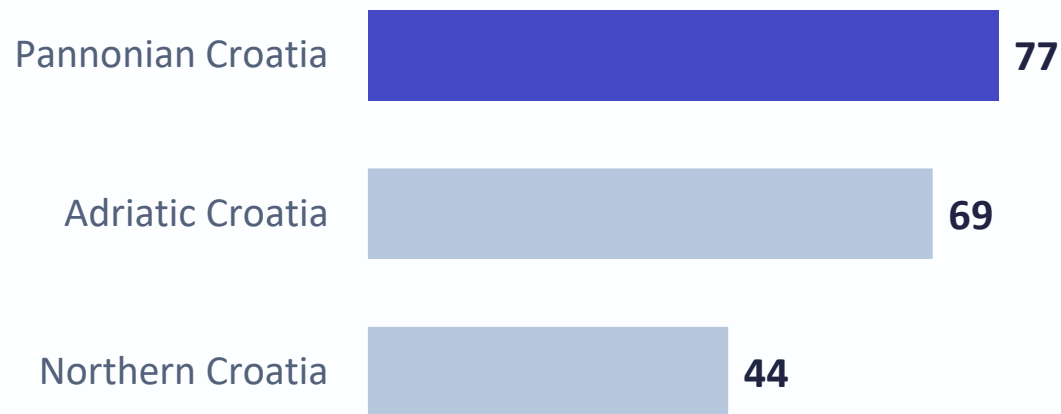
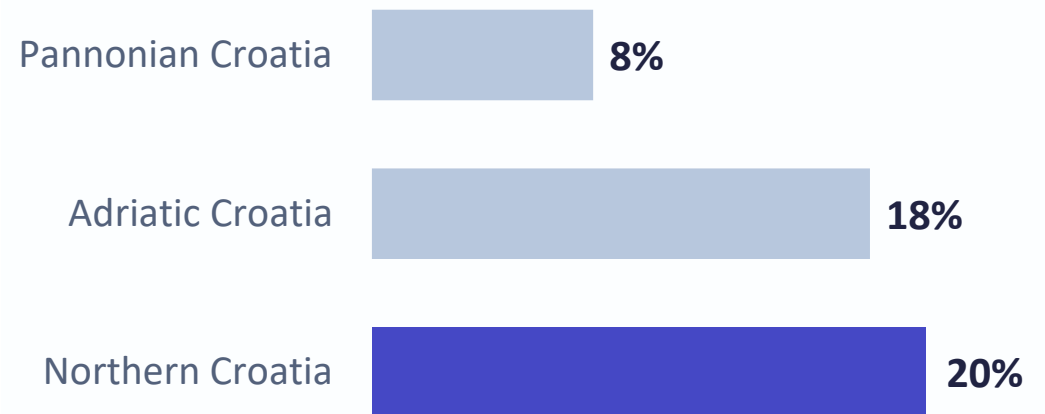
Entrepreneurship support has expanded rapidly but coverage, focus, and quality vary widely

Business-support density differs markedly across the three regions...

...but institutional counts alone are not enough, service type, quality and reach matter too

Entrepreneurial support institutions per million people

Share of entrepreneurial support institutions with a focus on innovative or high-growth ventures (%)



Entrepreneurial support needs to meet firms' needs at different stages and specialise more along RVCs and STEP opportunities

FIRM READINESS

Build the bridge to innovation

Across the three regions, support is less consistent for firms that first need to build basic capabilities and absorptive capacity.

Established SMEs need more **advisory services**, **mentoring** and **training** to move from basic upgrading towards innovation.

SECTOR AND TECHNOLOGY FOCUS

Match support to regional strengths

Some specialised support infrastructure is emerging around key sectors and RVCs, particularly in the Adriatic...

...But **most services remain generic**. Tailored offers should reflect regional strengths and STEP opportunities.

A staged support offer can connect practical capability building with more specialised support.

Regional co-ordination networks are emerging, but firms still need a clear entry point and a more easily-navigable support landscape

The regions are linking support actors in different ways.

Pannonian Croatia

Large consortia

BiViP 5.0 pools 20 institutions across a dispersed support network.

Northern Croatia

Consortium and local hubs

SPRINT operates alongside strong integrated centres in Čakovec and Krapina-Zagorje.

Adriatic Croatia

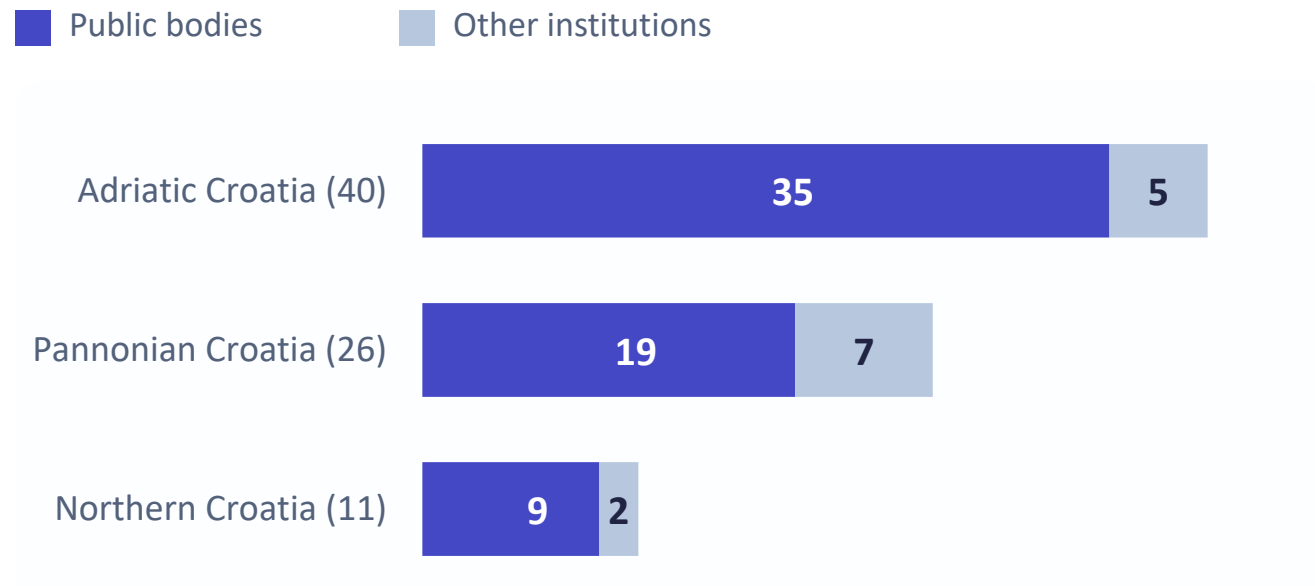
Private initiatives and sector-focused networks

Smaller formal consortia are complemented by urban and blue-economy initiatives.

Their value for SMEs depends on a clear entry point, shared diagnosis and reliable referrals.

RTI systems share a predominantly public base, but differ in institutional configuration and SME reach

Public institutions anchor RTI capacity across the three regions



Different institutional models

Adriatic

Public research institutes, faculties and distinctive mobile marine-research facilities

Pannonian

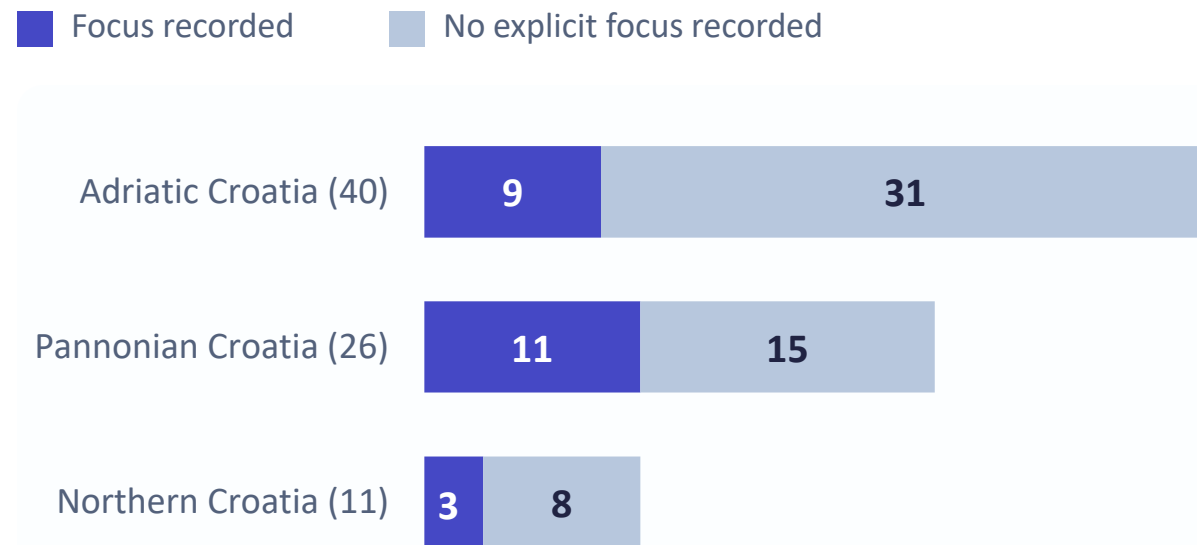
Faculty-centred, with testbeds and single-site facilities especially prominent

Northern

Compact mix, with notable presence of testbeds and digital facilities

RTI capabilities are broadly aligned with RVCs and STEP fields, but have yet to translate consistently into SME uptake and market outcomes

Institutions with an explicit regional focus



RTI capabilities match several regional priority niches / RVCs

Pannonian

Agri-food, forestry and wood processing

Northern

Manufacturing, digitalisation and vehicle testing

Adriatic

Marine science, blue-economy, IT, health

RTI-SME engagement is focused on networking, knowledge exchange/advice and research rather than technology transfer or commercialisation.

Skills shortages, fragmentation and funding gaps constrain innovation support

Three system-level constraints shape what firms can access and use.

Skills shortages

FIRMS

Lack staff to operate equipment or use testing results.

RTI PROVIDERS

Lack specialists to turn business problems into technology projects.

Fragmented RTI offer

Expertise and equipment sit across dozens of autonomous faculties, institutes and centres. Firms may struggle to find services and access conditions.

Funding gaps

Reliance on temporary/project-based funding and gaps between calls can interrupt support services and staff retention. Calls may also shape the offer.



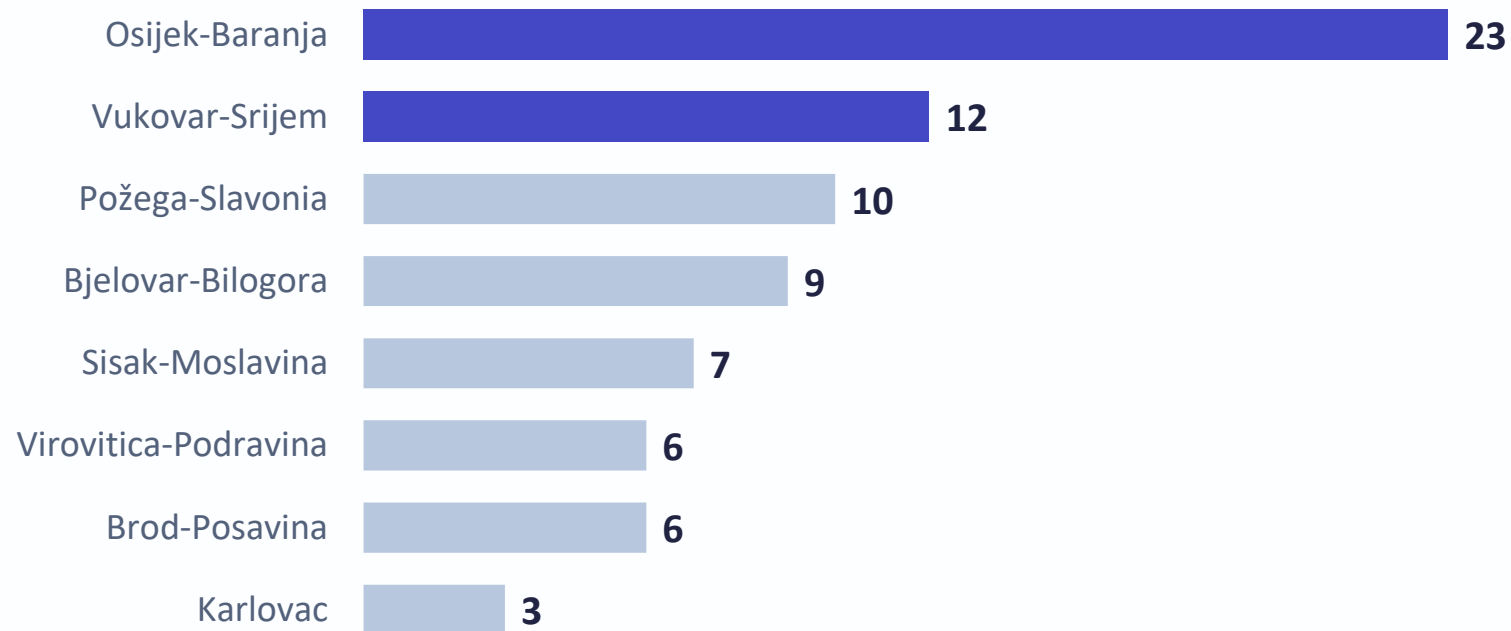
Pannonian Croatia

Mapping and assessment findings by region



Accounting for the highest density, Pannonia's ESI has expanded rapidly but unevenly

Entrepreneurial support institutions by county (76 in total)



35 of 76

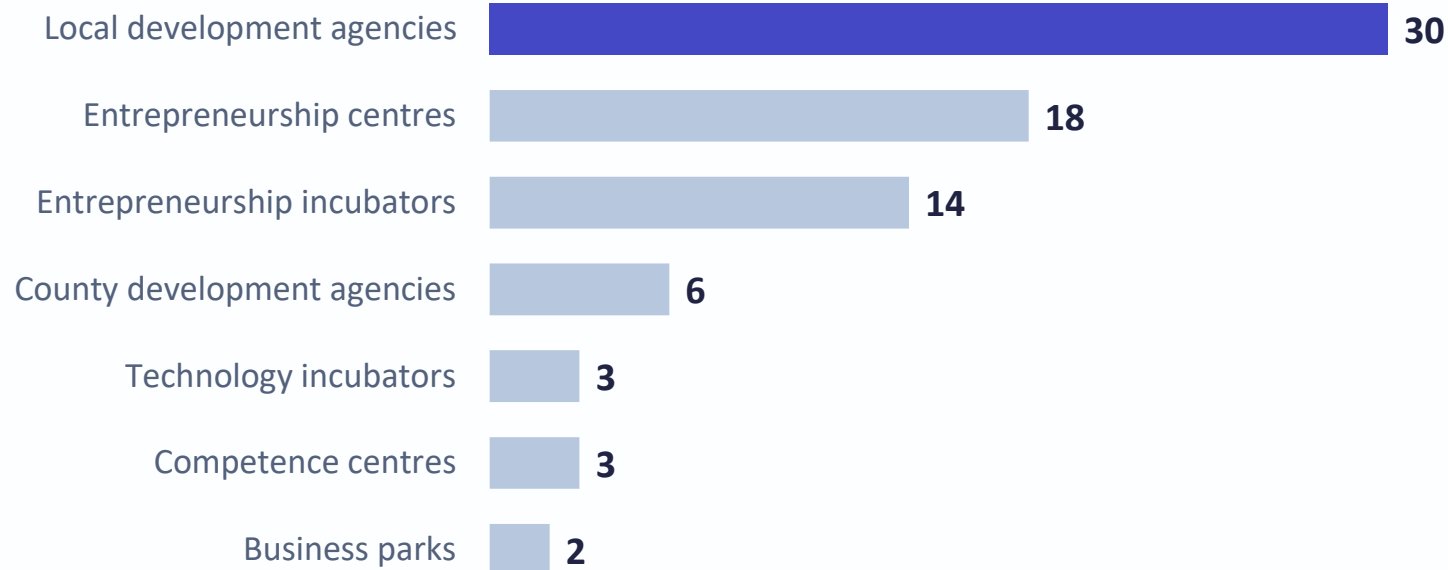
institutions are in Osijek-Baranja and Vukovar-Srijem

63%

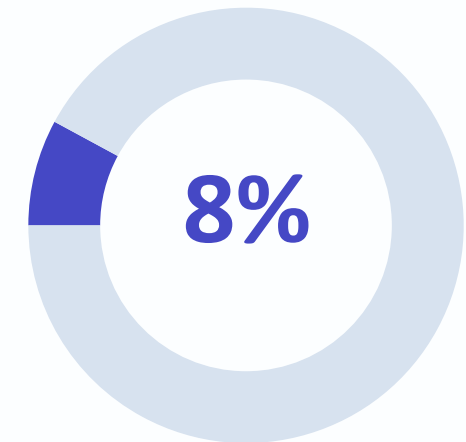
were established after 2012

Local development agencies dominate Pannonia's support mix, with only few specialised providers and low innovation focus

Number of institutions by type



Innovation focus



6 of 76 institutions

Three technology incubators and three competence centres

Opportunity for greater specialisation: More tailored support programmes are needed in strategic sectors/RVCs such as agri-food and forestry.

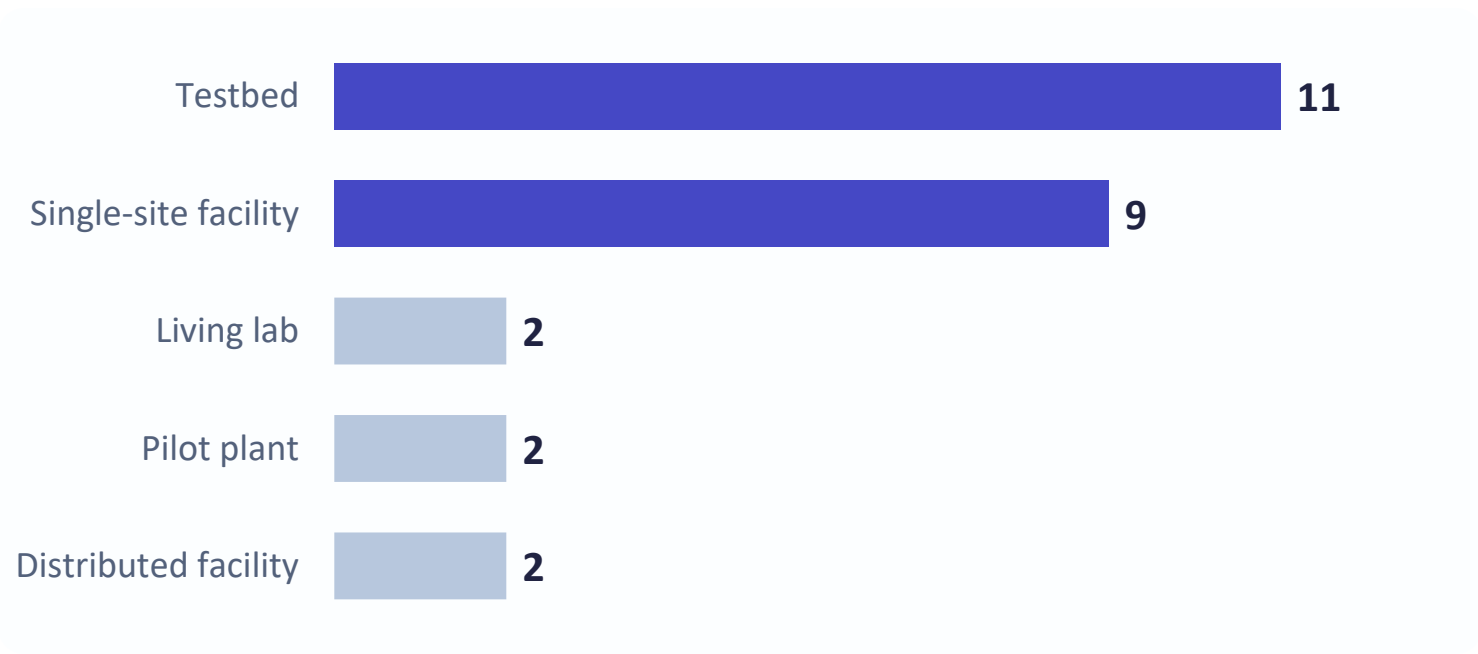
Pannonia has a university-centred RTI ecosystem, where testbeds and single-site facilities dominate

Number of institutions by type of RTI (26 in total)

11 of 26

**mapped RTIs are university
faculties**

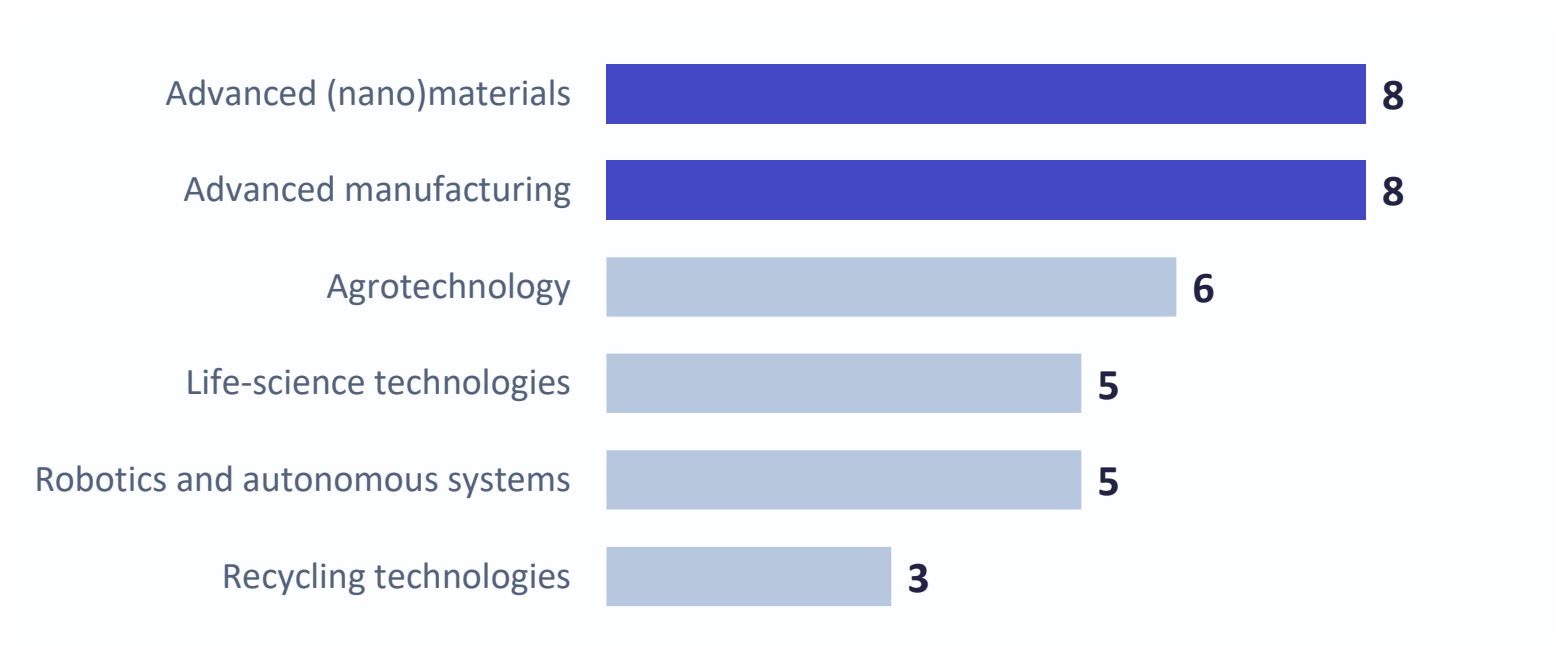
Eight mapped units belong to the
University of Osijek alone.



The mix of testbeds and single-site facilities, which account for 20 of the 26 mapped RTIs, supports practical experimentation, testing and validation.

Advanced materials, manufacturing and agrotechnology lead Pannonia's RTI technological specialisations

Mapped institutions in selected technology fields



STEP OVERLAP

Several RTI capabilities align with STEP technology fields

Advanced manufacturing and robotics support Industry 4.0 and smart agriculture. Materials and recycling are relevant to green growth.

Pannonian SMEs need differentiated pathways to RTI use

The uptake gap reflects very different levels of firm's technological readiness/maturity.

Different starting points

Many micro firms and family farms

Need basic modernisation and diagnostics before they can make effective use of more advanced RTI services.

More capable SMEs

Need a route into laboratories, prototyping, testing, validation and commercial application.

➡ **The priority is a staged support and effective intermediation that fits each firm's readiness.**

TERA TEHNOPOLIS

An intermediary in practice

Starts with the firm's business problem, not a predefined technology project.

Diagnoses whether it needs a researcher or specialised facility, or broader business support.

Connects firms to the University of Osijek or expertise elsewhere in Croatia.



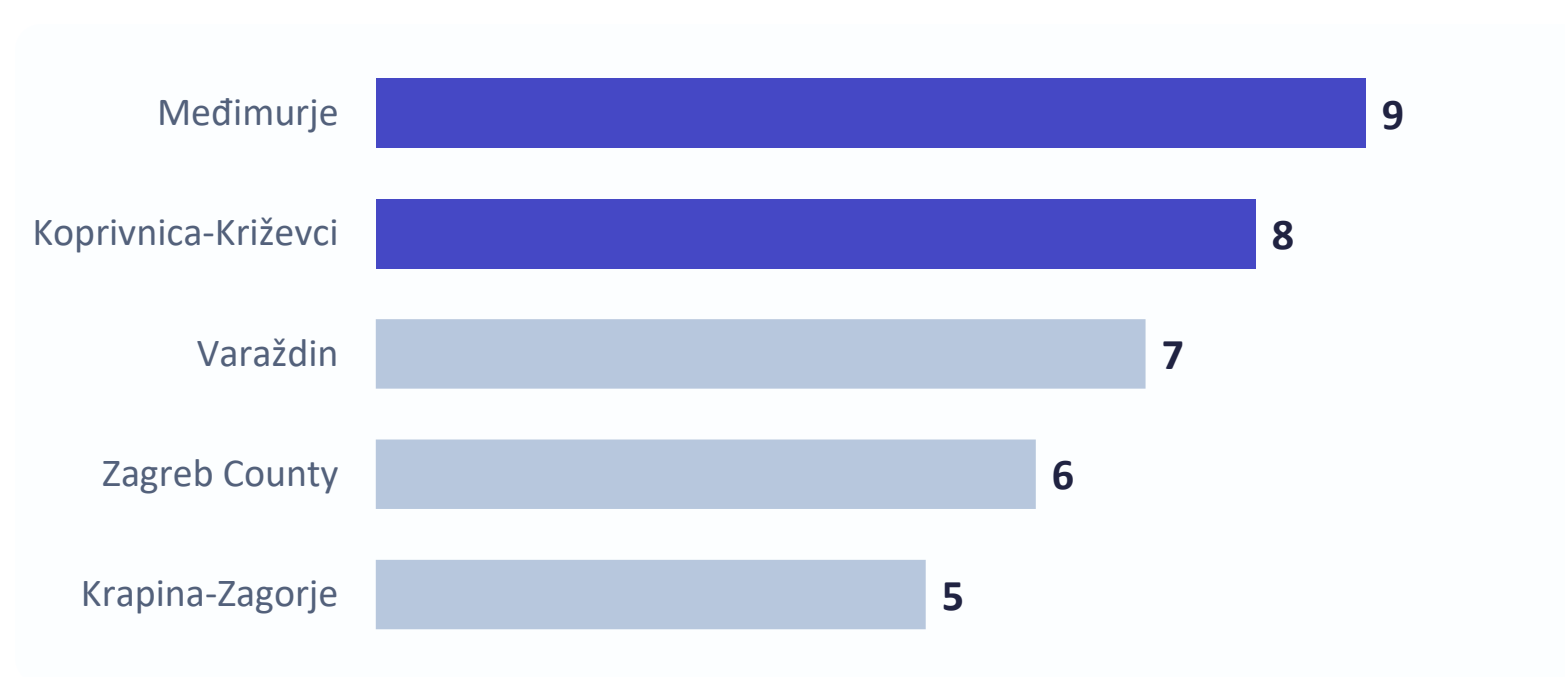
Northern Croatia

Mapping and assessment findings by region



Northern Croatia has the thinnest support network, but strong pockets of excellence and a high-growth focus

Entrepreneurial support institutions by county (35 in total)



44

institutions per million residents, the lowest density of the three regions

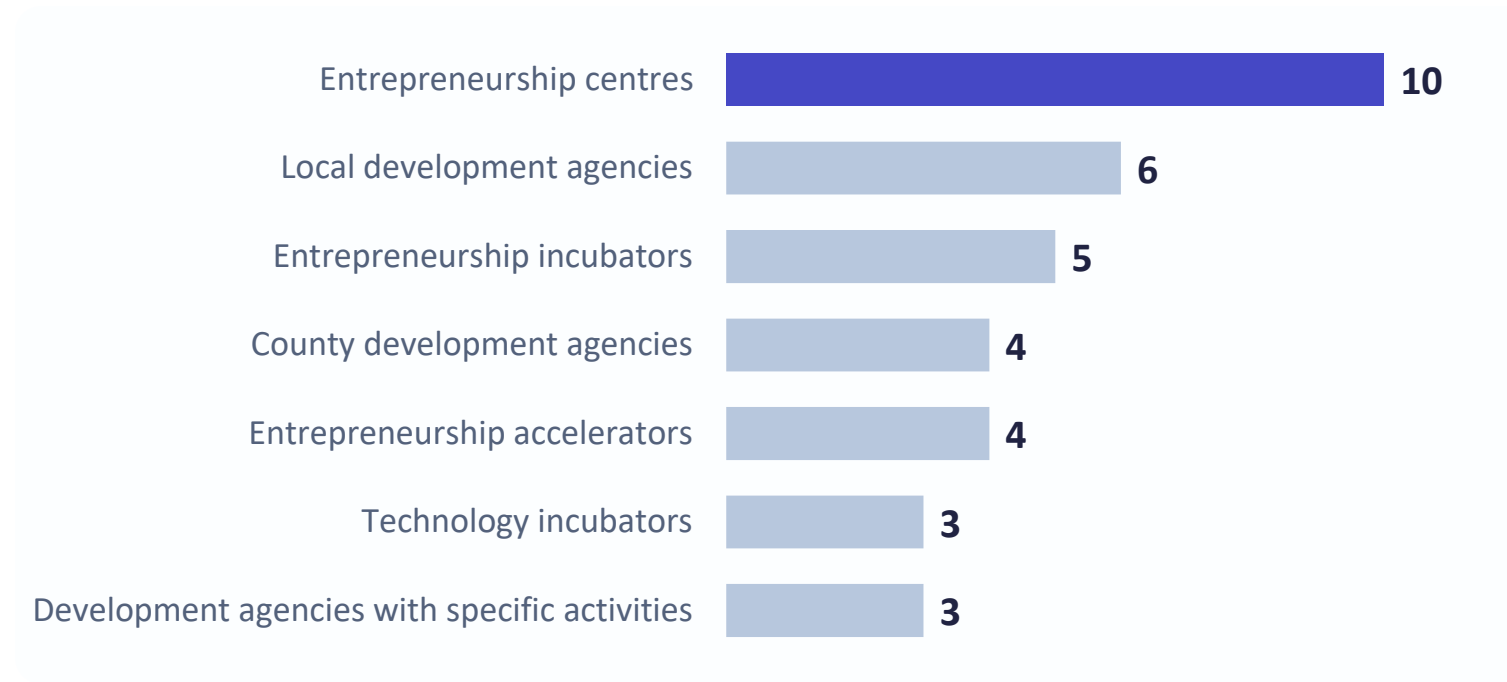
20%

7 of 35 institutions focus on innovative or high-growth firms

Integrated hubs in Čakovec and Krapina-Zagorje provide depth beyond these counts.

Entrepreneurship centres lead Northern Croatia's smaller support mix, while proximity to Zagreb exerts a strong influence on the ecosystem

Number of institutions by type



LOW NUMBER OF LOCAL DEVELOPMENT AGENCIES

6

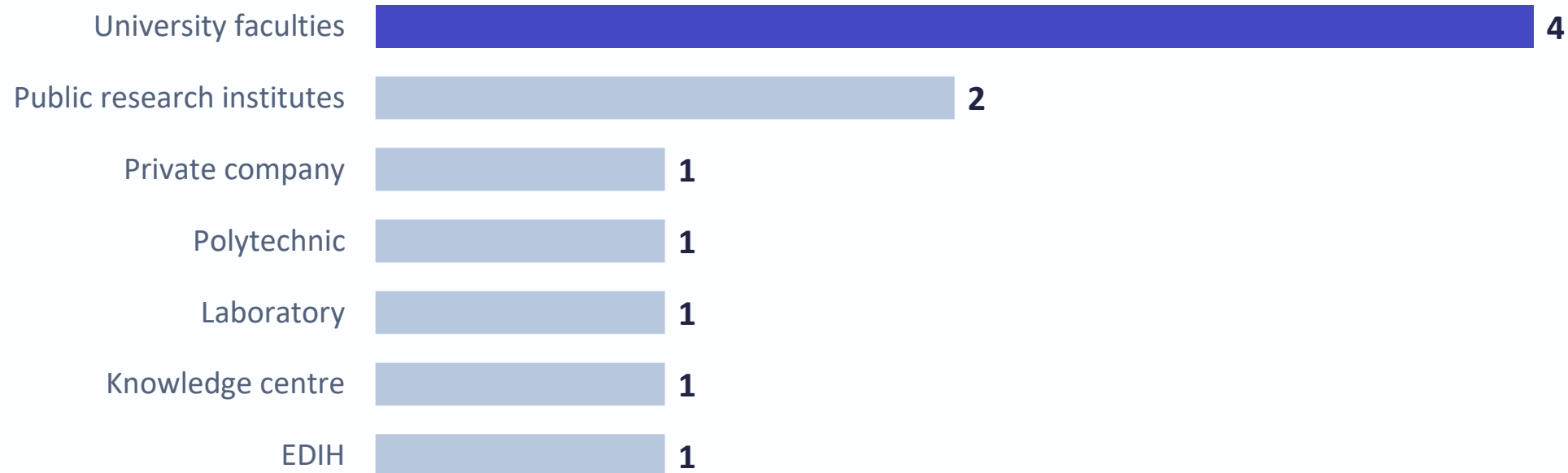
in Northern Croatia, compared to 30/27 in Pannonian/Adriatic

Key priorities

Coordination (including clear one-stop shops), **specialisation**, and **accessibility** (better links with anchor firms and expertise in Zagreb)

Northern Croatia's compact RTI base spans several types of institution

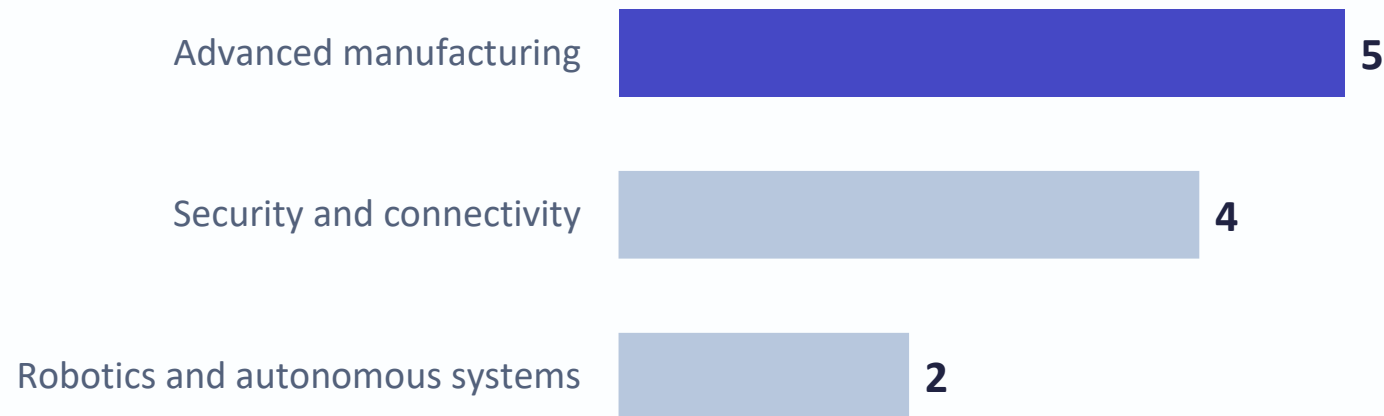
Mapped institutions by category (11 in total)



The University of Zagreb is the main institutional anchor through decentralised faculties and units in the North

Northern Croatia RTI capabilities cluster around advanced manufacturing and connectivity, strongly overlapping with STEP areas

Mapped institutions in leading technology fields



STEP OVERLAP

Digital and deep-tech capabilities

Manufacturing, connected systems and robotics support STEP-related projects.

Northern Croatia needs a route from existing technical capacity to SME technology adoption, product innovation and scale-up

Firms need evidence that a solution fits their production problem and will pay off.

1 Frame the need

Begin with a production or buyer requirement.

An SME need not arrive with a defined R&D project.



2 Build confidence

Use peer examples and practical demonstrations.

Help firms test before a larger investment.



3 Support progression

Integrate proven solutions, then develop new products.

Link testing to validation and scale-up.

EXAMPLES OF EXISTING NODES TO CONNECT

Čakovec Knowledge Centre

Engineering and prototyping

DIH North

Distributed digital support

Living Lab Koprivnica

Real-world experimentation

GRINN

Green and advanced technologies



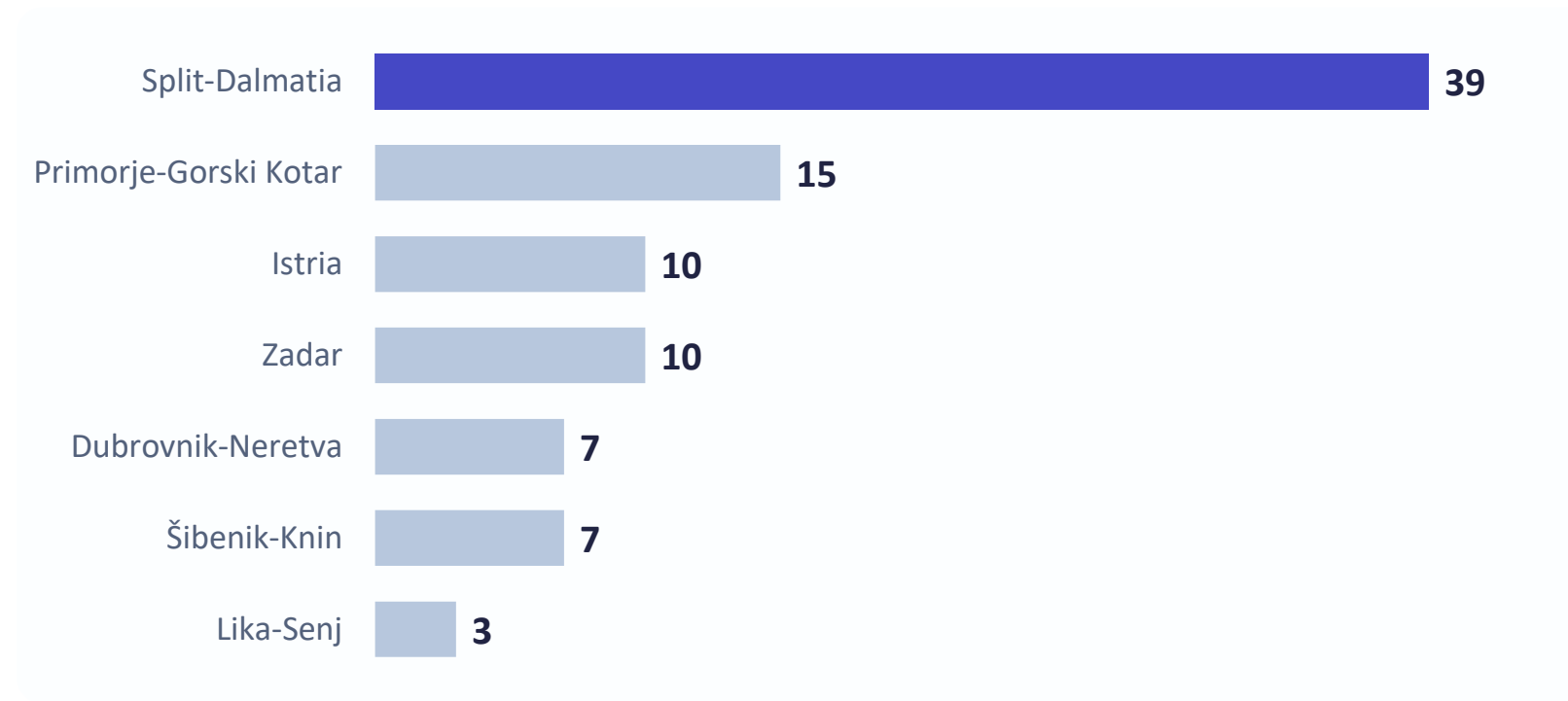
Adriatic Croatia

Mapping and assessment findings by region



Adriatic Croatia hosts the largest ESI ecosystem, but distribution is highly uneven and concentrated in Split-Dalmatia

Entrepreneurial support institutions by county (91 in total)



39 of 91

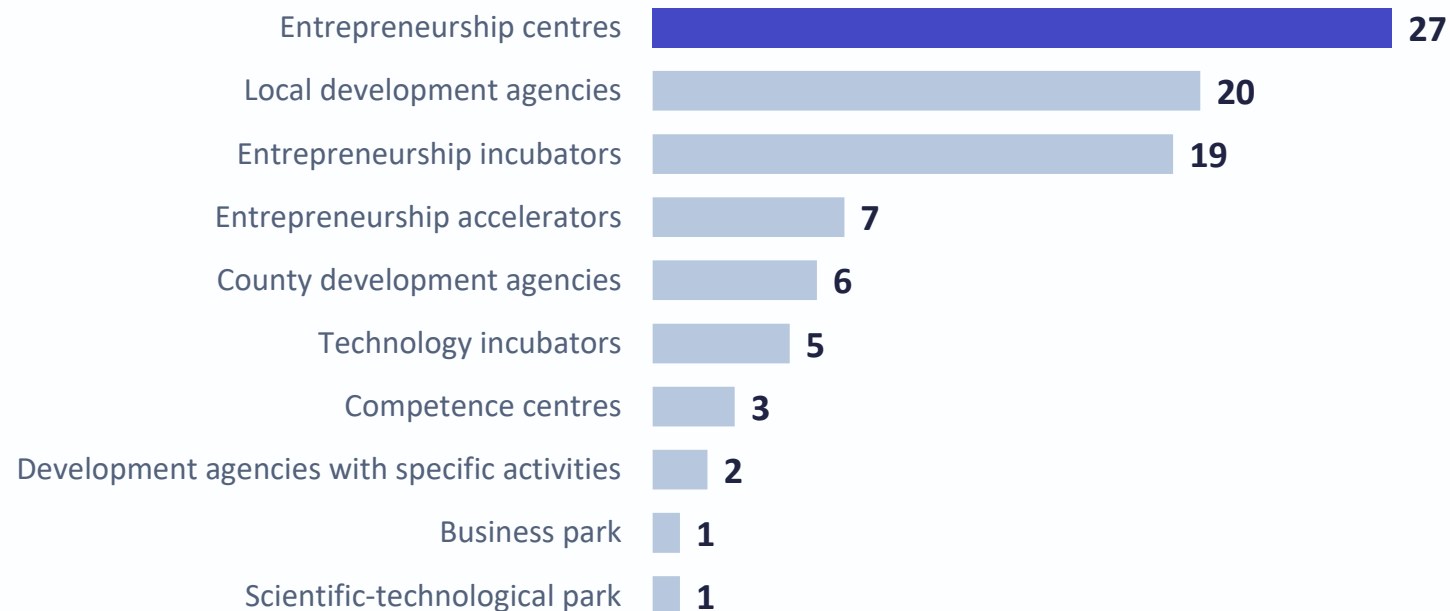
institutions are in Split-Dalmatia County

40%

are in the cities of Split and Rijeka together

Adriatic Croatia offers a broader mix of centres, agencies and incubators, a high-growth focus and blue economy specialisation

Number of institutions by type



PUBLIC + PRIVATE

Private initiatives complement public investment

Split Tech City
Infobip's Startup Tribe

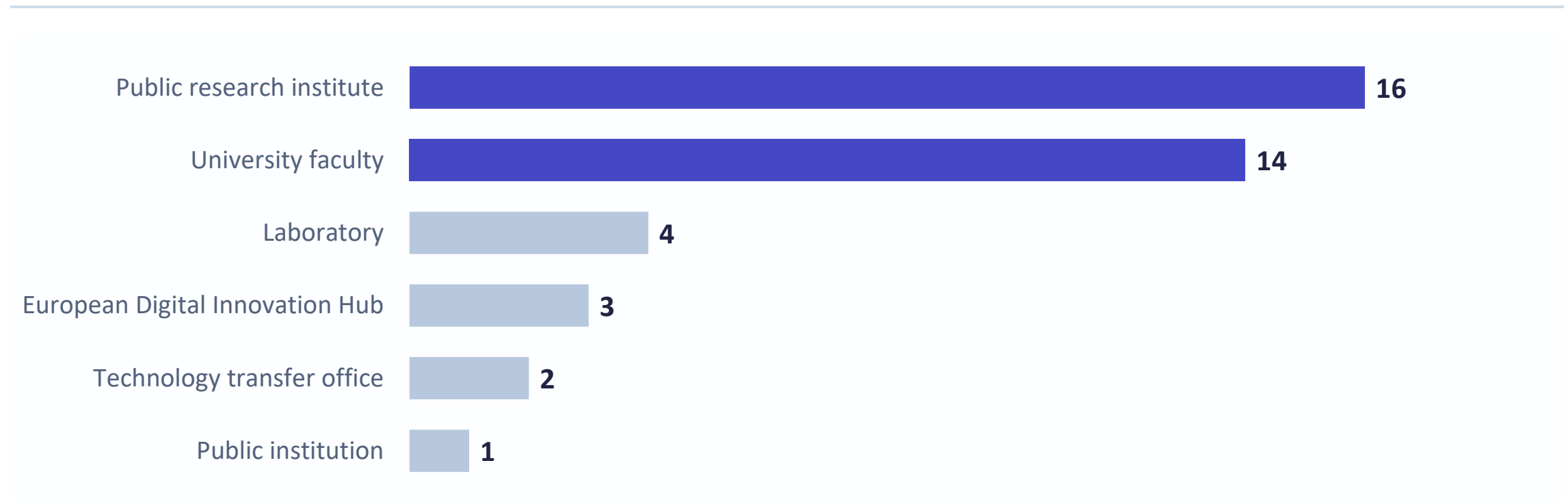
BLUE ECONOMY SPECIALISATION

ADRIA TECH and DIH AgriFood Croatia serve maritime and aquaculture firms.

Priority: Clear one-stop access and tailored support for tourism and other traditional SMEs beyond the main urban hubs.

Public research institutes and faculties form the core of Adriatic RTI

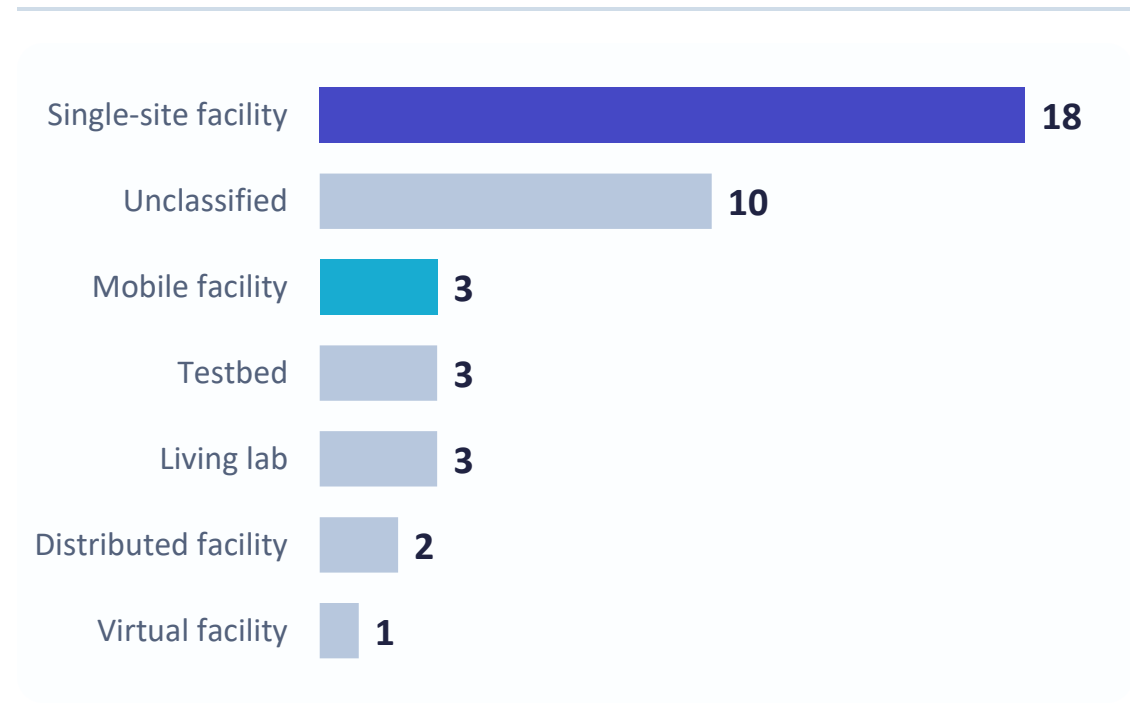
Mapped RTI institutions by category (40 in total)



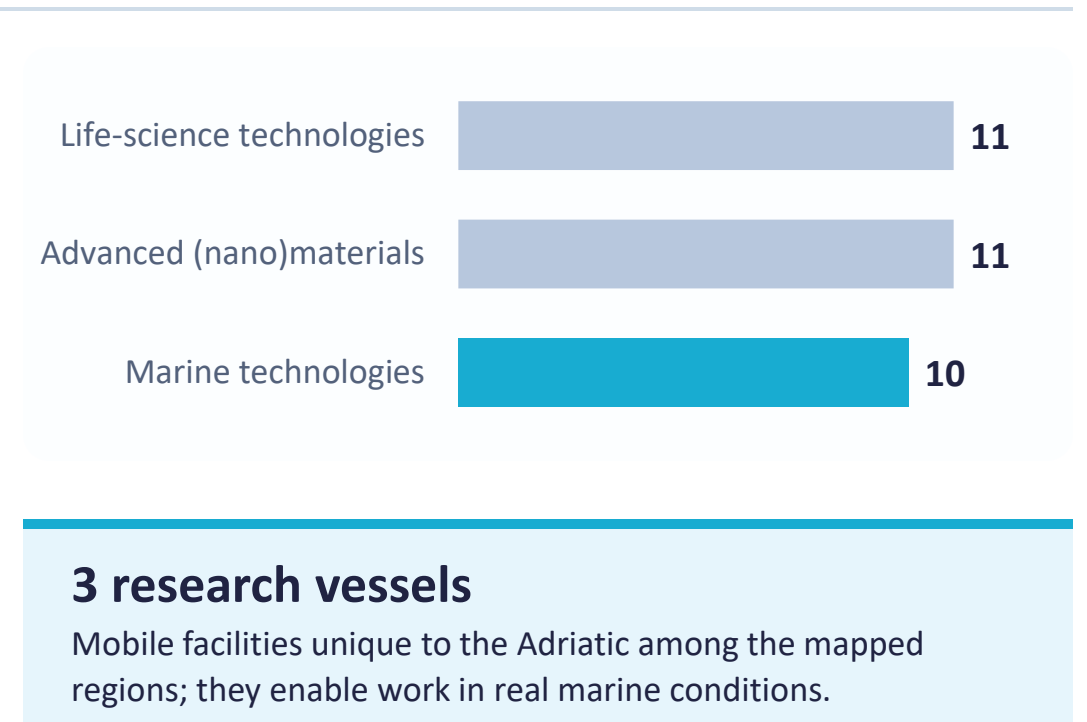
30 of 40 mapped institutions are public research institutes or university faculties; strong concentrations in Rijeka, Split, Dubrovnik and Zadar.

The Adriatic's RTI base combines a unique marine technologies specialisation with STEP-related capabilities

Institutions by type of RTI



Mapped institutions in leading technology fields



3 research vessels

Mobile facilities unique to the Adriatic among the mapped regions; they enable work in real marine conditions.

The Adriatic Sea itself is part of the region's place-based innovation environment.

The science-to-market gap takes different forms across coastal nodes and requires differentiated responses

The Adriatic has scientific depth, but the route from that knowledge to business R&D, technology adoption and commercialisation varies by location.

Split

Make existing research capacity easier for firms to find and use.

Šibenik-Knin

Add nearby applied testing and technology development.

Dubrovnik-Neretva

Specialise around viable local demand and link to other facilities.

Istria

Adapt established applied infrastructure to changing needs.

ADRIA TECH, ŠIBENIK

ESI and RTI in one place help address local testing and tech-development gap

Business support: offices, coworking and connections among founders, firms and researchers.

Applied RTI: hardware workshops, a drone centre and two test zones for sea, river and lake trials.

Co-location links marine founders to prototyping and real-water trials.



Priority: Improve firms access to existing RTI capacity while filling genuine local testing gaps.



Conclusions and policy implications

Connecting entrepreneurial support with research
and technology infrastructure



Stronger ESI–RTI interfaces can turn SMEs’ problems into usable solutions to help SMEs innovate

ESIs and RTIs services need to be better co-ordinated so that firms can access complementary support at different stages of their innovation journey.

A ROUTE THROUGH COMPLEMENTARY SERVICES

- 1 Define the need**
ESI and intermediaries diagnose the problem and help the firm to articulate effective demand for RTI services.
- 2 Test a response**
RTI provides expertise, prototyping and validation.
- 3 Put it to use**
Business support helps with finance, certification and markets.

International experiences support the value of ESI-RTI complementarities (e.g. Switzerland Digital Centre, Italy Competence Centres)

ČAKOVEC KNOWLEDGE CENTRE

Business advice meets applied testing

REDEA > Regional development

TICM > Incubation and business support

Metal Centre > Prototyping and testing

Co-location creates a local gateway for an established metalworking SME base.

We mapped ESI and RTI in parallel to reveal their overlaps and the referral routes between them, aiming to build stronger regional nodes.

Stronger innovation systems need funding continuity and a culture of collaboration

Reliable interfaces depend on stable services and firms' willingness to use them.

FUNDING CONTINUITY

Keep essential services available between projects

Stable core support retains technical staff and the people who broker SME access.

Better-sequenced calls let firms progress from early upgrading to testing and adoption.

COLLABORATION

Show firms the practical value of working together

Some firms prefer in-house innovation and hesitate to share ideas with researchers or clusters.

Peer examples and focused joint projects can build trust through visible results.



Thank you!



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