HYPERION Stakeholder Survey Results

Interreg Europe

Co-funded by the European Union

HYPERION

Understanding Regional Differences

in Adopting Hydrogen Technologies

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Understanding Regional Differences in Adopting Hydrogen Technologies

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with special thanks to the project partners for their support in the design of the survey and for sharing it within their local networks

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Table of Contents

HYPERION – Hydrogen uptake in European regions

HYPERION is a project co-funded by the Interreg EUROPE Programme with partners from the private and public sectors in various European countries such as Italy, Spain, Finland, Norway, Denmark, Belgium, Poland and Romania.

Main objectives of the project:

HYPERION supports European regions in the complex process of adopting advanced hydrogen (H2) solutions with a view to a smart and sustainable economic transition. The challenge for European regions is to identify and implement the most effective and efficient means of increasing the enormous potential of H2. Their overall objective is to build regional ecosystems for a sustainable industrial transition based on innovative H2 solutions, in synergy with the Smart Specialisation Strategies and Sustainable Smart Specialisation Strategies (S3/S4), tools that Regions and Member States are required to adopt for EU co-funded innovation policies.

In this context, the interregional exchange of information promoted by HYPERION is intended to:

- Understand the context of each partner territory;
- Develop and implement better policies to support the synergistic adoption of advanced H2 solutions in industry and transport;
- Create regional ecosystems based on the H2 supply chain, combining production, infrastructure and use, and involving key stakeholders;
- Strengthen the capacity of public authorities to support the transition to an economic system that integrates advanced H2 solutions in industry and transport.

European partners in the project:

- Agency for the development of the Empolese Valdelsa, Lead partner, Italy
- Regional Government of Tuscany, Italy
- South-East Regional Development Agency, Romania
- Pomorskie Voivodeship, Poland
- Regional Pomeranian Chamber of Commerce, Poland
- Province of East Flanders, Belgium
- Directorate-General for Industry of the Regional Government of Castile and León, Spain
- Regional Council of Ostrobothnia, Finland
- Rogaland County Council, Norway
- Hydrogen Europe Research, Belgium
- Ringkøbing-Skjern Municipality, Denmark

Project duration: April 2024 – June 2028

Website: https://www.interregeurope.eu/hyperion

Hydrogen Europe Research

Hydrogen Europe Research is an international, non–profit association composed of more than 160 Universities and Research & Technology Organisations (RTO) from 30 countries all over Europe and beyond. Our members are active within the European hydrogen and fuel cells sector.

Hydrogen Europe Research actively promotes scientific excellence, intellectual property development, and technology transfer in Europe.

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Introduction

Hydrogen is increasingly recognized as a key energy carrier in the transition to a climate-neutral economy. Its versatility—spanning applications in industry, mobility, energy storage, and power generation—makes it a cornerstone of decarbonisation strategies across Europe and beyond. However, the successful deployment of hydrogen technologies depends not only on innovation and investment, but also on the active involvement of regional actors and cross-sectoral collaboration.

Regions play a pivotal role in shaping the emerging hydrogen economy. They serve as testing grounds for integrated solutions, manage the interface between public authorities, industry, and research, and are uniquely positioned to align local development goals with broader climate and energy objectives.

Against this backdrop, the HYPERION project conducted a stakeholder survey to assess the state of play across participating regions. The goal was to capture stakeholder knowledge, perceptions of relevance, and regional needs regarding hydrogen technologies across the entire value chain—from production and storage to end-uses, safety, regulation, and funding. By identifying regional differences, common challenges, and areas of untapped potential, the survey offers a foundation for more targeted support and stronger interregional cooperation.

This report presents the key findings and highlights opportunities for enhancing regional capacity, accelerating uptake, and fostering a more connected and coherent European hydrogen ecosystem.

Respondents

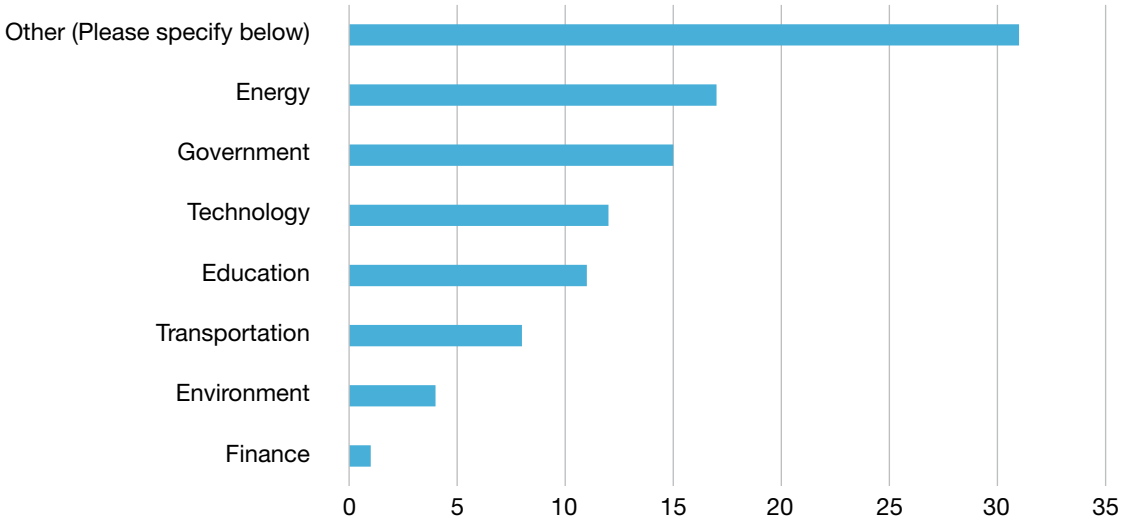
The survey was conducted across eight European regions participating in the HYPERION project:

Tuscany (Italy)
Dobrogea (Romania)
Pomerania (Poland)
East Flanders (Belgium)
Castilla y León (Spain)
Ostrobothnia (Finland)
Rogaland (Norway)
Ringkøbing (Denmark)

Stakeholders were identified and invited by the regional partners to provide insights into hydrogen-related developments in their area. 100 responses were received.

Respondents represented a diverse set of sectors, with a strong presence from local public authorities and industry, including both large companies and SMEs. The highest number of responses came from Spain, Romania, and Italy, offering particularly rich insights from those regions. A detailed breakdown of stakeholder sectors is provided in the chart below.

Figure 1: Survey respondents grouped by Sector



Other: RDI, Business development, Cluster management organisation, Steel and process industry, Promotion of investments, Design and construction for cryogenic liquefied gas transportation, Chemical Sector, Local public services, Public Administration, Investment company, Innovation and vocational training, Local development agency, Construction Company, Engineering firm

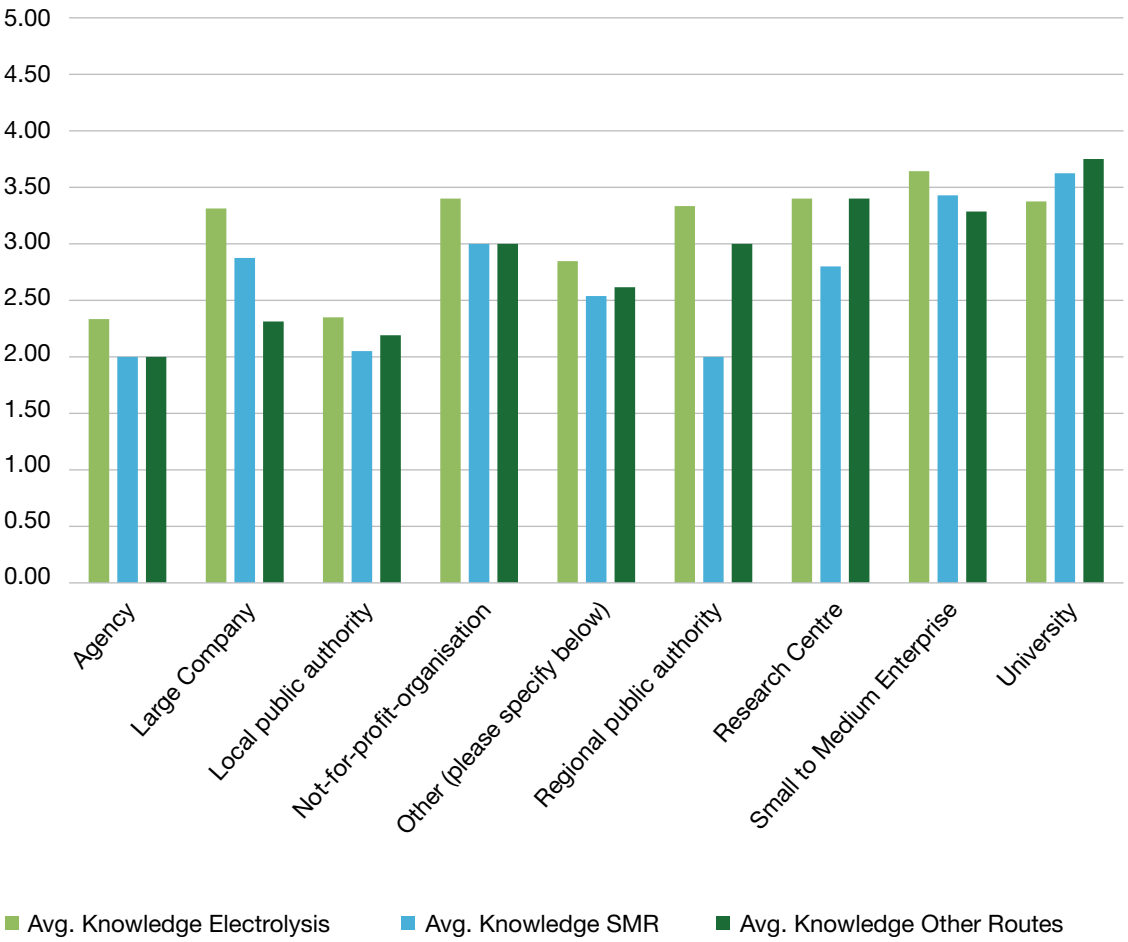
The first section of the survey assessed stakeholders' knowledge of various technologies across the hydrogen value chain and asked them to rate the relevance of these technologies for their respective regions. Responses were measured on a scale from 1 (no knowledge or not relevant) to 5 (expert knowledge or highly relevant). Participants also had the option to select "I don't know/cannot respond." The following analysis is based on the comparison of knowledge and relevance between countries and stakeholders but also on contrasting the two with the aim of revealing potential mismatches in available knowledge and relevance for the region.

Hydrogen Production

Some cross-regional trends emerged – see figure 2. When evaluating knowledge of hydrogen production methods—such as electrolysis, steam methane reforming (SMR), and alternative routes like biological production—local public authorities reported an average knowledge level of 2.20, while agencies scored slightly lower at 2.11. In contrast, universities (3.58) and small to medium-sized enterprises (SMEs) (3.45) reported significantly higher levels of knowledge. This reveals a substantial disparity in technical understanding among different stakeholder groups.

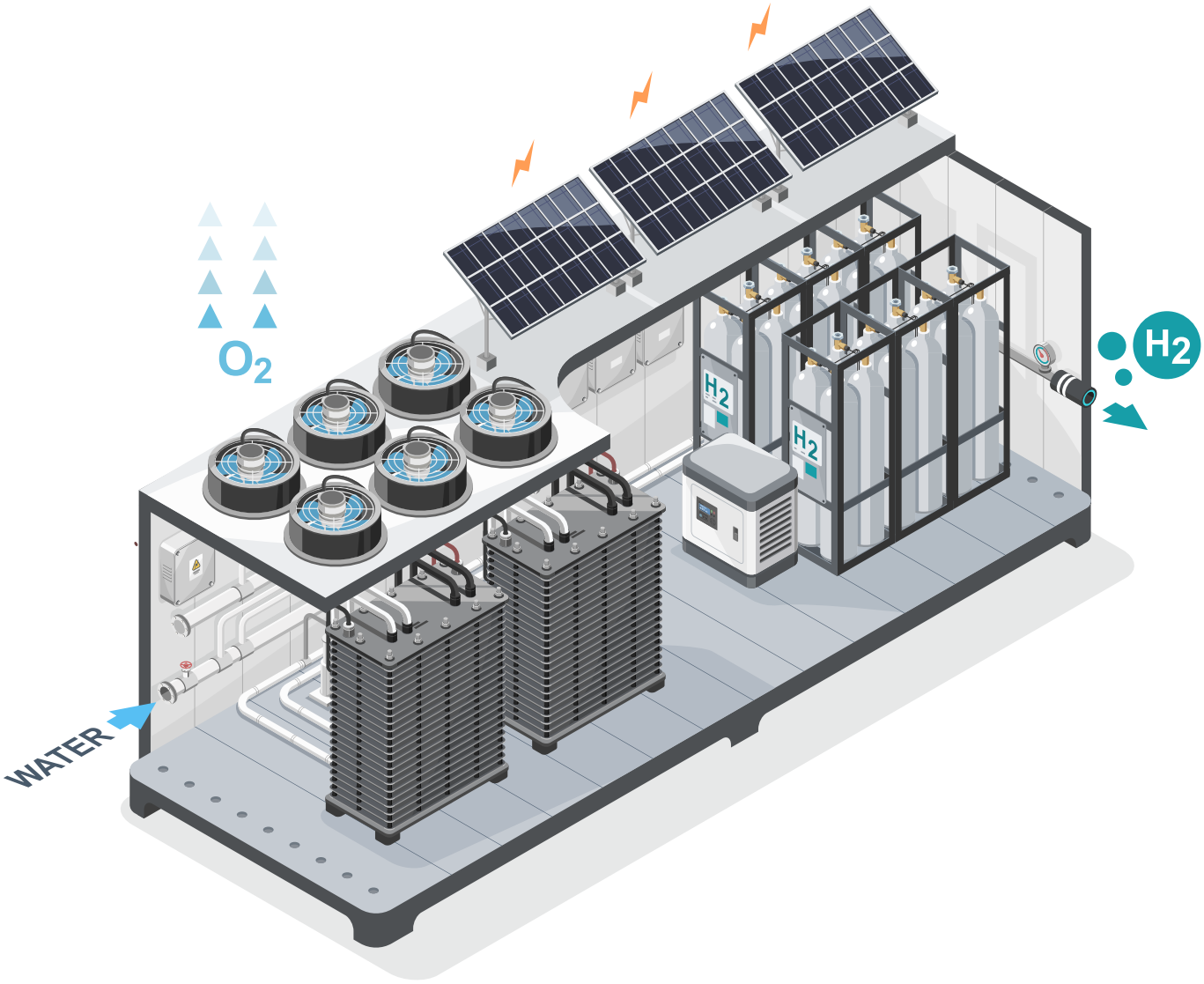
However, when it comes to perceived relevance of production technologies for the regions, responses were more aligned. The lowest relevance score across all production methods came from not-for-profit organisations (3.10), while universities again rated highest at 3.83—a much narrower spread of 0.73 points compared to the 1.47-point gap in knowledge levels. This suggests that despite varying degrees of technical expertise,

Figure 2: Knowledge Assessment for Hydrogen Production Methods



there is broader consensus on the importance of production technologies. Interestingly, the divergence in responses appears to relate more to stakeholder type than to specific production methods.

At the country level, notable differences also emerged. The most striking is the perceived relevance of SMR: respondents in Norway and Poland rated it highly (4.10 and 4.00, respectively), while those in Denmark and Finland rated it significantly lower at 2.50. Overall, electrolysis stood out as the most relevant production technology, with an average score of 3.73 across all responses.



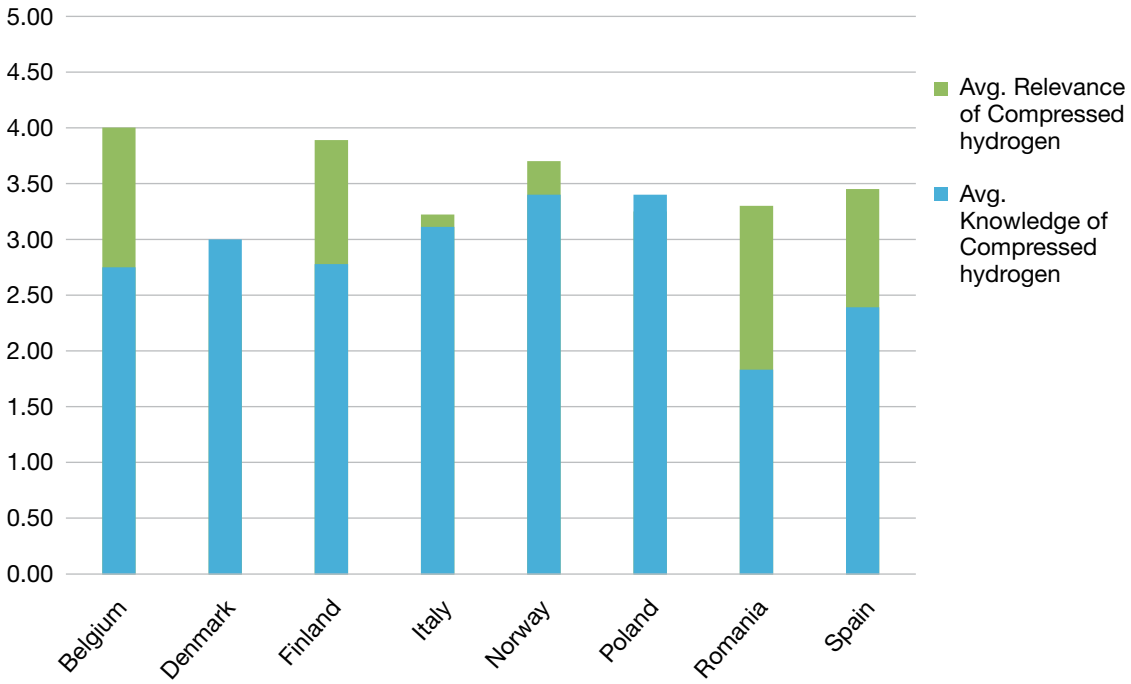
Hydrogen Storage

Stakeholder knowledge of hydrogen storage options—including compressed hydrogen, liquid hydrogen, chemical carriers such as ammonia and liquid organic hydrogen carriers (LOHC), as well as underground storage—was generally lower than for hydrogen production methods across all regions. Among the different storage options, compressed hydrogen received the highest average knowledge score (2.73), followed closely by ammonia-based carriers (2.66). In contrast, LOHC (2.28) and underground storage (2.20) were the least familiar technologies to respondents.

Notable regional differences also emerged. Romania reported the lowest average knowledge score across storage technologies (1.51), while Norway had the highest (3.32), highlighting significant interregional disparities in expertise.

Focusing specifically on compressed hydrogen, most stakeholder groups rated its relevance for their region higher than their own level of knowledge—indicating a perceived importance that may not be matched by current familiarity or technical capacity. Exceptions to this trend were SMEs, research centres, and large companies, whose self-assessed knowledge levels closely aligned with perceived relevance. Across all respondents, the average gap between relevance and knowledge was 0.69 points.

Figure 3: Relevance-Knowledge Gaps for compressed hydrogen storage split by country



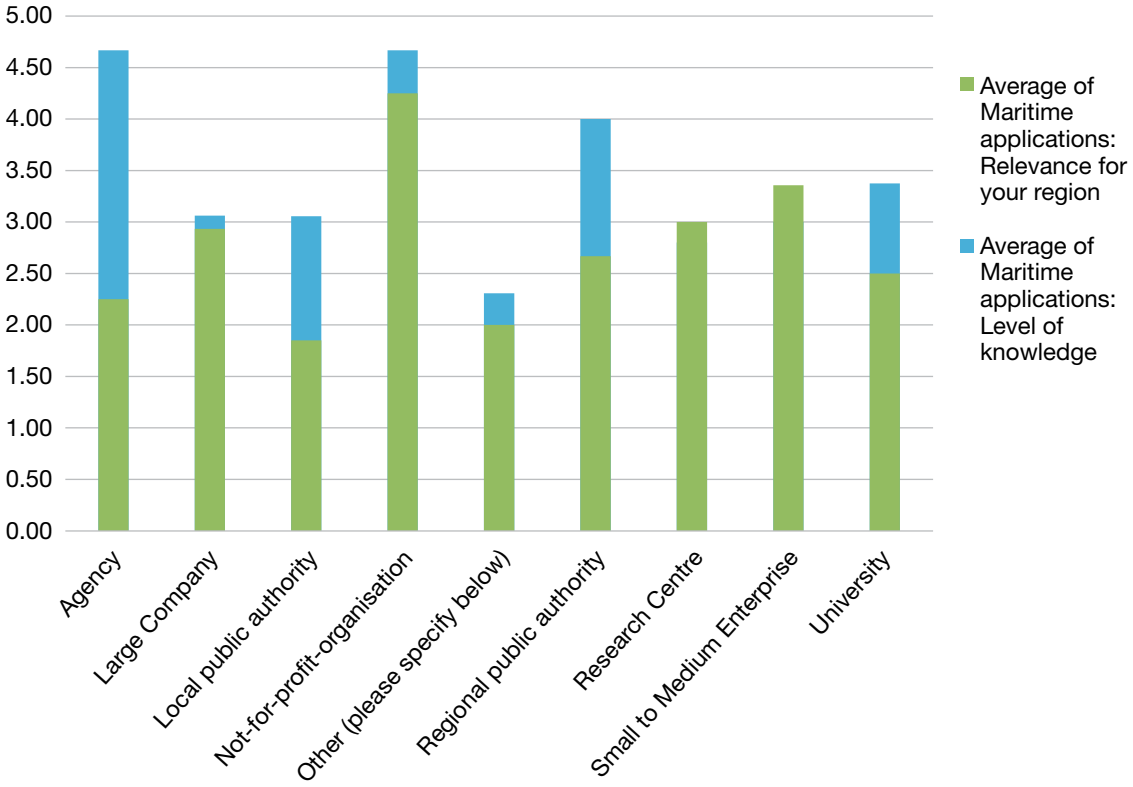
At the country level, Denmark, Italy, Norway, and Poland reported minimal differences between assessed knowledge and relevance for compressed hydrogen, suggesting greater alignment between perceived importance and technical familiarity – see figure 3. In contrast, Belgium, Finland, Romania, and Spain reported gaps of up to 1.46 points, indicating areas where knowledge development may be needed to match perceived strategic importance.

Hydrogen End-Uses: Mobility

The survey also explored stakeholder knowledge and perceived relevance of hydrogen-based mobility applications. These included buses, heavy-duty vehices, passenger cars, maritime applications, hydrogen refuelling stations, rail and aviation applications. As expected, the highest knowledge scores were associated with buses and cars (both at 2.78), followed closely by hydrogen refuelling stations (HRS) with an average score of 2.76. In contrast, more specialized applications such as rail (2.31) and aviation (2.13) received the lowest knowledge ratings.

To better understand regional dynamics, it is insightful to examine country-level results. Aviation, for instance, scored significantly above average in Belgium (3.25) and Finland (2.89), with relevance ratings that align closely—3.5 and 2.78 respectively—suggesting strong national interest and potential investment in this sector. Similarly, Poland demonstrated high knowledge of hydrogen rail applications, with a score of 3.20.

Figure 4: Relevance-Knowledge Gaps for maritime applications split by stakeholder



However, the most pronounced differences emerged in the comparison between knowledge and relevance. On average, the gap between perceived relevance and self-assessed knowledge was 0.44 points, but this disparity was far greater in some regions and for specific technologies. Belgium and Finland, for example, reported gaps exceeding 1.0 point for maritime applications, highlighting a need for capacity-building in areas considered strategically important. Similarly, Romania and Spain exhibited knowledge-relevance gaps of over 1.0 point for bus applications. For HRS, Finland, Romania, and Spain all reported gaps larger than 0.80 points.

These findings indicate that while certain hydrogen mobility technologies are widely recognized as important, many regions lack the corresponding knowledge base—pointing to potential areas for targeted support, training, and policy intervention.

Looking more closely at maritime applications—see Figure 4—significant knowledge-relevance gaps are evident across regions and stakeholder types. Agencies, as well as local and regional public authorities, consistently reported lower levels of knowledge compared to the perceived relevance of these applications. The most pronounced gap was observed among agencies, with an average difference of more than 2 points between knowledge and relevance.

Regionally, the largest gap appears in Italy, where agencies reported a very low average knowledge score of 1.33, contrasted with a high relevance score of 4.5—indicating a major disconnect between technical know-how and perceived strategic importance. In Finland, universities reported a surprising gap of 1.7 points, while in Norway, the gap for the same group was similarly high at 1.5 points.

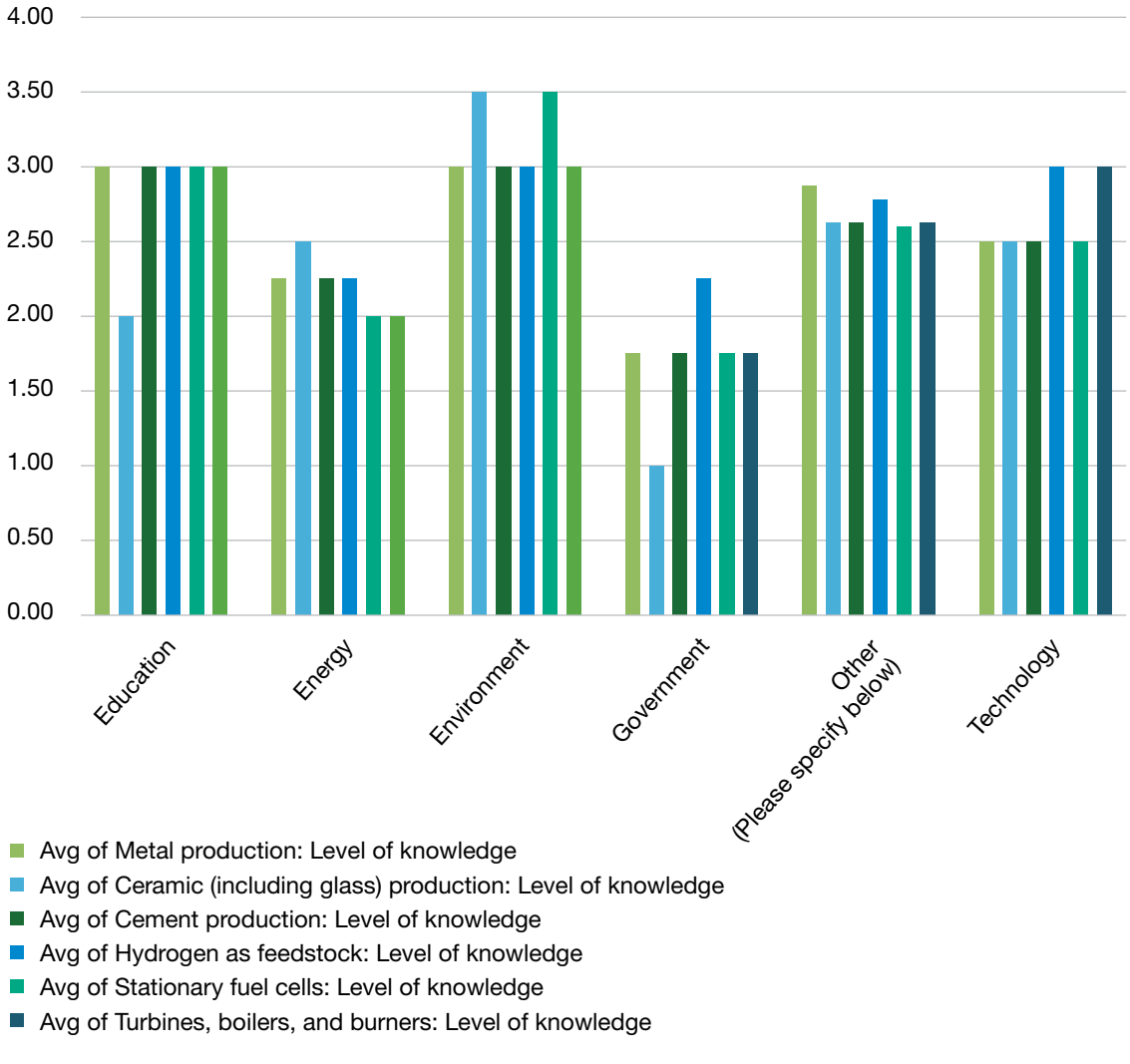
These results highlight a pressing need to bridge the knowledge gap for maritime hydrogen applications, especially among key institutional stakeholders, to align capabilities with regional ambitions.

Hydrogen End-Uses: Industry

The survey also examined stakeholder knowledge of various industrial hydrogen applications. These included uses in metal, ceramic, and cement production; hydrogen as a feedstock; stationary fuel cells; and its use in turbines, boilers, and burners.

Overall, the average knowledge score across industrial end-uses was 2.48 – comparable to the scores for mobility applications. Among the individual sectors, ceramic and cement production received the lowest average knowledge ratings, at 2.08 and 2.24 respectively. Notably, respondents from Belgium, Denmark, Finland, Poland, and Romania all scored

Figure 5: Relevance-Knowledge Gaps for maritime applications split by stakeholder



below 2 for ceramic production, suggesting limited familiarity or engagement with hydrogen in this sector. This is mirrored in the relevance scores for these countries, which also fall below average – implying that ceramics and cement may not be prominent sectors in those regions, or that other decarbonisation pathways are considered more appropriate than hydrogen.

In contrast, the use of hydrogen as a feedstock – particularly relevant for industries like fertiliser production – recorded the highest average knowledge score at 2.79. It also ranked highest in terms of perceived relevance, with an average score of 3.48. This is consistent with the fact that hydrogen is already widely used in some industrial processes, giving stakeholders greater familiarity and confidence in its role.

While ceramics was the least relevant sector on average, this masks significant regional variation. In countries such as Italy and Norway, ceramic production was ranked among the most relevant industry applications, indicating a strong regional or sectoral interest.

Zooming in on Spain reveals important differences across sectors in terms of knowledge gaps (see Figure 5). In particular, the energy and government sectors display limited knowledge of hydrogen's industrial applications. The government sector scored below 2 across almost all categories—suggesting a need for targeted awareness and capacity-building efforts to support informed policymaking and planning in industrial decarbonisation.

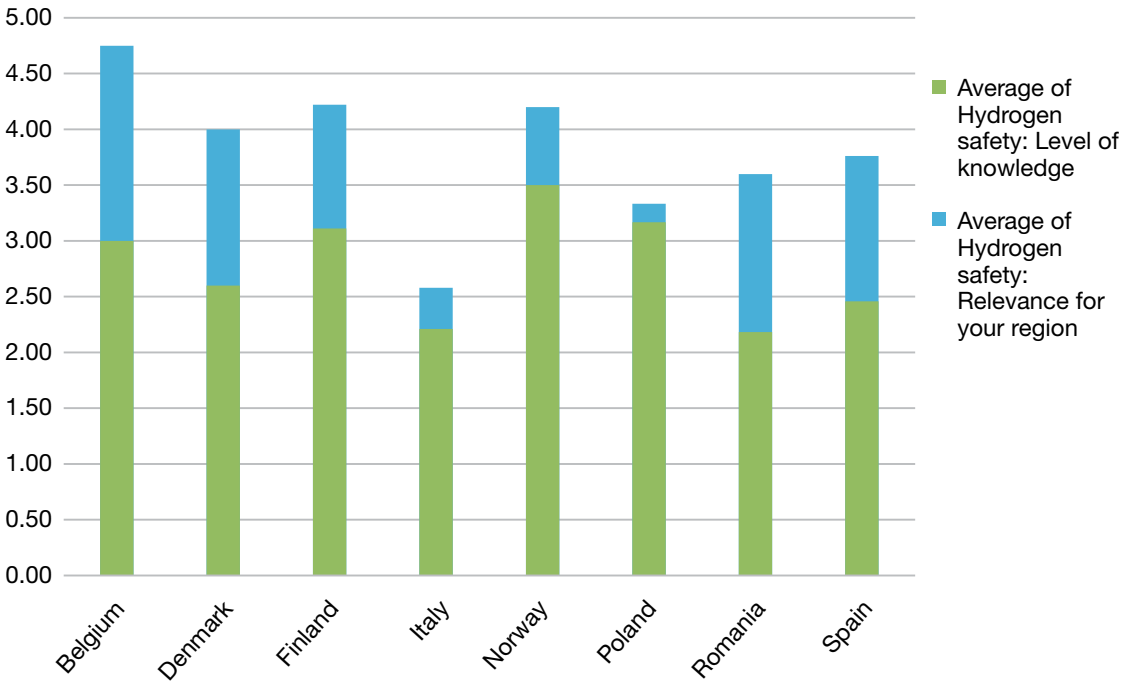
Hydrogen Safety

In addition to the core questions on the hydrogen value chain, the survey included several miscellaneous topics—one of which was hydrogen safety. Across all regions, a consistent knowledge-relevance gap of approximately 1 point emerged, indicating a general awareness of the topic's importance, but a lack of corresponding expertise.

Safety was rated as particularly critical by respondents from Belgium, who gave it an average relevance score of 4.75—more than a full point above the overall average of 3.61. This suggests that safety considerations are a high priority in the Belgian context, potentially reflecting local policy debates, public concerns, or regulatory focus.

Interestingly, Poland and Italy reported the smallest gaps between knowledge and relevance. However, this was largely due to lower relevance scores in those countries, suggesting that hydrogen safety may not be perceived as urgent or central to their hydrogen strategies—at least not to the same extent as in other regions.

Figure 6: Relevance-Knowledge Gaps for hydrogen safety split by country



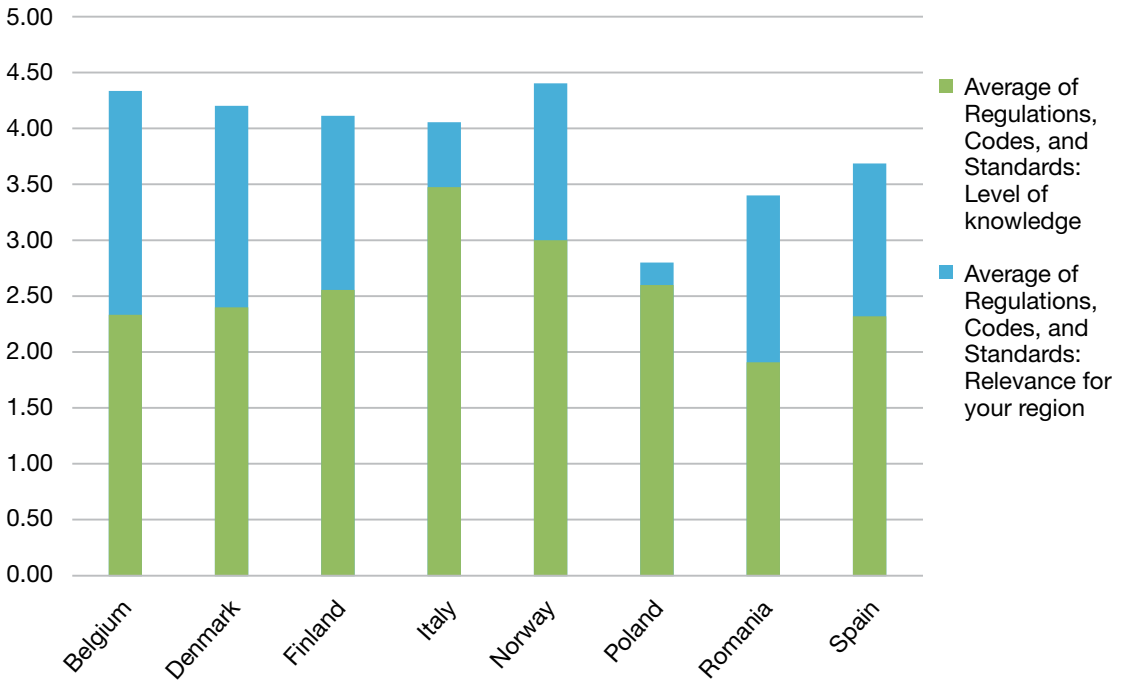
Regulations, Codes and Standards (RCS)

As shown in Figure 7, the knowledge-relevance gap widens even further when it comes to hydrogen regulations, codes, and standards (RCS), reaching an average of 1.24 points across all regions. This suggests that while stakeholders recognize the critical importance of regulatory frameworks for the hydrogen economy, they often lack sufficient understanding or access to relevant information.

Poland and Italy stand out as exceptions, with respondents reporting relatively high levels of confidence in their knowledge of RCS. In Italy, in particular, the scores are notably strong—knowledge rated at 3.47 and relevance at 4.05—indicating both a high degree of awareness and recognition of the topic's importance.

These findings point to a valuable opportunity for interregional exchange. Countries or regions with more advanced understanding and engagement in hydrogen RCS, such as Italy, could play a leading role in sharing best practices, training approaches, and dissemination strategies. This would be especially beneficial for stakeholder groups that currently report large knowledge gaps, helping to strengthen the regulatory literacy needed to accelerate safe and effective hydrogen deployment across Europe.

Figure 7: Relevance-Knowledge Gaps for RCS split by country



Skills and Education

Respondents were asked to assess both the relevance of hydrogen-related training for their region and the current availability of such training opportunities, using a scale from 1 (unavailable/not relevant) to 5 (very easily accessible/highly relevant).

Denmark, Italy, and Poland reported relatively small gaps—around 0.50 points—between the perceived importance of training and its accessibility. In contrast, other countries revealed significantly larger gaps, highlighting a disconnect between the need for a skilled hydrogen workforce and the existing training infrastructure. This insight becomes particularly relevant when viewed alongside the upcoming section on public support services.

Societal Acceptance

This part of the survey explored the importance of public acceptance of hydrogen in each region and how accepted hydrogen currently is. Again, responses were rated on a 1 to 5 scale, with 1 indicating low acceptance or low relevance, and 5 indicating high levels.

On average, the gap between perceived relevance and actual acceptance was 0.72—smaller than for other surveyed topics, suggesting a relatively closer alignment. Most regions reported a public acceptance level above 2.5, with the notable exception of Italy, where both relevance (2.44) and acceptance (2.26) were rated lowest.

Denmark, Romania, and Spain exhibited gaps of more than 1 point, suggesting the need for stronger public outreach and education initiatives in those countries. On the other hand, regions like Belgium, Italy, and Poland—where the assessed level of acceptance aligns closely with its perceived importance—could serve as models, sharing effective strategies and best practices to improve societal engagement with hydrogen in other areas.

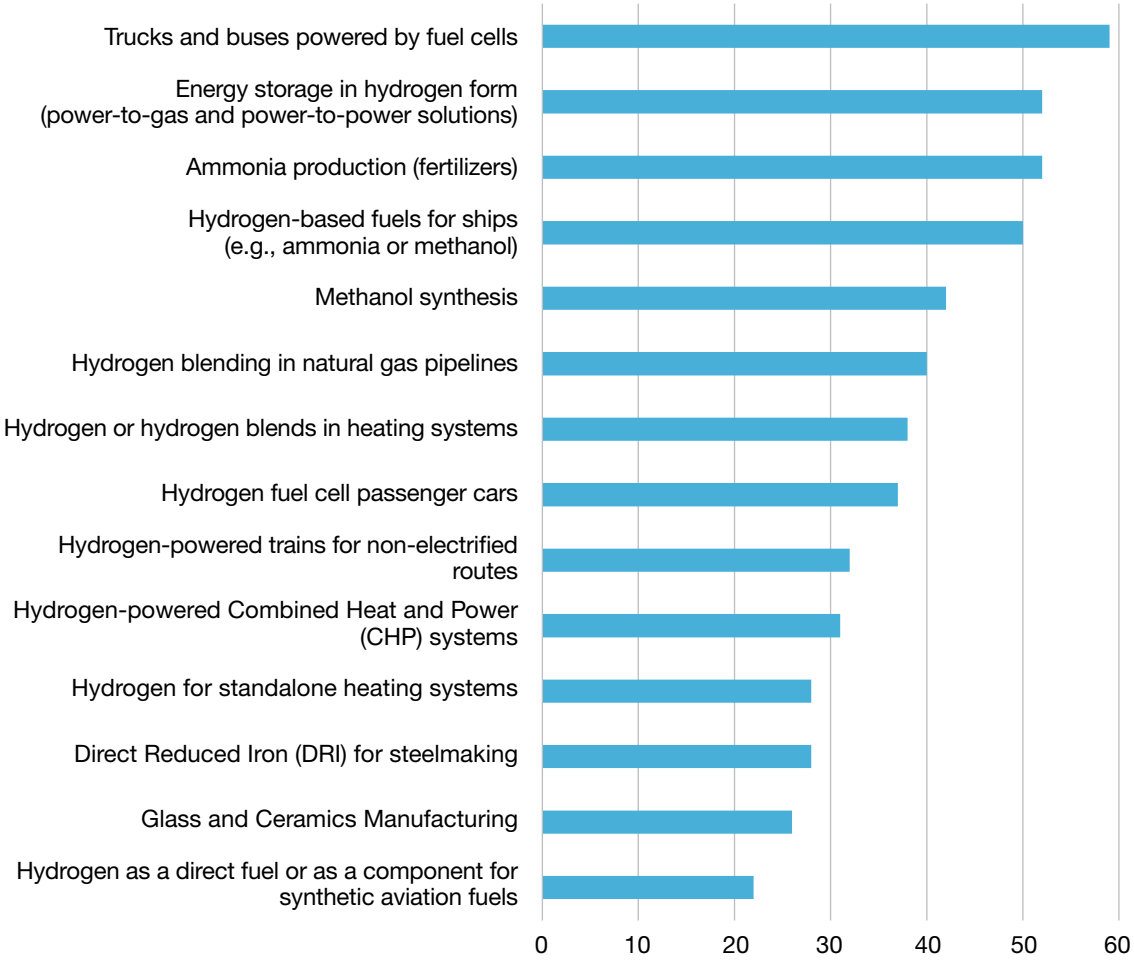
Hydrogen Offtake

To identify potential hydrogen off-takers, respondents were asked a multiple-choice question, selecting all applicable sectors that could act as buyers of hydrogen in their respective regions.

Reflecting the strong knowledge base and high perceived relevance reported elsewhere in the survey, buses and heavy-duty vehicles emerged as the top potential off-taker, selected by 59 out of 100 respondents. This suggests that mobility applications, particularly in public and commercial transport, are seen as key early markets for hydrogen deployment.

Surprisingly, passenger cars, despite receiving relatively high knowledge and relevance ratings in earlier questions, were only selected by 37 respondents. This may indicate a more cautious outlook on the role of hydrogen in personal mobility, possibly due to competition from battery electric vehicles or infrastructure limitations.

Figure 8: Potential hydrogen off-takers



At the lower end, aviation and ceramic production were selected least often. This aligns with the low knowledge and relevance scores observed for these sectors, and may reflect either a limited presence of these industries in the surveyed regions or a lack of interest or readiness to adopt hydrogen-based solutions within those sectors.

Barriers to Hydrogen Uptake and Public Support Services

High costs remain the most significant barrier to hydrogen uptake, cited by 78 respondents. This was followed by infrastructure limitations, selected by 67 respondents. While technological obstacles ranked lowest among the listed barriers, they were still identified by over one-third of participants, indicating that ongoing R&D efforts remain crucial to support widespread market adoption.

When asked about the adequacy of public support services, the most common response was “neutral” (40 respondents). This neutral stance could reflect a number of underlying issues: a lack of available public support services, insufficient awareness among stakeholders, or support mechanisms that exist but are perceived as ineffective or inaccessible.

Regarding areas where public support could be improved, nearly one-third of respondents pointed to training and education—ranking this above all monetary-related options. This highlights not only the critical role of workforce development in advancing the hydrogen economy but also suggests that current training opportunities may be either insufficient or poorly communicated. Addressing this gap—either by expanding training offerings or improving visibility—could significantly enhance regional preparedness and stakeholder capacity.

Funding

High project costs once again emerged as a major barrier—this time in the context of funding for research, development, and innovation (R&D&I) projects—with 59 respondents identifying it as a key challenge. Regulatory uncertainty was the second most frequently selected barrier, cited by 51 respondents, reflecting concerns that were also raised in the section on regulations, codes, and standards (RCS). While limited private investment interest ranked lowest, it was still chosen by 31 respondents—more than one-third—indicating that securing private capital remains a significant concern for many stakeholders.

When asked about preferred financing mechanisms to support company creation and investment, government grants or subsidies were the top choice, selected by an overwhelming 71 respondents. Public-private partnerships followed in second place, reflecting interest in collaborative funding models. In contrast, bank loans were the least favoured option, receiving only 19 votes, which may reflect perceived risks, unfavourable loan conditions, or lack of confidence in the maturity of hydrogen business models.

Capacity Building

A strong majority—three-quarters of respondents—expressed interest in participating in a capacity-building initiative in their region. The two most requested topics were general knowledge on hydrogen and policy and regulatory frameworks.

This interest likely reflects the broader knowledge gaps identified in this study—particularly among governmental stakeholders, as well as the lack of familiarity with public support services and regulatory frameworks (RCS) on the industry side. The findings highlight a clear need for targeted education and training efforts across sectors.

This also presents a valuable opportunity for matchmaking, both between regions and within regions. Regions with more advanced knowledge or stronger institutional capacity could mentor those just beginning their hydrogen journeys, while cross-sector collaboration at the local level could help align public and private priorities, ultimately strengthening regional hydrogen ecosystems.


H2

Conclusion

Key Findings:

1. Strong recognition of hydrogen's relevance, but uneven knowledge levels

Across the value chain (production, storage, end-use, safety, and regulation), stakeholders widely see hydrogen as important for their regions. However, there are large disparities in technical knowledge—especially between universities/SMEs (higher knowledge) and local authorities/agencies (lower knowledge).

2. High costs and regulatory uncertainty are the main barriers

Stakeholders overwhelmingly cite high costs as the biggest obstacle to hydrogen uptake (both for deployment and R&D&I funding), followed by inadequate infrastructure and unclear regulatory frameworks.

3. Capacity building and education are urgent needs

Respondents consistently pointed to training and education as top priorities—often above financial support. Three-quarters expressed interest in capacity-building initiatives, especially in general hydrogen knowledge and regulatory/policy frameworks.

4. Regional differences create opportunities for cooperation

Some regions (e.g., Italy on regulations, Norway on storage) report stronger expertise, while others face large gaps. This suggests potential for interregional knowledge exchange and mentorship to accelerate hydrogen adoption across Europe.

The survey results reveal a strong and growing interest in hydrogen technologies across European regions, but also highlight significant gaps in knowledge, infrastructure, and support mechanisms. While there is a broad consensus on the relevance of hydrogen—especially for mobility and industrial applications—the ability of stakeholders to act on that relevance is often constrained by high costs, regulatory uncertainty, and limited access to training or public support services.

High knowledge-relevance gaps across topics such as regulations, safety, and education suggest that targeted investment in capacity building, communication, and interregional cooperation will be essential to unlock hydrogen's full potential. Encouragingly, stakeholders themselves have expressed strong interest in regional capacity-building initiatives, with clear preferences for foundational knowledge and regulatory clarity.

Moving forward, the findings of this survey point to several actionable priorities: strengthening public-private collaboration, improving access to and visibility of support services, fostering knowledge exchange between regions, and investing in education and training. Addressing these issues will not only help overcome current barriers but also create a more coherent and capable ecosystem for hydrogen deployment in Europe.

Annex I: Understanding Regional Differences in Adopting Hydrogen Technologies

GDPR Disclaimer

By participating in this survey, you consent to the collection and processing of your personal data in accordance with the General Data Protection Regulation (GDPR). Your data will be used solely for the purpose of research and analysis related to the HYPERION project. The data you share will be available to the respective regional partners as well as the data controller.

Data Controller: Hydrogen Europe Research

Purpose of Data Collection: This survey is part of the capacity building framework within the HYPERION project and aims to analyse the state of play in different regions with the goal of supporting hydrogen uptake through policy improvements.

This survey will take about 15 minutes to complete.

Stakeholder type

- ☐ National public authority
- ☐ Regional public authority
- ☐ Local public authority
- ☐ Agency
- ☐ Not-for-profit-organisation
- ☐ Large Company
- ☐ Small to Medium Enterprise
- ☐ Research Centre
- ☐ University
- ☐ Other (please specify below)

If you selected “Other” above, please use this field to specify.

Sector

- ☐ Government
- ☐ Education
- ☐ Technology
- ☐ Environment
- ☐ Finance
- ☐ Transportation
- ☐ Energy
- ☐ Other (Please specify below)

If you selected “Other” above, please use this field to specify.

Please select your country

- ☐ Italy
- ☐ Romania
- ☐ Poland
- ☐ Belgium
- ☐ Spain
- ☐ Finland
- ☐ Norway
- ☐ Denmark

Should you wish to be kept updated on project activities or to liaise with the project partner from you region, please insert your name and your email address below.

Full name

Email address

Section 1: General Knowledge on Hydrogen

Please select technologies that you are familiar with and evaluate your level of knowledge (1 = None, 5 = Expert) as well as the relevance (1 = not relevant, 5 = very relevant) this technology has for your region.

Production technologies:

Electrolysis

	1	2	3	4	5	I don't know/cannot respond
Level of knowledge	☐	☐	☐	☐	☐	☐
Relevance for your region	☐	☐	☐	☐	☐	☐

Natural Gas Reforming

	1	2	3	4	5	I don't know/cannot respond
Level of knowledge	☐	☐	☐	☐	☐	☐
Relevance for your region	☐	☐	☐	☐	☐	☐

Other routes of renewable hydrogen production, e.g. biogas and biomethane

	1	2	3	4	5	I don't know/cannot respond
Level of knowledge	☐	☐	☐	☐	☐	☐
Relevance for your region	☐	☐	☐	☐	☐	☐

Other, please specify

Storage technologies:

Compressed hydrogen (cold and/or cryo-compressed)

	1	2	3	4	5	I don't know/cannot respond
Level of knowledge	☐	☐	☐	☐	☐	☐
Relevance for your region	☐	☐	☐	☐	☐	☐

Liquid Hydrogen

	1	2	3	4	5	I don't know/cannot respond
Level of knowledge	☐	☐	☐	☐	☐	☐
Relevance for your region	☐	☐	☐	☐	☐	☐

Storage through carriers such as ammonia

	1	2	3	4	5	I don't know/cannot respond
Level of knowledge	☐	☐	☐	☐	☐	☐
Relevance for your region	☐	☐	☐	☐	☐	☐

Liquid Organic Hydrogen Carriers (LOHC)

	1	2	3	4	5	I don't know/cannot respond
Level of knowledge	☐	☐	☐	☐	☐	☐
Relevance for your region	☐	☐	☐	☐	☐	☐

Underground storage (for example salt caverns or depleted gas fields)

	1	2	3	4	5	I don't know/cannot respond
Level of knowledge	☐	☐	☐	☐	☐	☐
Relevance for your region	☐	☐	☐	☐	☐	☐

Other, please specify

Mobility end-uses:

Buses

	1	2	3	4	5	I don't know/cannot respond
Level of knowledge	☐	☐	☐	☐	☐	☐
Relevance for your region	☐	☐	☐	☐	☐	☐

Heavy-duty vehicles

	1	2	3	4	5	I don't know/cannot respond
Level of knowledge	☐	☐	☐	☐	☐	☐
Relevance for your region	☐	☐	☐	☐	☐	☐

Passenger cars

	1	2	3	4	5	I don't know/cannot respond
Level of knowledge	☐	☐	☐	☐	☐	☐
Relevance for your region	☐	☐	☐	☐	☐	☐

Refuelling stations

	1	2	3	4	5	I don't know/cannot respond
Level of knowledge	☐	☐	☐	☐	☐	☐
Relevance for your region	☐	☐	☐	☐	☐	☐

Maritime applications

	1	2	3	4	5	I don't know/cannot respond
Level of knowledge	☐	☐	☐	☐	☐	☐
Relevance for your region	☐	☐	☐	☐	☐	☐

Rail applications

	1	2	3	4	5	I don't know/cannot respond
Level of knowledge	☐	☐	☐	☐	☐	☐
Relevance for your region	☐	☐	☐	☐	☐	☐

Aviation applications

	1	2	3	4	5	I don't know/cannot respond
Level of knowledge	☐	☐	☐	☐	☐	☐
Relevance for your region	☐	☐	☐	☐	☐	☐

Other, please specify

Industrial as well as power and heat end-uses:

Metal production

	1	2	3	4	5	I don't know/cannot respond
Level of knowledge	☐	☐	☐	☐	☐	☐
Relevance for your region	☐	☐	☐	☐	☐	☐

Ceramic (including glass) production

	1	2	3	4	5	I don't know/cannot respond
Level of knowledge	☐	☐	☐	☐	☐	☐
Relevance for your region	☐	☐	☐	☐	☐	☐

Cement production

	1	2	3	4	5	I don't know/cannot respond
Level of knowledge	☐	☐	☐	☐	☐	☐
Relevance for your region	☐	☐	☐	☐	☐	☐

Hydrogen as feedstock

	1	2	3	4	5	I don't know/cannot respond
Level of knowledge	☐	☐	☐	☐	☐	☐
Relevance for your region	☐	☐	☐	☐	☐	☐

Stationary fuel cells

	1	2	3	4	5	I don't know/cannot respond
Level of knowledge	☐	☐	☐	☐	☐	☐
Relevance for your region	☐	☐	☐	☐	☐	☐

Turbines, boilers, and burners

	1	2	3	4	5	I don't know/cannot respond
Level of knowledge	☐	☐	☐	☐	☐	☐
Relevance for your region	☐	☐	☐	☐	☐	☐

Other, please specify

Cross-cutting topics

Hydrogen safety

	1	2	3	4	5	I don't know/cannot respond
Level of knowledge	☐	☐	☐	☐	☐	☐
Relevance for your region	☐	☐	☐	☐	☐	☐

Regulations, Codes, and Standards (relating only to the hydrogen value chain)

	1	2	3	4	5	I don't know/cannot respond
Level of knowledge	☐	☐	☐	☐	☐	☐
Relevance for your region	☐	☐	☐	☐	☐	☐

Training and education of workforce/employees (1 = Unavailable, 5 = Very easily accessible)

	1	2	3	4	5	I don't know/cannot respond
Level of knowledge	☐	☐	☐	☐	☐	☐
Relevance for your region	☐	☐	☐	☐	☐	☐

Public acceptance of hydrogen technologies in your region (1 = Not accepted, 5 = Highly accepted)

	1	2	3	4	5	I don't know/cannot respond
Level of knowledge	☐	☐	☐	☐	☐	☐
Relevance for your region	☐	☐	☐	☐	☐	☐

What are the key factors affecting public acceptance of hydrogen in your region? (select all that apply)

- ☑ Safety Concerns
- ☑ Environmental Impact
- ☑ Cost of Adoption
- ☑ Lack of Awareness and Education
- ☑ Other (please specify below)

If you selected “Other” above, please use this field to specify.

Section 2: Hydrogen offtake

(offtake = purchasing of H2/adoption of technology)

Please select all sectors that include potential hydrogen offtakers in your region

- ☐ Ammonia production (fertilizers)
- ☐ Methanol synthesis
- ☐ Direct Reduced Iron (DRI) for steelmaking
- ☐ Glass and Ceramics Manufacturing
- ☐ Trucks and buses powered by fuel cells
- ☐ Hydrogen fuel cell passenger cars
- ☐ Hydrogen-powered trains for non-electrified routes
- ☐ Hydrogen-based fuels for ships (e.g., ammonia or methanol)
- ☐ Hydrogen as a direct fuel or as a component for synthetic aviation fuels
- ☐ Energy storage in hydrogen form (power-to-gas and power-to-power solutions)
- ☐ Hydrogen or hydrogen blends in heating systems
- ☐ Hydrogen blending in natural gas pipelines
- ☐ Hydrogen for standalone heating systems
- ☐ Hydrogen-powered Combined Heat and Power (CHP) systems

What are the main barriers for buyers to adopt hydrogen?

- ☐ Lack of awareness
- ☐ High costs
- ☐ Difficulty obtaining funding
- ☐ Technological obstacles
- ☐ Infrastructure limitations
- ☐ Policy and regulatory barriers
- ☐ Lack of hydrogen production nearby
- ☐ Other (please specify below)

If you selected “Other” above, please use this field to specify.

Section 3: Public Support and Policy Context

Do you feel that current public support services (e.g., funding, training, regulatory guidance) for hydrogen initiatives are adequate?

- ☐ Strongly agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly disagree

If you do not think that they are well supported, please indicate which areas could be better supported between 1 and 11 choices

- ☐ Initiatives to inform businesses and communities about hydrogen benefits and adoption strategies
- ☐ Training and education
- ☐ Grants or subsidies specifically targeting hydrogen production, storage, and distribution infrastructure
- ☐ Increased funding for small and medium enterprises (SMEs) engaged in hydrogen innovation
- ☐ Loan guarantees or risk-sharing mechanisms for large-scale hydrogen projects
- ☐ Financial incentives for first movers to de-risk hydrogen adoption
- ☐ Standardized permitting processes for hydrogen production, storage, and refuelling infrastructure
- ☐ Consistent safety standards and protocols for hydrogen handling and usage
- ☐ Public-private partnerships to improve regional hydrogen uptake
- ☐ Subsidies or carbon pricing mechanisms to make hydrogen more competitive with fossil fuels
- ☐ Other (please specify below)

If you selected “Other” above, please use this field to specify.

Section 4: Hydrogen Valleys

How familiar are you with the concept of "Hydrogen Valleys"?

- ☐ Very familiar
- ☐ Somewhat familiar
- ☐ Slightly familiar
- ☐ Not familiar

What is your current level of engagement with Hydrogen Valley initiatives in your region?

- ☐ Actively involved
- ☐ Aware but not involved
- ☐ Interested but not engaged
- ☐ Unaware of any regional initiatives

If actively involved, what's your role in the hydrogen valley?

- ☐ National Public Authority
- ☐ Regional Public Authority
- ☐ Energy Company
- ☐ Technology Provider
- ☐ Research and Development Centre
- ☐ Industrial User
- ☐ Transportation Sector (Vehicle Manufacturers, Refuelling Infrastructure Developers, Fleet Operators)
- ☐ Project Management
- ☐ Other (please specify below)

If you selected "Other" above, please use this field to specify.

Section 5: Financing Hydrogen Projects

How challenging do you think it is to secure financing for general hydrogen research, development and innovation (RDI) projects in your region?

- ☐ Extremely challenging
- ☐ Very challenging
- ☐ Moderately challenging
- ☐ Slightly challenging
- ☐ Not challenging

If you find financing challenging, please use this free-text field to detail why (if not covered by the next question):

What barriers do you believe exist in financing hydrogen RDI projects? (Select all that apply)

- ☐ Limited public funding
- ☐ High project costs
- ☐ Limited private investment interest
- ☐ Risk factors for investors
- ☐ Regulatory uncertainties
- ☐ Other (please specify below)

If you selected “Other” above, please use this field to specify.

Which types of financing would you consider most viable for company establishments and investments in hydrogen in your region? (Select all that apply)

- ☐ Government grants or subsidies
- ☐ Private investment or venture capital
- ☐ Public-private partnerships

- ☐ Green bonds or similar instruments
- ☐ Bank loans
- ☐ Other (please specify below)

If you selected “Other” above, please use this field to specify.

Section 6: Capacity Building and Support Needs

Are you interested in participating in capacity-building initiatives within the regional hydrogen ecosystem?

- ☐ Yes
- ☐ No

Which areas would benefit most from capacity building in your organisation? (Select all that apply)

- ☐ General hydrogen knowledge
- ☐ Policy and regulatory frameworks
- ☐ Hydrogen technologies in industry
- ☐ Hydrogen applications in transport
- ☐ Legal and regulatory issues
- ☐ Other (Please specify below)

If you selected “Other” above, please use this field to specify.

Thank you for participating in the survey. We appreciate your contribution!

Contact: k.schreyer@hydrogeneuroperesearch.eu

With special thanks to the project partners for their support in the design of the survey and for sharing it within their local networks.

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