SURVEY REPORT

European Chemical Regions Network (ECRN)

Co-funded by the European Union

SUMMARY

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.

Project: Professionals and their skills in the field of hydrogen Project number: 2023-1-PL01-KA220-VET-000159821

1 BACKGROUND AND OBJECTIVES

The transition towards a sustainable hydrogen economy is gaining momentum globally, driven by the urgent need to address climate change and achieve energy security. As this emerging industry continues to evolve, it is imperative to understand the evolving workforce requirements and skill sets necessary to support its growth

The present survey results aim to shed light on the occupational landscape within the hydrogen sector, identify emerging professions, and delineate the competencies essential for these roles.

This research endeavour is a critical component of the broader project titled "Identification of new professions that will emerge in the hydrogen economy" (Project no: 2023-1-PL01-KA220-VET-000159821). The project is spearheaded by a consortium comprising the ECRN European Chemical Regions Network Association, West Pomeranian Chemical Cluster "Green Chemistry," Foundation of Education, Development and Innovation (FERI), EDU SMART Training Centre DIALOG of Transformation Ltd.

The objective of Working Package 2, of which this survey is part, is to map the occupations related to the hydrogen economy and outline the trend of which professions will be in demand due to the development of the hydrogen sector and the energy transition in European countries. The findings will aid in identifying occupational profiles, skill needs, and potential gaps in the labour market.

Furthermore, the results of this work will facilitate the development of a competency framework for hydrogen professions and the preparation of tailored training programs aimed at enhancing the knowledge and potential of the workforce that constitutes the hydrogen economy value chain.

Co-funded by the European Union

To achieve these objectives, a comprehensive quantitative survey was conducted, targeting professionals and stakeholders in the hydrogen sector across various European countries. The survey aimed to gather insights into the current state of skills and knowledge, perceptions of the industry's impact on the labor market, and the perceived need for specialized training and skill development initiatives.

2 SURVEY METHOD

The use of an online survey hosted on Docs Google was likely chosen for several reasons:

1. Accessibility and Reach: Online surveys allow researchers to easily reach a geographically dispersed audience, transcending physical boundaries. This was particularly useful for this study, which aimed to gather data from professionals and stakeholders across different European countries.
2. Cost-effectiveness: Compared to traditional paper-based or in-person surveys, online surveys are generally more cost-effective, as they eliminate printing, distribution, and travel expenses.
3. Convenience for Respondents: Online surveys offer respondents the flexibility to complete the survey at their convenience, potentially increasing the response rate and reducing non-response bias.
4. Data Collection and Management: Docs Google streamlines the data collection process by automatically capturing and compiling responses in a centralized database, eliminating the need for manual data entry and reducing potential errors.

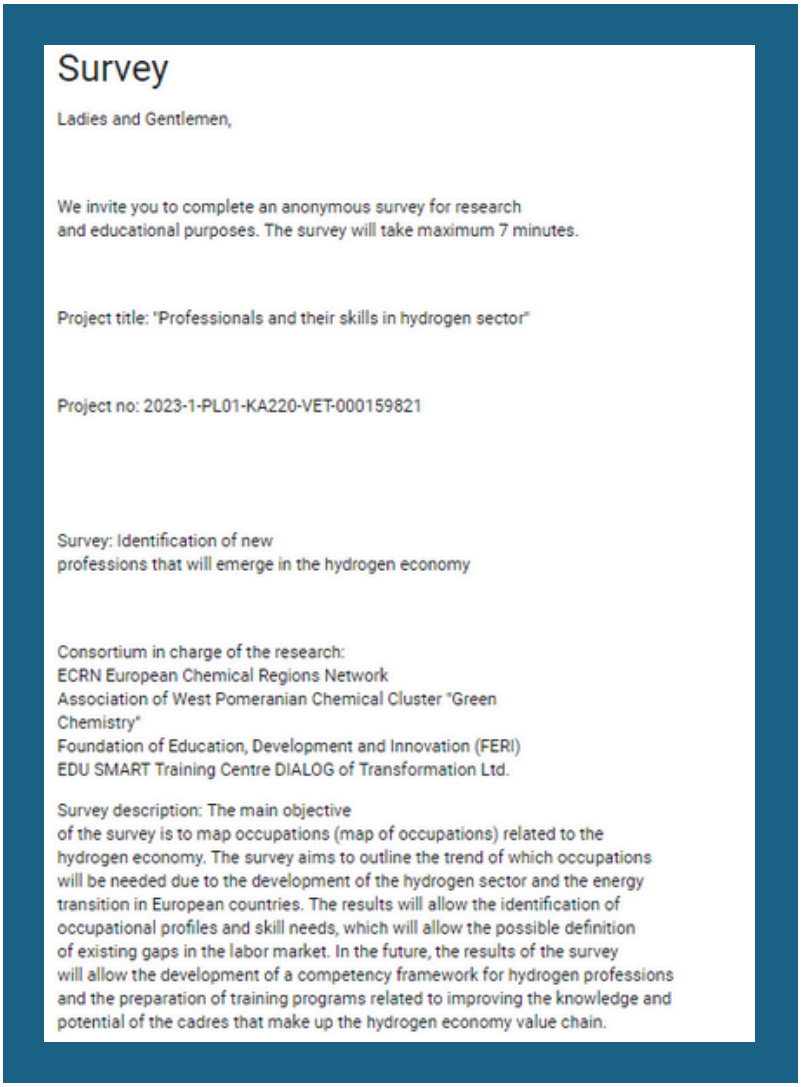
The online survey's main details:

- Quantitative Survey: A quantitative survey was conducted by individuals and among micro, small, and medium-sized enterprises (MSMEs) operating in the hydrogen or related sectors across European countries.

Co-funded by the European Union

- Survey Method: The survey was administered using Computer-Assisted Web Interviewing (CAWI), which is a common technique for online surveys where respondents self-administer the questionnaire via a web-based platform, in this case, Google Forms.
- Verification Source: The encrypted results from the online survey were compiled in an Excel sheet, which served as the verification source for the survey data.

By utilizing Docs Google for the online survey, the research team was able to efficiently collect and manage data from a large number of respondents across multiple geographic locations. The automated data collection and organization features of the form likely facilitated the analysis and reporting processes, enabling the researchers to effectively capture and present the perspectives and insights of professionals in the hydrogen sector.



Survey

Ladies and Gentlemen,

We invite you to complete an anonymous survey for research and educational purposes. The survey will take maximum 7 minutes.

Project title: "Professionals and their skills in hydrogen sector"

Project no: 2023-1-PL01-KA220-VET-000159821

Survey: Identification of new professions that will emerge in the hydrogen economy

Consortium in charge of the research:
ECRN European Chemical Regions Network
Association of West Pomeranian Chemical Cluster "Green Chemistry"
Foundation of Education, Development and Innovation (FERI)
EDU SMART Training Centre DIALOG of Transformation Ltd.

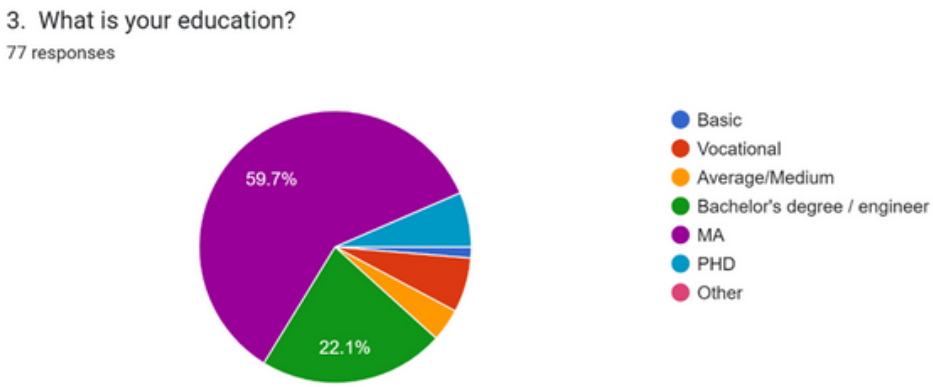
Survey description: The main objective of the survey is to map occupations (map of occupations) related to the hydrogen economy. The survey aims to outline the trend of which occupations will be needed due to the development of the hydrogen sector and the energy transition in European countries. The results will allow the identification of occupational profiles and skill needs, which will allow the possible definition of existing gaps in the labor market. In the future, the results of the survey will allow the development of a competency framework for hydrogen professions and the preparation of training programs related to improving the knowledge and potential of the cadres that make up the hydrogen economy value chain.

Co-funded by the European Union

3 SURVEY RESULTS

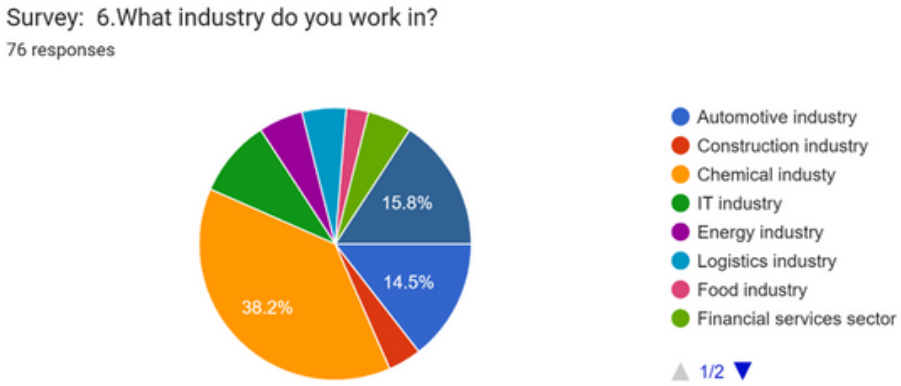
The survey garnered responses from 77 participants, providing valuable insights into various aspects of the hydrogen sector. The **demographic breakdown** reveals that 57.3% of the respondents were men, while 42.7% identified as women. Regarding age distribution, the majority of participants fell within the 35-44 years (35.1%) and 25-34 years (36.4%) age groups, indicating a substantial representation from the younger and mid-career professionals.

In terms of **educational qualifications**, a significant portion (59.7%) of the respondents possessed a Master's level of education, followed by 22.1% with a Bachelor's degree. The survey captured a diverse geographical representation, with participants hailing from cities with populations above 500,000 (44%), cities with populations between 100,000 and 500,000 (37.3%), and smaller metropolitan areas. Notably, an overwhelming majority (92.2%) of the respondents identified themselves as active professional persons.

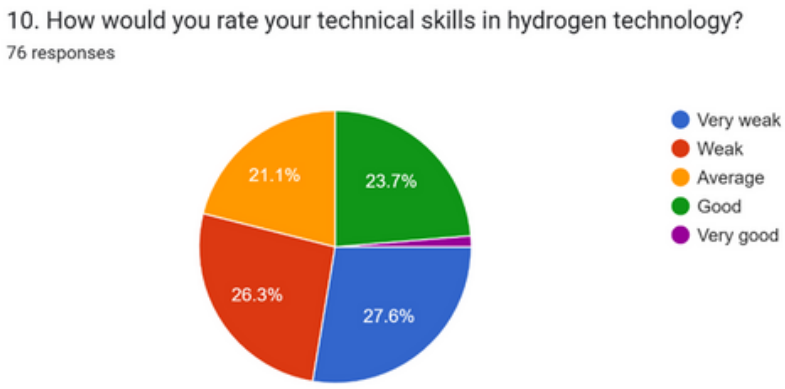


The survey delved into the respondents' professional backgrounds, revealing that a substantial portion (38.2%) had work experience in the **chemical industry**, followed by the **automotive** industry (14.5%) and the **IT industry** (9.2%). Furthermore, 31.8% of the participants possessed work experience in the energy industry, while 48.1% had experience in the chemical industry.

Co-funded by the European Union

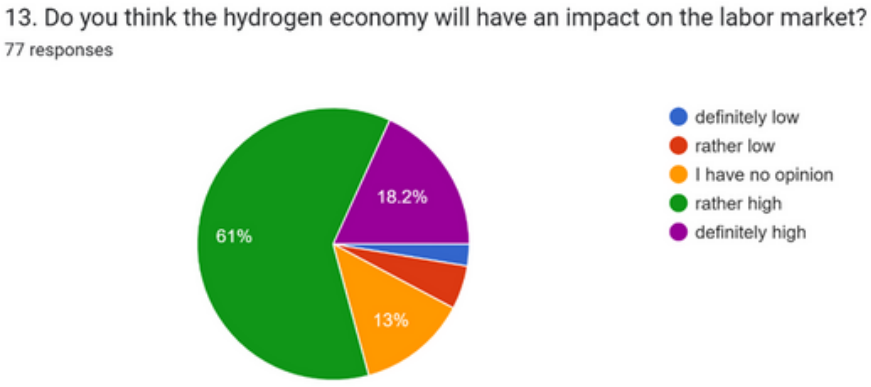


When it came to hydrogen technology, a **remarkable 31.2% of the respondents claimed to have experience working with hydrogen systems**. However, the self-rated technical skills in hydrogen technology varied, with 27.6% considering their skills as very weak, 26.3% as weak, 21.1% as average, and 23.7% as good. Similarly, the respondents' knowledge of current trends and innovations in the hydrogen sector ranged from very weak (18.2%) to good (28.6%), with the majority (33.8%) rating their knowledge as average.



The survey results indicated a **general consensus among the participants regarding the potential impact of the hydrogen economy on the labor market**, with 61% expressing a rather high impact. At the same time, when asked about their knowledge of the hydrogen sector laws and regulations, the responses were more diverse, with 18.7% rating their knowledge as very weak, 22.7% as weak, 34.7% as average, and 24% as good or very good.

Co-funded by the European Union



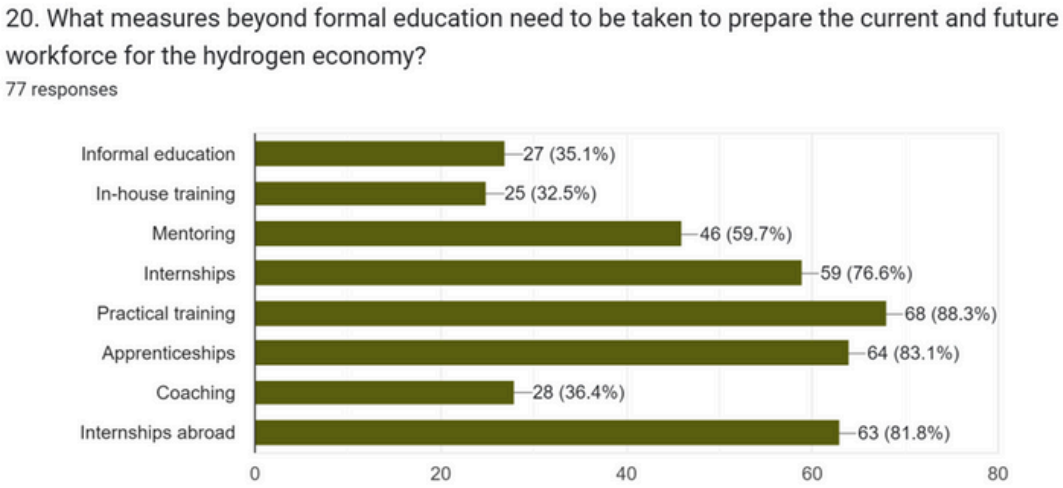
Regarding the ability to identify and solve problems related to hydrogen technology, the respondents demonstrated a range of self-assessed capabilities, with 32% rating their ability as very weak, 28% as weak, 18.7% as average, and 21.3% as good.

The survey also explored the **participants' perspectives on job profiles relevant to the hydrogen economy**. The responses indicated a strong emphasis on specialist in the field of science positions, followed by **chemical, electrical and mechanical engineers**.

When asked about the crucial areas for the development of the hydrogen economy, the respondents highlighted **technology development as the most critical aspect**, followed by hydrogen transportation, distribution, and storage.

An overwhelming majority (85.7%) of the participants **acknowledged the need for specialized training in the context of the hydrogen economy**, and 81.8% believed that a dedicated training program would benefit current and future hydrogen workers. The survey identified various measures beyond formal education that could be taken to prepare the current and future workforce for the hydrogen economy, including **practical training (88.3%), apprenticeships (83.1%), internships (76.6%), mentoring (59.7%), in-house training (32.5%), and coaching (36.4%)**.

Co-funded by the European Union



The respondents also identified **several obstacles** that could hinder access to the new skills needed in the hydrogen sector, such as a **lack of people with a global vision, conservative thinking on lifelong learning**, the need for basic knowledge of hydrogen technology, and issues related to the scale effect and awareness of opportunities.

Notably, the **survey revealed that only 14.3% of the participants had attended training or courses on hydrogen technology** in the past year, and an equal percentage possessed certifications or qualifications related to hydrogen technology. However, a significant portion (59.7%) expressed openness to developing their skills and knowledge in the area of hydrogen technology.

In conclusion, the survey provided valuable insights into the current state of skills and knowledge in the hydrogen sector, as well as the perceived needs and challenges associated with the development of the hydrogen economy. The findings will inform the efforts to develop a competency framework and training programs tailored to the emerging workforce requirements in this rapidly evolving field.

Co-funded by the European Union