



The Green Transition: Building Skills for a Sustainable Future – global potential for 18 million new jobs by 2030

Article by Samu Eskola, Deloitte & Rasmus Teir, Wärtsilä



Table of Contents

Executive summary.....	2
Green transition calls for identification of capability needs linked to your strategy	3
Strategic workforce planning drives the green skills development proactively.....	3
Case Finland: hydrogen skills mapping to enable green transition.....	5
Case Wärtsilä: Investing in the skills needed to lead the green transition of the marine and energy sectors	8

Executive summary

As we navigate the path towards a more sustainable future, the green transition is reshaping the corporate landscape in various ways. The green transition is not merely a sustainability topic; it's a profound shift in changing jobs and skills. According to the International Labour Organization ILO, implementing the Paris Agreement on Climate Change could create a net gain of 18 million jobs by 2030^[1]. To support this transition, organizations are developing strategic workforce planning practices to be proactive in building future talent needs. Preparing for this journey, Deloitte, Wärtsilä, and other leading companies in the industry, as part of H2 Cluster Finland, have explored green skills transition for the hydrogen economy in Finland. Next, we elaborate in this article, how Deloitte and Wärtsilä have addressed the transition for green skills, as well as the joint outcomes of work conducted in H2 Cluster Finland.

¹ <https://webapps.ilo.org/weso-greening/>

Green transition calls for identification of capability needs linked to your strategy

The green transition set demands for organizations to e-evaluate their capabilities end-to-end (Figure 1). All capability areas are interlinked and require consideration both collectively and individually. This article focuses on competencies and skills, which forms one of the most demanding areas for organizations to develop as part of the green transition journey due to scarce talent markets and long lead times of re-skilling and up-skilling activities.

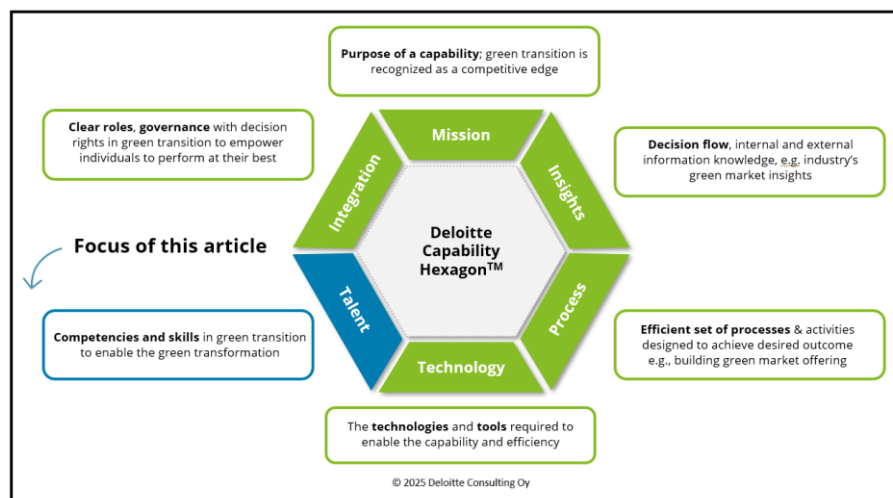


Figure 1: Deloitte's Capability Hexagon describing key capabilities to be considered in green transition

To navigate the shift, the new skills required for the green transition are a combination of soft and technical skills, as well as cross-cutting competencies. For example, knowledge-based technical skills include specialized expertise in engineering, environmental science, and biology. These skills are crucial for the development, implementation, and management of various actions, phases, and processes in the green transition and circular economy strategies, life cycles, regulations, and legislation. Next, we look at impactful strategic workforce planning, which is a key tool for organisations to tackle these talent challenges.

Strategic workforce planning drives the green skills development proactively

Organizations are adapting strategic workforce planning practices to proactively address workforce challenges and opportunities (Figure 2). Thus, organizations make workforce

decisions, for instance, by aligning those with the long-term strategic objectives of the organisation, identifying the optimal workforce mix and talent risks. With this information in mind, organizations go forward with succession and skills planning, based on identified future skill gaps. These activities are focused ideally to critical green skills that have a strong linkage to the defined competitive edge and where talent issues mostly exist. By doing so, organizations take a strong stance in driving the execution of their strategy with sufficient talent capabilities, that are typically one of the most difficult things to develop for enabling green transition.

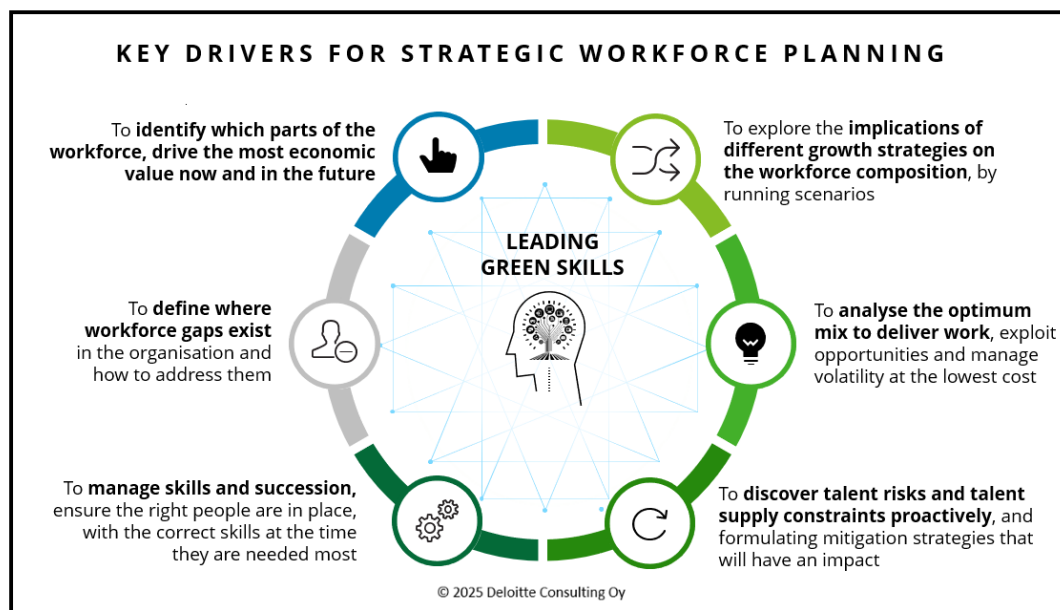


Figure 2: Key drivers for strategic workforce planning to consider for proactively developing green skills

How to define the optimal mix of workforce then? Organisations often focus on workforce capacity (headcount and location strategy) and cost (headcount balance sheet), while there are many other factors to take into account as well; introducing the 6Cs of strategic workforce planning (Figure 3). To take a strong stance in workforce planning, it is essential to look at the workforce mix: typical considerations relate to employment types (e.g. internal and external split), but organizations should also foster diversity more holistically (e.g. diverse backgrounds and seniorities). For capacity dimension, organizations increasingly leverage fluid skills approach of identifying people's skills and utilising those more flexibly throughout the organization. The skills-based approach is most impactful in network-based work setting; thus, the configuration of the organisation plays also a role in the 6Cs. Lastly, culture is an integral part driving key behaviours to strengthen, linking to the ways of working and processes of the organisation.



Figure 3: The 6Cs of strategic workforce planning driving key workforce decisions

As an example of the green skills transition journey, Deloitte has identified national critical hydrogen economy professions as a part of H2 Cluster Finland with other leading companies of the industry, as discussed next.

Case Finland: hydrogen skills mapping to enable green transition

Hydrogen Cluster Finland has estimated a growth potential of 60 000–110 000 jobs in the Finnish hydrogen sector by 2035, and the first waves of this transition are already happening ^[2]. Finland aims to grow hydrogen economy in the three main sectors within the listed areas below (Figure 4).

² <https://h2cluster.fi/wp-content/uploads/2023/06/H2C-H2-Strategy-for-Finland.pdf>

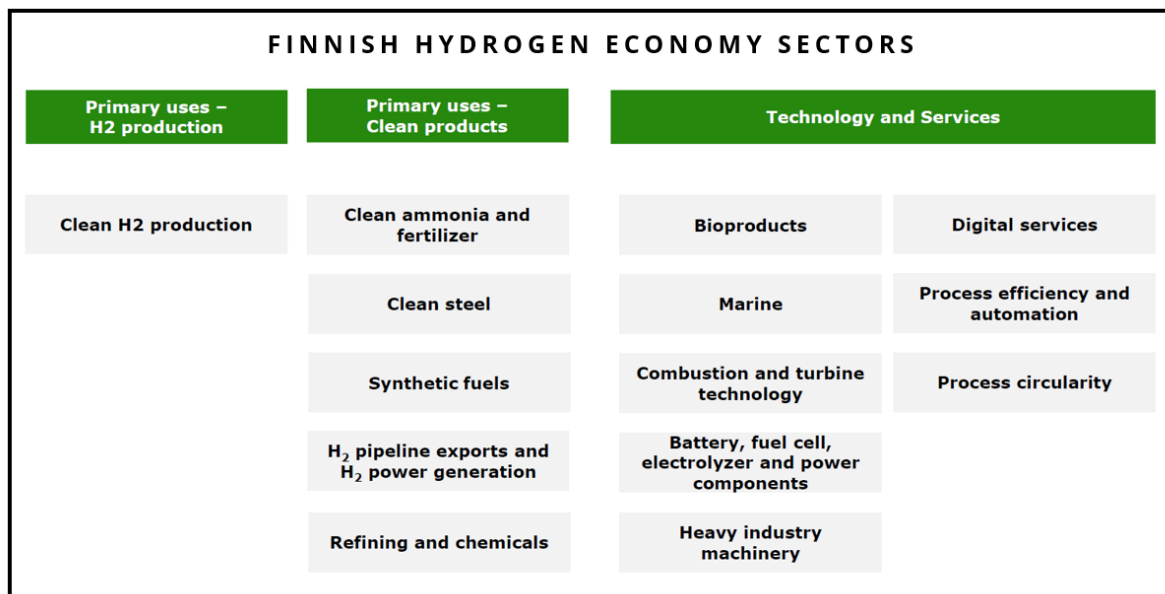


Figure 4: Hydrogen economy sectors based on H₂ Cluster Finland industry strategy

In H₂ Cluster Finland working group, Deloitte and six other companies in the industry identified 70 professions that are essential for the Finnish hydrogen economy now and in future. The skill areas and professions were identified based on existing international and local research and analysis. The demand for technical skills, and a wider array of other skills, such as business model development, financing, ecosystem and value chain integration, were found essential for the growth of hydrogen economy (Figure 5).

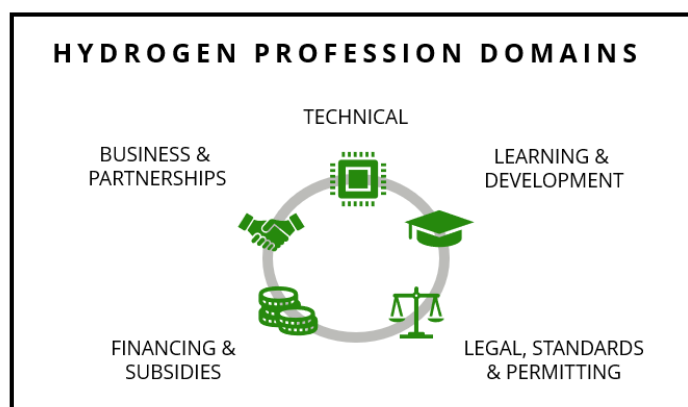


Figure 5: The profession domains critical for the Finnish hydrogen economy

In addition to the critical professions, also educational needs were identified at a national level. The analysis focused on the educational backgrounds for the professions in demand, as well as benchmarking to educational structures for energy and industrial fields in Finland. Higher educational needs are in the highest demand for ensuring the green transition in the hydrogen field (Figure 6).

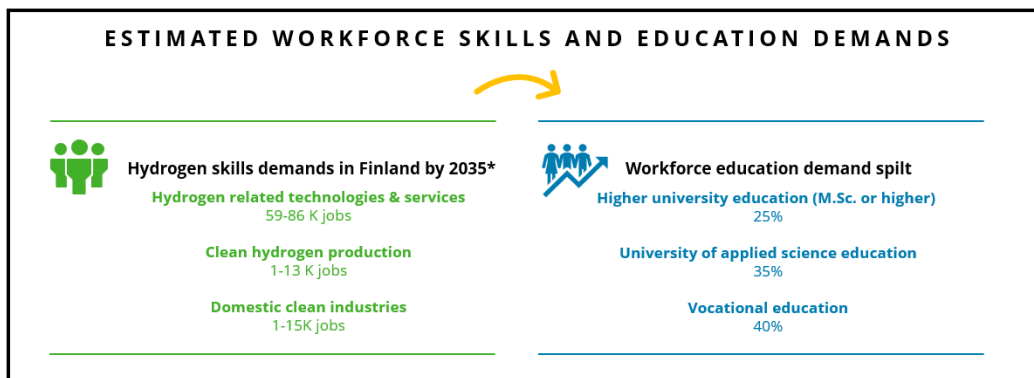


Figure 6: Estimated workforce skill demands and educational demands for the Finnish hydrogen economy

The identified needs for hydrogen economy were classified to four domains across the hydrogen value chain as presented in Figure 7. Most roles were identified for the engineering domain. However, this does not directly correlate with the number of jobs in demand for the future. The figure illustrates how different roles are essential throughout the value chain and domains.

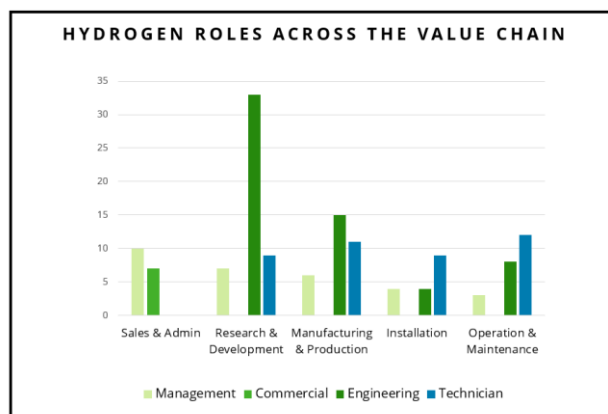


Figure 7: Identified hydrogen roles across the value chain

Case Wärtsilä: Investing in the skills needed to lead the green transition of the marine and energy sectors

Wärtsilä is a global leader in advanced technologies and lifecycle solutions for the marine and energy markets.

Within the marine sector, Wärtsilä is actively contributing to decarbonization by developing and implementing solutions that reduce emissions from ships, helping shipowners comply with increasingly stringent environmental regulations set by the International Maritime Organization (IMO) and the EU. Examples of Wärtsilä products and solutions enabling this are hybrid propulsion systems, propulsion engines capable of operating on sustainable fuels such as methanol, ammonia and hydrogen, as well as various exhaust gas cleaning technologies.

Within the energy sector, Wärtsilä is enabling the transition towards renewable energy and sustainable power generation. Wärtsilä Energy offers flexible power plants that can efficiently integrate and balance intermittent renewable energy sources like wind and solar into the grid. These solutions help stabilize electricity supply and support the grid's reliability while reducing dependence on fossil fuels. An area of intense research and investment is, similarly to the marine sector, the development of engines for power generation that can operate on sustainable fuels. The legislative and policy landscape driving the decarbonization of the energy sector is more scattered than in the marine sector. This means that knowledge about policy on regional and national level is required for effective market penetration and securing a valid product development strategy.



Figure 8: Wärtsilä offers products and solutions that help drive decarbonization in the marine and energy sectors

How has the decarbonization of the marine and energy sectors affected the competence and skills development needs within Wärtsilä? There are two clear trends: a need for focused additional investments in pinpointed expertise roles, as well as a convergence of skillsets on the traditional generalist vs. expert scale.

The first trend is obvious: developing new and additional capabilities within, for example, the area of sustainable fuel application in engines, brings tons of new engineering challenges in disciplines with it, such as material science, chemistry, thermodynamics, and safety engineering. Coping with these and developing solutions requires competence development for existing resources and hiring additional resources in key positions.

Within the Wärtsilä research and development community, this has manifested itself over the past couple of years by investments in new in-house testing and simulation capabilities to build the core community of expertise, increased collaboration with academia and research institutes, as well as global recruitment of talent. Within the customer-facing Wärtsilä community, the delivery of new products to our customers, such as methanol-fuelled ship propulsion engines, has generated training needs for our production personnel, field service, and commissioning staff. To produce training material and conduct training programs, the company runs the Wärtsilä Land and Sea Academy (WLSA) with training centres in 9 locations around the world, providing in-class and virtual training both for the customers as well as employees.

The second trend is less obvious but equally important: the convergence of the skillset for the expert and generalist roles. As the sector is undergoing change, there is an increased need across the value chain, from the end customer to suppliers, to have a grasp of both macro elements and details. In other words, a T-shaped competence profile is needed in more and more roles for a company to be successful in a disruptive environment, as described in an earlier chapter (Figure 5). As the end customer is deciding on the right investments in an uncertain operating environment, the suppliers must be ready to engage in consultative selling with a firm grip of the customer's business drivers but also master the basics of the competing technological alternatives. Similarly, the product owners and experts developing the new technology need to understand the fundamental drivers behind the disruption to define the product requirements correctly and thus secure a market fit for the developed technology.

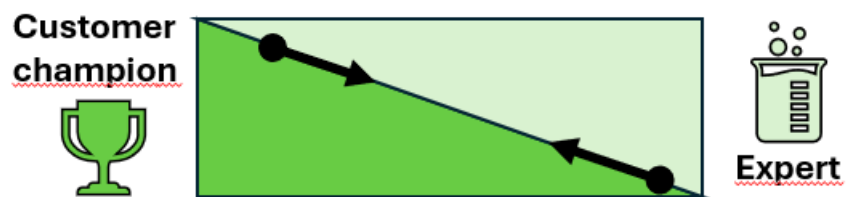


Figure 9: Convergence of competences of the generalist (customer champion) and expert roles

Within Wärtsilä, this need was recognized in 2020 when Wärtsilä Marine business established the first internal Decarbonization Academy, a formal module-based online program that provides the customer-facing sales and project employees with a deeper insight into the legislative drivers and the product portfolio that Wärtsilä can offer their customers within the decarbonization space. At the same time, the program offers wider perspective to the experts for their development work in the company.