Attracting Talents to the Steel Industry

Veit Echterhoff, Peter Schelkle, and Stefan Cassel

1 Introduction

The transformation of the European steel industry is to be led by science, technology and innovation and requires social consensus. To succeed, the industry requires the right people who will drive these changes and ensure their success: the steelworkers of the future. In this decade, the steel industry workforce is undergoing unprecedented demographic change. The age structure in most European steel-producing companies is such that more than 25% of the workforce will leave the industry in the period 2020–2030. To ensure competitiveness attracting talents to the EU steel industry is vital.

In the following, we use the term 'talents' in a broad sense, i.e. we will neither reduce the term to a specific European Qualifications Framework (EQF) level nor age group. Rather, the term describes a group of people usually with high academic attainment that possesses the necessary knowledge, skills or expertise to move any organization forward. Likewise, 'talents' also describes people who have the ability to swiftly acquire new knowledge, skills or expertise if this is required. This definition is oriented by Echterhoff and Schröder (2015) who delivered in their study a corporate-oriented description of the term *talents*. The term refers to a junior manager identified by their company to be promoted within the next two years (by 2025). Usually, these employees are informed of the trajectory program for their personal career and participate in specific development measures.

The following describes at first the challenges for the EU steel industry and secondly workforce labour potential in the EU. For the competitiveness of the

V. Echterhoff (✉) · S. Cassel
thyssenkrupp Steel Europe AG, Duisburg, Germany
e-mail: veit.echterhoff@thyssenkrupp.com

P. Schelkle
Hüttenwerke Krupp Mannesmann GmbH, Duisburg, Germany

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industry, there is a strong need to attract qualified future employees. Recommendations to attract talents are made against the backdrop of talents' needs and demands, obstacles and success factors.

2 Challenges for the EU Steel Industry

The European steel industry acts in a highly competitive market. The European Steel Technology Platform (ESTEP) describes the vision for the EU steel industry up to 2030 anticipating major changes, many of which will be driven by new scientific and technological developments including digitalization, evolving customer and stakeholder demands, and the industry's response to the ambitious European climate goals leading to new processes and new products (ESTEP 2017).

The ambition of the European steel industry is to become the most advanced steel industry in the world. Having already halved energy usage and CO_2 emissions since the 1960s, the self-conception and mission of the industry is to help the EU to reach its Paris Agreement climate change commitments. With the support of an adequate regulatory framework the aim is to achieve at least 80% of carbon reduction by 2050. This ambition is fully aligned with the EU Green Deal initiative (European Commission 2022). This requires a paradigm shift with regard to the established steel production routes. For the traditional steelmaking route there is, however, no commercially applicable technology currently available to achieve such deep CO_2 reductions. However, promising innovations and demonstration projects aiming to significantly decarbonize steelmaking are under way. Using direct reduction by hydrogen seems a promising approach to reduce CO_2 emissions at a minimum. The way forward will also depend on the further development of supportive and sustainable policy frameworks such as carbon border adjustment mechanism that helps to balance the requirements for deep CO_2 reductions in the European steel industry with global steel trading arrangements.

The mid-to-long-term goal of achieving carbon neutrality is just one source of pressure for EU steel companies. The last two decades were characterized by increasing worldwide steel production capacities that led to growing imports in the EU, which in turn led to overcapacities in the EU steel market. Another source of pressure is the fact that key customers of the steel industry, e.g. the EU automotive industry, are forced to transform their products or business models, which has knock-on effects on the steel sector. Finally, imported raw materials prices for steelmaking have become more volatile in recent years.

The way forward for EU steel companies is ambiguous: due to the high pressure, there is a strong need to reduce costs to remain competitive. Besides the two significant spheres of activity, 'energy transition (costs)' and 'EU legislation', staff costs in the steel industry constitute a significant share of fixed costs compared to some global competitors. It is becoming obvious that the industry will work on reducing fixed costs by permanent rationalizations that will inevitably reduce the total number of workplaces. At the same time, to meet future challenges without ignoring the

demographic challenges that the industry is already facing, new highly qualified employees—new talents—have to be recruited.

3 Development of Workforce Potentials in the EU

The European steel industry has seen its workforce decline by 40.000 employees (from ~370.000 to ~330.000) within the last 10 years. (EUROFER 2019). However, due to decreasing fertility rate in the last decades (currently 1.5 in the EU), the age group younger than 45 years will continuously decrease and the share of older people will increase. The organizational demographics within most of the EU steel companies that have been shaped by successive waves of restructuring over the last 30 years, will lead to increasing workforce gaps in the steel industry caused by the great number of employees who will retire in the coming years (European Commission 2021).

A shrinking workforce means losing expertise, which forces the European steel industry into more intense talent attraction efforts. Since the *war for talents* is over—talents have won—the graduates' expectations have to be taken into account more than ever. Losing talents to other industries is a serious threat for steel companies and the aforementioned demographic trends in Europe amplify the threat even more. The analysis of those facts and figures reveals several barriers to the attraction (and retention) of talent, but also sheds light on opportunities upon which this recommendation paper will focus.

4 Needs and Demands of Future Talents

Taking both the scarcity of adequately skilled labour and the strong need for new talents in European companies, including steel companies, into account makes it necessary to focus on the expectations and needs of future talents, and to consider how the steel companies in the EU can meet these expectations and needs. To understand the needs and expectations of new talents, the ESTEP Focus Group 'People' and EUROFER have conducted an EU-wide survey that generated 268 responses from talents already working within steel companies (Echterhoff and Schröeder 2015).

The survey was designed to shed light on the values, ambitions and needs of the survey respondents. The results show that talents prefer individually tailored career development, demand modern company cultures and leadership styles that align with their needs, and value enhanced support in developing managerial competencies. The survey results suggest that to avoid skill shortages in the future, it is essential to proactively respond to talents' needs and expectations and to develop suitable work-life balance models.

Another project, 'Steel Sector Careers' (European Commission 2021) disclosed profound research outcomes concerning the image of steel careers, current skill

needs, skills gaps and future skill needs. The project conducted interviews and run questionnaires with 2917 steel stakeholders (i.e. 2000 STEM students on the image of the steel industry, 197 steel industry professionals on current and future skill needs) in 65 steel companies or steel-related institutions across 28 EU member states. The essence of the results is that direct work experience in the steel industry is still key to gain knowledge about the steel industry. Without direct experience outdated perceptions and only little knowledge about the industry is usually predominant. A promising aspect, however, is the fact that a number of respondents have expressed interest in knowing more about it, either through apprenticeships or visits.

5 Obstacles and Success Factors

Looking at the obstacles and success factors for future employee recruitment for the steel industry, it should be differentiated between internal and external factors: some topics can be driven directly by companies; others have a larger, overall societal and political background and thus can only be influenced indirectly.

One of the most important issues in the assessment of success factors and obstacles is the image of the steel industry. Historically, the steel industry has always been associated with a high contribution to air pollution due to carbon dioxide emissions. But gradually, starting with massive efforts to contribute to environmental protection in the last decades of the 20th century, reality has changed. Today, the European steel production is much cleaner thanks to state-of-the-art filter methods. Even the product 'steel' has developed into a high-tech product with completely new application possibilities. In particular, this was achieved by investing heavily in research and development, which has also created a large number of attractive and innovative jobs. Unfortunately, these developments in the steel industry towards high-tech products and modern employers have not always been sufficiently communicated. Public perception is generally characterized by a mix of an obsolete old image and a lack of knowledge, which acts as an obstacle to hiring new employees.

Another obstacle is the decreased number of employees in the European steel industry. This has mainly been caused by declining production rates in the EU due to global overproduction. Moreover and unfortunately, industry downturns seem more appropriate to catch the attention of public media.

With a negative public image and an uncertain economic future, the steel industry in the EU does not look like a prospering and attractive place to work to potential future employees even if they have a personal affinity to steelmaking because a secure job and a good economic outlook are important criteria when choosing an employer.

With these obstacles in mind, it is particularly important to highlight the positive opportunities and chances for a career in the European steel industry, to counterbalance and hopefully change negative public perceptions about it. Thus, the steel industry needs to step up its efforts in communication with the public and with potential candidates and to send a clear message: The European steel industry is a high-tech employer with state-of-the-art production facilities, strong research and

development departments, and develops sustainable solutions for its customers. For better and more sustainable products in our future world, steel, due to its complete recyclability and versatile properties, is and will remain indispensable.

The European steel industry has a great opportunity to create exciting and innovative jobs and to communicate the upcoming innovative technological developments. The steel sector has much to offer: the production plants are already largely fully automated. At present, significant investments are made to digitize production processes. Digital control, digital tracking and predictive maintenance are just a few examples. The resulting job and development opportunities offer an extremely attractive working environment, especially for IT graduates, who rarely think of the steel industry as a potential employer.

Another starting point for emphasizing the opportunities in the steel industry is the changeover in the blast furnace to the injection of hydrogen and the associated production towards carbon-free steel. This offers a clear opportunity to speak directly to STEM graduates who prefer to work in sustainable 'green' companies. It can also contribute to shed the public image of the steel industry as 'dirty'.

More generally, steel companies need to improve their communication with the target group of potential new talents. To overcome these negative perceptions it is observable that visits and internships of students and other target groups at steel production are a promising approach. Changes in mindsets and heightened interest in the industry can be seen during such visits and visitors are more likely to leave with a much more positive image of the steel industry. Anyway, in that context, it is worth mentioning that the steel industry offers various opportunities e.g. by providing vocational education in several professions leading to individual career paths.

This direct engagement and communication with STEM talents that centres on the use of the production facilities as showcases of innovation is definitely a promising approach to present the opportunities of the steel industry. As an 'internal' success factor, the European steel industry can implement this form of talent engagement on its own.

6 Concluding Recommendations

Attracting talents to the EU steel industry is vital for the future of the industry. Considering the present analysis, recommendations can be made on different levels. Within companies, we see opportunities to turn existing employees into talents through personnel development and to retain existing talents. As the labour market turns more and more into an employee market, in which potential talents are scarce and they can choose their future employers, it is paramount for steel companies to be attractive employers for future talents. This situation has evoked the concept of Employer Value Proposition (EVP). EVP is used for employer branding and is the magnet that attracts job candidates. The direction of employer branding is outside the organization and to attract potential talents.

Company Level

Company culture: The big question is whether the company culture fits the needs and aspirations of talents and potential talents. Hence, attention needs to be paid to company culture. Company culture is a generic term that describes the development and status quo of leadership, decision-making, internal processes, relationships between colleagues and groups, its originated values and attitudes furthermore reflected in terms of corporate social responsibility. It is not easy to obtain an unbiased picture of the existing company culture, although it is crucial to understand contexts and situations. Changing company culture is even more difficult and, if it is to be done, changes need to be implemented carefully and sensibly.

Leadership: The available evidence suggests that talents prefer to assume responsibility, like to be visible within the organization, favour working on projects, and wish to receive constant feedback (Echterhoff and Schröder 2015). To attract and retain talents, the leadership style within a company should accommodate and reflect these aspirations.

Working conditions: Work-life balance and individual health have become more and more important in recent years. Future-oriented forms of work, e.g. mobile work and flexible working time are becoming more and more usual and accepted. Recently, intensive mobile or home working during the corona pandemic was eye-opening for lots of former mobile work critics to see and learn that it can be a way to go for administrative employees without experiencing reduced outcomes. Besides transparent compensation and benefits on the market level, personnel development/learning programs and career opportunities are appreciated when they reward individual performance.

Digital skills: Digital skills are an integral part of almost all job profiles on the shop floor and the production process of steel is high-tech and supported by state-of-the-art technologies that involve big data streams. Besides recruitment strategies for new staff, also up- and reskilling of the existing workforce (e.g. by using the gamification paradigm) should be considered, including identifying talents with a lower formal qualification (non-academics) but high workplace experience.

The regional eco-system approach: Another priority is to re-establish, or reinforce, the attention of steel companies towards local communities. Without being nostalgic, the steel companies should become the employer of choice for local youngsters again. Looking at the growing importance of work-life balance and sustainable transport solutions (commuting at near 0 km), living in the proximity of the workplace will be of great importance in the near future. This, however, implies solving significant environmental and behavioural issues, not only in terms of Carbon emissions. Finally, the concept of "fidelity to the company" and vice versa "fidelity to the workers" should be considered again.

Cooperation with schools/universities: It is promising to build up a network with universities and even schools to have direct access to future talents while raising the corporate image. Through direct contact or through contact via social media, it is possible to attract and engage the target group. This contributes to the reduction of

prejudices and can raise awareness, especially when the target group participates in company events or visits production sites.

Sponsoring and external communication: It is well known that the decision where to apply for a job is influenced by family, friends and the peer group of job seekers. As the public perception of the steel industry requires improvement, external communication and sponsorships are important channels to attract attention to steel companies as future workplaces. For example, in recent months many EU steel companies have communicated their approach to and contribution towards carbon-neutral steelmaking. This has already had a big impact on the image of the steel industry that we have not seen for a long time.

Steel Association and Organization Level

Steel-related associations and organizations are important players to support the attractiveness of the industry:

Work on a better image: Steelmaking is on a transformational pathway. Production processes will increasingly decarbonized in accordance with the European climate goals. Furthermore, steel is of infinite recyclability and the basis of various high-tech products such as electric cars and wind turbines that Europe wants to keep producing. Steel associations and organizations are important actors that can play a vital role in improving the public perception of the steel industry.

Addressing policy makers: European youth is influenced by the 'Fridays for future' movement. It is of utmost importance for associations and organizations to engage European and national policy makers to raise awareness that the steel sector can contribute sustainably and ecologically to the European value chain. Policy makers need insights in order to promote the steel industry as a choice for talents.

Working together and build up networks: Associations therefore need to keep in touch with the European steel companies, R&D organizations and other partners to build up networks. Working together can generate new views and ideas that can help to overcome organizational blindness and inertia. Therefore existing networks like the European Steel Skills Alliance (ESSA)[1] or the Skills Alliance for Industrial Symbiosis in the Process Industry (SPIRE-SAIS)[2] and projects (like the previously mentioned Steel Sector Careers project) can be used as a platform to be further extended.

[1] Refer to Chaps. 1 and 2 for a brief overview of the project.

[2] The SPIRE-SAIS alliance will address possible skills shortages in the Energy Intensive Industries while providing EU citizens with the necessary skill sets for future job profiles. The project will address updating of the curricula, qualifications, knowledge and skills that are required to support essential cross-sectoral collaboration and Industrial Symbiosis activities (Processes Planet Research Association 2022).

Sponsoring of students for events: Talents need to get in touch not only with the steelmaking process but also with steelmakers and industry representatives. Engineers from steel companies are usually best placed to attest and explain the attractiveness of steel and the steel industry as they are able to fluently recapitulate the high-speed development of process efficiencies over the last decades or to describe a future hydrogen scenario. Thus, associations can serve as platforms of exchange between students and engineers, bringing together those who are passionate with those who are interested. In that context, it could be worth sponsoring students e.g. by distributing 'wild cards' to participate in steel events free of charge.

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Veit Echterhoff is working at thyssenkrupp Steel Europe AG for more than fifteen years in several management positions in Human Resources Management. Currently, he is leading as a senior manager the Vocational Education and Training department. At the European Steel Technology Platform (ESTEP) he is the vice chairman of the Focus Group People.

Peter Schelkle works as the head of the executives department at Hüttenwerke Krupp Mannesmann GmbH, Duisburg. Prior to that, he was committed to various operative and strategic HR specific tasks at thyssenkrupp Steel Europe AG, Duisburg. He has participated in European funded projects, such as the European Steel Skills Agenda (ESSA) project, also in the Focus Group People at ESTEP.

Stefan Cassel has been Head of HR Marketing at thyssenkrupp Steel Europe AG since 2019. Previously he held various positions in Corporate Communications and Human Resources at thyssenkrupp AG. The focus of his work is on attracting and retaining new employees and creating the necessary framework for this.