Social Sustainability Challenges for European Manufacturing Industry: Attract, Recruit and Sustain

Cecilia Berlin, Caroline Dedering, Guðbjörg Jónsdóttir, Johan Stahre

Social Sustainability Challenges for European Manufacturing Industry: Attract, Recruit and Sustain

Cecilia Berlin[1], Caroline Dedering[1], Guðbjörg Rist Jónsdóttir[1], Johan Stahre[1]

[1]Chalmers University of Technology, Department of Product and Production Development, Gothenburg, Sweden
{cecilia.berlin,johan.stahre}@chalmers.se
{carded,gubjorg}@student.chalmers.se

Abstract. The purpose of this paper is to link social sustainability challenges to manufacturing companies, focusing on the upcoming recruitment crisis caused by demographic changes in Europe. The findings are based on literature studies that were validated and reflected upon as the study progressed. The conclusion is that diversity within the manufacturing industry has to be increased in order to expand the pool of possible employees by focusing on three main improvements: providing interesting jobs, work flexibility and an improved image of the industry.

Keywords: Social sustainability, manufacturing industry, demographic change, human resources, recruitment, retention, shared values

1 Introduction

Manufacturing industries need to take action. The demographic prognosis of Europe for the next two decades will result in an aged population [1], which most likely will mean a recruitment and skills crisis for the industry. In 2020, there will also be a skills gap within the recruitment pool for manufacturing industry [1, 2]. Manufacturing companies are essential to economic growth and sustainability of nations [3, 4], therefore it is crucial that they, in time, become aware of the challenges and take action.

Judging by the current demographic trends in Europe, as shown by the black columns in Figure 1, the current working population (20-55 years) will most likely be replaced by about 20-30 % fewer people. In addition, the health care industry will increasingly be demanding more employees for the caretaking of Europe's aging population [5].

The lack of people to fill the work force will be drastic for manufacturing companies since their recruitment reaches out to a small part of society with limited diversity [6-8]. An illustration of the recruitment pool of possible employees, currently overrepresented by men aged 35-65 [9-12], is presented in gray in Figure 1. It becomes interesting to examine what other groups in society could be targeted in recruitment, in order to expand the pool.

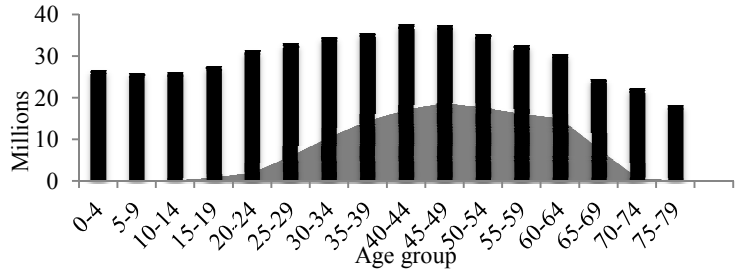

Fig. 1. Age distribution of countries in the European Union [13] – the gray field illustrates the pool of possible employees for manufacturing companies.

Top-level industry management as well as societal leaders like the European Commission (via the growth strategy known as *Europe 2020*) have acknowledged these growing problems and the need to formulate socially sustainable strategies to tackle them. This paper presents preparatory efforts (primarily a literature study) for the Coordination and Support Action (CSA) "SO SMART" (Socially Sustainable Manufacturing for the Factories of the Future), which will be funded by the European Commission in 2013. In this paper, different aspects of social sustainability will be explored in relation to what the demographics crisis means for manufacturing companies.

The term Social Sustainability, and the many dimensions it includes, are still being defined. However, most sustainability definitions spring from the World Commission on Environment and Development's (WCED) definition of sustainable development:
"development which meets the needs of the present without comprising the ability for future generations to meet their own needs" [14] .
This definition describes sustainability in broad terms and applies to environmental, economic and social sustainability. The social aspect of sustainability has often been associated with equity among people and equal opportunities [15]. Littig and Griessler have defined social sustainability in relation to work and lifestyle as:
"the freedom to choose at any stage in life between different forms of work (work arrangements, field of work) or lifestyles, while being at all times entitled to individual social security" [15].
That is, all individuals should have the same opportunities for seeking jobs and being accepted in all fields of work, regardless of societal group. As stated earlier, diversity among manufacturing industry employees is lesser than the diversity of society as a whole, resulting in a socially unsustainable industry by this definition.

The question that needs to be asked is therefore: which aspects of social sustainability should manufacturing companies focus on in order to become more resilient to the demographic challenges of 2020?

2 Method

To better understand the concept of Social Sustainability and what it means for manufacturing companies, a multi-stage literature study was carried out. Literature was

sought out on many levels, including scientific literature, but since the term Social Sustainability is still taking shape in the common understanding among Europeans, other contemporary popular literature formats, surveys and reports were included if these added relevant perspective, medial representations or provided statistical figures.

Like other aspects of Sustainable Development, Social Sustainability has connotations to the classic inter-generational definition of "Sustainable Development" mentioned earlier [14], but needs further clarification since it has historically been the least defined of the sustainability dimensions. Therefore, the initial search phase used broad terms, e.g. *social, sustainability* and *manufacturing*. As searches progressed, new keywords and keyword combinations were identified (including *Corporate Social Responsibility*, *attractive jobs*, and *employees + wants/expectations/demands etc.*) and used to refine the literature search towards addressing demographics forecasts and the prognosticated skills gap, and to determine what has been written about the impacts on manufacturing industry. Once collected, literature was categorized into emergent topics and themes in an inductive, qualitative process involving periodic internal validation and reflection by the authors.

This paper reports on a subset of data from the literature search. Starting from the question at the end of the Introduction, the main theme is how manufacturing industries may approach the challenges of the future European demographics, from the perspective of how to recruit and retain personnel. The topics reported on are:

- Social sustainability within companies
- Factors that attract employees to a company and/or job
- What manufacturing companies can improve to attract people
- Examples of social sustainability practices in companies

3 Results and Analysis

Results from the literature study are presented in this chapter organized by identified themes, along with strategies that manufacturing industry may adopt in order to address the upcoming challenges of 2020. The strategies, as identified by the authors, spring from topics listed earlier and include three aspects: starting in the core business; attractive jobs; and the manufacturing industry's image.

3.1 Gaps in the Literature

One aim of the literature study was to identify ways to increase the diversity, and thereby the size, of the recruitment pool for manufacturing industries in Europe, for example by targeting underrepresented groups. Literature was found on a limited range of society groups - primarily young, elderly, women and disabled. Other groups expected by the authors, such as foreign-born, were not represented in the found literature but may still deserve attention. Furthermore, a limited amount of literature was found that was specific to manufacturing industry in Europe. Therefore, the authors have also used literature from the United States on manufacturing industries, as well as literature on other industry types that face similar challenges within Europe.

3.2 Start in the Core Business

For companies to be socially sustainable they have to directly associate social sustainability with their core business [16], thus focusing on their employees instead of e.g. charity work outside the business, which is not value adding for the company [16, 17]. The long-term social impact is the largest when successful social sustainability action is closely associated with core business gains. The company's objective is to create shared values, where both the company and the surrounding society benefit [16]. This is a complicated task, requiring long-term thinking.

3.3 Attractive Jobs

Different societal groups have different "wants", i.e. needs and expectations, when it comes to jobs, as shown in the literature summarized in Table 1. In addition, the table indicates which of those "want-factors" are relevant to manufacturing companies in a contemporary perspective. Some "wants" which were found in available literature can be considered less pressing for manufacturing companies to act upon, since those wants are already fulfilled.

Table 1. What do different societal groups want from a job and is it relevant to manufacturing industry?

Societal Group	Wants identified in literature	Relevant to manufacturing?
Overall	Interesting work [18] Work flexibility [19]	*Relevant:* There is little work flexibility in manufacturing industry [19]
Young	Wages, Job security, Personal growth [20, 21]	*Irrelevant:* Wages and job security in manufacturing are among the highest [22] *Relevant:* Personal growth [23]
Elderly	Sympathetic environment, Ergonomics, Loyalty [20]	*Irrelevant:* Manufacturing companies are now very conscious about work conditions [9]
Women	Work-life balance [24-26]	*Relevant:* Flexibility, see "Overall"
Disabled	Support [27]	*Relevant:* Companies are afraid of hiring disabled workers due to the extra costs and non-suitable work tasks [27]

The literature revealed two main challenges when it comes to attracting workers to manufacturing companies: to offer interesting jobs and to provide work flexibility.

Interesting job. People want a challenging job that involves interaction with people and a feeling of importance in their working role [20, 21, 28]. In addition, they want opportunities to develop [18] as well as variety, meaning different work tasks. According to the literature, women associate success with having an interesting job according to the definitions above [26].

Flexible job. Flexibility in the workplace means letting employees have some control over when, where and how much they work [19]. Work-life balance is also about flexibility, but on a higher level, where the job enables parents to take care of their children, by means of flexible work hours [25] but also through parental leave, vacation, and access to child care [19].

3.4 The Manufacturing Industry Image

An important part of attracting a larger recruitment pool is to present a desirable image of working within manufacturing industry. As for today, manufacturing industry has an undeservedly negative reputation, where people understand the importance of the jobs but are not interested in those jobs for themselves. Especially young people have low interest in the jobs since the common perception is that manufacturing is dirty and not well paid, although it is simultaneously considered to be high-tech and require high-skilled workers [12]. Giffi and McNelly [8] argue that high-skilled women working within manufacturing do consider the jobs interesting but other literature [29] suggests that women are struggling with (social) acceptance in male dominated industries, mainly due to a lack of role models. Therefore, to overcome the problem, "good practice" companies ensure that their image is modern and open, by providing real role models and having a female-friendly working environment [6].

3.5 Examples From Different Industries

There are many companies that have already recognized that employee well-being is the key to retaining competent workers within the company, as well as attracting the best ones. Google is famously noted as the most wanted employer in the world today [30], which focuses on keeping work interesting both by adapting tasks to the workers' skills and by encouraging the workers to take on new challenges [31]. Another company that has realized the importance of letting workers develop is Rio Tinto Alcan Iceland (ISAL), an aluminum producer in Iceland. This company has initiated upper secondary level schooling for those of their workers who have only completed primary education. The school is part-time where classes are both during and outside work hours, so the students are still working full time. The aim is to increase the competence, confidence and leadership skills of the workers [32]. Citigroup, an American bank, has seen the benefits of working with internal job mobility [33]. They have therefore created an internal talent market, so when there is a job opening they recruit internally for the right talent, since employees with a broad skillset will make it easier for the company to adapt to changes.

To increase the involvement of women in the manufacturing workforce, companies have to enable their workers - both men and women - to combine work and family life. For example, the global company Siemens is working with career-and-children combination by offering on-site childcare, support for workers returning from parental leave and elderly care to create a more flexible and attractive workplace [34].

For manufacturing companies it will not be enough to change the work tasks to attract a broader workforce pool; the work environment and industry image need to be changed with it. Modern manufacturing has come a long way from the stereotypically ., dirty and noisy factories - the Volkswagen "Glass factory" in downtown Dresden,

Germany, an automotive assembly factory with glass walls and wooden floors [35], is an extreme example of that intentional image change.

When companies have less diversity among their employees than there is in society, they should look into which societal groups are not being represented, and target them especially when recruiting. Deloitte has created a step-by-step approach, summarized below, that is targeted especially at recruiting women, but the steps can be adapted to other groups as well:

- Start at the top of the organization
- Address gender bias head-on
- Create a more flexible work environment
- Foster sponsorship
- Promote personal development
- Build a strong employer brand

4 Discussion and Conclusion

To overcome the foreseen labor crisis due to the rapidly changing demographics of Europe, manufacturing companies need to expand their pool of potential employees. In order to do so, this paper suggests that industry should focus on increasing diversity within their workforce, by reaching out to the societal groups that are currently described as in minority within the industry; primarily women and young people. In order to do so, the image of manufacturing needs to change, to become an attractive career option.

A way of approaching this is shown in Figure 2. The authors would like to stress the importance of starting by improving and integrating Social Sustainability in the core business, *before* working on improving the image. When it comes to attracting workers, work environment and work content has to be improved first, with interesting jobs, more flexibility and more family-friendly working conditions. By anticipating what potential workers want and changing the organization accordingly, companies will attract all groups of society and thereby become more socially sustainable. In this process, long-term thinking is the key, i.e. to always start within the walls of the company by actively supporting, developing and retaining the already recruited workforce. After internal stability has been achieved, it has to be clearly and inclusively communicated to society in order to improve the industry's image (Figure 2).

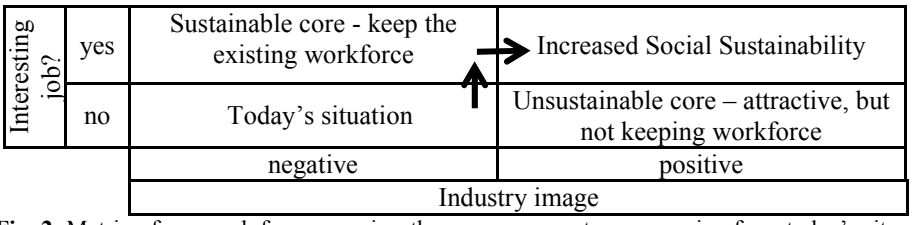

Fig. 2. Matrix of approach for companies; the arrows suggest a progression from today's situation to an ideal, socially sustainable solution to the recruitment challenges.

Gaps were also found in the literature regarding societal groups that should be attracted to increase diversity; also, there is a lack of research that specifically examines the European context. The authors see great potential for the aforementioned SO SMART-project to address many of these research and analysis gaps.
When manufacturing has become an attractive career option for people from all groups of society, the manufacturing companies of Europe can commence their journey of social sustainability. Even more importantly, they can then become a sustainable business able to withstand the crisis and remain an attractive source of employment, development and stability for the European labor force.

References

1. Dobbs, R., et al., *The world at work: Jobs, pay and skills for 3.5 billion people* 2012, McKinsey Global Institute.
2. Manpower Group, *Talent Shortage Survey Report* 2011.
3. Manufacturing Institute, *Facts About Manufacturing* 2011. p. 1-68.
4. Mohan, S. *U.S. must revive manufacturing* 2008.
5. Christopherson, S., *Childcare and Elderly Care: What Occupational Oppurtunities for Women?*, in *OECD Labour Market and Social Policy Occasional Papers*1997.
6. Helga Rübsamen-Waigmann, et al., *Women in industrial research: A wake up call for European industry*, 2006, European Commission Directorate-General for Research.
7. Donkin, R., *Employers ignore skills shortages at their peril. The failure to invest in vocational education and training will damage British productivity*, in *Financial Times*2006, The Financial Times Limited: London, United Kingdom. p. 11.
8. Giffi, C.A. and J. McNelly, *Untapped resource; How manufacturers can attract, retain, and advance talented women*, 2013, Manufacturing Institute: U.S.
9. Jörn-Henrik, T., G. Andreas, and S. Miczka, *The impact of the demographic transition on manufacturing.* Journal of Manufacturing Technology Management, 2007. **18**(8): p. 985-999.
10. van Ours, J.C. and L. Stoeldraijer, *Age, Wage and Productivity in Dutch Manufacturing.* De Economist, 2011. **159**(2): p. 113-137.
11. Persson, E. and F. Rahm *De yngre drabbas när jobben inom industrin minskar*. 2005.
12. Giffi, C.A. and E.S. DeRocco, *Made in America? What the Public thinks about manufacturing today*, 2010, Deloitte and The Manufacturing Institute.
13. Eurostat, *Population on 1 January by five years age groups and sex*, 2012, European Commision.
14. World Commission on Environment and Development (WCED), *Our common future*. 1987, Oxford, New York: Oxford University Press.
15. Littig, B. and E. Griessler, *Social sustainability: a catchword between political pragmatism and social theory.* International Journal of Sustainable Development, 2005. **8**(1): p. 65-79.

16. Porter, M.E. and M.R. Kramer, *Creating shared value.* Harvard Business Review, 2011(January-February): p. 1-17.
17. Lovins, H. *Employee Engagement is Key to Sustainable Success*. 2012.
18. Lewis, M.A., *Lean production and sustainable competitive advantage.* International Journal of Operations & Production Management, 2000. **20**(8): p. 959-978.
19. Bond, J.T. and E. Galinsky, *Workplace Flexibility in Manufacturing Companies*, 2011, Families and Work Institute: USA.
20. Kovach, K.A., *What motivates employees? Workers and supervisors give different answers.* Business Horizons, 1987. **30**(5): p. 58-65.
21. Zukin, C. and M. Szeltner, *Talent Report: What Workers Want In 2012*, 2012, John J. Heldrich Center for Workforce Development at Rutgers The State University of New Jersey: New Jersey.
22. Svenskt Näringsliv. *Löner och Löneförmåner*. 2011 20.04.2013]; Available from: http://www.svensktnaringsliv.se/fragor/fakta_om_loner_och_arbetstid/fola2012/3-loner-och-loneformer_163227.html.
23. Langdon, D. and R. Lehrman, *The Benefits of Manufacturing Jobs*, E.a.S.A. U.S. Department of Commerce, Editor 2012: Washington, DC, USA. p. 10.
24. Barbulescu, R. and M. Bidwell, *Do Women Choose Different Jobs from Men? Mechanisms of Application Segregation in the Market for Managerial Workers.* Organization Science, Articles in Advance, 2012: p. 1–20.
25. Accenture, *Defining Success - 2013 Global Research Results*, 2013.
26. LinkedIn, *What do Women Want at Work?* , 2013, Linkedin Corporation.
27. Domzal, C., A. Houtenville, and R. Sharma, *Survey of Employer Perspectives on the Employment of People with Disabilities: Technical Report*, Prepared under contract to the Office of Disability and Employment Policy U.S. Department of Labor, Editor 2008, McLean.
28. de Lange, A.H., H. De Witte, and G. Notelaers, *Should I stay or should I go? Examining longitudinal relations among job resources and work engagement for stayers versus movers.* Work & Stress, 2008. **22**(3): p. 201-223.
29. Aulin, R. and M. Jingmond, *Issues confronting women participation in the construction industry*, in *Advances in Engineering and Technology - Contribution of Scientific Research in Development* J. Mwakali and H. Alinaitwe, Editors. 2011, Makere University, Uganda Entebbe, Uganda p. 312-318.
30. Light, J. *Google Is No.1 on List Of Desired Employes*. 2011.
31. Sullivan, J. *A case study of Google recruiting*. 2005.
32. Guðfinnsdóttir, H.B., *Stóriðjuskólinn*, G.R. Jónsdóttir, Editor 2013.
33. Buning, N., et al., *Solving the skills crisis.* Accenture - Journal of high-performance business 2011. **3**.
34. Siemens. *How to balance family and career* 2013 [cited 2013 12.04.13]; Available from: http://www.siemens.com/sustainability/en/core-topics/employees/references/family-and-career.htm.
35. Glaeserne Manufaktur. *A Car Factory in the Centre of Town*. 2011 10.05.2013]; Available from: http://www.glaesernemanufaktur.de/en/idea.