SOCIAL SUSTAINABILITY KPIs IN OPERATIONS MANAGEMENT: A GAP BETWEEN THE REACTIVE AND THE PROACTIVE STANCE

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Abstract: Manufacturing companies increasingly evaluate sustainability outcomes using key performance indicators (KPIs). But when it comes to social sustainability, currently established KPIs do not give appropriate decision support to address future challenges proactively. Upcoming demographic trends point to the challenge of a shortage of qualified labour in the manufacturing industry. To counteract this risk, manufacturing companies must set visions to become attractive and socially sustainable workplaces. This paper identifies a set of characteristics for a socially sustainable and attractive workplace based on previous literature, and proposes that a gap must be bridged between the KPI-oriented approach and creating socially sustainable workplaces.

Keywords: Social sustainability, Key Performance Indicators, Attractive workplaces, Desired work systems

1. INTRODUCTION

The concept of sustainable development (WCED, 1987) has gained attention in the manufacturing sector since the late 1990s (Elkington, 1997). Global restrictions, legislations and customers' awareness of sustainability together with a global competitive environment, has forced companies to be aware of their impact on the Triple Bottom Line (TBL) (Elkington, 1997, Kleindorfer et al., 2005), and has in later years resulted in a corporate focus on increasing competitiveness by improving economic, environmental and social performance in parallel. The aspect of social sustainability has been widely acknowledged as the least developed of these three (Vallance et al., 2011, Omann and Spangenberg, 2002). Due to the fact that the scope of definition for the social aspect ranges from a global to a local scale (e.g. from eradicating global social injustice to providing employees with healthcare), it is sometimes hard to define an operative delimitation for manufacturing companies when aspiring to improve social sustainability on a factory level.

In order to follow up and measure the sustainability of production systems and their outcomes, different sets of Key Performance Indicators (KPIs) have been defined (United Nations, 2007, Joung et al., 2013, Feng and Joung, 2009, Winroth et al., 2014), among which some focus on social sustainability indicators (Omann and Spangenberg, 2002, Hutchins and Sutherland, 2008). Thanks to the TBL concept, sustainability KPI reporting has been extended to include non-financial measures, which has brought visibility to human capital-related issues. These KPI measurements can later be used in order to set manufacturing tactics, e.g. accident prevention, waste reduction, resource use reduction, reuse, and substitution (Despeisse et al., 2012). Arguably, KPIs provide companies with a clear operative goal, to strive towards increasing or decreasing these measurement values in relation to a current status. Also, legislative demands on companies to report such metrics have been recognized as a driving force to make companies take action towards addressing sustainable development. However, legislation as a driving force for social aspects is not well-developed; according to Locke et al. (2009), "Private,

voluntary compliance programs, promoted by global corporations and nongovernment organizations alike, have produced only modest and uneven improvements in working conditions and labor rights in most global supply chains" (p. 319). The approach of defining and measuring sustainability KPIs has potential to be successful when related to outputs that can be measured, giving an accurate picture of indicators to be increased or decreased in order to reach a sustainability target. According to Johansson et al. (2012), despite the fact that a relatively broad knowledge base for measuring ecological aspects exists, there is still a lack of knowledge in how to measure and assess social aspects. This can be due to the fact that social aspects are difficult to judge quantitatively and often involve difficult ethical considerations.

Another less acknowledged driving force for improving social sustainability lies in meeting the challenges of future demographics. As argued by Berlin et al. (2013), the demographic development of Europe suggests two major challenges for the manufacturing industry to face within the next few decades; one being that the considerably lower numbers of young people in the demographic threatens the supply of replacements for aging retiring workers, meaning that retaining older workers' knowledge will gain importance; the other is that many other employment sectors apart from manufacturing will be competing for young people's interest as a future career option. By extension, a negative view of working in manufacturing among young people could be detrimental to the industrial sector as a whole. This means that unless manufacturing companies in Europe focus on both extremes of the demographics curve and address the well-being, engagement, creativity and adaptation of workplaces to their workforce, they risk losing worker competence and competitive edge when workers become unwilling to stay employed and prospective workers become uninterested in a future in the manufacturing industry. The industry faces a major challenge of transforming the image of factories from anonymous, dirty and low-status to attractive and interesting (Berlin et al., 2013). Thus, there is a need for creating and spreading a vision of a socially sustainable workplace including a healthy, motivated, knowledgeable and willing workforce of all ages and abilities, in order to combat the upcoming challenge of changing demographics, which may diminish the recruitment pool. Accordingly, when it comes to the aspect of social sustainability, there is a problem; most established KPIs for social sustainability do not target aspects that help combat the demographics challenges. Instead they tend to focus on "undesirable" measurements such as number of accidents, compensation costs, personnel-related losses and sick-leave days. At the same time, desirable characteristics of attractive workplaces may lose their meaning when reduced to numbers, failing to indicate to operations planners how to achieve the desired state . Various sources in literature argue that achieving social sustainability demands a shift of focus towards long-term time perspectives (Zink and Fischer, 2013), encouraging worker participation (Seim, 2008; Vink et al., 2008; Vink et al., 2006),fostering creativity and making workplaces attractive (Berlin et al., 2013). This is an approach that requires companies to be proactive, defining a vision for a desired future state where the value of the workforce is acknowledged and the human capital, competence, engagement and willingness is utilized maximally, while work-life balance is supported and efforts are made to enable workers of all ages, abilities and stages of personal development to continue their employment willingly and contribute to the value-adding process. Such proactive visions will be vital to the future success of companies, not only to secure generational stability and needs-fulfilment of the workforce, but also because future innovation depends on the workforce's willingness to engage.

Therefore, a risk with approaching social sustainability only through KPIs is that much of the improvement work becomes reactive, i.e. steered towards increasing or decreasing a measurement in relation to an already understood, conventional status quo. Although KPIs may support the process, there is little focus on or guidance for establishing visions for the positive, proactive desired states.

The question then becomes: is the KPI-oriented approach toward social sustainability supportive enough to direct operations towards the desired future state of factories that are creative, innovative and attractive workplaces? Through a literature study this paper aims to provide a preliminary picture of the current landscape of social sustainability KPIs and connect it with key characteristics for socially sustainable workplaces, to answer the above question.

2. METHOD

The objective of this paper is to map the current state of art in the topic of social sustainability KPIs and to describe some characteristics of socially sustainable workplaces that have a presumably higher degree of resilience towards upcoming demographics challenges. A multistage literature study was conducted to better understand the concepts of socially sustainable manufacturing, social sustainability KPIs, reporting methods and key characteristics for desired workplaces. Although information was mainly sought from scientific papers, other contemporary popular literature formats, such as surveys and reports were included if they were deemed to add a relevant perspective.

For the first step, a review of literature on available social sustainability KPIs was conducted. Focus was placed on the Global Reporting Initiative's latest list of recommended KPIs, known as the GRI4, as the main framework for understanding the current state of art (Global Reporting Initiative, 2013). This choice was due to the fact that GRI4 is the most common framework used in industry. The social sustainability-related KPIs in GRI4 were then evaluated and eliminated based on two criteria; Firstly, the KPIs should be relevant on factory level in manufacturing industries. Secondly, the KPIs should be relevant for manufacturing companies in developed countries, since legislative drivers cannot be considered to be within the control of factory-level operations strategy. Many issues regarding the social sector (particularly Human Rights) are already parts of legislation in developed countries and the assumption here is that companies comply with them. Therefore, indicators deemed to be already covered in legislations (e.g. child labour and corruption) were excluded.

In the next step, a literature review was conducted to establish a framework of what is meant by "desired socially sustainable work place". Since the concept has not been comprehensively defined, different broad terms have been searched in databases such as Google Scholar and Scopus, e.g. "attractive work place", "employee expectations", "social sustainability and demographics" etc. in order to identify the main characteristics of a desired socially sustainable work place. Later, with respect to the research question, the selected KPIs were mapped to see if they related to the identified aspects of the desired state to conclude whether there is a gap.

3. FINDINGS

3.1. KPI-oriented approach

According to the Global Reporting Initiative (2013) the term indicator is used to give information on an organisations' significant performance or impact on economic, environmental and social aspects. Ideally this information should help increase the awareness on where the firm stands and should help to set actions towards where the ultimate vision is regarding sustainability (Johansson et al., 2012). According to Spangenberg and Bonniot (1998), indicators should have two main features: to be simple (limited, transparent methodology) and to be directionally safe (relevant, significant). Substantial previous research has focused on defining an appropriate set of key performance indicators to evaluate and compare sustainability performance at different levels, i.e. Macro (International and national level), Meso (Industry sector level), Micro (Individual company level) and factory level (Veleva and Ellenbecker, 2001, Krajnc and Glavič, 2004, Winroth et al., 2014). The trend of Publishing sustainability reports started in 1989 and has increased substantially (Kolk, 2004). According to a survey among 250 multinationals, Kolk (2004) presented that reporting sustainability is happening in different formats and due to various motivations. These reports help organizations to set goals, measure performance and manage change in order to make their operations more sustainable by making abstract issues tangible and concrete (Global Reporting Initiative, 2013). Whilst there are a number of different non-financial sustainability reporting frameworks in existence, the survey by Kolk (2004) indicated that almost one third of sustainability reports are explicitly inspired by GRI framework. The main reason for this is due to the consolidated nature of the framework, as it is developed with reference to a number of established internationally recognized reporting practices, incorporating them within one comprehensive and generalizable framework. The international nature of the framework makes it applicable to all organizations regardless of size, sector or country - to date, 6110 organizations have GRI4 profiles (Global Reporting Initiative, 2013).

The GRI framework consists of different indicators for economic, environmental and social sustainability, of which 30 of them focus on social sustainability. The social sustainability KPIs are divided in following subcategories:
- Labor Practices and Decent Work Performance Indicators (8 aspects)
- Human rights (10 aspects)
- Society (7 aspects)
- Product Responsibility (5 aspects)

The social indicators identified in GRI4 relevant to the scope of this study, after the elimination rounds described in the Methods chapter, are annotated in Table 1.

Table 1. Social sustainability indicators from the GRI4 that are relevant for manufacturing companies at factory level, in developed countries.

Subcategory	ID	Description
Labor Practices & Decent Work 3.2.	G4-LA1	Total number and rates of new employee hires and employee turnover by age group, gender and region
	G4-LA2	Benefits provided to full-time employees that are not provided to temporary, rented or part- time employees, by major operations.
	G4-LA3	Return to work and retention rates after parental leave by gender
	G4-LA4	Minimum notice periods regarding operational changes, including whether these are specified in collective agreements
	G4-LA5	Percentage of total workforce represented in formal joint management - worker health and safety committees that help monitor and advise on occupational health and safety programs
	G4-LA6	Type of injury and rates of injury, occupational diseases, lost days, and absenteeism, and total number of work-related fatalities by region and by gender
	G4-LA7	Workers with high incidence or high risk of diseases related to their occupation
	G4-LA8	Health and safety topics covered in formal agreements with trade unions
	G4-LA9	Average hours of training per year per employee by gender, and by employee category
	G4-LA10	Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings.
	G4-LA11	Percentage of employees receiving regular performance and career development reviews by gender and by employee category
	G4-LA12	Composition of governance bodies and breakdown of employees per category according to gender, age group, minority group membership, and other indicators of diversity
	G4-LA13	Ratio of basic salary and remuneration of men to women by employee category, by significant locations of operation
	G4-LA16	Number of grievances about labor practices filed addressed, and resolved through formal grievance mechanisms
Local Communities 3.3.	G4-SO1	Percentage of operations with implemented local community engagement, impact assessments and development programs
	G4-SO2	Operations with significant actual and potential negative impacts on local communities

Alternative KPI frameworks were found in literature (Veleva and Ellenbecker 2001, Labuschange et al , 2003, Boulanger, 2008 Spangeberg and Bonniot 1998,) it was found that with few exceptions, they mainly cover the same KPIs that GRI4 proposes. However, a few additional possible KPIs for social sustainability have been identified based on literature, as presented in Table 2.

Table 2. Additional KPIs (non-GRI4) found in literature.

KPI	Reference
Employee satisfaction ratio	Azapagic (2004), Krajnc and Glavič (2004)
Share of employees involved in systematic improvement activities	Veleva and Ellenbecker (2001)
Promotion rate	Krajnc and Glavič (2004)

3.4. Characteristics of socially sustainable workplaces

At present there is no universally agreed-upon definition in literature of what constitutes a socially sustainable work system. Eijnatten (2000) defines sustainable work systems as a system in which there is a same high level for three main aspects: quality of work (i.e. employees' health, well-being, and personal development); quality of the organisation (i.e. productivity, efficiency, the ability to meet the challenges of tomorrow's business); and the quality of connections with the environment.

In this paper, a socially sustainable work system is defined as a work system that not only meets the fundamental needs of their employees at present - such as fair pay and healthy and safe work places - but goes beyond this by contributing to the future state of work places by developing the needs of current employees, through initiatives

such as active participation and competence development, whilst simultaneously attracting a future generation of new workers to ensure the companies continued social growth and development. For the sake of brevity, the key aspects necessary to develop both current and prospective employees for future work were identified in literature, as shown in Table 3, in order to establish a comprehensive framework for socially sustainable work places. These aspects are an aggregate strategy for building resilience against the aforementioned demographic challenges, by enabling and empowering employees, making workplaces more attractive as a long-term career option (encouraging retention of worker competence) and encouraging diversity in companies' recruitment by addressing different groups' needs.

Table 3. Aspects that together define a desirable socially sustainable workplace.

Aspects	Reference
Work-Life Balance	Jeffrey Hill et al. (2008), Pfeffer (2010), Boswell et al. (2003), Kovach (1987)
Personal Development through training	Backes-Gellner and Tuor (2010), Boswell et al. (2003), ; Lewis (2000), Berlin et al., (2013), De Brito et al. (2008), Eijnatten (2000)
Challenging/stimulating work	Boswell et al. (2003), Sousa-Poza and Sousa-Poza (2000), Kovach (1987), Berlin et al, (2013)
Engagement	Bakker (2008)
Job Satisfaction	Barling et al. (2003), Boswell et al,. (2003)
Participation	Loch et al. (2010), Spangenberg and Bonniot (1998), Veleva and Ellenbecker (2001)
Job Security	Backes-Gellner and Tuor (2010)
Innovation & Creativity	Kira (2003), Zink and Fischer (2013)

Given that socially sustainable work systems should both meet the needs of current and future employees, it is important to acknowledge that different aspects are considered to have different levels of attraction by different societal groups. For instance, while interesting and stimulating work is viewed by all as important, older workers are also concerned with loyalty and working conditions, whilst younger workers desire job security and scope for personal growth (Berlin at al, 2013).

3.5. Mapping KPIs against desired characteristics

Comparing the social sustainability KPIs identified as relevant (Tables 1 and 2) with the identified characteristics of a socially sustainable workplace (Table 3) revealed that in most instances, the type of data reported under each KPI seldom has a guiding potential for achieving the desired characteristics (illustrated in Table 4). The low level of data may, generously interpreted, in some cases guide decisions to pursue an increase or decrease of specific measures, but there is seldom any clue in the quantitative ratios and numbers of *how* companies can achieve resilience towards social sustainability challenges.

Table 4. An overview of possible overlaps where KPIs may tentatively support achievement of characteristics.

KPIs	Work-Life Balance	Personal Development through training	Challengin/ stimulating work	Engagement	Job Satisfaction	Participation	Job Security	Innovation & Creativity
G4-LA1					x		x	
G4-LA2	x							
G4-LA3	x							
G4-LA4							x	
G4-LA5					x	x		
G4-LA6								
G4-LA7								
G4-LA8								
G4-LA9		x	x					

G4-LA10	x	x				x	
G4-LA11	x	x	x				
G4-LA12							
G4-LA13				x			
G4-LA16						x	
G4-SO1			x		x		
G4-SO2			x		x		
Employee satisfaction ratio				x			
Share of employees involved in systematic improvement activities		x	x		x		x
Promotion rate				x	x		

4. DISCUSSION

In light of the ceaseless pressure on companies to outperform competitors and strive towards growth, sustainability reporting runs the risk of becoming a "cosmetic" means of lessening negative impact on people, planet and profit, particularly when sustainability-related activities are disconnected from the companies' core business strategy. Authors like Owen and Swift (2001) doubt the value of sustainability reporting completely, stating that "specious gloss" is a more apt term to describe corporate and social reporting initiatives, than democratic accountability; still others argue that such reporting only serves to enhance companies' reputation and public image (Beder, 1997).

KPIs cause companies to look back towards previous results, rather than look forward; the back-casting nature of KPIs may lead companies to take primarily reactive approaches, which aim to comply with regulations or enhance reputation, rather than treating sustainability as an opportunity to enhance and directly impact their business results (Bonini and Gorner, 2011). Moreover, concerns have been raised about companies often adopting an incremental reactive approach, trying to gradually become "less unsustainable" rather than proactively addressing the root of the problem (Confino, 2013).

Although sustainability reporting initiatives like the GRI4 provide companies with a good initial platform for recognizing measurable improvement areas, they may provide too little decision support for proactive work, for two reasons; first, the KPIs are intentionally broad in order to increase applicability, but this may leave them too unspecific or too narrow to truly guide operations management's efforts towards proactive social sustainability visions for their workforce. The review of the studied social sustainability KPIs presented in Tables 1 and 2 indicates that the frameworks focus mainly on the fundamental needs of employees at present, such as fair pay and healthy & safe work places – which could essentially be regarded as hygiene factors in comparison with knowledge transfer, employee empowerment and supporting work-life balance. Secondly, sustainability reporting is not consistently backed up by legislative demands. Although governments try to encourage corporations to report on social sustainability activities, it has in many places been a voluntary activity with no enforcement mechanism (González et al., 2004). A relatively modern effort to encourage non-financial reporting came from paragraph 47 of a resolution by the General Assembly of the United Nations in 2012 (United Nations, 2012), "acknowledg[ing] the importance of corporate sustainability reporting and encourage companies, where appropriate, especially publicly listed and large companies, to consider integrating sustainability information into their reporting cycle". Still, it was not legally binding.

Moreover, contrasting the social sustainability KPI frameworks with this study's identified key characteristics of a socially sustainable workplace (Table 4) indicates that there is a gap between the decision support provided by current KPI frameworks and what is needed to envision the desired future state of work places. This may aggravate an already established dearth of sustainability visions: according to McKinsey's 2011 survey on sustainability (Bonini and Görner, 2011), just 36 percent of executives say their companies have a strategic approach to sustainability, with a defined set of initiatives.

Therefore, it is the belief of the authors that in order to integrate social sustainability thinking in a company's long-term vision for success, operations leadership must seek ways to recognize social sustainability "closer to home" at a factory level, and foster proactive strategies (i.e. acting on good ideas rather than "fire fighting" undesirable figures) to protect and nurture their workforce. Given the preliminary nature of this study, the

authors believe that more work is needed to develop the characteristics of socially sustainable workplaces, and that this may benefit not only the creation of long-term visions for social sustainability, but also the development of KPIs that better concretize and provide decision support for proactive sustainability work.

5. CONCLUSIONS AND FUTURE RESEARCH DIRECTIONS

The aim of this paper was to define and identify a preliminary set of characteristics of a desired socially sustainable workplace and to investigate if the KPI-oriented approach toward social sustainability is supportive enough to reach the desired state of factories that are creative, innovative and attractive workplaces. Accordingly, characteristics of a socially sustainable workplace, focusing on aspects of work-life balance, personal development through training, challenging/stimulating work, engagement, job satisfaction, participation, job security, innovation and creativity have been identified. Comparison between these characteristics and the currently used KPIs indicates several instances where the concerns do not overlap. This study's overview of well-accepted KPIs for social sustainability reporting revealed a limited set of KPIs that were relevant to the factory operations level, and that although some can be connected to the identified characteristics, few have potential to guide the course of action.

It should be kept in mind that the proposed framework for a socially sustainable workplace in this study was based on literature. To validate the proposed characteristics and refine the framework, future work such as case studies is necessary. This study has established preliminary indications that a purely KPI-based approach to social sustainability misses the mark when it comes to providing decision support for proactive work, i.e. companies need different social sustainability indicators to establish a vision for social sustainability.

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