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HSEQ AT SHARED INDUSTRIAL WORKPLACES: EXPERIENCES FROM COLLABORATION ON SUPPLIER AUDITS

Abstract: The trend of outsourcing in industries has led to a situation in which various service providers are working at industrial sites. Managing such complex multi-employer worksites is a challenge. This study introduces a collaboration procedure for supplier audits in the context of integrated health, safety, environment, and quality management by large Finnish industrial buyers. A supplier-audit database is analyzed and supplemented by interviews with the buyers. Altogether, 456 audit observations are categorized in seven thematic areas to introduce what kinds of development areas suppliers have. With regard to the collaborative nature of the procedure, the benefits from the buyers' side were identified from the interviews. Cluster collaboration has proven advantageous in financial savings, objective assessments, and supplier development.

Keywords: Audit, Buyer, Collaboration, HSEQ, Shared workplace, Supplier development

1. Introduction

For the sake of competitiveness, process industry companies focus on their core competencies and thus often outsource their support activities. This creates challenges related to the health, safety, environment, and quality (HSEQ) performance of their supply chains. Because of the constantly growing trend of outsourcing, diverse support services are often bought from various service providers. It is important for these purchasing companies (henceforth *buyers*) that the suppliers they select perform well, as they are directly or indirectly affecting the buyer's performance. Consequently, supplier development can be seen as a key supply chain management practice with positive effects on both capability and performance (Chen et al., 2015). Furthermore, the requirements set by law are not enough for

socially responsible companies, whose corporate social responsibility (CSR) demands sustainable supply networks (Montero et al., 2009).

In complex settings such as industrial sites, outsourcing may eventually result in a situation in which buyers choose the service providers, i.e., suppliers, but have limited resources or opportunities to control which employees actually enter the worksite (Heikkilä et al., 2010). This is often the case in large industrial plants and construction sites where various kinds of support services are constantly utilized. Outsourcing in industrial contexts leads to a situation in which personnel from diverse organizations work at the same location. This multi-employer work-environment entity may be called a *shared workplace*. Such a multi-organizational context creates various challenges in synchronizing and managing all

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of the stakeholders' actions (see, e.g., Häkkinen & Niemelä, 2015).

Supplier evaluation and auditing is one strategy for facilitating supplier development (Krause et al., 2000). Even though supplier evaluation and supplier development are well-studied areas, most studies have focused on first-tier and key suppliers and strategic relationships. In this paper, we investigate a way to evaluate and develop service providers that has been developed by a cluster of buyers representing heavy process industries. Such collaborative supplier development networks among buying companies are uncommon. In this study, we highlight this novel approach to supplier development, and aim to contribute in the scientific discussion on the topic.

The research environment of this study comprises an HSEQ evaluation network and a related assessment procedure (HSEQ AP) led by a cluster of industrial companies (buyers) that aim to evaluate and develop a common network of suppliers. This research will investigate what types of HSEQ development areas are detected through these audits and how the buyers perceive the advantages of such collaboration. By juxtaposing these two elements and comparing them to the literature, this study aims to contribute to the understanding of supplier evaluation and development through an analysis of supplier evaluation in a setting with multiple buyers and suppliers.

To support this aim, we posed the following research questions:

RQ 1: What types of development areas have been identified in HSEQ AP audits?

RQ 2: How do buyers perceive the benefits of HSEQ AP?

This study is structured as follows: A brief literature review of relevant topics in the study of supplier development and shared workplaces is followed by an explication of the research background and the results of the study. The results are twofold, based on an analysis of the audit database and interviews with experts representing buyers. Finally, the results are summarized and discussed in

relation to each other as well as to previous research.

2. Literature review

2.1. Supplier development

Supplier development (SD) refers to any activity undertaken by a buyer to improve the performance of its suppliers (Krause et al., 1998). SD strategies can be divided into four categories: competitive pressure; evaluation and certification; incentives; and direct involvement (Krause et al., 2000; Modi & Mabert, 2007). These can also be seen as direct and indirect SD approaches, in which direct approaches include the transfer of human or capital resources while indirect approaches include ad hoc evaluation, formal assessment, enhancement-led evaluation, and communicating buyers' needs and goals to suppliers (Wagner, 2006). Audits, formal evaluations, feedback on performance, and setting targets for suppliers are precedents to or enablers of direct SD activities (Krause et al., 2000; Wagner & Krause, 2009).

It is not well established under which conditions various integrative supplier relationships and development approaches are the most effective (Terpend et al., 2008). If a buyer requests that a supplier invest relationship-specific assets, the buyer must also demonstrate commitment; otherwise, suppliers will be unwilling and SD activities will yield no results (Krause et al., 2007). Wagner and Krause (2009) noted that buyers' SD goals were not directly related to the extent of supplier evaluation and providing feedback to them, suggesting a difference between strategic and operational levels of SD.

Knowledge transfer in supplier development is moderated by human interaction (Wagner & Krause, 2009), which also mitigates the decrease of financial gains for a supplier in cases in which the supplier is more heavily dependent on the buyer (Kim & Wemmerlöv, 2015). Nagati and Rebolledo (2013) found

that SD activities indeed improve suppliers' operational performance and that trust and preferred supplier status are key antecedents to achieving improvement.

The increasing awareness of environmental responsibility and CSR may also be seen in supplier development, a phenomenon dubbed "socially responsible supplier development" by Lu et al. (2012). Focal firms must take action beyond first-tier suppliers and customers in order to be green and socially responsible (Agan et al., 2016). To manage supplier sustainability risks, buyers can either take actions to mitigate or avoid supplier risks or can choose to accept the risks (Hajmohammad & Vachon, 2015).

2.2. The shared workplace

A growing trend among large industrial companies is to focus on their core business while outsourcing some work practices to external service providers. As a result, the number of diverse stakeholders acting in the same work environment has increased (see, Koivupalo et al., 2015). In this article, the term *shared workplace* is used to describe that multi-stakeholder entity. The idea is based on European Union directives for workplaces in which more than one employer operates in the same environment (Directives 89/391/EEC and 92/57/EEC).

In Finnish legislation (Occupational Safety and Health Act 738/2002), a shared workplace is defined as one in which a single employer exercises the main authority and more than one other employer (or self-employed workers) operates simultaneously or successively in such a way that their work may affect other employees' safety or health. Typical examples of shared workplaces based on this definition include industrial sites and construction sites (Häkkinen & Niemelä, 2015; Nenonen & Vasara, 2013; Väyrynen et al., 2012).

In addition to the concept of a shared workplace, terms such as *multi-employer worksites*, *outsourced work*, and *employers sharing a workplace* are used in the research

literature to describe such complex work environments (Koivupalo et al., 2015). Furthermore, multiple definitions are used to describe the various stakeholders in shared workplaces. The main authority may be called, for instance, a *principal company* or *contractor*, *main operator*, *host employer*, *hosting organization*, or *service purchaser*. Other employers at shared workplaces may be called *service suppliers*, *supplying companies*, *external suppliers*, *contractors*, or *subcontractors* (Koivupalo et al., 2015; Väyrynen et al., 2012). Depending on the need, the outsourced work may be permanent or non-permanent, and the employees may represent various nationalities (Heikkilä et al., 2010). Due to this complexity, shared workplaces pose diverse challenges to HSEQ management (Koivupalo et al., 2015). For consistency, in this study we call the main authorities *buyers* and refer to supplying companies as *suppliers*.

The main authority at a shared workplace provides general HSEQ management principles for all stakeholders. Crucial elements of HSEQ management at a shared workplace include the stakeholder management, communication, and cooperation processes that ensure that all actors obey these principles (Häkkinen & Niemelä, 2015). In addition, safety management resource allocation, understanding of and commitment to responsibilities, uniform hazard identification and communication processes have been identified as common HS challenges at a shared workplace (Nenonen & Vasara, 2013). Väyrynen et al. (2016) urge future research to go further in evaluating shared workplaces from diverse stakeholders' perspectives.

3. Methodology

3.1. Study context

Large Finnish industrial buyers have created an HSEQ cluster network whose purpose is to develop collaboration processes for supplier assessment and development (see, e.g.,

Väyrynen et al., 2016). Currently, 12 large buyers belong to the cluster. The HSEQ assessment procedure (HSEQ AP) is intended to be used for assessing suppliers' HSEQ performance. HSEQ AP processes are initiated by buyers based on their own criteria for supplier selection. The assessment consists of self-audits and actual audits led by a main auditor representing an external certification body. Buyers may, at their discretion, appoint their own representatives to the actual audit sessions. The audit process provides a quantitative assessment of HSEQ performance and is supplemented by qualitative feedback concerning observations on identified development topics. The level of observation may include development topics ranging from the minor to the major level, i.e., to deviations. To date, over 200 HSEQ audits have taken place in total. After the actual audit, the auditee is given three months to complete corrective actions and respond to the observations. The main auditor decides whether the corrective measures have been taken with sufficient compliance and saves the audit results to an HSEQ-register database (Koivupalo et al., 2015). For a more detailed description of the HSEQ AP, see Kauppila et al. (2015) or visit www.hseq.fi.

3.2. Research process

Empirical data were collected from two sources: Observations were analyzed from the HSEQ-register database, and buyer representatives were interviewed. The HSEQ-register database analysis focused on the most recent 48 audit assessments. The selection was made on the basis that, in these audit assessments, the criteria have remained the same, representing the current status of the HSEQ AP. In total, 456 observations were analyzed and categorized. The categorization process was performed in two phases. First, one researcher divided the observations into 39 thematic categories based on their content (see also Jounila et al., 2018). The categorization was based on an open coding approach (e.g., Flick, 2009). In the second

phase, the researcher group re-categorized the 39 categories into seven larger thematic categories based on their content. These thematic categories were "Occupational Safety Management," "Human Resource Management," "Leadership, Strategy and Policy," "Stakeholder Management," "Environmental and Chemical Safety," "Operations Management," and "Supplier Management."

In addition to analysis of the register database, semi-structured interviews were arranged with representatives from seven purchasing companies, i.e., buyers from the cluster network. The buyers were selected based on their long history in the cluster network and consequent adequate understanding of the cluster itself and of the audit process. The interviewees were selected by the buyers based on their knowledge of the company's HSEQ and procurement processes. The job titles of the interviewees were, for example, procurement engineer, procurement manager, maintenance manager, and human resource manager. The number of interviewees was two in five of the interviews and one in two of the interviews. The interviews focused on identifying the possible benefits of the HSEQ audits to the buyer in question. The interviews were recorded and transcribed for further analysis. In the analysis phase, NVivo software was utilized. The interview results were divided into three categories by utilizing the open coding approach (e.g., Flick, 2009): "Buyers' Business Benefits," "Suppliers' Performance and Development," and "HS Performance at Shared Workplaces."

4. Results

4.1. Common HSEQ-performance development areas among suppliers

In total, 456 observations were collected from the HSEQ-register database. These observations were grouped in 39 categories, from which seven distinct themes were generated (Table 1).

Table 1. Seven themes and 39 categories.

Themes / Categories	Number of observations
Theme 1: Occupational Safety Management	113
Procedure for incidents and accidents	17
Induction training	17
Tools and facilities	17
Occupational safety training	13
HSEQ observations	11
Development of safety	10
HSEQ risk management	9
Occupational safety and health	7
Occupational safety responsibilities	7
Tidiness and order	5
Theme 2: Operations Management	93
Use of indicators	45
Describing of processes	23
Certification and standards	9
Defining responsibilities	8
Organization chart	5
Planning products and services	3
Theme 3: Human Resource Management	64
Registry development	13
Wellbeing at work	10
Incentives and rewards	9
Initiatives, development proposals, and development discussions	9
Knowledge and data management	8
Internal communication	6
Monitoring and management of working time	5
Training and development	4
Theme 4: Leadership, Strategy, and Policy	62
Principles and policies	22
Business plan and long-term planning	15
Meetings and issues to be dealt with, management activities	15
Ethics and responsibility	10
Theme 5: Stakeholder Management	47
Customer satisfaction and feedback	33
Stakeholder management	7
Stakeholder communication	5
Monitoring the development of legislation	2
Theme 6: Environmental and Chemical Safety	41
Environmental matters	20
Chemicals	14
Waste sorting	7
Theme 7: Supplier Management	36
Supplier selection	15
Ensuring the responsibility of suppliers	11
Supplier safety	5
Reclamations	5

4.1.1. Occupational Safety Management

“Occupational Safety Management” was the largest theme, comprising 113 observations. One of the larger categories was the procedure for recording, investigating, and analyzing incidents and accidents. In this category, many observations were related to shortcomings of the recording and handling process. These are reflected in the following quotations (translated from Finnish): “*Incidents are not actively reported inside the company,*” and “*The accident and hazard recording and handling processes should be clear, as well as how the deviation forms are to be answered.*” In the induction training category, the documentation and shortcomings in the content of the employee orientation came up: “*It is necessary to draw up a signed document regarding the orientation of a new person.*”

In the tools and facilities category, many observations were related to tools that are important for personnel safety. The following quotations provide examples: “*The company must draw up a list of all assets requiring an annual inspection*”; “*Harnesses and grippers must be marked so that their checks can be verified.*” Facility suggestions were related, for example, to safety markings, as reflected in this comment: “*It is recommended that a courtyard map be drawn up, marked with the areas reserved for the products as indicated on the ground, so that a storage area may also be found easily under the snow.*” In the occupational safety training category, a need for training, especially for supervisors and foremen, emerged: “*Supervisors must be aware of their responsibilities and powers. That's why one must go to a course in which these things are gone over.*” According to the recordings in the HSEQ-observations category, the whole observation process needs to be improved. Shortcomings in the identification of work hazards and risk assessment were manifested in the categories related to developing safety and HSEQ risk management.

4.1.2. Operations Management

The “Operations Management” theme included 93 observations. Most of the improvement suggestions focused on two categories: use of indicators and describing of processes. The use of indicators category revealed a great number of weaknesses regarding various HSEQ indicators, such as the frequency of incident reports, absences due to illness, environmental indicators, delivery reliability, reclamations, and proactive indicators generally as well as their follow-up, as highlighted in the following quotation: “*Occupational health indicators are at a good level, but safety and quality indicators could not be verified, for which management should have defined goals and whose development management should regularly follow at the management-team level.*”

In observations regarding the describing of processes category, high-level process mapping was recommended, and it was noted that key processes should be described, for example, in a form of a swim lane diagram, as suggested in the following quotation: “*It is recommended that the organization elaborate a simple process description in which things proceed in chronological order, responsibility boundaries appear, and the workings of the main processes are described.*” The observations in the certification and standards category mainly requested that companies be certified. Use of the ISO 9001 standard was especially requested, as shown in this quotation: “*It is recommended to consider implementing the 9001 standard. The new, 2015-version standard works better than the previous one as a business-management tool.*”

4.1.3. Human Resource Management

The “Human Resource Management” theme included the registry development and wellbeing at work categories, among others. The registry development observations were predominantly related to the management of

qualifications and the registers that are used to track employee trainings, as emphasized in the following quotation: *"It is worthwhile to draw up a comprehensive training register including all employees, all training and know-how, and to what date the trainings are valid."* Job-satisfaction measurement emerged as a particular concern in the category of wellbeing at work.

In connection with incentives and rewards, the observations emphasized communicating, ensuring the systematic nature of the activity, and encouraging initiatives and ideas: *"Remuneration principles should be drawn up and communicated to staff so that it is clear what action is to be encouraged"* is an illustrative comment. In terms of initiatives, development proposals, and development discussions, the observations suggested creating a system of development discussions and the collection of initiatives and development proposals, such as: *"The company should take advantage of 'the power of the example' of the proposed development suggestions by making visible the initiatives, development suggestions, and feedback."*

4.1.4. Leadership, Strategy, and Policy

The most common categories in the "Leadership, Strategy, and Policy" theme were principles and policies; business plan and long-term planning; and meetings and issues to be dealt with, management activities. The shortcomings mentioned in regard to principles and policies were related to drawing up principles and policies and providing information about them. In many situations, principles were established but employees were not informed, as expressed in the following comment: *"It is recommended that the principles be clearly communicated both internally and on the web pages."* In addition, clarification of the content of principles was proposed: *"It is worthwhile to clarify the principles concretely and in the 'people's language.' They must cover safety, health, environment, and quality."*

In the business plan and long-term planning category, various observations revealed that the business plan was insufficient or unformed. Long-term planning also needed more attention: *"Long-term plans should be shared with the customer, which means strengthening the partnership's thinking as well as involving other stakeholders better in planning."* Concerning management activities, the observations highlighted the need to improve the meeting practices of management, including the drawing up of a clear agenda and memo for meetings.

4.1.5. Stakeholder Management

In the "Stakeholder Management" theme, the customer satisfaction and feedback category was particularly emphasized. First, it was suggested that customer satisfaction measurements should be not only conducted but also regularly examined and discussed with suppliers. Collecting, documenting, and analyzing customer feedback, both positive and negative, must be organized, as indicated in the following quotations: *"There was no evidence of customer satisfaction tracking,"* and *"Customer feedback is not collected systematically, and feedback is not documented or analyzed."* Other observations related to stakeholder management and stakeholder communication. One observation stressed the importance of *"identifying stakeholder groups and assessing requirements for them,"* while another said, *"In addition to stakeholder analysis, a systematic procedure for communication and feedback collection must be set up."*

4.1.6. Environmental and Chemical Safety

In this theme, the environmental matters and chemicals categories were emphasized. Various environmental management issues, e.g., impact mapping, were highlighted. In the case of chemicals, a need for improvement in their storage was pointed out along with shortages in safety data sheets and lists of

chemicals. The following quotations are typical: “*No chemical registers have been prepared for the chemicals in use, and no safety data sheets are available*”; “*Chemical storage should be improved. Inflammable, corrosive, and other chemicals should be in different storage areas. Inflammable items should be in a fire protection cabinet.*”

4.1.7. Supplier Management

Issues related to supplier selection comprised the largest category in the “Supplier Management” theme. Various observations indicated that the selection criteria for suppliers could not be verified and that more systematic supplier selection was required, as emphasized in the following: “*It was not possible to verify the supplier selection criteria and the suppliers’ selection*”; “*Supplier management is memory dependent and based on subjective experience. The company must set up a list of suppliers and principles for supplier selection. After that, the criteria for supplier qualifications should be listed based on procurement categories.*”

In the category of ensuring the responsibility of suppliers, the most important concern was to ensure the suppliers’ environmental responsibility, but the Code of Conduct was also mentioned, as indicated in the following quotations: “*Establishing a procedure for evaluating the environmental responsibility of suppliers*,”; “*It is recommended that the company bind suppliers by contract to responsible practices (a Supplier Code of Conduct) that are in line with the Code of Conduct of the large principal companies.*”

4.2. Benefits perceived by the buyers

The benefits were considered in three categories. First, potential business benefits to the buyer were identified. Second, potential benefits related to suppliers’ general performance and concrete development target identification were emphasized. Third, improvements in HS performance at the site level were identified.

4.2.1. Buyers’ business benefits

The audit process was seen as having the potential to anticipate possible sources of problems by focusing on the auditee’s past and current HSEQ performance. At worst, unplanned supplier work can cause major financial losses for stakeholders. Said one interviewee: “*When considering such a [process] industry company, the disruption of a single unit may cost 200,000 euros a day. Thus, the high quality of the parts is a big deal, as are ensuring that installations happen in a timely manner as planned and not extending a work stoppage.*”

Although membership and the cluster collaboration involve costs, the system was generally considered more cost effective when compared to audits carried out by the buyers themselves. In addition, the utilization of an external, independent auditor was seen as a positive factor, ensuring the objectivity of the auditing process. The quality of assessment in audits carried out by an independent party were assumed to be high, as each buyer is not independently auditing its suppliers. Cluster work and collaboration increase the number of supplier audits and provide possibilities to compare the audit results. Audits were seen primarily as a tool for developing suppliers, but they were also seen as a way to create competitive incentives for suppliers.

4.2.2. Suppliers’ performance and development

Almost every target company saw HSEQ audits as a supplier development tool. In two target companies, contracts with suppliers required that an HSEQ audit be performed. In other cluster companies, audits were randomly examined at the tender request stage. One of the target companies described being cautious with a supplier if an HSEQ audit had not been carried out: “*If there was a third company that had not participated in the audit, I would be much more cautious in regard to that third company [when an invitation of tenders had been requested from*

two audited suppliers]. And then, when we are choosing the supplier, it's easier to do it when both of them are audited in this case."

Interviewees emphasized the potential of the audit process if it were systemically used both among the cluster and within the principal company. Said one: *"I hope that the cluster will make a joint decision that every company demands the same from its suppliers. For example, a decision could be made that in three years we will begin to require that all service providers be audited. It would be such a clear line. Or we could stipulate, for example, that 70% of the largest service providers have been audited."*

The HSEQ audit process in its current form was considered appropriate for use in Finland to acquire a holistic view of the auditee's performance and to identify possible development targets. At the moment, the vast majority of the HSEQ audits are performed for Finnish companies providing services in Finland. HSEQ as an auditing framework was considered to be appropriate for that purpose. The notion was raised in the interviews that environmental accountability should be more prominently taken into account in the HSEQ AP question framework. Instead of focusing only on sorting waste, environmental liability should also be considered in the subcontracting chain of businesses, for example, by finding out where suppliers are buying raw materials for the manufacture of their customers' products. This is partly linked to the concept of sustainability and CSR. However, one interviewee emphasized the good state of the art among businesses generally in Finland as compared to other countries: *"On the other hand, it must be conceded that the audited companies are mainly domestic. So, in regards to ethical questions—we have noticed in our own internal audits that there are some violations. But certainly not at the level of what is believed to happen globally in Africa, the Far East, or South America. There, ethical issues are perhaps a little different, and there may not necessarily be a need to focus on ethical issues in HSEQ audits [in Finland]."*

4.2.3. HS development at shared workplaces

All buyers collect data on their suppliers' HS performance. The data are also utilized at varying levels in the purchasing process. The interviewees emphasized that suppliers' awareness and performance in HS aspects in general has evolved because of that data collection. The principal companies' interest in HS issues was also seen as a factor in initiating development processes. As the buyers demonstrate by example their interest in HS concerns, the suppliers consciously or unconsciously put more emphasis on their own HS issues.

The HSEQ audit was seen as a tool to be employed when a decline in HS statistics is identified in a supplier's performance. The HSEQ audit can be utilized to initiate an objective discussion to determine the underlying reasons for the worsening performance. In general, the audit process and cluster collaboration were also seen as a forum for information and the sharing of good practices, as indicated in an interview quotation: *"What has happened, when we have looked at companies that have been in the safety culture ahead of us, is that, by their example and mode of operation, they have brought this good occupational safety culture to our company as well."*

5. Discussion

5.1. Observations from the HSEQ AP audits

In the categorized observations from the audits, all HSEQ areas are represented, as well as both strategic and operational activities. Furthermore, we can see all key management areas in the subcategories if they are compared, for instance, with the contents of the EFQM Excellence Model (EFQM, 2012). This is a logical result of the EFQM model's having been one of the references when the AP was originally designed. However, an emphasis on occupational safety

management processes and practices can be observed. This is understandable, as the buyers are from heavy industries among which safety has long been highly prioritized in Finland. As a consequence, the measurement and indicators of occupational safety are well established, providing a practical basis for safety management.

A challenge made evident from the observations, however, is that safety may not be as highly prioritized by suppliers, and thus there is a potential clash of opinions regarding safety at shared industrial workplaces. The capability and willingness of buyers with regard to managing safety requirements ultimately defines how rigorously suppliers adhere to them. If safety is seen as a practical element in managing shared industrial workplaces, a more complicated challenge may arise when embedding safety in broader management contexts. We see an integrated HSEQ management philosophy as a possibility for addressing that challenge. Integrating aspects of HSEQ (or its analogues, such as SHEQ or EHSQ) is a widespread trend in the practices of industrial buyers. The theoretical and practical knowledge accreting around integrated management systems (see, e.g., Domingues et al., 2017; Ribeiro et al., 2017) could provide ideas for future development of the HSEQ AP.

Looking at individual observations in the audits, many are related to requirements that a supplier would have to address in pursuing certification in the major HSEQ standards (ISO 9001, ISO 14001, OHSAS 18001/ISO 45001). In the interviews, it was stated that the audit can be utilized to intervene in cases when a supplier's occupational safety performance has worsened. This would be a sign from the purchasing company to the supply chain that HSEQ performance should be emphasized if a supplier plans to enter the shared workplace.

5.2. Benefits of the HSEQ AP as seen by buyers

In the interviews, it was expressed that the release of buyers' own resources from the auditing work is a significant benefit of the HSEQ AP. Even though it is not explicitly stated, the assessment procedure seems to be largely aimed at indirect SD (Wagner, 2006), which makes sense in that suppliers have various levels of importance to diverse buying firms. For cluster companies that see these suppliers as key partners, the audit can serve to enable direct SD (Krause et al., 2000; Wagner & Krause, 2009).

It was also suggested that using a third party added objectivity to the audit and resulted in more professional documentation, supporting both the buyer and the supplier. This finding is supported by Jounila et al. (2017) study, which showed that HSEQ AP results by a selected group of third-party experts were consistently in good agreement.

Even though the HSEQ AP can be seen primarily as indirect SD, some elements of direct SD can be observed, occurring by means of the shared workplace setting. Human interaction facilitates knowledge transfer (Wagner & Krause, 2009). This knowledge transfer was seen to work both ways, as it was acknowledged that buyers had also gained value by learning good practices from suppliers during the course of these audits.

The buyers should, however, maintain their commitment to the audits and make it clear that the audit results are used in practice (e.g., in supplier selection), otherwise SD will not occur (Krause et al., 2007). For instance, HSEQ AP was not currently used in active supplier selection, and buyers had separate goals and commitments in the procedure. It was observed that having shared goals for the HSEQ AP within the cluster would increase the usefulness of the AP. This relates to the issues caused by a disparity between a single buyer's SD goals and the extent of its supplier evaluation and feedback practices, as found by Wagner and Krause (2009).

The interviews also strengthened the view that HSEQ management emphasizes occupational safety. Considering the nature of outsourcing and of working at shared workplaces (Nenonen & Vasara, 2013), this would be a natural direction for SD. The assessment procedure may also act as a mild way of accounting for environmental responsibility and CSR in SD. It was also seen as a risk mitigation strategy, one of the three risk management mechanisms identified by Hajmohammad and Vachon (2015).

5.3. Limitations

Concerning possible biases in this study, we would like to highlight the following. First, our categorization of the observations and subsequent thematic arrangements was based on the open coding approach. The categorization was based on subjective assessments, and thus others may have ended up in different categories and classification. To mitigate the risk, the categories and the themes were processed multiple times in the research group, and several persons were involved in the process. In addition, the HSEQ-register database does not include certain observations that the supplier has adequately answered within the given time frame. Such observations have been deleted from the register database. Based on discussions with the main auditor body, it appears that such observations are mostly related to certain legal requirements for which the auditee has not been able to provide adequate evidence in the actual audit session but has provided soon after the audit session. Concerning the interviews, we again emphasize that interview analyses are qualitative and thus present the possibility of subjective interpretation. The material was transcribed and the analyses were performed by the research group in order to improve objectivity.

6. Conclusions

Collaborative HSEQ development of suppliers is an unusual but potentially useful approach, and thus an interesting research topic. In this article, we presented a Finnish case of such a HSEQ cluster and studied its impact. Managing HSEQ at a shared workplace requires communication, cooperation, and adherence to principles. The results of this study show that the assessment procedure is a method for supplier management, in particular for developing suppliers that are not strategic partners and for ensuring that their HSEQ management systems meet a given standard. In addition, HSEQ AP brings about other business benefits, including by saving resources and avoiding expensive disruptions.

In future research on this topic, the impact of the HSEQ AP should be studied in more detail. A study highlighting the benefits of the HSEQ AP on the suppliers' side would be valuable. Both qualitative and quantitative methods might provide valuable information on the impact of the audit scheme. For instance, it would be interesting to determine whether suppliers see the benefits of collaboration to the same extent as buyers. Furthermore, research in the SD area has focused mostly on key suppliers, even though non-key suppliers often form a large part of a firm's supplier base. There is also little research on collaboration between buyers, making this an interesting ground for future work.

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