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Occupational health and safety management and operations management: shall the twain never meet?

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Abstract
Occupational health and safety (OHS) management has expanded in companies, and research is indicating benefits for both workers' health and safety and for business performance. However, OHS management tend to end in a sidecar to the operations management (OM). Our analysis indicate that the conflict between the two fields may be explained by conflicts between the dominant logics – risk for OHS management and optimisation for OM. New broader understandings of need for worker well-being and commitment for both OHS and OM open for a closer integration of the two fields.

Keywords: Institutional logics, risk, optimisation, joint management routines

Introduction
The application of systematic forms of occupational health and safety (OHS) management have expanded during the last decades (Uhrenholdt Madsen, Kirkegaard, et al. 2019). This is especially the case for the development of formal OHS management systems, where the recently published ISO 45001 is the prime example of this development. Both research and practice have further developed towards integration of OHS management and operations management (OM). Increasingly, large and medium-sized enterprises rely on joint management systems to align health and safety processes with operational issues such as productivity, quality, and environmental management (Nunhes et al. 2016; Pagell et al. 2014). The effect of the systems on the actual OHS-performance of certified companies has been subject to some scholarly debate (Hasle & Zwetsloot 2011), yet studies has pointed to positive effects on occupational safety performance (Lo et al. 2014; Lafuente & Abad 2018; Heras-Saizarbitoria et al. 2018). Although the effects on both safety and economic performance seem positive, many companies still have quite separated lines of management of OHS and operations (Shevchenko et al. 2018). The decoupling of operations and OHS management has for many years been conceptualised from the OHS perspective as the 'sidecar' problem (Frick 1990) where OHS management is a separate activity organised in its own logic with little influence on operations. The consequence is twofold: On one hand, operations make decisions, which may have a negative influence on workers' health and safety, and on the other hand, the contributions OHS management could make to operations, are not achieved. Already two decades ago, Brown (1996) called for integration of OHS and OM, but it seems like the general question as to whether the two fields are contradictory

or complementary remains open both in practice and in the literature (Pagell et al. 2015). It is the case in spite of the increasing evidence for positive benefits – not only for health and safety but also for the economic performance. This paper pursues an answer to why a closer integration of OHS and OM seems to be so difficult.

As the answer apparently cannot be found in negative economic consequences for business performance, it is necessary to search for other explanations. One possibility is to use institutional theory, especially institutional logics, which may help explain the persistence of the sidecar phenomena by showing how dominant logics influence the understanding of the key actors. Over the last decade, institutional logics has become increasingly popular among organisational scholars. The perspective has been utilized in empirical analyses of topics relevant to operations management researchers such as health and safety professionals (Uhrenholdt Madsen & Waldorff 2019), sustainability practices in entrepreneurial companies (De Clercq & Voronov 2011), and the use of environmental management systems in business facilities (Misangyi 2016). However, within core operations management the use of institutional theory has been limited to studies of isomorphism and decoupling (Kauppi 2013). With the recent calls to more focus on theoretical development (Boer et al. 2015), and on organisational issues in operations management (Anand & Gray 2017), we believe that the institutional logics perspective can be a valuable theoretical tool in operations management as well and contribute to the understanding of the decoupling of the OHS and operations management.

In the following sections we use the logics framework to conceptualize the OHS managers and the operations managers and the modes of organizing they represent as ideal typical institutional logics (Reay & Jones, 2016; Uhrenholdt Madsen & Hasle, 2017). We analyse the core characteristics of each with a point of departure in empirical descriptions from operations management and health and safety literature. Based on this analysis we compare the dominating logics and analyse how they can engage in both competitive and cooperative relations. Finally, we discuss how our conceptualization of the logics of health and safety and operations can be transformed into organisational practice as well as empirical research.

Theoretical approach

We have used the institutional logics perspective to conceptualize how different organisational actors have different beliefs, and how these beliefs and the actions they entail, guide operational actions and outlooks (see e.g. Uhrenholdt Madsen & Boch Waldorff, 2019). The logics perspective seeks to understand how organisational values, beliefs and practices from the institutional environment of organisations can influence practices, choices, and strategies (Thornton et al. 2012: 73). Institutional logics are the basis of organisational practice as they provide organisational actors meaning to *"otherwise banal activities"* (Thornton et al. 2012: 129), and thus a framework through which they are able to understand issues, challenges and possible courses of action to mitigate and solve these (Thornton et al. 2012).

A professional field is often dominated by one logic. However, logics may co-exist in 'constellations of logic' in a more or less competitive or cooperative manner (Reay & Hinings 2009). Based on this view, we investigate how logics can exist in organisations in either 'competitive' or 'cooperative' constellations (Waldorff et al. 2013; Goodrick & Reay 2011).

Competitive constellations denote when multiple logics compete over resources and attention of actors in institutional fields or in organisations. In a competitive constellation, a gain of influence for one logic is a loss of influence for the competing logics. Goodrick and Reay (2011) show that competitive logics either appear in a segmented form where different practices are guided by different logics or in open conflict. In the segmented form, the logics will be mutually exclusive but find an uneasy truce by informing different practices and arenas of the organisational life. In open conflict,

the actors responding to different logics engage in conflicts over resources and organisational ownership over processes. Studies of conflicts between a management logic and the professional identity of medical staff is a great example of the conflictual competitive constellation of logics (Reay & Hinings 2009).

Logics exist in cooperative constellations when they are linked in a non-zero-sum relationship (Goodrick & Reay 2011). Here, the diverse logics will exist peacefully in organisations. Cooperative constellations can be facilitative or additive. The facilitative constellation describes a relationship when the existing two or more logics in an organisational entity amplify each other. Reay & Goodrick (2011) give an example of how the market logic and a professional logic amplified each other in the era when pharmacies emerged as independent businesses. Finally, an example of an additive constellation could be found when new health care practices emerged as consequence of the existence of both a democratic state logic and a professional medical logic (Waldorff et al. 2013).

In the next three sections, we analyse the differences in logics in OHS management and OM. We suggest OHS management to have risk as a dominant logic and OM to have optimisation as a dominant logic. Even though other logics exist and may play a role, we focus on these two logics to analyse whether the constellations we find are competitive or cooperative.

Risk – the dominant institutional logics of OHS management

OHS management has its basis in a health-driven agenda. The goal is to ensure the health and safety of workers. The origins of OHS management can be traced back to public regulation of the work environment. During the second half of the 19th century, regulation of hazardous conditions appeared, first with rules for child labour and second, with rules against particular dangerous machinery such as steam boilers, belt drives, and circular saws. At the turn of the next century, it also became known that certain chemicals such as mercury and lead could constitute a risk for severe health problems, and rules for protection against these chemicals were issued in many countries. Along with the public regulation, the professional fields of safety engineering and occupational medicine developed. It became obvious that technical measures were necessary to control the risk of adverse incidents such as exploding boilers and amputations in belt drives and circular saws covers. In parallel doctors started to study the occurrence and subsequently treatment of occupational diseases, and it is a basic element in medicine to study the risk of an adverse health effect, such as the percentage of people who attract an infectious disease and subsequently the chance that a particular treatment will cure the patient. The need to control the risk of accidents and of occupational diseased has therefore formed the basis for OHS management and constitute what we term the risk logic. The EU framework directive on OHS from 1989, which made risk assessment the revolving point for OHS legislation and enforcement in the European countries, further institutionalised the logic. The subsequent OHS management standards (OHSAS 18001 and ISE 45001) are also build on risk assessment, which all required management policies and procedures have to build on. However, risk assessment has recently been questioned as being necessarily the most efficient approach to secure health and safety for workers in the contemporary work environment where psychosocial and ergonomic factors play a major role (Jespersen et al. 2016; Yazdani et al. 2015). The argument is that the focus on risk does not necessarily create well-being among workers, and that some important features of working life such as social relations are difficult to catch with risk assessment. In relation to small businesses, the focus on risk is far away from their practice since the current thinking in these organisations emphasize possibilities, and the attempt from legislators and OHS professionals to push small businesses to do risk assessment in order to improve the work environment may have detrimental effects (Kvorning et al. 2015; Hasle et al. 2017).

Optimisation – the dominant logic of operations management

The fundamental thinking behind operations management is to ensure the best possible economic performance. Already Adam Smith (1776) pointed out how operations in the term of division of labour could significantly increase productivity. Continuing in the 19th century, Taylor (1911) introduced scientific management as a means to increase productivity by the scientific study of operations, in particular the work methods and the division of labour. Ever since, OM have had a focus on optimisation – also termed rationalisation. Increased productivity or broader performance comes from new technology and from how the operations are organised. The possibility to continue to increase productivity by optimisation was further strengthened with development of the Toyota Production System (Ohno 1988) and Total Quality Management and PDCA (Demmings, (1986), and it is now the overarching approach to operations management. That is in particular the case for contemporary production where elements from lean with later offspring such as six sigma and agility is applied almost everywhere. Production engineers learn from both studies and subsequent practice how to think in optimisation (Liker, 2004).

Yet, the optimisation thinking has also its limits. It is especially the case with the rapid digital technological development, e.g., coined Industry 4.0. Any production carries a risk of disruption where the value of the present setup disappears during a very short lifespan. In the attempt to solve that dilemma, scholars increasingly focus on ambidexterity to tackle the productivity dilemma (Adler et al. 2009; Tushman & Benner 2015). Optimisation links to exploitation, while the call is to ensure that organisations can explore at the same time - be ambidextrous. Whereas this understanding calls for new logics in the operations managers' tasks, the optimisation logic is still dominating in the day-to-day business.

Competitive and cooperative constellations

There may of course be other logics in play for both OHS and operations managers, but our claim is that each of them has one overarching dominant logic, risk and optimisation, respectively. To unfold the above mentioned, figure 1 shows how the two logics can be either competitive or cooperative.

		Examples
Competitive	Segmented	Decoupling where each field runs its own procedures with limited interaction
	Open conflict	Each field carry out activities that have an adverse effect on the other field, e.g.: • Optimisation without risk assessment and production shortcuts neglecting OHS • OHS procedures delaying production or making specific work tasks more time consuming, e.g., paperwork to complete according to ISO 45001
Cooperative	Additive	Both fields add tasks which take the other fields into consideration such as developing integrated organisational routines
	Facilitative	New logics develop based on elements from both fields such as sociotechnical systems or the collaborative organisation

Fig. 1. Overview of the relations between the risk and optimisation logics

As the dominant logics of health and economy respectively have different goals, they are not overlapping. OHS managers may pursue goals that cost money and put restrictions on the most optimal way to organise operations. Examples are numerous, such as investment in ventilation and machine

covers, restrictions on the use of certain chemicals, and limits on lifting and carrying. Thereby operations managers may consider OHS a hassle and try to avoid the involvement of OHS managers in the daily operations. From the opposite point of view, operations managers pursue goals that the OHS managers may find incompatible with workers' health. Examples can be shortcutting safety rules to speed up production, using piece rate systems increasing the risk of repetitive strain injuries or introducing new technology without prior risk management (Haghighi et al. 2019). Indeed studies of the OHS consequences of rationalisation show that they generally have a detrimental effect on workers' health (Westgaard & Winkel 2011) and Brown et al. (2000) show that employees are torn between productivity and safety.

Yet, the only reason the production and the jobs exist, is the output the organisation is delivering, and it is the core task of producing this output, which is the responsibility for the operations managers. The operations managers therefore tend to have the upper hand in relation to the OHS managers, who have consequently argued to be accepted in core operational decisions that OHS improvements are also beneficial for the economic performance of the production. The argument is found in the literature already with Heinrich's (1931) slogan 'safety pays' and the human relations tradition based on the Hawthorne studies (Mayo 1933). Since then, numerous studies have proved how OHS investments have a positive economic return (See review examples in Verbeek, Pulliainen and Kankaanpää, 2009; Lee, 2018). This strain of literature can to some extent resemble the sidecar function (Frick 1990; Uhrenholdt Madsen, Hasle, et al. 2019) as OHS management is placed on the side-line, shouting to top management and operations managers – 'we are not only a cost but also contributing to the economic performance'. Yet, it is uncertain whether this strategy works. As Dorman (2000) asks: "If Safety Pays, why don't Employers Invest in it?". For operations managers, even though the OHS investments by themselves may create an economic surplus, the OHS investments may be considered to hamper the operations and thereby the optimisation logics.

Even though there are examples of open conflict between the two dominant logics such as short cutting safety rules due to cost savings, segmentation will probably be most common in practice. Managers with the different logics perform what they consider as their tasks with little interference and consideration of the other logic. For OHS managers they undertake activities, which are inside their dominant logic such at making and documenting risks assessment, checking use of personal protective equipment, investigating and reporting accidents but with limited influence on the operating core, and thereby on activities in operations that may carry too high OHS risks. The segmentation therefore places the OHS managers in the sidecar. Operations managers pursue their optimisation agenda without immediate disturbance from OHS management, but experience interruptions when accidents happen, when workers get dissatisfied with OHS or when OHS managers put certain safety limits on production.

Increasingly, it is recognised in OM that involvement of workers is a key to high productivity, e.g., as an integrated element in lean implementation (de Menezes et al. 2010; Shah & Ward 2007) and in continuous improvement (Liker, 2004). The reason is the development where simple standard tasks are automated; workers' tasks change and increasingly require autonomous decisions both in the daily operations and in the continuous optimisation of operations. The operations manager loses the direct control and gets more dependent on worker engagement and ability to take the necessary decisions to keep the production running smoothly. A development in the same vein appears in the risk logic of OHS management where there is an increasing focus not only on risk but also on the positive well-being of workers. It is therefore not sufficient to avoid physical risks and disease, it is also necessary to achieve positive goals of well-being. It becomes important to optimise the conditions and organisational forms, which contribute to employee well-being such as autonomy and collaboration – elements that also have high priority for OM. The consequence at the operational level of this development is an understanding of the need for organisational routines where operations and

safety are sharing tasks, and where the two fields increasingly develop shared goals and support each other.

Such routines have in a Canadian study been identified as related to process focus, accountability, design of work, communication and human resource management (Shevchenko et al. 2018), and the same study shows that the best performing manufacturing companies in the sample are marked by these joint management routines. In the sample, though, it is still half of the companies which have management systems which have either a focus on systematic operations management or OHS management or a low level of both (Shevchenko et al. 2018). The need and the benefits of a joint management system is obviously not realised among all companies, but the findings in this study demonstrate that it is possible to develop the dominant logics of operations and OHS management in such a way that they become additive.

There may be possibilities even for a facilitative cooperation between the two dominant logics where a new overarching institutional logic develops from the still stronger pressure for responsible and sustainable business. Brown (1996) called for such a thinking by suggesting the integration of safety into operations management research, pointing out that social responsibility with safety as one aspect should be added to the traditional operations focus on quality, cost, delivery and flexibility. Development has since then increasingly proved to business that in order to secure long term economic profit and survival, it is necessary to do responsible business with a focus on social sustainability (Shevchenko et al. 2016; Longoni & Cagliano 2015; Croom et al. 2018). To the extent that organisations recognise the need for a more responsible business, management get a new and stronger interest in integration of operations and OHS management.

This development creates renewed interest in the original ideas of socio-technical design (Trist & Bamforth 1951; Trist 1978; Appelbaum et al. 1997) that promotes the idea that by integrating design of the work system with technology, it is possible to ensure both high productivity and well-being of workers. A newer version is the concept of high performance work systems (Boxall & Macky 2009), which suggests that extensive involvement of workers ensures high motivation and commitment, which is necessary when production becomes more complex with a need for more horizontal contacts and decisions.

By rethinking the production set up and the workers' role, possibilities open towards a facilitative cooperation between the two dominant logics, where they not only support each other in fulfilling each logic's objective, but also open towards synergy between the logics. The logics can meet in a need for optimisation not only of the direct operations but in a broader optimisation of the conditions for workers, which translate into better performance as workers achieve a higher level of well-being and a higher commitment to their job. A job which is not only exploiting but also exploring possibilities for improvements, thereby as resembling element of an ambidextrous collaborative enterprise (Adler et al. 2011).

Future perspectives for research and practice

The institutional logics theory contributes to explaining the paradox of the decoupling between operations and OHS management in spite of still stronger evidence for complementarity rather than contradiction. The traditional dominant logics of each field have quite different goals, which seem to the professionals as contradictory. It leaves OHS management in a sidecar position and OM troubled with disturbances from both occupational hazards and workers lacking commitment.

We have argued for good reasons for an additive or even facilitative cooperation between the dominant logics - there may in fact be a chance for "the twain to meet". It depends on adjustment of the understanding of the two logics, where professionals in each field develop their knowledge and acceptance of the other field, but also the development in technology and organisational forms that put pressure on their own field to change. Operations managers from detailed planning and control

of production to coaching of workers who achieve the responsibility for both exploiting and exploring the production. For OHS managers, it is important to move from the sidecar role to take co-responsibility for development of performance, based on the understanding that recognising workers for their contribution to performance also increase their well-being. To what extent this development appears in practice, is a topic for new empirical studies, which should also study what mechanisms can contribute to develop a more facilitative cooperation between OHS and operations managers.

However, this strategy is not without risk for workers. It has been questioned whether high performance work systems actually increase well-being or stress (Boxall & Macky 2014; Danford et al. 2008). More research is needed to sort out how the positive potential in such work systems can be utilised without causing an increase in work intensity and stress. This is in particular important on a sector basis, as there are quite big differences between different sectors such as relatively simple manual sewing and cleaning in one end and in the other end more complex work in manufacturing with robots or treating patients in hospitals.

For practice, our analysis calls for in particular two focus points. The first one is at the strategic level where top management needs to make responsible business a key point for the organisation's strategy based on the understanding that long-term economic sustainability also depends on reaching social sustainability. The consequence is treating OHS on an equal manner with quality, cost, delivery and flexibility. The second point is a new and integrated organisation of operations and OHS. For instance in manufacturing operations professionals are often placed in production planning units whereas OHS professionals sit in their own unit or in an EQS (environment, quality and safety) unit. The two groups need to be more closely integrated in their daily work in a manner where they for instance participate in each other's meeting, share kaizen events, and integrate OHS in visual management.

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