What kind of prevention cultures are prevailing? Typical dialogues on occupational safety and health in German companies

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ABSTRACT: Almost every second German enterprise lacks a documented risk assessment. Even less than 20% of all companies live the process of continuously improving health and safety performance. Nevertheless there is a fundamental attention in economy for health and safety issues. Which ways are taken by enterprises instead of or besides legally prescribed ones to deal with occupational health and safety issues will be discussed. It will be revealed which basic assumptions and shared orientations are underlying the correlated types of prevention culture. On the basis of 50 qualitative interviews with managers, OSH professionals and works councils possibilities to identify these prevention types are described as well as target-group-specific approaches to reach and encourage enterprises belonging to different types of prevention culture to intensify their efforts in working on health and safety.

1 BACKGROUND

1.1 *Current findings*

According to the latest representative companies' survey realized in a five-year cycle within the evaluation of the Joint German OSH Strategy "GDA" in 2015 as much as 46% of all enterprises in Germany were lacking a written risk assessment (2011: 49%). These companies are mainly small and medium enterprises representing only about 20% of all employees. But also the thin majority of German companies (54%) that do have a written risk assessment (RA) in most cases do not entirely comply with all legally prescribed steps of risk assessment process (RAP) stipulated by EU's Framework Directive (FD, 89/391/EC) and by national law. Within the mandatory RAP compliance does not only mean applying solid (technical) knowledge to business processes but initiating a continuous improvement process of identifying hazards (first step), assessing severity and probability of occurrence (second step), deploying appropriate preventive measures (third step) and evaluating efficacy of these measures (forth step). As current figures show in 2015 only 13% (2011: 15%) of all companies equipped with RA also reached the final step of RAP (Schmitt-Howe 2016). The figures do not provide information about the frequency of reaching this final step. We do not know how often and in which intervals companies conduct RAP's. But what figures show is, that roughly half of RA conducting companies do reach step three, i.e. they are deploying appropriate preventive measures. Having done so, roughly two thirds of these companies do also evaluate efficacy of the measures they thought appropriate (2015: 56%; 2011: 69%). These findings are sobering. Although legally prescribed everywhere within EU only a small minority not only of German companies really live the process of continuously improving health and safety performance (Schmitt & Hammer 2015).

On the other hand there are indicators for a fundamental attention in economy for health and safety issues. One of those indicators is the high performance rate concerning OSH instruction on the job which 91% of companies say they conduct (2011: 93%), most of them on the mandatory occasions for instruction or even regularly in certain intervals. Even small and smallest companies state, that they do conduct OSH instruction to a hardly lesser share than average. And so do employees: 85% of employees state in 2015 for example, that they were instructed about save handling of machinery and equipment (2011: 83%). The approval rate of instruction about other health and safety issues like handling of biological and hazardous substances fluctuates between 61% and 84%. The minimal but growing approval percentage occurred among employees concerning the question, if they have received instruction about methods of work organisation suitable to avoid work-related stresses and strains (2015: 61%; 2011: 42%). These findings refer to what we can call fundamental attention for OSH or basic OSH communication throughout the whole economy. Even "new" OSH topics like stress reducing methods of work organisation are getting constantly more important in in-plant instruction and dialogues.

1.2 *Bridging the gap*

If there is at least fundamental attention for OSH in economy but only poor implementation of—since about 25 years—legally prescribed OSH procedures like RAP, time has come to have a look at the ways that are taken by companies instead of or besides mandatory ones to deal with occupational health and safety issues. Employee's health and safety is recognized by companies as a management task, although in most cases as a less important management task. Regardless of whether seen more or less important OSH issues indeed are talking points and to a certain degree part of the in-plant dialogue in every company. Therefore a mainly qualitative research project of the Federal German Institute for Occupational Safety and Health has analyzed in-plant OSH dialogues to explore the action guiding interpretive patterns or mind-sets underlying common OSH communication. Basic assumptions about OSH were explored as well as different orientations, shared prevention values and hazard perceptions within organizations. Choosing an observation rather than an evaluation approach involves the aim to generate knowledge about how to reach companies in different contexts and with different types of prevention culture best. As Hasle pointed out "research in state regulation is mainly aimed at compliance and efficiency of public administration, while little attention is paid to why and how public and private organizations (…) are to improve their working environment (Hasle 2014)" or not. Contributing to bridge this research gap one starting point of this paper is the key assumption, that there cannot be no prevention culture within a public or private organization. The preventive standards might be poor, hazards might be underestimated and orientations in dealing with OSH as a management task might be inappropriate as seen from the governmental perspective, but if prevention means "preparing for uncertain future losses by seeking to reduce either the probability of occurrence of losses or their extent (Luhmann, N. 2008)", every company has a fundamental interest in doing prevention. If so we can define prevention culture as the specific way of everyday evaluating health or other risks within the business process, making (rational) decisions and taking the possible consequences of these decisions more or less into account. Regardless whether always conscious this is what every company does by its typical organizational behaviour that especially in case of loss will be interpreted as taken decisions. Only members of an organization have available the tacit knowledge about their organizational culture, i.e. about "the way we do things around here (Schein 1990)". This knowledge informs everyday decision making also in health and safety issues. It has to be taken as action guiding and can be seen as conjunctive between members of organizations. Therefore looking at the tacit knowledge about prevention culture as – often between the lines - expressed by in-plant OSH dialogues enables us to shed light on a wide range of different prevention culture types. For the reconstruction of the here presented typology the so called "documentary method" (Bohnsack 2010) in tradition of the Karl Mannheim's sociology of knowledge was used.

2 RESEARCH DESIGN

2.1 *Interview types and discussion guide*

Concerning data collection two types of qualitative interviews were used: In enterprises with 50 or more employees as a rule a group interview was conducted with 3–4 representatives of relevant in-plant function groups, i.e. (i) one chief executive as the addressee of all OSH acts and regulations; (ii) one of the two OSH experts whose provision is mandatory for each company employer in Germany, namely either an occupational safety specialist or occupational physician who works in-plant or as an external consultant for the company; and (iii) one trade union representative if there was one. In enterprises with less than 50 employees the semi-structured interview was conducted with the working proprietor only. However, if the proprietor wanted to bring in a second respondent, for example in the case of two equal-ranking chief executives, this was accepted. These two interview options both were conducted in a problem-centered style (Witzel, A. 2000 & Witzel, A. & Reiter, H. 2012).

Since "cultural origins and dynamics can sometimes be observed only in the power centers where elements of the culture are created and changed by founders, leaders, and powerful managers (Schein 1990)" in the given context of OSH issues the above mentioned function groups were taken for key agents of implementing a prevention culture and therefore target groups for interviews.

The qualitative discussion guide raised the following four main topics: (i) anchoring and roles in OSH; (ii) change processes and cooperation, including looking back at the companies' histories; (iii) in-plant communication about OSH and learning; and (iv) corporate OSH identity and motivation. All interviews took place in the company's premises. The companies selected for interviews were located in any part of Germany. The interviewees were recruited through gate keepers such as chambers of crafts and trade, trade unions, employers' associations, regional business networks, science networks, and sometimes also by directly contacting companies cited in the business sections of newspapers.

To limit the unavoidable tendency toward positive selection of companies willing to be interviewed about OSH matters, there was one invariable sampling rule set by the Federal Institute; namely, that recruitment is never organized by labor inspectors. This ensured that the interviews were not constrained and provided the strongest standard of data privacy.

2.2 *Sampling per sector group quadrants*

As shown in table 1 the sampling process has been aligned with sector group quadrants compiled on the basis of the following two hypotheses: (i) the more obvious the hazards in the work-place, the more intense the OSH engagement of the company; and (ii) the higher the possible costs of non-compliance in OSH itself or in spheres that impinge on OSH such as consumer safety and environmental law, the higher the probability of intense OSH engagement.

These hypotheses were used to construct a two-dimensional coordinate system generated by the horizontal dimension of obviousness of hazards or exposures and the vertical dimension of possible costs of non-compliance. Sector groups with a similar level of safety risks were clustered into the four quadrants in order to enable sampling of contrasting businesses. To assist the decision on allocation to quadrant I, II, III or IV, among others the German Social Accident Insurance's high, medium or low risk categorization of economic sectors was used.

Table 1. Sampling technique.

Cost of non-compliance	Obviousness of hazards/exposures	
	Lower	Higher
Higher	**Quadrant I** Food industry Health care (incl. pharmacies) Retail trade Hotel industry	**Quadrant II** Construction Chemistry Paper industry Water supply Sewage and waste Automotive industry Crafts; Forestry
Number of interviews	$\sum = 13$	$\sum = 20$
Lower	**Quadrant IV** Service industries: IT services Real estate broking	**Quadrant III** Traffic and logistics
Number of interviews	$\sum = 12$	$\sum = 5$

Allocation in the dimension of possible costs for non-compliance was both guided by estimation based as far as ascertainable on the number of OSH surveillance visits, regulatory actions, scandals and criminal investigations per sector (BMAS & BAUA 2014) and by findings of ESENER-2 (EU-OSHA 2015).

2.3 *Hazard framing, interaction focus and common understanding of OSH*

In a system theory perspective all enterprises, i.e. economic organizations are formally, by membership organized social systems with distinct forms of normality including specific ways to dread, to describe and to prevent calamities (Luhmann, N. 2012). Within the research project 50 qualitative (group) interviews with proprietors or working proprietors or CEOs of these organizations, with OSH-experts and, if existing, with representatives of working councils have revealed five types of action guiding interpretive patterns or mind-sets in OSH along the following three dimensions of meaning: (i) "hazard framing", i.e. the specific approach by which members of organizations think hazards can be made controllable and the extent to which their approach is advanced in making future present already today, (ii) "interaction focus", i.e. the company's focus either to internal integration which implicates intense interaction between management and employees or to external adaption to relevant surroundings like markets, customers, deliverers or society and (iii) "understanding of OSH", i.e. the concept of occupational safety and health common for the company, i.e. the aspects usually seen as part of OSH.

Three possible manifestations of "hazard framing" were elaborated within the typology: making hazards controllable A) by constantly improving prevention since health and safety are seen as unstable, B) by taking up the most striking preventive starting points since some hazards are seen as preventable, others, especially the hidden ones are not, and C) by relying on one's personal aptitude, i.e. qualification or creativity, since health and safety are mainly the result of being good businessmen or businesswomen. Self-evidently the extent of making future present already today is the smallest in C), the biggest in A).

Concerning the second dimension of meaning called "interaction focus" we have to take into account, that internal integration and adaption to relevant surroundings are both essential for the survival of every organization. Thus, no company can disregard the one or the other. Especially the experience based tacit levels of organizational culture shape both internal and external interactions as expressed in Ed Schein's definition of organizational culture as "a pattern of shared

basic assumptions learned by a group as it solved its problems of external adaption and internal integration, which has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems (Schein, Ed 2010)". Bearing in mind the equal-ranking importance of both integration and adaption the only question in this dimension can be how internal and external interactions are concretely shaped and with which intensity. As for any other aspect of organizational culture the interaction between management and employees has to be addressed also for prevention culture when speaking about internal integration. The empirically found manifestations of this "internal branch" of the dimension are BP) "basic participation", i.e. the employees have the possibility to suggest improvements and EP) "expanded participation", i.e. the management is seeking an intense dialogue with the employees. The manifestations of the "external branch" of the dimension are S) "focus on interaction with state institutions" including state law and labor inspection, M) "focus on interaction with mediators" like external OSH experts, chambers of crafts or commerce or similar associations and TP) "focus on interaction with third parties" like cooperating or competing enterprises or society.

On the basis of the empirical material the third typology dimension "understanding of OSH" has been divided in the following manifestations: T) "predominantly technical issues" are seen as aspects of OSH; TOP) "technical, organizational and individual-related issues"; QB) "predominantly questions of behavior"; CU) "comprehen-

sive understanding of OSH including occupational health promotion and M) OSH is framed like a management system. Table 2 provides a first overview on the titles and positions of the five types of action guiding mind-sets in managing OSH within a two-dimensional space built by "hazard framing" and "interaction focus" which are the most important two dimensions.

3 MAIN FINDINGS

3.1 *Description of five types*

Exclusively big companies were assigned to type 1 called "own culture". The companies belonging to this "front runner type" were found in high-risk sectors like chemistry, paper and construction industry but also in nutrition industry and IT-services. Companies of this type have a vision or mission in OSH, they are precautious, i.e. they integrate also very seldom hazards in their prevention work which is constantly improved since stagnation is seen as regression. These companies are usually committed to ambitious OSH approaches like "vision zero". OSH regulations are only perceived as a minimum standard. Health and safety values are communicated by all management levels from top to first-line management. Employees are encouraged to identify with and live the OSH values of the company in everyday life since these values are part of the corporate identity. These companies usually take part in—sometimes even international—benchmarking processes and are in most cases engaged in corporate social responsibility projects. Most of them run at least on management system. In one of four cases the today reached high standard of OSH performance has been described as a consequence of a fatal accident in the history of the firm.

Type 2 called "key figures" is also a big company's type found in chemistry and automotive industry as well as in water economy and again among IT services. Belonging to this type means controlling key figures in every management sphere including OSH and managing target improvements mainly by process instructions given to the employees. Companies belonging to this type were successful in improving OSH in the past. But today they face a residuum of a certain number of accidents that seem to be ineradicable. These accidents are believed to be not preventable. OSH experts working for the companies of this type often anticipate that working on prevention culture is probably the only means to diminish the residuum accident figure further. But they do not know how to start the necessary new form of internal integration. The companies of this type lack a standard communication strategy concern-

Table 2. Types of action guiding OSH mind-sets.

Inter-action focus	"Hazard framing" (prevention approach)		
	Constantly improving (A)	Taking up starting points (B)	Relying on own aptitude (C)
on Integra-tion	Type 1: *4** Own Culture	Type 3: *8* Humans are central a) All is behavior b) Participatory care	Type 5: *12* Self-reference a) Pros b) Bricolage
on Adaption		Type 2: *6* Key figures Type 4: *20* Technocrats a) Apt pupils b) Critics	$\Sigma = 50\ cases$*

*Figures in cursive characters indicate the number of cases.

ing OSH values as part of their corporate identity. Since they run a systematic key figures approach in almost every management sphere it is easy for these companies to watch the state's OSH regulations. Usually these firms are in close dialogue with the responsible labor inspectors whom they invite proactively to visit their company.

Small, medium and big companies were assigned by the research team to type 3 "humans are central". This type seems to be a "no matter what size type" found in production as well as in services except traffic and logistics. They have in common that they see communication as the key success factor for a frictionless workflow and therefore for good OSH performance as well as economic outcome. Employees are seen as the most important resource. Companies of type 3 are convinced that the best way to manage OSH is to create relevant behavioral standards by an ongoing process of discussion with employees. In these companies there are a lot of occasions to talk about occupational health and safety issues. Employees are invited to participate in the discussion about what is needed and how everybody has to behave in order to enable safe and healthy work. These companies do not linger to go even unusual ways by e.g. offering a work place assessment by a physical therapist. On the other hand these firms always expect cases of human failure. They are convinced that these cases are not preventable at the end of the day. Organizational and sometimes also technical OSH requirements are less regarded, in some cases even ignored by these companies unless labor inspection is visiting them. A certain proportion of these firms do not even know any OSH regulation. In-house brainstorming has priority over law among them. Type 3 can be divided in two further subtypes: 3a. "All is behavior" and 3b. "Participatory care". The difference between these subtypes is concerning internal integration, i.e. the interaction with employees. "All is behavior" companies place special importance on initiative of employees. They support employees in all they need for their safety and health if they demand it. But without initiative by employees these firms hardly get active since they are convinced that workflow is operating best if employees themselves or line managers are taking care that they can work healthy and safely. "Participatory care" firms run a different approach in this regard. They also see employees as the most important resource of the company and feel responsible to care for them proactively to keep this resource strong. Employees of these companies are expected to participate e.g. in health promoting seminars or to use ergonomic equipment in everyday work. But their initiative is not decisive for getting these offers.

The biggest number, i.e. twenty companies of the sample were assigned to "the technocrats" (type 4). Companies of this type were found in all sectors and sizes. For them it is most important to watch the law, i.e. to fulfill all OSH regulations which they perceive mainly as a matter of providing employees with safe technical equipment. Their "hazard framing" tends to see other than technical risks as something difficult or strange. Precaution in the sense of trying to prevent also unexpected or seldom hazards is seen as excessive demand they are not willing to meet. Almost the same can be said about non-technical hazards. They are perceived as hardly manageable and therefore hardly preventable. Usually these companies do not feel responsible for those hazards. If emotional stress of employees or other so called new risks are addressed anyway, companies of this type tend to solve the problem by technical means, for example by dividing one office in two in order to separate colleagues who are in conflict with each other. Non-technical means as such are mostly seen as "nice to have", i.e. not really necessary. The focus of these firms lies clearly on external adaption and here on interaction with the state and its law. Providing safe equipment is seen as a form of appreciation for employees. But participation in managing OSH issues is limited. Usually employees are expected to wear personal safety gear and to report danger spots and damages, but they are not invited to discuss what is needed or how things have to be done. Type 4 is to be divided in two subtypes too: 4a. "apt pupils" and 4b. "critics". The difference between these subtypes is concerning external adaption, i.e. the interaction with the state. "Apt pupil" companies consider the state's OSH regulations basically useful. They feel competent to fulfill the regulations, especially in most of their technical parts. For some regulations they ask for more implementation assistance by the state. But on the whole they are content with the law and with labor inspection whom they ask time by time proactively for advice. In contrast the "critics" are happy if they can limit the contact with labor inspection to an absolute minimum. Companies of this subtype often know the regulations better than average and are aware of occurring contradictions between OSH regulations and other law sectors. They feel attacked in their personal integrity by these contradictions and consider the regulations at these points non-realistic and not useful. For example hygiene regulations demand an easy rinsable floor in a slaughterhouse, OSH regulations a nonslip grippy one. "Critics" feel that all these regulations shorten their freedom to conduct a business. They suspect state instructions and think that the number of regulations is much too big

and should be reduced. Nevertheless their interaction focus remains the same as for "apt people", only in form of a negative relationship to the state, its representatives and its law.

Type 5 called "self-reference" is the type of small company's only (up to 35 employees). The cases that were assigned to the type were found in crafts, especially construction crafts, pharmacies and hotel business, i.e. in traditional parts of economy on the one hand and in IT services, especially among start-ups that offer digital services on the other hand. What these little businesses have in common is that they rely almost entirely on themselves, their own experience and judgement. They also do so in OSH. Their prevention approach is practical. They consider most hazards theoretical since accidents or other losses have hardly taken place in their everyday working practice. Working proprietors of this type are convinced that their aptitude and the aptitude of their employees is enough to get along with hazardous situations. In case they belong to traditional parts of economy aptitude for these firms means vocational education (sub-type 5a. "pros"). They argue that OSH was a subject in professional training. So, for them professional work is safe work. In case they belong to the new economy of digital start-ups aptitude can be seen first of all as creativity (sub-type 5b. "bricolage"). In any case by stating, that personal aptitude is principally enough companies of this type for the most part refuse to make future hazards present. If any prevention they do prevention by investing in their personal fitness, qualification or instruction and that of their employees. Interaction focus lies on internal integration for this type of companies. Flat hierarchy is typical for these small businesses. Decisions are principally made by the working proprietor after speaking with his or her employees. These small firms believe in themselves and their team. So, a good atmosphere is important for them and participation possibilities for employees are extended. If any external OSH interaction partners are important these are mediator institutions like external OSH provision services or craft and trade chambers since labor inspection usually wasn't seen for years. Even mediators like occupational safety experts who visit the firms in many cases only once in two years are sometimes seen as "aliens" to the concrete daily working routines and accused to give only inappropriate advice. The difference between the subtypes is one of understanding of OSH here. Whereas "pros" consider mainly technical issues as parts of OSH, "bricolage" companies are mainly concerned with wellbeing and prevention of emotional stress and take these "new risks" as important OSH issues. "Bricolage" companies are additionally characterized by doing everything themselves. Even where

they could draw for example on standardized occupational health promotion or return to work programs they prefer to create their own programs on grass roots level. This might be different with small enterprises belonging to traditional parts of economy.

4 CONCLUSIONS

Although contrasts of businesses were maximized by using a sampling scheme driven by sector group quadrants (Table 1) "self-reference" companies were found belonging to high risk sectors as well as belonging to low risk sectors as well. This indicates that company size is more important than sector as far as small and smallest companies are concerned.

The same can be said about the frontrunner type "own culture" as far as big companies (more than 250 employees) are concerned since only that size companies were assigned to this type.

Speaking about medium sized and big companies only type 2 "key figures" has been found more often in the high risk sector quadrant II. This indicates that bigger companies belonging to high risk sectors tend to use a management system approach more often than others. No matter what size there is a tendency to find "humans are central" companies more often in totally opposed quadrants (II; IV), i.e. as well in high risk and high compliance demand sectors of production as in low risk and low compliance demand service sectors.

A similar tendency can be found concerning the "technocrats" type. Companies belonging to opposed quadrants (I; III) tend to be assigned to this type, i.e. high compliance demand and low risk companies like health care enterprises as well as low compliance demand and high risk companies like transport and logistics firms. Maybe this indicates it is not that much risk level or possible cost of non-compliance that generate the internal integration and therefore communication centred types but the existence or non-existence of structural communication barriers in an organization. Structural communication barriers might exist for example in hospitals since different professional groups of lower and higher status work together under intense time pressure. Similarly in transport and logistics a structural communication barrier can be seen in the fact that employees are on the road most of the day. If this is valid or not, if the five presented types which were developed by explorative qualitative research occur in the described form throughout economy and in which numbers will show the analysis of a quantitative validation survey the Federal German Institute for OSH conducted among 375 companies recently. The results of this survey will not only show in

which sectors and sizes the above described types are found, but also how to address them. The companies were asked by whom, i.e. by which institutions they want to get advice in which form and concerning which OSH issues. This can be helpful for OSH professionals as well as for labour inspection and social accident insurance in finding type adequate ways to promote a better prevention culture in economy.

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