

The concept of a safety culture management system in a company

Wojciech Koziół

Małopolska School
of Economics in Tarnów, Poland

E-mail:
wojciech.kozioł@mwse.edu.pl
ORCID: 0000-0001-7920-760X

Michał Korbelak

Małopolska School
of Economics in Tarnów, Poland

E-mail:
michal.korbelak@mwse.edu.pl
ORCID: 0000-0001-8078-0972

Abstract: The aim of the article is to present the concept of safety culture management systems in an enterprise and to indicate the directions of their improvement. In the course of two-stage empirical research, elements of the management system that highly determine the development of occupational safety culture were identified and described. This applies in particular to: technical and managerial competences of the management staff, modernity of IT technology, work organization techniques, cooperation, values professed in the company. These factors were found to be important criteria for assessing the effectiveness of systems for managing work safety culture. The concept of work safety culture and proposals of the authors of management systems related to work safety culture were characterized. The article concludes with general recommendations and methodological guidelines for enterprises interested in the effectiveness of occupational safety culture management systems in the context of company performance.

Keywords: occupational safety culture, occupational safety culture management systems, efficiency of management systems, fundamental company values

1. Introduction

For the last two decades an increase in interest in occupational health and safety and ergonomics has been observed. However, despite the development of technology, the information technology in particular, and taking into consideration the dissemination of methods and principles of systemic management, adaptation of Polish law to European standards, implementation of prevention programmes in organizations, expansion of the system of state and social supervision over occupational health and safety or growing popularity of initiatives aimed at building safety culture—the level of safety in Polish organizations, measured by accident rates, does not undergo significant changes (Roszko-Wójtowicz, 2015, p. 89; Koziół, Muszyński and Kulwicki, 2018; Olszewski, 1997). The introduction of a differentiated insurance premium, the

Publication financed by:
Małopolska School
of Economics in Tarnów

Correspondence to:
Wojciech Koziół
Małopolska Wyższa Szkoła
Ekonomiczna w Tarnowie
Katedra Finansów i Rachunkowości
ul. Waryńskiego 14
33-100 Tarnów, Poland
Tel.: +48 14 65 65 547

amount of which depended on the size of the total company risk, did not give much in this regard, i.e. improvement of work safety (Sobolak and Konodyba-Szymańska, 2004; Koziół, Siewiora and Korbelak, 2020). These failures are mainly attributed to the low level of safety culture. The lower level of safety culture among Poles in comparison to, for instance, the British, is caused primarily by low awareness of threats that almost every job carries and inappropriate attitudes of employees and lack of genuine organizational commitment on their part (Studenski, 1996). Moreover, which is worth emphasizing, the lower level of culture results from such premises as assigning primacy to the implementation of production tasks before occupational health and safety tasks, employees' habituation to specific working conditions and underestimation of threats, or even not realizing the existence of irregularities in the area of working conditions and organizational solutions (Olszewski, 1997, p. 230).

More recent studies carried out in various coal sector mines indicate that occupational safety is low on the workers' value hierarchy, lower than earnings, work organization, interpersonal relations or job security. It has been found that more than 50% of blue-collar workers do not see a link between accidents at work and compliance with occupational health and safety standards (Stach, 2020, p. 8).

The aim of the article is to present the concept of work safety culture management system in an enterprise and to show the results of empirical research. The elements of occupational safety culture management system were adopted as the subject of the research, while the reference is OSH and the results of the enterprise.

The thesis that the organization and functioning of work safety culture management systems fundamentally determine the use and development of work safety principles and tools in an enterprise was accepted. This concerns in particular: managerial competence, modernity of infrastructure, organization of work and cooperation, values carried out by the enterprise. The effectiveness of occupational safety culture management systems also depends on the development strategy, level of innovation and performance of the enterprise.

The realization of the research objective was based on the analysis of tangible and intangible elements of occupational safety culture and in this context the study of the efficiency of occupational safety culture management systems was set.

Another, no less important, issue of analysis is the determination of the importance of occupational safety culture in enhancing the well-being of employees, considered in the context of the functioning and development of the company.

The following research methods were used to achieve the objectives of the study and to verify the theses such as: results of predecessor studies, analysis of impact factors, questionnaire method, expert research and case study method.

2. The concept of a safety culture management system in a company

Concepts of workplace safety culture date back to the mid-twentieth century. Earlier, in the early years of the century, it was observed that employees had formed their own norms, views, values and ways of behaviour within the workplace. Consequently, many industries, large corporations began to take an interest in workplace safety culture with a view to using it to prevent major accidents and the numerous accidents associated with routine work. In

the relatively few, piecemeal studies on these topics, evidence of this phenomenon are given. A. Studenski defines the culture of work safety as a set of psychological, social and organizational factors initiating or supporting activities protecting life and health both at work and in non-occupational activities (Studenski, 2000). Work safety culture is defined differently by L. Sobolak and B. Konodyba-Szymańska. They stress that it is a part of the organizational culture and in its essence refers to the behaviour of all personnel, the way of performing work and the ability to use equipment and organizational conditions that affect health and safety at work. The strengthening of occupational safety culture is strongly influenced by the information system that promotes occupational protection activities (Sobolak and Konodyba-Szymańska, 2012, p. 261).

According to A. Lipińska-Grobelny and W. Michałowska, the key issue for the interpretation of work safety culture is the interaction between the elements of culture creating work environment and individual needs, aspirations, abilities and expectations of employees. Although the elements of job safety culture influence attitudes towards work, individually perceived quality of work environment, conditions and rules in force constitute reference point for the employee's situation and if it does not promote development (well-being), no other factors will be effective (Lipińska-Grobelny and Michałowska, 2018, p. 35). In turn, the aspects of safety culture assessment given by M. Milczarek such as safety values, employee relations and belonging to the company, responsibility and awareness of OSH, safe behaviour, management commitment and employee participation as well as OSH training and accident analysis can also be considered as nodal task areas of occupational safety culture (Milczarek, 2002).

The analysis shows that occupational safety culture consists of different matters such as: material elements related to the area of technology and techniques, work organization and management, information flow and the level of innovation, occupational safety instructions, ergonomic principles and indications, appropriate use of personal protective equipment, cost analyses of occupational safety and health and the results of the company's activities, and others such as: attitudes of management and employees towards occupational safety and health and ergonomics, individually perceived quality of work environment, conditions and rules in force and, most importantly, interaction between cultural elements creating work environment and individual needs and expectations of employees.

Recording costs on particular type accounts, apart from accounting standards, makes it possible to gain knowledge about their size and it allows to relate them (costs) to the study of effectiveness of activities implemented in the field of OSH. For example, the examination of created relation between the costs of preventive activities (e.g. by recording costs by type of OSH) and the costs of accident insurance tells us about the effectiveness of undertaken activities and management decisions in the field of occupational safety (Stach, 2020, p. 10 and p. 12).

Some researchers emphasize and recognize intangible elements of workplace safety culture. They believe that this culture establishes rules of conduct and values recognized by members of a given group, and determines what people's attitude to risk and safety is. It also perceives the values, visions, work style, beliefs and performance of the organization (Kopczewski, Pączek and Tobolski, 2012, pp. 923–929; Glinka and Kostera, 2012; Ejdys, 2010; Bitsani, 2013, p. 50; Wudarczewski, p. 59). With this approach to the study of occupational safety culture, the relationship between culture and organizational climate can be indicated.

This is because organizational climate expresses employees' feelings and evaluations relating to selected elements of culture and organizational factors (Bitsani, 2013, p. 50; Wudarczewski, 2013, p. 59). This stream also includes intangible elements such as: attitudes of management and employees towards health and safety and ergonomics issues, individually perceived quality of work environment, conditions and rules in place, and the most important interaction between the elements of culture that create work environment and individual needs and expectations of employees.

This review of selected literature alone indicates that the analysis of elements or aspects of workplace safety culture is still a poorly recognized and acknowledged issue of enterprise analysis.

3. Safety culture management system concept Selection of assessment criteria

The concepts of occupational safety culture management system or, more broadly, occupational health and safety management system have so far not met with a precise definition. From the context in which the term has been used, it can be assumed that the management of the two mentioned areas is a process that constitutes normative conduct and dispositional influence on the executive sphere (cf. Smoliński and Solecki, 2015; Koziół, Muszyński and Kulwicki, 2008; Glinka and Kostera, 2012; Berkowska, Drzewiecka and Mrugalska, 2014; Sobolak and Konodyba-Szymańska, 2012; Beasley, 2013; Cascio and Boudreau, 2011, p. 88; Striker, 2013).

In a broader sense, the notion of management system can be defined, following A. Stabryła, as a complex, which is determined by the following (Stabryła, 2011, p. 18): objective, subjective, structural, functional and instrumental aspects. A developed interpretation of this term, capturing the size of its partial forms, was presented by this author as follows (Stabryła, 2011, pp. 7–8):

- It is a set of multiple economic and non-economic objectives;
- In the organizational sense, it is a structure that determines (as a static system) the functioning of an enterprise (institution);
- There are institutional pragmatics and pragmatics of management processes;
- The management process is determined by the following functions: deciding, identifying, planning, organizing, motivating and controlling;
- The management process is captured in different organizational forms such as: management decision systems, management process support systems, functional systems, integrated systems;
- Is a set of rules for the management of resources;
- Is an instrument for stimulating innovation processes.

For the purposes of further analysis, occupational safety culture management system can be presented as follows: work safety culture management system is a stimulating-regulating system and a mechanism for shaping work safety culture and efficient functioning of the organization; determined mainly by the following aspects: subjective, functional and instrumental.

Referring to the concept of J. M. Kobi and H. Wurtchitz¹, the reference system in the research was also the so-called fundamental orientations of occupational safety culture, such as the company's development strategy, elements of structure and power and the values valued by the company, especially those that fall in the area of cooperation with customers and employees.

In the area of customer cooperation, the company is guided by its values:

- treating customers with respect;
- ensuring the security of personal data;
- counselling, joint search for a solution to the problem;
- providing assistance in difficult financial situations.

In the area of cooperation with employees, attention is paid in particular to:

- care for the company's reputation;
- ensuring good relations within the company;
- mutual assistance;
- tolerance;
- mutual respect and partnership based on relationships;
- continuous improvement of qualifications.

During the two-phase research it was possible to extract the set of features of occupational safety culture management performance evaluation model. In the first phase, those features that reflect the functions of the model of assessment of the management efficiency of occupational safety culture, main and partial, were identified and selected from the many variables of the organization's resources by means of the influence factors analysis. In the identification process several sources of information were used, e.g. research reports, expert opinions, management and OSH specialists. In the first stage of the analysis, 5 main criteria and 13 sub-criteria were identified.

In the second phase, an analysis of the safety culture management evaluation system relevance criteria was made. Interviews were conducted among 14 respondents selected from the management of companies in the area of operational management and specialists in ergonomics and OSH. Finally, 5 main criteria and 10 sub-criteria were adopted. The survey was conducted in 2020. A summary of the criteria for assessing the efficiency of safety culture management is given in Table 1.

¹ Among the "fundamental cultural orientations of the enterprise", the authors included: customers, associates, performance, innovation, costs, communication, identification with the enterprise, and technology (cited after: Marcinkowski and Sobczak, 2000, p. 7).

Table 1. Performance evaluation system of the management system of safety culture in the enterprise

Main criteria	Sub-criteria	Evaluation of the efficiency of the management system	
		Pt	Specification
Managerial competences	Training time for technical and managerial competences	1	The number of training days per employee per year does not exceed 5 days
		2	The number of training days per employee per year is between 5 and 10 days
		3	The number of training courses per employee exceeds 10 days
	Knowledge of the operation of modern technologies used in the organization	1	Low familiarity: 30% of the total workforce
		2	To a limited extent: 60% of total employees
		3	Full-time: 90% of all employees
Modernity of infrastructure	Information system layout	1	Distributed
		2	Mixed
		3	Integrated
	Types of information systems	1	Lack of systems supporting knowledge and innovation management
		2	There are systems in place for capturing, collecting and processing information useful for knowledge development and innovation
		3	Expert systems are used to generate ideas and support teamwork
Organization of work	Infrastructure supporting the internal communication process	1	Lack of an IT system to support the internal communication process
		2	The company has an internal IT network to support communication
		3	The internal network uses IT communication systems and databases exist
	Forms of organization of work	1	Team forms of work organization and team problem solving are not used
		2	There is teamwork, employee participation, quality agenda
		3	Methods to promote teamwork are used, e.g. case study, brainstorming, idea fairs, expert networks, intellectual property support systems
Cooperation. External competences	Cooperation with other entities	1	The company does not maintain knowledge contacts with customers, suppliers, co-operators
		2	The company cooperates with customers, suppliers and co-operators
		3	The company enters into "knowledge alliances" and creates shared databases with selected stakeholders
	Source of knowledge on company development	1	Lack of a formalized system for obtaining information and knowledge on OSH and safety culture
		2	There is a system for collecting internal and external information, the company participates in exhibitions, fairs, seminars, conferences, etc.
		3	The company obtains knowledge from universities, research institutions, R & D units and others

Value system	Cooperation with clients	1	Customers are treated with respect
		2	Ensuring data security, consulting
		3	Provision of financial assistance
	Employee relations	1	Lack of formalized system, rules of cooperation
		2	Caring for the company’s reputation and good relations within the company, tolerance
		3	Mutual assistance, continuous improvement of qualifications

Source: Authors’ own elaboration.

4. Assessing the performance of a workplace safety culture management system—a case study

A study on the effectiveness of systems for managing the culture of work safety was carried out in a service company operating in the financial sector, which invests in and manages customer receivables. Among others, it deals with legal services for business entities, economic information, and conducts lending activities for clients. The company is a joint stock company with share capital of 20 million PLN—it operates in Poland and abroad. Employees of the company perform office work with the use of computer and other IT tools, moreover, they participate in negotiations, meetings, seminars, conferences. The work is carried out in comfortable physical conditions (it concerns the material working environment), it is characterized by high complexity and responsibility, generates stress, especially in the process of negotiations and talks with clients, contractors and when making difficult financial decisions. In the last two years there have been no accidents at work during work and commuting.

The evaluation of the management system of work safety culture efficiency in the examined enterprise is presented in Table 2. In the light of the adopted criteria, 3 features of the management system were rated high: training, cooperation with other entities and relations between employees, the remaining ones weaker (on average).

Table 2. Company safety culture management system performance evaluation sheet

Symbol	Criterion	Evaluation
ABCDEFGHIK	Training time for technical and managerial competences	3
	Knowledge of the use of modern technology	2
	Information system layout	2
	Types of information systems	2
	Infrastructure supporting the communication process	2
	Forms of organization of work	2
	Cooperation with other entities	3
	Sources of knowledge regarding company development	2
	Cooperation with clients	2
	Employee relations	3
	OSZ = 2,3	23

Rating: 1—low level; 2—medium level; 3—high level

Source: Authors’ own elaboration.

The measurement of the effectiveness of the work safety culture management system assessment in the examined company can be presented in an aggregate form. The aggregate assessment consists in combining into one whole the individual assessment criteria. The overall index of evaluation of the management of the culture efficiency of work safety system of the company on a scale of 1–3 can be calculated from the formula:

$$OSZ = \frac{A + B + C + D + E + F + G + H + I + K}{10}$$

where:

OSZ—is the value of the index of safety culture management system efficiency in the company;

A...K—criteria symbols.

Table 3. Hierarchical ranges of the safety culture management system performance index in the company

Category	Scoring	
A	2,50–3,00	Benchmark value
B	2,00–2,49	High suitability status
C	1,50–1,99	Usable condition
D	1,00–1,49	Unusable condition

Source: Authors' own elaboration.

The useful state is such a degree of function fulfilment which is greater than or equal to the conventionally accepted sufficient degree of the innovation project function fulfilment.

The state of high usefulness, goodness, is the right quality of the innovation project function.

The evaluation index value of the innovation project in the hierarchical range is category B of the score of 2.30, i.e. the state of high usefulness.

5. Concluding remarks and conclusions

Among the important conclusions that arise from the conducted analyses, the most important one seems to be the one that says that it is the development of resources that constitutes the basic determinant and criterion for assessing the efficiency of work safety culture management systems in an enterprise. In particular, the great importance of managerial competence, the degree of development (modernity) of IT technology, work organization and cooperation, as well as the values recognized by the company, enshrined in the strategy, is emphasized.

The dominant aspects are the subjective, instrumental and functional aspects of the safety culture management system, i.e. the aforementioned competences of the organizational participants, IT instruments and management techniques.

As it has been mentioned, an important distinguishing mark of the efficiency of the system of management of safety culture is technical and managerial competence in the field of diagnostic research methodology and methodology of designing new solutions in the sphere of basic research and in the sphere of implementation in particular. The developed managerial (employee) competences constitute a buckle linking diagnostic research with designing,

thus fulfilling the diagnostic and developmental function of the system of work safety culture management in the enterprise.

The system of values and norms, unwritten rules of conduct and implicit assumptions (i.e. the de facto organizational climate) are an important complement, support for the safety management system.

Work safety culture and its management should also be considered (studied) in terms of a subjective perspective, directly related to the individual interpretation of the work situation, strategy, structure, motivation and action, with the development of resources, especially the company's development resources, being of key importance. In conclusion, it should be added that, due to the limited framework of the article, it does not present a broad discussion on the essence and scope of occupational safety culture management system. It presents a frame presentation of the mentioned concept together with a methodology for measuring this phenomenon, which is the culture of occupational safety.

References

- Beesley, C. (2013). 7 tips for controlling and preventing employee absenteeism [online, accessed: 2020-06-26]. Retrieved from: <http://www.sba.gov/community/blogs/community-blogs/small-businessmatters/7-tips-controlling-and-preventing-employee-ab>.
- Berkowska, A., Drzewiecka, M., Mrugalska, B. (2014). Awareness of employers about the essence of work safety and the level of accidents at work in small and medium-sized enterprises. *Zeszyty Naukowe Politechniki Śląskiej. Organization and Management*, 71, 21–31.
- Bitsani, E. (2013). Theoretical approaches to the organizational culture and the organizational climate: Exploratory research examples and best policies in health care services. *Journal of Human Resource Management*, 1(4), 48–58. DOI: 10.11648/j.jhrm.20130104.11.
- Cascio, W., Boudreau, J. (2013). *Investing in people: The impact of HRM initiatives on corporate financial performance*. Warsaw: Oficyna Ekonomiczna Grupa Wolters Kluwer. ISBN 9788326431227.
- Ejdys, J. (ed.). (2010). *Kształtowanie kultury bezpieczeństwa i higieny pracy w organizacji*, Białystok: Oficyna Wydawnicza Politechniki Białostockiej. ISBN 9788360200926.
- Glinka, B., Kostera, M. (2012). *Nowe kierunki w organizacji i zarządzaniu*. Warszawa: Oficyna a Wolters Kluwer business. ISBN9788326407611.
- Kopczewski, M., Pączek, B., Tobolski, M. (2012). Istota kultury organizacyjnej w zarządzaniu przedsiębiorstwem produkcyjnym. In: R. Knosala (ed.). *Innowacje w zarządzaniu i inżynierii produkcji* (pp. 929–938). Opole: Oficyna Wydawnicza Polskie Towarzystwa Zarządzania Produkcją. ISBN 9788393039944.
- Kozioł, M., Muszyński, Z., Kulwicki, E. (2018). Ergonomic aspects of accidents at work. *Zeszyty Naukowe Małopolskiej Wyższej Szkoły Ekonomicznej w Tarnowie*, 37(1), 85–101. DOI: 10.25944/znmwse.2018.01.85101.
- Kozioł, L., Siewiora, J., Korbelak, M. (2020). Study of work safety culture in the company. *Zeszyty Naukowe Małopolskiej Wyższej Szkoły Ekonomicznej w Tarnowie*, 48(4), 111–120. DOI: 10.25944/znmwse.2020.04.111120.
- Lipińska-Grobelny, A., Michałowska, W. (2018). Organizational climate and postponement of work. *Organization and Management*, 1, 35–48.
- Marcinkowski, A., Sobczak, J. B. (2000). The culture of search. *Personal Review*, 2.
- Milczarek, M. (2002). *Work safety culture*. Doctoral dissertation. Warsaw: Central Institute for Labour Protection and Central Research Institute.
- Olszewski, J. (1997). *Fundamentals of ergonomics and physiology of work*. Poznań: Wydawnictwo Akademii Ekonomicznej w Poznaniu. ISBN 8385530908.
- Roszkó-Wójtowicz, E. (2015). Sources of information in the field of OSH—an international perspective. *Education for Safety*, 9(4), 89–111.
- Smoliński, D., Solecki, L. (2015). Economic rationale for occupational risk reduction. *Occupational Safety*, 6, 25–27.

- Sobolak, L., Konodyba-Szymańska, B. (2004). Incentive accident insurance system—an effective simulator of working conditions and safety. In: M. Gierzyńska-Dolna, B. Konodyba-Szymański (eds.). *Experience and effects of functioning of quality management systems in enterprises* (pp. 297–305). Częstochowa: Publishing House of the Faculty of Management, Częstochowa University of Technology.
- Sobolak, L., Konodyba-Szymańska, B. (2012). Systemic management of work safety. In: R. Borowiecki, A. Jaki (eds.). *Management of restructuring processes: Concepts, strategies, analysis*. Kraków: University of Economics Foundation. ISBN 9788362511815.
- Stabryła, A. (2011). The concept of multi-aspect analysis of enterprise management systems. *Zeszyty Naukowe Uniwersytetu Ekonomicznego w Krakowie*, 871.
- Stach, R. (2020). Managing health and safety costs in a mining company (KGHM). *Controlling and Management*, 3(35).
- Striker, M. (2013). Employee absenteeism and the diagnosis of human resource management dysfunctions. *Acta Universitatis Lodzianensis. Folia Oeconomica*, 288.
- Studenski, R. (1996). *Organization of safe work in an enterprise*. Gliwice: Wydawnictwo Politechniki Śląskiej. ISBN 8385718478.
- Studenski, R. (2000). Safety culture in the enterprise. *Occupational Safety*, 9, 1–4.
- Wudarczewski, G. (2016). The origins of interest in organizational climate issues in Polish scientific literature. *Zeszyty Naukowe Wyższej Szkoły Bankowej we Wrocławiu*, 16(1), 55–72.

Koncepcja systemu zarządzania kulturą bezpieczeństwa pracy w przedsiębiorstwie

Abstrakt: Celem artykułu jest przedstawienie koncepcji systemów zarządzania kulturą bezpieczeństwa pracy w przedsiębiorstwie oraz wskazanie kierunków ich doskonalenia. W trakcie dwustopniowych badań empirycznych zidentyfikowano i opisano elementy systemu zarządzania, które w wysokim stopniu determinują rozwój kultury bezpieczeństwa pracy. Dotyczy to w szczególności: kompetencji technicznych i menedżerskich kadry kierowniczej, nowoczesności technologii IT, technik organizacji pracy, kooperacji, wartości wyznawanych

w przedsiębiorstwie. Czynniki te uznano za istotne kryteria oceny sprawności systemów zarządzania kulturą bezpieczeństwa pracy. Scharakteryzowano pojęcie kultury bezpieczeństwa pracy oraz propozycje autorów systemów zarządzania odnoszących się do kultury bezpieczeństwa pracy. W zakończeniu artykułu podano ogólne rekomendacje merytoryczne oraz wskazania metodyczne dla przedsiębiorstw zainteresowanych sprawnością systemów zarządzania kulturą bezpieczeństwa pracy rozpatrywaną w kontekście wyników przedsiębiorstwa.

Słowa kluczowe: kultura bezpieczeństwa pracy, systemy zarządzania kulturą bezpieczeństwa pracy, sprawność systemów zarządzania, fundamentalne wartości przedsiębiorstwa