

# ASPECTS OF THE DEVELOPING PROCESS ORGANIZATION AND HANDLING CHANGES IN THE AUTOMOTIVE INDUSTRY – ENHANCING RISKS AND SAFETY PRINCIPLES

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## ABSTRACT

*The relationship between the basic elements of the enterprise (5M) is again worth focusing on, as the scarcity of resources (tangible and intangible) is increasing and the management of these resources within the walls of companies is becoming more and more acute. In this context, the issue of security permeates our daily lives, not only in the corporate world. The question is: how can we create greater security in our daily and professional lives, and what can fundamentally determine our opportunities in the corporate hierarchy? In the following, you can read about my research on the corporate security climate in automotive companies in Hungary.*

**KEYWORDS:** company performance, health and safety, industry 4.0, knowledge-management, safety climate

## 1. Introduction

Industry 4.0 emphasises the role of technology (Hugyi, 2022a), which is why it is even more necessary to create and maintain a climate of security within the company, even at critical times, when robotisation and automation are necessary and appropriate – possibly taking jobs away from human resources. However, it may be appropriate when work requires the performance of a monotonous series of tasks that are repetitive over a significant period of time (e.g. assembly line work, etc.).

However, we cannot forget the indispensable potential of human resources, which, despite automation and digitalisation,

we cannot do without if we want to add value to our companies.

In what follows, I will examine the importance and relationship of knowledge management through the organisation and its corporate performance by means of primary research, preceded by a review of related literature sources that fit my topic. I will then present the research methodology and the conclusion in line with its findings.

## 2. Literature Review

### 2.1. General Aspects, Root Aspects of the Development

The occurrence of latent criticalities is “facilitated” by a human act, usually originated in some organisational action.

The hidden causes are “facilitated” by a human act, which is usually rooted in some kind of organisational action. These roots may be related to social, cultural, technological or organisational factors.

In principle, we can start from the 5M method (Azhar et al., 2020):

- Man,
- Machine,
- Material,
- Method,
- Money.

The technical, technological and material approaches and their analysis are not the subject of this thesis, as they would open up separate avenues, which can be further explored in Hugyi (2022b). In the present study, we will focus on the first “M” listed above, since human resources are the driving force for change at all organisational levels and the methodology (which includes management style) applied within the framework of the organisation in order to achieve quality productivity. An organisation is at its most innovative and able to realise its full potential – in terms of human capital, and therefore in terms of the organisation itself – when value is created not only for the stakeholders in the organisation, but also for the individuals who make up the organisation (Hugyi, 2012).

Before going into the details of the role of the human factor in the process of creation and change, we cannot ignore the current micro- and macro-economic aspects, so it is necessary to consider the context in which it is taking place.

This period, in the years following the pandemic associated with the COVID, overshadowed by the Russian-Ukrainian war, which has had an impact on world economic events and much of it, has placed the current market economy in a rather difficult situation, which has induced changes and led to an increase in the uncertainty factor. One role of enterprises is to enhance economic development in a responsible way, thus contributing to macroeconomic development.

However, they are faced with a number of difficulties: lack of financial support, lack of information, an ever-changing regulatory environment, and radical increases in procurement prices (raw materials, energy, etc.) (Litvaj et al., 2022).

We can talk about creating sustainable competitive advantage or effective change management if we take the above cornerstones into account by applying knowledge management with its essence in focus. Innovation is a product of the knowledge management implementation process and a key indicator of the competitiveness of (economic) actors in the market. The objective is achieved through the application of innovations and/or changes in which the knowledge of employees is used as the company’s most valuable asset. In order to ensure the desired development, knowledge management must be linked to management decisions – thus supporting an increase in the level of quality management.

The characteristics of the response to change also depend to a large extent on – the building blocks of the organisation, i.e. – the preferences of individuals and the corporate culture. We speak of a knowledge-based organisation when the basis of the organisation is also characterised by the creation of intangible goods and services (in addition to the creation of tangible goods, for example in a manufacturing company). We can speak of knowledge-based corporate citizens when they are able to deliberately and continuously create and use new knowledge.

These basic elements are largely determined by the way decision making is done – at different levels – since, according to Litvaj et al. (2022), the quality of management depends on decision making. Strategic decision making processes fundamentally determine the effectiveness, efficiency and vision of the company. The decision maker is confronted with a number of tasks to be solved in the decision making process and thus has to choose the best

among several options. This also requires different knowledge, especially about the organisation and process in question and its associated co-processes, on the basis of which the decision-maker makes a value-based choice. And what is also very important is relevant information (supported by IT), but only if it is available in a form and structure that is usable and supports the decision making, i.e. the quality of communication is also decisive.

Moving forward, we must also introduce the concept and science of quality as we move towards our goal, mentioning quality management systems, as companies that have quality management systems in place show better results in the long run than companies that only partially have a focus on quality. Of course, the design and operation of a quality management system is not as easy to define early on as one might first think. One could even mention whether the company has been certified by a third party and with what results, if any. On the one hand, there are key indicators (e.g. number of customer complaints, ppm, EBIT (earnings before tax) and other financial indicators, etc.) which can be used to get an idea and in some cases it is acceptable to judge a company or organisation on these indicators alone. However, if we want to get a real and in-depth picture, we need to dig deeper in the context of the elements listed so far, since we need to start with the basic element of the given financial statement to identify the error, to research its elements.

## ***2.2. Safety Climate***

The concept of safety climate derives from the more general notion of organisational climate (Campbell et al., 1970; Litwin & Stringer, 1968; Pritchard & Karasick, 1973; Schneider et al., 1968; Schneider et al., 2013; Zohar & Hofmann, 2012) which is able to indicate the safety factors of organisational arrangements, which is multi-level and multidimensional (Zohar 2010). Its assessment can be made in the light

of how employees' knowledge and perceptions of safety within the organisation(s) are evaluated, i.e. whether they find the organisational climate of which they are members safe.

Based on the Safety Climate 'Guide' (Zohar, 2010) we find the following perceptions:

- it puts stamp on the behaviour of the individuals who make up the organisation,

- it affects collective decisions, the behaviour of the individuals in the organisation, its collective behaviour, the rate of acceptance of rules and the effort to adapt, to respect the instructions necessary for work,

- it is through the 'glasses' of the employees that we can see what they consider important, i.e. what they mean (Organ et al., 2006),

- a feedback on the perceptions and behaviours of staff in terms of satisfaction and safety (Schneider et al., 2013).

These value perceptions, if shared within the organisation or group, contribute to the development of a climate of safety. And once it is shared by individuals within the group, it becomes accepted and identified within them, and can become a framework collective around them (Griffin, 2000; Zohar & Hofmann, 2012).

Individual behaviour at work is influenced by organisational citizenship behaviour, which has consequences for the organisation. Because, as Organ et al. (2006) wrote, there are not only economic reasons in the individual-organization context, but also social reasons, based on which the individual fits into the organization, including its participatory and cooperative way of working. This is not something that can be demanded, but the result of personal choice. It contributes to a great extent to the synergy of the organisation, since it is not only what the organisational citizen does, but how he or she does it that counts.

Morrison & Phelps (1999) distinguish between the developmental and the interpersonal, cooperative type of corporate

citizen. The former focuses on organisational change through idea generation and problem solving, while the latter focuses on strengthening social relationships and organisational functional equilibria.

### 3. Material and Methods

In the primary research, I used a questionnaire to survey Hungarian and

foreign-owned manufacturing companies with a branch in Hungary, operating in the automotive supply chain (Tier1, Tier2, Tier3). My primary research was supported by 102 employees who rated the following items on a 5-point Likert scale (1-low; 5-high).

**Table no. 1**  
*Meta data*

| <i>Variable</i>               | <i>Category</i> | <i>No. of person</i> | <i>Percentage</i> | <i>Percentage</i> | <i>Median</i> |
|-------------------------------|-----------------|----------------------|-------------------|-------------------|---------------|
| Gender                        | Male            | 83                   | 81                |                   |               |
|                               | Female          | 20                   | 19                |                   |               |
| Life path (year)              |                 |                      |                   | 9,5               | 10            |
| - at current workplace (year) |                 |                      |                   | 3,7               | 4             |
| Average of age                |                 |                      |                   | 34,4              | 34            |
| Age groups                    | < 25            | 23                   | 22,3              |                   |               |
|                               | 26-30           | 15                   | 14,6              |                   |               |
|                               | 31-40           | 35                   | 34                |                   |               |
|                               | 41-50           | 30                   | 29,1              |                   |               |

(Source: Author's own research)

#### **a) Safety climate, attitude, performance (independent variable)**

In the evaluation of the questionnaire results, the items related to the safety climate were treated as independent variables. In this question area, I also examined the level of accidents at work and their personal injury incidents, the importance of consciously designed occupational health and safety in the organization.

#### **b) Organisational performance (independent variable)**

Organisational performance also emerged as an independent variable. The category of organisational performance includes perceptions of innovation and strategy, the efficiency of production and the processes and systems that drive it, the output of production, i.e. the quality of the product and the resulting customer satisfaction and profitability.

#### **c) Knowledge management, knowledge-based corporate culture (dependent variable)**

The responses of the surveyed automotive segment employees provided us with their views on the possibility of promotion and internal career opportunities, i.e. how employee recognition is implemented within the organisation. We also asked whether and to what extent they participate in knowledge sharing and performance appraisal systems (e.g. support for internal/external training) and their role in the company culture.

SPSS version 27.0 was used to analyse the data to determine Cronbach's  $\alpha$ ,  $\beta$ , and regression analysis to characterise the organisation through a series of questions.

The Cronbach's alpha indicator was needed to test the reliability of the test. In 1951, Cronbach published a more sophisticated indicator, named after him, to

replace the simpler test-halving method used previously. The low correlation between the items suggests that the items of the test are not intended to test one and the same thing, and the value to be derived from them does not explain the correlation between the items being tested.

$$\alpha = \frac{n}{n-1} \left( 1 - \frac{\sum_{i=1}^n \text{var}(X_i)}{\text{var}(X)} \right) \quad (1)$$

$\beta$  indicates whether the given (dependent) variable moves with the underlying (independent) variable ( $\beta=1$ ) or, if  $\beta > 1$ , the volatility of the dependent variable exceeds that of the independent variable, while, if  $\beta < 1$ , the volatility of the dependent variable is less than that of the related variable.

The multivariate regression analysis shows how much the dependent variable increases for every one unit increase in a given independent variable, *ceteris paribus*.

The vast majority (81%) of respondents (employees and managers) were male. The average number of years they have been working is 9.5 years, while the average

number of years they have been employed by their employer at the time of response is 3.7 years. Furthermore, the proportion of respondents under 25 years of age was 22.3%, while the proportion of respondents aged 26-30 years was 14.6%, the proportion of respondents aged 31-40 years was 34% and finally the age group 41-50 years was 29.1% (Table no. 1), (Hayes, 2013).

#### Hypotheses:

H1. Safety outcomes, culture (physical and mental health) have a profound impact on the potential of knowledge management.

H2. Hungarian and Hungarian-based multinational companies that (successfully) apply knowledge management tools can benefit through the overall performance of the organisation.

#### 4. Results

In Table no. 2, we find the elements of two independent variables ("Safety climate, attitude, performance" and "organisational performance") and one dependent variable ("Knowledge management") in detail. The Cronbach's  $\alpha$  values are, in order, 0.796; 0.731; 0.908.

**Table no. 2**  
*Results*

|                                                                                                                                                 | Cronbach $\alpha$ |
|-------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| <b>Factor / question-group 1</b>                                                                                                                |                   |
| <b>Safety climate, attitude:</b>                                                                                                                | 0,796             |
| - Low levels of accidents and injuries at work,                                                                                                 |                   |
| - The organisation makes employees aware of the importance of health and safety at work,                                                        |                   |
| - The organisation is aware of and organises measures/programmes to increase the level of physical and mental safety and employee satisfaction, |                   |
| <b>Factor / question-group 2</b>                                                                                                                |                   |
| <b>Organisation performance:</b>                                                                                                                | 0,731             |
| - Declared strategy and innovation effectiveness,                                                                                               |                   |
| - Product/service quality                                                                                                                       |                   |
| - Profitability, relevant market satisfaction, product quality                                                                                  |                   |
| <b>Factor / question-group 3</b>                                                                                                                |                   |
| <b>Knowledge-Management</b>                                                                                                                     | 0,908             |
| - Employee recognition, value creation,                                                                                                         |                   |
| - Systemic talent management, supported by a knowledge and results-based performance assessment methodology,                                    |                   |
| - Corporate culture infused with knowledge management tools,                                                                                    |                   |

(Source: Author's research)

Based on the KM (1) model in Table no. 3, we can conclude that safety climate or attitude towards safety had a significant effect on the development of knowledge management in the organization ( $\beta = 0.71$ ,  $p < 0.05$ ), thus H1 is accepted. In the case of

KM (2), it was found that the performance of the organization was dependent on and significantly contributed(s) to the organization's composite performance ( $\beta = 0.52$ ,  $p < 0.05$ ), thus H2 was also accepted.

**Table no. 3**  
*KM Values*

| Variables                                         | KM (1) | KM (2) |
|---------------------------------------------------|--------|--------|
| Safety climate, attitude, performance ( $\beta$ ) | 0,71   |        |
| Organization performance ( $\beta$ )              |        | 0,52   |
| adjusted $R^2$                                    | 0,631  | 0,415  |

$p < 0,05$ ; KM=Knowledge-management

(Source: Author's research)

## 5. Conclusions

According to Sochen (1972), safety factors, through our own behaviour, need to be designed and changed (learning from past mistakes) to suit our workplace and to continuously promote work effectiveness. The results of the primary research presented in this paper also confirm that a more favourable safety climate reduces the likelihood of accidents and has an impact on firm performance (Dember et al., 1989; Rundmo, 2000; Tan-Wilhelm et al., 2000). Indeed, if employees do not feel satisfied, they may report poor performance (Morrison & Phelps, 1999).

However, from a human capital perspective, in addition to physical security, we cannot ignore mental security, which can be the basis for a secure attitude and performance. Because if an employee does not feel secure in the company, i.e. if he does not see or cannot place himself (his job) in the company's strategy and vision, he may become insecure, losing his personal security factor within the organisation.

Despite the difficulties, the past months (and years) of pandemic and war in neighbouring Ukraine (emergency, shortage of raw materials, energy price explosion)

have highlighted the importance of mental security for workers (supply chain security, etc.), and how this should and can be strengthened if a company wants to stay in the market and continue to operate sustainably – thinking responsibly about human resources and their potential.

With the present research, I wanted to confirm the significance of knowledge management in the automotive segment, as in the case of organised shoulder-laths, where it is considered important to take into account and leverage the (specific) tacit knowledge of human capital (Hugyi 2012), it can indeed add value to the performance of the company – related to the study by Harel & Tzafrir (1999) and Bartel et al. (2004), which shows that effective training plans are related to both production and organisational performance. Consistent with Rodrigo & Grimm (2010) finding that an organization's financial performance is positively related to safety performance.

In the future, it is worthwhile to continue this research and to dig deeper into this topic, based on more diversified sources and including more variables, possibly while increasing the number of sample items.

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