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The growing importance of ecological factors to employees in the transport and logistics sector

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ABSTRACT

The motivational preferences of employees can be statistically determined, but not lifted out of context in terms of the field they work in. The transport and logistics sector is undergoing a significant transformation, characterised by new technological solutions in everyday practice. It is a sector subject to a high number of legislative, economic, social, technological and environmental changes. Such changes have a secondary influence on the expectations, values and therefore preferences and job satisfaction of employees. The objective of this contribution is to identify the development of the motivational preferences of employees in the transport and logistics sector over time. These changes are monitored within the context of key changes and the strategic direction of the sector. The achievement of the objective is based on the partial results of research conducted by means of a questionnaire survey ($n = 3,543$) on motivational preferences and job satisfaction within the field. The ANOVA test and Tukey's HSD test were used for the verification of the hypotheses. The results show that employee preferences are changing significantly, with the most significant increase being identified in the case of social factors (environmental approach, corporate vision and regional development), reflecting current green innovation trends in the sector. Also, employees perceive education and professional growth, self-realisation, competencies, corporate prestige, physical and mental demands, content and type of work, working hours and environment and such feedback on results as increasingly important. On the other hand, there is declining emphasis on basic salary.

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1. Introduction

The transport and logistics sector is undergoing a significant transformation, characterised by new technological solutions in everyday practice. It is a sector subject to a

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high number of legislative, economic, social, technological and environmental changes. Such changes have a secondary influence on the expectations, values, and therefore the preferences and job satisfaction of employees. The current situation is characterised by the lack of good quality human resources and the need to find relevant solutions to resolve this. One of the problems companies face is retaining good quality human resources, in particular with regards to those individuals who have proven their skills and have passed professional training. The solution is to determine the preferences and needs of such employees, i.e., what (de)motivates them. Within this context, logistics companies are increasingly starting to apply so-called employee branding. This refers to a situation where an employer makes themselves interesting from the point of view of current and potential employees. This approach includes progressive HR activities, so that the employer distinguishes themselves proactively from their competitors, thereby making it easier to retain and attract new good quality employees.

This article focuses on the changes in the preferences of employees working in the transport and logistics sector in the period 2017 – 2019 in connection with trends in the sector – labour market, environment, innovation in connection with Industry 4.0 and globalisation. The issue of employee preferences and motivation is widely addressed in publications. The most attention is paid to the relationship between work performance, loyalty, satisfaction and motivation. This is addressed by, for example, Locke (2004), Kuvaas (2006), Dysvik and Kuvaas (2011), Kuranchie-Mensah and Amponsah-Tawiah (2016) and many others. The published knowledge base is mostly presented in the form of case studies in the context of selected companies or more companies in a given field (most often it concerns the banking sector, tourism companies, manufacturing companies, etc.) (Bawa, 2017; Lorincova & Potkany, 2015; Sekhar et al., 2013).

Although the issue of the development of employee preferences over the time has been addressed to a lesser extent, motivation has been widely addressed within the process of implementing organisational and technical changes within companies. Published findings relating to the transport and logistics sector are often limited to local case studies of medium-sized or large companies (e.g., Ahmad et al. 2012; Matijosius & Ciziuniene, 2018; Prasetyo et al. 2021; Rekhviashvili & Sgibnev 2018), with the emphasis put on other areas of human resources management (HRM) (Morkvėnas et al., 2008; Stacho et al., 2019; Tokareva & Tokarev 2018) or the motivation of customers when deciding on a certain mode of transport. This contribution fills the knowledge gap due to the lack of comprehensive research into motivational changes in the transport and logistics sector in connection with the current trends within the sector. The research is based on the preferences and the degree of fulfilment of motivational factors of employees in transport and logistics companies operating in the Czech Republic. The objective of this contribution is to identify the development of employee motivational preferences in the transport and logistics sector over time. These changes are monitored within the context of key changes and the strategic direction of the transport and logistics sector.

2. Literature review

One of the main problems most employers in the public and private sectors face is how to motivate their employees in order to improve their performance. Economics

is largely based on the assumption that financial incentives improve employee performance (Dobrodolac et al., 2016, 2018). It is generally believed that financial incentives have an unambiguously positive effect and strong financial incentives improve employee performance (Goddy Osa, 2014; Szeiner et al., 2020). According to several studies, financial reward has a demonstrably positive effect on increasing work motivation (Kim & Kim, 2021; Pradnyani et al., 2020). Siswanto et al. (2021) point out that financial and non-financial remuneration (salaries, wages, incentives, bonuses, interpersonal remuneration and promotions) increase work motivation if used correctly. Nikolaev (2020) draws attention to the current approach of the postclassical scientific paradigm applied in some of the world's leading corporates. The main way to motivate employees is the as favourable conditions for development, freedom of choice, creativity and support for innovation as possible. Klymchuk and Mikhailov (2018) consider linking incentives with motivation to be a priority, which opens up space for innovative changes.

Mikkelsen et al. (2017) state that at a regional level, the requirements for employee motivation can change even after meeting their needs. Changes in preferences over time have been less intensively addressed in publications. According to Batarliene et al. (2017), the current economic situation in regions also plays a significant role. Inglehart (1997) presents research comparing the factors affecting work motivation in countries of 'economic scarcity' and economically stable/safer countries. He concludes that economic factors (basic factors) usually play a decisive role in the conditions of economic scarcity, whereby motivation is on the whole created by means of eliminating scarcity. These conclusions are confirmed by Huang and Van De Vliert (2003) who compare three industries in 43 countries. According to the authors, employees in developed countries with a strong social security system have the possibility to emphasise 'higher needs' compared to employees in developing countries, where basic factors (financial remuneration and security) play the main role. Such studies compare economies at different levels. Klonoski (2011) uses regression analysis to confirm the results based on economic indicators (gross domestic product (GDP), infant mortality, middle age) and Hofstede cultural dimensions (power distance, masculinity-femininity, uncertainty avoidance, and individualism-collectivism), as well as the fact that the national level of work motivation strongly correlates with aspects of cultural and economic development. His results show that a strong predictor of work motivation is economic power and the stability of the State, whereas GDP as such is not. In terms of economic indicators, middle age (used as an indicator of wealth and stability) shows higher dependency than GDP per capita. This may be due to the fact that the degree of economic development has a stronger impact on work motivation than the level of GDP. The research therefore confirms that changes in work motivation depend on the level of economy development. Klonoski (2011) points to the need for further research to identify unique characteristics of work motivation in relation to external factors. Lorincová et al. (2018, 2019) confirm that employee motivation changes over time. This is further specified by Závadský et al. (2015), Hitka and Sirotiakova (2011) and Hitka et al. (2021), who examine changes in motivation as a result of economic crises. The conclusions show the return to basic needs (financial and security) from higher needs (relationships). Hitka et al. (2021) show a

gradual change in motivational factors after a crisis subsides; decreasing importance of basic factors and increasing importance of motivational factors, i.e., higher needs. Further research by Hitka and Vacek (2010) concludes that the world economic crisis and its social and economic impacts in the woodworking industry did not result in significant changes in motivation. The changes mainly related to regional development and social benefits. Bakanauskienė and Ubartas (2012) found that in a telecommunications company (research conducted in the period 2007–2009) during times of crisis, the efficiency of motivational factors increases, whilst dissatisfaction decreases due to hygienic factors (according to Herzberg's motivation theory). Sensitivity to being fairly rewarded is just as important in times of crisis, a time when most employees tend to leave their jobs.

2.1. Developments in the labour market

As logistics in the Czech Republic (CR) has become increasingly integrated into European and global trade, providers of logistics services are becoming more involved in multinational production and distribution chains. This comes with a need to apply modern methods and technologies, thereby making them susceptible to global problems (Kucharčíková & Mičiak, 2017). The country's geographical location within Europe, the relatively low wages, political stability and abundant labour force were some of the reasons for setting up logistics centres in the CR and Slovakia. This developed went hand in hand with the problem most developed countries (United States, Germany, Great Britain, France) face with regards to the lack of good quality, qualified and motivated human resources in transport and logistics. Currently, however, the CR and Slovakia are facing the same problem as there is a huge disparity between the demand for human resources and suitable candidates for this type of work (Mendlová, 2020). The Confederation of Industry and Trade of the CR (Logistics News, 2017) states that in August 2017, the demand for workers was at an historical high, with over 199,000 jobs available, which even increased in the following years (see Figure 1).

This upward trend came to a temporary stop due to the coronavirus crisis, with major reductions expected especially in the air passenger transport sector. However, in contrast, the field of logistics and courier services recorded an increase in demand, thereby creating the assumption that an even higher number of jobs had been

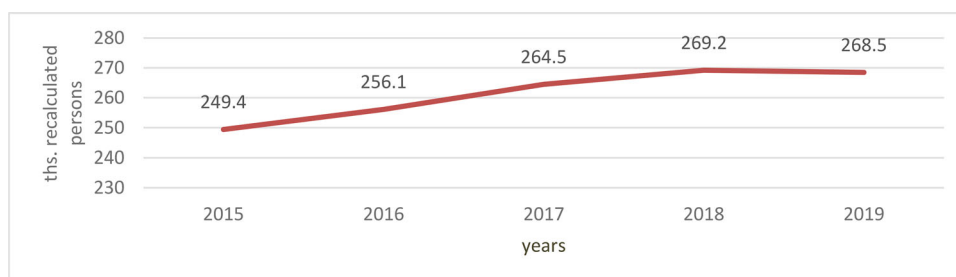


Figure 1. Average number of employees in the field of transport and logistics in the period 2015–2019; Source: ČSÚ (2020).

created. Unfortunately, according to information published by Česmad Bohemia (2020), the first quarter saw a significant quarter-on-quarter decline in the employment rate (about 3%, i.e., approx. 5,000 jobs in transport as a whole).

Average gross wages in the transport and logistics sector in the period 2015 – 2019 (ČSÚ, 2020) grew constantly, with noticeable quarterly fluctuations. This is most notable in the fourth quarter when bonuses, benefits and other rewards are paid out at the end of the year. This explains the usual slight decline at the end of each year. In 2018, average gross monthly wages in the transport and logistics sector were calculated to be €1,130.11 (CZK 29,462 - exchange rate for Q1 2021), while in 2019, it was €1,206.02 (CZK 31,441). Estimates for the first quarter of 2020 indicate a decrease in year-on-year wages growth (4.63% growth compared to the 6.73% growth in 2019 and 8.5% growth in 2018). According to Česmad Bohemia (2020), a further growth in wages is not foreseen for the second quarter of 2020, rather stagnation or a decline. This is in line with the current long-term trend due to the world economic downturn as a result of the Covid-19 pandemic. Compared to other areas of the economy, average wages in the transport and logistics sector is at the upper limit of the top ten least paid sectors. This may be related to the significant lack of human resources in the sector. Compared to the average gross wage in the CR, average wages in the transport and logistics sector have long been 7–8% lower (ČSÚ, 2020).

The long-term development of the transport and logistics labour market (to the year 2019) shows an increasing demand for human resources and positive growth in gross wages. According to Maslow's hierarchy of needs (Armstrong, 2015), the satisfaction of fundamental needs (financial remuneration and employment security) provides space for satisfying higher needs – social and relationship factors. The research question therefore is: How are the labour market trends in the period 2017 – 2019 reflected in the changes in preferences (perceived importance/priorities) of employees working in the transport and logistics sector? Based on theory, it is assumed that the growth in importance of financial factors has stagnated or decreased and that of social and relationship factors has increased.

2.2. Ecological approach

The use of solar and wind energy, heat recovery, sorting and recycling within the transport and logistics sector is now reality around the world. An innovative method for using solar energy (Viessmann, 2020) to power vehicles is being considered for trains, subways, cars, buses and aircraft. In addition to using wind energy (Herman, 2015) for logistics facilities and their energy needs (the Netherlands), it can also be used, for example, for the transport of liquids (wind pumps). Another trend is the environmental certification of logistic centre buildings built by developers (Hyršlová & Hájek, 2006; Hyršlová et al., 2007; Potkány et al., 2018).

In the CR, transport and logistics companies focus their environmental efforts on sorting waste, the use of reusable and/or easily recyclable packaging and materials. Many companies also incorporate innovations into their business practices by, for example, expanding their fleets with electric vehicles (Jurkovič et al., 2020). Rohlík.cz (Logistika, 2020a) is a prime example. In addition to 'green packaging' (easily sorted

and recycled packaging), it has also started to test run four electric vehicles to carry out its activities. A similar approach has been adopted by DHL Express, which bought a whole fleet of electric vehicles intended for urban logistics in Prague and Brno (Logistika, 2020b). From the international point of view, an interesting example is the American company Walmart (Blechová, 2020), which started to look at the sustainable development of its business in the Canadian market 10 years ago. As a result, a new fresh food distribution centre was built of recycled wood, a fleet of 95 forklift trucks powered by hydrogen fuel cells was created (operating an area of 37,000 m²), electricity that is exclusively generated through wind and solar energy is only used, and waste heat from cooling is further used for heating loading ramps. Walmart's green approach (Blechová, 2020) is also reflected in its development and testing of eco-friendlier versions of trucks with the aim to replace 20% of the existing fleet with electric vehicles. This objective will be achieved by purchasing Tesla's electric 'semi' trucks, which will have a range of up to 800 km on a single charge.

Global warming has increased the pressure on companies to adopt a so-called 'green approach' and to look at the sustainability of their business (Tian et al., 2020). Within this context, more new terms have emerged, such as 'green supply chain', 'green environmental supply chain', or 'ecological supply chain' (Lo & Shiah, 2016). In terms of sustainability, business entities need to not only consider their own interests, but also their impact on the environment in carrying out their activities within a supply chain (Ortas et al., 2014), which also has implications for other stakeholders. In their research, Lo & Shiah (n = 175 entities producing electricity in Taiwan) find that businesses are motivated by both external and internal factors to adopt an ecological approach (so as to improve their reputation and image (Nadanyiova et al., 2020), which is also important with regards to so-called employee branding), with environmental uncertainties being the strongest moderator. Delmas and Toffel (2004) state that the pressure from stakeholders to adopt ecological procedures includes that from company employees. According to Carter and Jennings (2002), corporate culture and morality encourages companies in terms of committing to green initiatives. Huirong et al. (2020) point to the important commitment of employees to 'green behaviour', which is considered to be a basic requirement for the transformation towards sustainable development strategies. They show that a pro-environmental approach by employees positively influences green behaviour and motivates such behaviour. Jia et al. (2018) determined the potential of transformation leaders to inspire employees within the context of green enthusiasm on the example of the positive impact of green creativity among health companies in north-east China. However, it would be of interest if this influence works in the opposite direction too (environmentally conscious employees inspire management). According to the research conducted by Ha and Uyen (2021) in Vietnam, green HRM (GHRM) increases employee motivation to work more effectively and ecologically; it also has a positive effect on satisfaction and work performance. It can be assumed that due to the proven effects of the degree of economic development on work motivation (Huang & Van De Vliert, 2003; Inglehart, 1997), the motivation to work ecologically will grow as the importance of higher needs in economically more advanced economies also grows. Perez et al. (2009) proved the existence of a positive relationship

between the attention paid to the development of environmental management systems and the enhancement of the green attitudes of employees. Employees working in environmentally friendly organisations modify their norms, values and thinking in accordance with the green culture and goals of the organisation (Pinzone et al., 2016). Pham et al. (2019) confirm that the principles of GHRM have a significant impact on employee commitment to the environment (which includes a change in values). Within the context of this contribution, the following question arises: How is the increasing attention paid to ecological factors reflected in the importance employees in the transport and logistics sector attach to it?

2.3. Globalisation and digital transformation

At present, transport and logistics companies are reaching the point where, in addition to globalisation (Fila et al., 2020; Godany et al., 2021; Vrbová et al., 2016), their activities are being influenced by the fourth industrial revolution and the associated digitisation (Budsky & Kaiser, 2019; Roblek et al., 2016). Digitisation, as a 21st century megatrend (Gulati & Soni, 2015), has the potential to significantly transform industries. A pertinent expression is the ‘gradual integration of digitisation into the DNA of transport and logistics’, as well as industrial production, business models, public administration, education and society (Lee et al., 2017). According to Horlacher and Hess (2016), successful transformation is becoming a critical issue in management, whereby success depends mainly on suitable modifications being made to process and operations management, which includes employee and management (Nývlt, 2018; Vondráčková et al., 2017) preparedness. The results achieved by Reis et al. (2016) specifically point to the importance of the issue of process and operations management and the need for further research focussed on the opportunities and challenges related to digital transformation.

According to an analysis of trends and the evaluation of the maturity and potential impact of emerging transport and logistics solutions carried out by PwC in Poland (PWC, 2020), the primary factors transforming the transport and logistics sector include: digitisation; shifts in international trade; software changes in processes; changes in domestic trade; and machine-controlled process changes. These findings are based on research carried out by PwC in 2018, for which 1,239 interviews were conducted with executives from 85 countries (85 in transport and logistics). According to the results, 28% of the interviewed commercial transport companies have undergone the process of digitisation, 44% have seen horizontal integration of the value chain occur, and 38% that integration and digitisation was in connection with customers, sales, communication channels and marketing. Digital transformation is currently affecting all areas of transport and logistics (Drašković et al., 2020; Kuptcova et al., 2017; Stopka et al., 2016) the predictions are that this will be the strongest trend in Europe in the near future.

The arrival of new technologies and concepts like automation, global cyberspace (GCS), digitisation (Dvorak et al., 2010; Jovčić et al., 2019; Milenković et al., 2015), system integration, autonomous robotics and vehicles, artificial intelligence, modify

established practices and thinking in companies, especially in the areas of industrial production and services (BMBF, 2019; Dočkalová, 2019; Hudáková et al., 2017).

The global dimension to customer supplier chains brings with it a change in the demands placed on workers and working conditions (Hruška, 2018; Kamenicky et al., 2011). Transport and logistics (Kampf et al., 2018) are fields which are progressive in their approach to the implementation of new processes, technologies and artificial intelligence. The research conducted by Dykan and Obruch (2020) in the area of rail transport confirms that digital transformation results in changes in employee behaviour, their career values and what incentivises them. They conclude that the efficacy of the transformation of intangible components of work motivation should be solved through the segmentation of workers according to their dominant values. This improves the flexibility of the motivational system and ensures that it meets the needs of employees in terms of the implementation of digital transformation in industry.

The increasing demands placed on entities in the transport and logistics sector due to globalisation, digitisation and the implementation of innovations that apply artificial intelligence is the basis for the formulation of the following research question: How are the changes related to the globalisation of customer-supplier relationships and the innovations related to Industry 4.0 reflected in the preferences (perceived importance/priorities) of employees working in the transport and logistics sector? Within this context, how important is corporate vision, regional development and the further education of employees with regards to the changing structure of employee competencies?

3. Methods

The objective of this contribution is to identify the development of the motivational preferences of employees in the transport and logistics sector over time. These changes were monitored within the context of key changes and the strategic direction of the sector. The achievement of the objective is based on the partial results of research conducted within the Czech Republic. The comprehensive research addresses the development as well as mutual dependencies with regards to the structure of the respondents. The research results are based on an analysis of trends in the period 2017–2019, previously published findings, and a questionnaire survey. The questionnaire was created in 2009 in cooperation with psychologists and experts from the field of human resources and after being verified in a pilot preliminary survey, it has been used for a long time in Europe (Hitka, 2009). It set out to determine the currently perceived importance of motivational factors and the role they play in job satisfaction. The focus was on 30 motivational factors, subdivided into 5 basic groups:

- Financial factors: additional financial remuneration; fair evaluation of an employee; basic salary.
- Working factors: physical demands of the work; job security; content and type of work; feedback on work outcomes; working hours; working environment; work performance; workplace security; mental pressure; leisure time.

- Social factors: social benefits; corporate vision; regional development; ecological approach (eco-friendliness).
- Relationship factors: workplace atmosphere; good working team; communication in work; attitude of superiors.
- Career factors: possibility to apply one's abilities; career growth; competences (powers); prestige - corporate name/position; independent decision-making; self-realisation; education and professional growth; recognition at work.

3.1. Research sample and data processing

The basic research sample consists of employees working in transport and logistics companies in the Czech Republic in the period 2017–2020. According to the Czech Statistical Office (ČSÚ, 2020), the number of employees (in full-time equivalent units) working in the sector as a whole in 2017 was 264,500. Of these 73.47% were men and 26.53% women (CZSO, 2020), with no significant change in this ratio recorded in the following years. In 2018, the recalculated number of employees increased by 1.8% (to 269,200) and in 2019, to 268,500 (an increase of 1.5% on 2017). Based on the available statistical data (ČSÚ, 2017), those employed in the transport and logistics sector represent 6.6% of the total working population in the CR (in full-time equivalent units). The respondents were chosen by means of targeted selection in terms of their structure and composition. Stratified samplings were carried out according to control factors, namely affiliation with the region, gender and age.

A total of 3,543 correctly completed questionnaires were collected over a period of 3 years (32.4% in 2017, 34.3% in 2018, 33.3% in 2019). The minimum number of questionnaires in one year was 1,149, fulfilling the minimum sample size requirement. The gender ratio in the sample set was 40.9% women to 59.1% men. The ages of the respondents in the sample set (for the period 2017–2019) included 1,003 (28.3%) employees aged 30 or younger, 1,090 (30.8%) employees aged 31 – 40, 919 (25.9%) employees aged 41 – 50, and 531 (15%) employees aged over 50.

The internal reliability of individual scales of factors in the questionnaire (30 items) was measured using the Cronbach's coefficient alpha: $\alpha = 0.915$ (in 2017, the value was 0.908, 0.913 in 2018, and 0.922 in 2019). The data was processed and analysed using basic descriptive statistics, i.e., the quantification of basic statistical characteristics. The use of a smaller amount of numerical data enabled the unification of information into basic datasets, which in turn enabled their mutual comparison. In addition to the simple comparison of basic characteristics with respect to the selective character of the data obtained, average values were tested by applying the two-sample T-test and ANOVA. The process of identifying pairs that cause statistically significant differences is referred to as post hoc analysis. This involves the comparison of the mean values of all pairs – so-called multiple comparisons (Scheer, 2007). In the case of unequal samples, a modified version of Tukey's test, the so-called Tukey HSD test (Litschmannová, 2012), was used. For analysing the dependence of ordinal features, Pearson's correlation coefficient was used, which assumes a normal distribution (visual monitoring of histograms in combination with the Shapiro-Wilk test). Pearson's

correlation coefficient is a method for identifying the linear dependence of random variables X and Y (Scheer, 2007).

3.2. Research hypotheses

The development of the labour market in the field of transport and logistics (until 2019) is characterised by the long-term growth in demand for human resources (Mendlová, 2020) and increasing gross wages (ČSÚ, 2020). Maslow's theory explains that if lower level needs are satisfied, motivation activates the satisfaction of higher level needs (Wilson & Madsen, 2008). According to this theory, the satisfaction of fundamental needs (financial remuneration and employment security) provides space to satisfy higher level needs – social and relationship factors. This gives rise to the following research question: How are the labour market trends in the period 2017–2019 reflected in the change in preferences (perceived importance/priorities) of employees working in the transport and logistics sector? It is assumed that the importance of financial factors decreased and that of social and relationship factors increased.

(H1): The level of importance employees in the transport and logistics sector attach to financial factors did not increase in the period 2017–2019.

(H2): The level of importance employees in the transport and logistics sector attach to social and relationship factors increased in the period 2017–2019.

(H3): The development of the preferences of employees working in the transport and logistics sector with regards to financial, social and relationship factors is (among other things) dependent on the development of gross wages in the period 2017–2019.

An important aspect of an ecological approach is understanding what sustainability entails, both from the economic and social perspectives. The incentive to adopt such an approach not only comes from stronger regulation, but also from the marketing benefits it brings and the issue of return on investment (predicted growth of costs of current energy resources). The optimal use of resources in the transport and logistics sector is an underappreciated challenge for the future. Due to the sector's progressive development and growing ecological sustainability, it is possible (in line with the change in work motivation presented by Inglehart (1997), Ha and Uyen (2021), Huang and Van De Vliert (2003), and Klonoski (2011)) to formulate the following research question: How is the growing attention that is being paid to ecological factors reflected in the preferences (perceived/priorities) of employees working in the transport and logistics sector? Based on developments, it is assumed that this question is gradually becoming more important for employees.

(H4): For employees working in the transport and logistics sector, the importance of a corporate ecological approach increased in the period 2017–2019.

The research conducted by Dykan and Obruch (2020) in the area of rail transport confirms that digital transformation results in changes in employee behaviour, their career values and what incentivises them. The increasing demands placed on entities in the transport and logistics sector due to globalisation, digitisation and the implementation of innovations that apply artificial intelligence is the basis for the formulation of the following research question: How are the changes related to the

globalisation of customer-supplier relationships and the innovations related to Industry 4.0 reflected in the preferences (perceived importance/priorities) of employees working in the transport and logistics sector? It follows from the aforementioned that the importance of corporate vision, regional development and the further education and professional growth of employees has increased within the context of the gradual change in the required structure of employee competencies.

(H5): The importance employees working in transport and logistics sector attach to 'corporate vision and regional development' increased in the period 2017–2019.

(H6): The importance employees working in transport and logistics sector attach to 'further education and professional growth' increased in the period 2017–2019.

4. Results

The respondents changes in preferences and satisfaction are presented according to (the groups of) motivational factor in Figures 2 and 3. The illustrations show that the strongest preferences are linked to financial, relationship and working factors.

The research revealed that the biggest differences in terms of satisfaction were linked to career factors (74% satisfaction regarding the level of importance in 2019) and financial factors (75% satisfaction in 2019). The year 2019 demonstrated very little change in terms of satisfaction linked to social (87%), career (83%) and relationship (79%) factors. In contrast, Figure 3 indicates an increase in satisfaction linked to financial and social factors in the period 2017–2019. Although in the case of social factors, there is only the tiniest difference between the perceived importance and the feeling of satisfaction, it can be said that employee preferences linked to these factors are on the rise. The situation is completely different in the case of

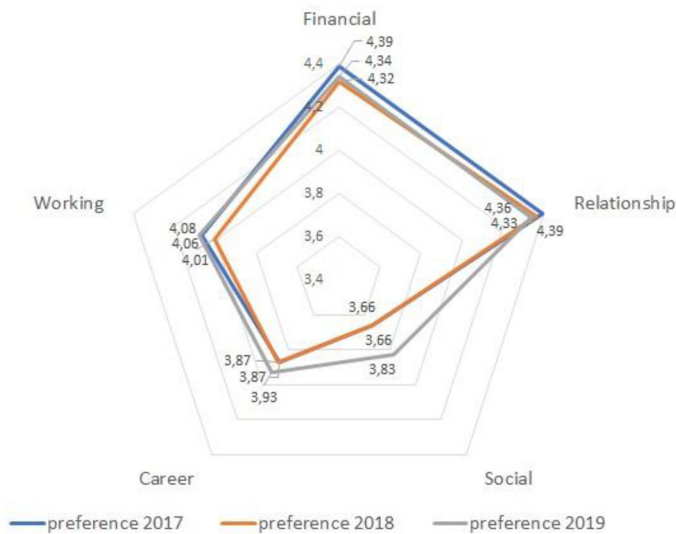


Figure 2. Development of preferences in the period 2017/2019 according to (the groups of) motivational factors.

Source: own research.

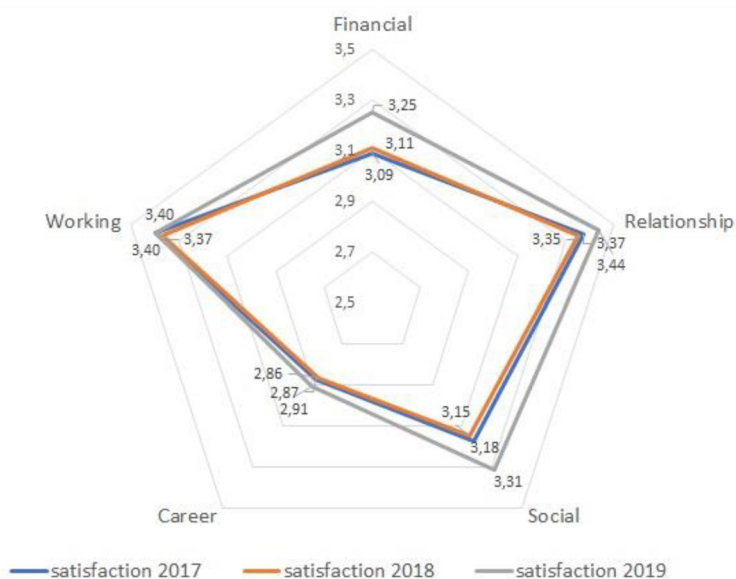


Figure 3. Development of satisfaction in the period 2017–2019 according to (the groups of) motivational factors.

Source: own research.

financial factors, which reveals the second biggest difference between perceived importance and satisfaction. In spite of this, the perceived importance of this factor slightly decreased.

The factors subject to the most profound changes in preferences in the period 2017–2019 were social and career factors. Under social factors, there was an increase in the importance of an ecological approach, regional development, corporate vision and higher requirements for job perks. Under career factors, this concerned marked changes in preferences with regards to self-realisation, education, professional growth, company prestige and competences, with the importance of basic salary and fair remuneration (financial factors) following a downward trend. The latter may be linked to the overall increase in wages in the transport and logistics sector. However, the significance of follow-up remuneration continued to grow. This demonstrates a certain level of security in terms of rewarding employees financially and emphasises the diversification of wages according to performance and merits.

The results of the ANOVA test (see Table 1) revealed statistically significant differences in the development of preferences over time for all groups of motivational factors – with exception to relationship factors. These motivational factors were therefore subjected to Tukey's HSD (see Table 2) post hoc test to identify specific correlations between the years. Tukey's HSD test at a significance level of 5%, in combination with a follow-up survey of selected individual factors, revealed closer relationships within the developed preferences.

A summary of the findings on the basis of the above statistical analyses follows:

- Financial factors: In the period 2017–2018 employees' preference for financial factors fell sharply (see Table 2). This was in part due to a sharp decline in the importance

Table 1. ANOVA test of preferences according to (the groups of) motivational factors for the period 2017–2019.

Motivational factor		Sum of squares	df	Mean square	F	p-value
Financial	Between groups	27.875	2	13.938	4.040	0.018
	Within groups	12211.182	3540	3.449		
	Total	12239.057	3542			
Relationship	Between groups	29.101	2	14.551	2.698	0.067
	Within groups	19089.750	3540	5.393		
	Total	19118.852	3542			
Social	Between groups	358.132	2	179.066	19.840	0.000
	Within groups	31950.473	3540	9.026		
	Total	32308.605	3542			
Career	Between groups	205.573	2	102.786	3.374	0.034
	Within groups	107850.020	3540	30.466		
	Total	108055.592	3542			
Working	Between groups	338.258	2	169.129	6.437	0.002
	Within groups	93018.244	3540	26.276		
	Total	93356.502	3542			

Note. Statistically significant differences at a significance level of 5% are highlighted in bold.
Source: own research.

Table 2. Tukey's HSD test of preferences according to (the groups of) motivational factors for the period 2017–2019.

Dependent variable			Mean difference	Std. error	p-value	95% Confidence interval	
						Lower bound	Upper bound
Financial	2017	2018	0.21031	0.07644	0.016	0.0311	0.3895
		2019	0.15542	0.07698	0.108	-0.0251	0.3359
	2018	2017	-0.21031	0.07644	0.016	-0.3895	-0.0311
		2019	-0.05489	0.07593	0.750	-0.2329	0.1231
	2019	2017	-0.15542	0.07698	0.108	-0.3359	0.0251
		2018	0.05489	0.07593	0.750	-0.1231	0.2329
Social	2017	2018	0.00694	0.12365	0.998	-0.2830	0.2969
		2019	-0.67099	0.12451	0.000	-0.9629	-0.3790
	2018	2017	-0.00694	0.12365	0.998	-0.2969	0.2830
		2019	-0.67793	0.12281	0.000	-0.9659	-0.3900
	2019	2017	0.67099	0.12451	0.000	0.3790	0.9629
		2018	0.67793	0.12281	0.000	0.3900	0.9659
Career	2017	2018	-0.05702	0.22718	0.966	-0.5897	0.4756
		2019	-0.53799	0.22877	0.049	-1.0744	-0.0016
	2018	2017	0.05702	0.22718	0.966	-0.4756	0.5897
		2019	-0.48097	0.22564	0.084	-1.0100	0.0481
	2019	2017	0.53799	0.22877	0.049	0.0016	1.0744
		2018	0.48097	0.22564	0.084	-0.0481	1.0100
Working	2017	2018	0.58294	0.21098	0.016	0.0883	1.0776
		2019	-0.11874	0.21245	0.842	-0.6169	0.3794
	2018	2017	-0.58294	0.21098	0.016	-1.0776	-0.0883
		2019	-0.70169	0.20955	0.002	-1.1930	-0.2103
	2019	2017	0.11874	0.21245	0.842	-0.3794	0.6169
		2018	0.70169	0.20955	0.002	0.2103	1.1930

Note. Statistically significant differences at a significance level of 5% are highlighted in bold.
Source: own research.

of basic salary (2017–2019) and fair financial remuneration (compared to 2017). However, the importance of follow-up financial remuneration (2018–2019) grew.

- Relationship factors: There was no significant change in employees' preferences.
- Social factors: In contrast to previous years, 2019 saw a significant increase in the importance employees attach to social factors (see Table 2), in particular ecological approach, regional development and corporate vision (see Table 3).

Table 3. ANOVA test of preferences according to selected motivational factors for the period 2017–2019.

Motivational factor		Sum of squares	df	Mean square	F	p-value
Business vision	Between groups	11.219	2	5.610	5.675	0.003
	Within groups	3498.969	3540	0.988		
	Total	3510.189	3542			
Regional development	Between groups	47.275	2	23.638	20.919	0.000
	Within groups	4000.099	3540	1.130		
	Total	4047.374	3542			
Education and professional growth	Between groups	7.934	2	3.967	4.603	0.010
	Within groups	3050.979	3540	0.862		
	Total	3058.913	3542			
Ecological approach	Between groups	20.838	2	10.419	9.205	0.000
	Within groups	4007.044	3540	1.132		
	Total	4027.881	3542			

Note. Statistically significant differences at a significance level of 5% are highlighted in bold.

Source: own research.

Table 4. Tukey's HSD test of preferences according to selected motivational factors for the period 2017–2019.

Dependent variable	Mean difference			95% Confidence interval			
		Lower bound	Std. error	p-value	Upper bound		
Business vision	2017	2018	0.015	0.041	0.926	-0.08	0.11
		2019	-0.111	0.041	0.020	-0.21	-0.01
	2018	2017	-0.015	0.041	0.926	-0.11	0.08
		2019	-0.126	0.041	0.005	-0.22	-0.03
	2019	2017	0.111	0.041	0.020	0.01	0.21
		2018	0.126	0.041	0.005	0.03	0.22
Regional development	2017	2018	-0.006	0.044	0.990	-0.11	0.10
		2019	-0.248	0.044	0.000	-0.35	-0.14
	2018	2017	0.006	0.044	0.990	-0.10	0.11
		2019	-0.242	0.043	0.000	-0.34	-0.14
	2019	2017	0.248	0.044	0.000	0.14	0.35
		2018	0.242	0.043	0.000	0.14	0.34
Education and professional growth	2017	2018	-0.105	0.038	0.016	-0.19	-0.02
		2019	-0.096	0.038	0.033	-0.19	-0.01
	2018	2017	0.105	0.038	0.016	0.02	0.19
		2019	0.009	0.038	0.970	-0.08	0.10
	2019	2017	0.096	0.038	0.033	0.01	0.19
		2018	-0.009	0.038	0.970	-0.10	0.08
Ecological approach	2017	2018	0.027	0.044	0.811	-0.08	0.13
		2019	-0.147	0.044	0.002	-0.25	-0.04
	2018	2017	-0.027	0.044	0.811	-0.13	0.08
		2019	-0.174	0.043	0.000	-0.28	-0.07
	2019	2017	0.147	0.044	0.002	0.04	0.25
		2018	0.174	0.043	0.000	0.07	0.28

Note. Statistically significant differences at a significance level of 5% are highlighted in bold.

Source: own research.

- Career factors: In contrast to 2017, 2019 saw a dramatic upsurge in the importance employees in the transport and logistics sector attach to education, professional growth, self-realisation, competences and corporate prestige (see Tables 3 and 4).
- Working factors: 2018, compared to 2017 and 2019, stands out because of the enormous changes in employee preferences that took place. This includes:
 - The increased importance of the physical demands of a job, job content and type, feedback on work outcomes, working hours, work performance and mental pressure.
 - The decreased importance of employment security, industrial safety and free time.

The average gross wage in the transport and logistics sector shows a long-term upward trend. The average gross wage was €1,052.47 (CZK 27,438) in 2017, €1,130.11 (CZK 29,462) in 2018, and €1,206.02 (CZK 31,441) in 2019. The Pearson's parametric correlation coefficient test was applied to test the groups of motivational factors through the progress of average gross wages in the sector. The test rejected the null hypothesis (H_0), namely that the financial, relationship, social and career motivational factors are not dependent on average gross wages. In contrast, the test confirmed the alternative hypothesis, with the financial ($r = -0.034$, $p = 0.044$) and relationship ($r = -0.036$, $p = 0.020$) factors showing a weak negative dependence and the social ($r = 0.09$, $p = 0.000$) and career ($r = 0.040$, $p = 0.019$) factors showing a weak positive dependence. The group of working motivational factors ($r = 0.009$, $p = 0.574$) was shown to be completely independent of wage developments in the sector.

5. Verification of hypotheses and discussion

The results presented in Section 4 enable the formulated hypotheses to be confirmed or rejected. The findings are interpreted and discussed within context.

5.1. Research hypotheses

On the basis of the results of the statistical testing at a significance level of 5% (see [Tables 1–4](#)), the formulated hypotheses can be confirmed or rejected.

- H1: The obtained results (see [Table 2](#)) confirm the hypothesis. The importance of financial motivational factors significantly decreased between 2017 and 2018. This fact is linked to the greater satisfaction with financial factors in 2019 compared to the previous years.
- H2: The hypothesis was rejected. Although Tukey's HSD test confirmed a noticeable increase in the importance of social motivational factors, no statistically significant change in relationship motivational factors was detected (see [Table 2](#)). The importance of social factors rose considerably ($p \leq 0.05$) in 2019 compared to the period 2017–2018.
- H3: The hypothesis was confirmed. The results of Pearson's correlation coefficient ($p = 0.044$) confirmed the negative weak correlation between financial factors and the upward trend of gross wages in the transport and logistics sector. Beyond financial factors, correlations were also detected for relationship and social factors.
- H4, H5 and H6: The results of Tukey's HSD test presented in [Table 4](#) confirm hypotheses H4–H6. The results show employees increasingly supporting an ecological approach, corporate vision, regional development, education and professional growth over the period 2017–2019. This therefore inevitably puts mounting pressure on companies to implement appropriate measures and policies.

6. Discussion

The research results enrich current knowledge in the field of employee motivation by focussing on a specific segment of transport and logistics in the context of their

development over time. Significant changes in the perceived importance of groups of motivational factors in the period under review were detected. The most significant changes were identified in the case of social factors, where the emphasis on the ecological approach, corporate vision and development of the region has been growing. Thus, the assumptions formulated on the basis of theoretical knowledge and trends within the sector were confirmed. Motivation for employee pro-ecological behaviour is being increasingly discussed by experts (Greiner, 2019; Jankelová et al., 2020; Pham et al., 2019; Pinzone et al., 2016), although Budzanowska-Drzewiecka and Tutko (2021) state that Polish employees are only moderately involved in this regard. Their attitude is more related to the internal motivation of individuals than to the targeted initiative of management. Hicklenton et al. (2019) confirm our stated assumption of increasing the perceived importance of the company's environmental approach by employees in connection with green activities in the sector. They found that workplaces with a stronger pro-environmental climate (e.g., the transport and logistics sector) and elements of autonomy support show a higher level of autonomous motivation of employees to behave ecologically. Carter and Jennings (2002) argue that corporate culture is a stimulus for companies to undertake green initiatives. Huirong et al. (2020) emphasise the necessity to encourage employees to adopt 'green behaviour'. The authors demonstrate that ecological approach has a positive influence on employee green behaviour and autonomously motivated workers. Corporate environmental thinking also determines the values and preferences of employees.

Also, the results show that for employees in the field of transport and logistics, groups of motivational factors related to financial evaluation and the relationship background in employment are highly important. A similar finding can be seen in the case of research using the S-LCA methodology (Vavra et al., 2021), where factors related to financial remuneration have the greatest influence on employee motivation in the analysed Czech chemical company. Our research has also revealed that the increase in the average gross salary in the monitored period is related (with a very weak dependence) to a change in the perceived importance of financial, relational, social and career factors. While satisfaction with the financial aspect is growing, the naturally perceived need for its fulfilment (importance) is declining. Conversely (as confirmed by the ANOVA test), the preference for social and career factors is growing. The conclusions by Inglehart (1997), Batarliene, et al. (2017) and Huang and Van De Vliert (2003) or Mikkelsen et al. (2017) confirm this finding by describing a change in perceived importance of lower and higher needs (according to Maslow's theory) based on different conditions of regional economies or changes caused by the economic recession (Jaros et al., 2014). Jovanovic and Matejevic (2014) state that if salary rises above the subsistence level, employees are more influenced by internal factors of motivation (intrinsic reward), such as internal satisfaction from the results of work, self-realisation, professional growth and education, prestige of the employer, etc. Manzoor et al. (2021) combine internal rewards with increased satisfaction and work performance. Similarly, our findings point to the growing importance of career factors from the side of employees (education and professional growth, self-realisation, powers, prestige of the company). A survey of job satisfaction sources in a Poland transport enterprise (Jędrzejczak-Gas & Wyrwa, 2020), shows the greatest

influence of powers and sufficient information and confidence in the employee's ability. The need to fulfil higher-level needs comes with the achievement of income and employment stability, which also arise from the latest trends in the sector (Klonoski, 2011). Matijosius and Ciziuniene (2018) deal with using change of motivation in a transport company, pointing out that motivation is influenced not only by external factors, which can be noticed relatively quickly and are specific to the field, but also internal, personal ones, which are more difficult to notice and also difficult to assess. An interesting study was conducted by the research team of Tokareva and Tokarev (2018), which included employees of three transport companies from Sverdlovsk region. Their research has shown that the motivation to achieve success, self-confidence, self-esteem (for so-called toxic employees) can change the attitude to professional activity and create an internal basis for optimal interpersonal relationships with colleagues. Changes in motivational preferences over time are also studied by Lorincová et al. (2019) Závadský et al. (2015), Hitka and Vacek (2010) and Hitka et al. (2021). Their research focuses on the transformation of motivational preferences resulting from economic crises (without focussing on a specific field, or with a focus on the field of wood processing industry). Their conclusions confirm the findings of analyses concerning different regional or sector economic conditions (Klonoski, 2011). They point out that higher-level needs (relationship factors) are set aside in times of crisis, with preference being given to lower-level needs (financial and job security). Changes in work motivation are thus different in individual industrial sectors because economic crises do not necessarily have the same impact on them. Therefore, it can be assumed that the response to changes due to the COVID crisis will also be specific in individual sectors of the Czech Republic. Innovative trends and the situation on the labour market in the transport and logistics sectors open up the need for the so-called postclassical scientific paradigm applied in some of the world's leading enterprises, which is described in more detail by Nikolaev (2020). The author emphasises the direction of employee motivation through creating conditions for their development, freedom of choice, freedom of creativity and supporting innovation. Klymchuk and Mikhailov (2018) perceive the need to link incentives with motivation and thus the need for a more flexible perception of the issue of increasing work motivation in connection with innovation and change over time.

7. Conclusion

The objective of this contribution was to identify the changes over time in the motivational preferences of employees in the transport and logistics sector. These carefully monitored changes in attitude have resulted in policy transformations in individual sectors. This contribution provides results that extend existing knowledge. Further research should focus on other changes in motivational preferences caused by the pandemic. This contribution also has practical use because it applies to a specific industrial sector in the Czech Republic.

The research confirmed five out of six hypotheses formulated. Only the hypothesis that the importance attached to relationship factors would change was rejected. In the period 2017–2019, the labour market for the sector was characterised by a widening

gap between demand and the available workforce, year-on-year wage growth, employment security, and the implementation of an increasing number of innovations, primarily digitisation. As a consequence, the requirements placed on qualified human resources also changed. These changes concerned flexibility, the ability to learn, reduced physical demands of work at the expense of increasing mental pressure, and the growing emphasis of a 'green approach'. In recent times, the latter has become an important marketing instrument and trend within the transport and logistics sector (sorting and recycling waste, electric vehicles, hybrid cars, low-energy buildings, etc.). This is also reflected in the attitudes of employees and within the globalisation of logistics processes, thereby improving interactions at the international level. It is within this context that the assumptions were made with regards to the changing motivational preferences of employees in the sector. Based on the findings (see [Figure 2](#)), it can be stated that the greatest change occurred in the perceived importance of social factors (social benefits, corporate vision, eco-friendliness, regional development, etc.), as verified by ANOVA and post hoc tests ($\alpha = 5\%$). This reflects the growing trend to not only integrate an ecological approach into transport and logistics, but also corporate vision in relation to innovations in order to comply with Industry 4.0, social benefits and regional development. The latter is of particular importance because logistics centres and industrial parks can, to some extent, combat the issue of ageing regional populations by counteracting the migration of younger people towards big cities to find work. It was also established that employees prioritise career factors (education, professional growth, self-realisation, competences and corporate prestige). This aspect reflects the need to keep up with the digitisation process in the sector.

Based on the discussion of the presented outputs and published findings, future research will focus on the differences in the changes in employees' motivational preferences across different industrial sectors. Also of interest is the assumed reduction in sensitivity towards dissatisfaction due to the pandemic and the resulting inability to fulfil hygienic factors and improve the efficacy of motivational policies.

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