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# Customer Experience as the Driving Force for Supply Chains Digital Transformation

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## Abstract

Supply chain managers constantly look for the resources that are able to enhance and improve supply chain competitiveness. This competitiveness is analysed mainly in the light of cost, time and quality of the customers' service delivered by the supply chain management. Today one of the most important resource impacting on driving business in the competitive way are the digital technologies. This is mainly due to the fact that digital technologies are strongly changing the innovation level of the company and its performance. Therefore it is worth to analyse the influence of digital technologies on supply chain competitiveness in terms of cost, time and quality. The aim of this paper is to present the most important areas that are impacted by the digital technologies in improving of supply chain competitiveness. The results of the empirical research, conducted among 120 supply chain managers in 2018, show that the aspect of quality is the weakest point in terms of digital innovation impacting on supply chain competitiveness. Thus in the second part of the paper the analyses of the role of the customers experience have been done to understand the new approach to the role of digital technologies. The digital innovation is impacting the whole customers' journey during their relation not only with the company, but with the supply chain – that is actually the organization of several independent companies. In this way digital technologies starting to be a central point of supply chain configuration for improving its competitiveness.

**Keywords:** Supply Chain Digital Transformation, Customer Experience, Customer Journey, Digital Innovation, Supply Chain Competitiveness

## Introduction

*Everyone wants progress, but nobody wants change.*

Supply chain (or better – "demand network") is a complex organization involving different parties' engaged in the coordination of the flows of information, goods and money. Supply chain competitiveness concentrates mainly on cost, time and quality improvement. According to McKinsey, once a company sets out a vision for its supply chain, it should articulate that vision in terms of business and technical capabilities. These might include the following (Gezgin, *et. al.,* 2017):

Better decision making. Machine-learning systems can provide supply-chain managers with recommendations for how to deal with particular situations, such as changing material planning and scheduling in response to new customer orders.

Automation. Automated operations can streamline the work of supply-chain professionals and allow them to focus on more valuable tasks. For example, digital solutions can be configured to process real-time information automatically, thus eliminating the manual effort of gathering, scrubbing, and entering data.

End-to-end customer engagement. Digital technology can make customer experiences better by giving supply-chain managers more control and providing customers with unprecedented transparency: for example, track-and-trace systems that send detailed updates about orders throughout the lead time.

Innovation. A digital supply chain can help a company strengthen its business model and collaborate more effectively with both customers and suppliers.

Talent. Digitally enabled supply chains have talent requirements that can be quite different from those of conventional supply chains. At least some supply-chain managers will need to be able to translate their business needs into relevant digital applications.

Today competitive demand networks are the ones that are intimately connected to data sources such as the internet of things (IoT) enabled with comprehensive and fast analytics, openly collaborative through cloud-based commerce networks, conscious of cyber threats, and cognitively interwoven (IDC, 2017). At the same time, customers started to be more involved into the customers journey with the company as the technology stimulates their and companies' behaviour. These include connectivity supported by i.e. cloud computing, IoT, artificial intelligence (AI), blockchain, big data analytics, etc. that enable e-commerce development from one side and access to the information by smart phones on the other.

To gain in value from digital technologies and innovations driven by them it is worth to identify both – digital supply chains and digital customers journey to improve supply chain competitiveness by better customers' experience. This experience might be at the same time the driving force for supply chains digital transformation improving that process by meeting the customers' expectations and thus the quality of service delivered by the whole supply chain process.

The aim of the paper is to present the idea of improving the supply chain competitiveness by merging the customers experience during their journey with the organization together with digital supply chain concept. The concept is presented in the light of digital transformation process; the main supply chain completive advantage forces – namely: cost, time and service quality – supported by digital technologies; and the idea of customers experience and journey compiled with digital supply chain description. Based on the considerations made, a definition of the digital transformation of the supply chains which are customers centric and see potential of competitive advantage improvement by digital innovation implementation is proposed.

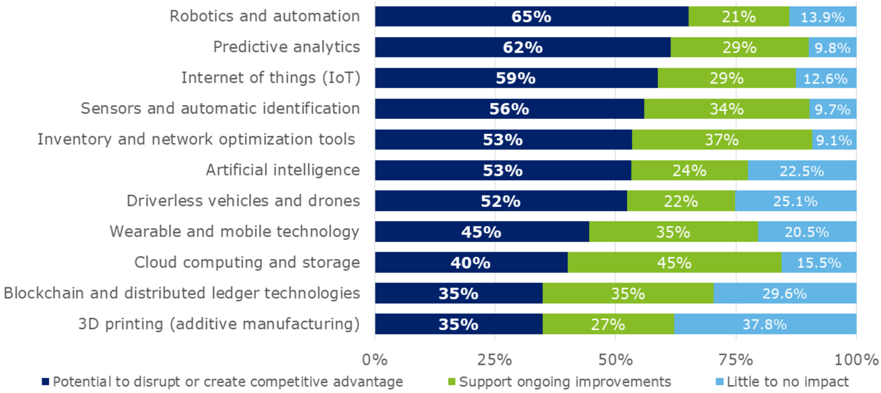
## Digital Technologies, Digital Innovation and the Idea of Digital Transformation

Digital technologies developed and rapidly spread as a result of using the potential and the possibilities of technology – mainly information and communication technologies (ICT) in organization's management. Digital technologies are a compilation of information, processing, communication and technology, undergoing fundamental transformations in business models and business processes, goods and services, and customer and other stakeholder relationships (Olszak & Ziemba, 2012; Susarla, et. al., 2012; Rai, et. al., 2012). Digital text and image content thanks to technical means and their software can be quickly shared, flawlessly duplicated and enable team-based, interactive work on them, they are available for devices constituting a repository of data, information and codified knowledge. In addition, hypertextual digital information can have many connections in the form of links enabling the actual use of this information by many independent users. This is possible when the computer is connected to the Internet using adequate software to search for specific data and information (Kowalczyk, 2017).

Digital technologies enable interactivity between companies, facilities, countries and people, expanding the context of their understanding from the level of ICT supporting management to the level of solutions that create a key resource, which is the basis of competition and the basis for building new ways of conducting business activities of a strategic nature. What distinguishes modern digital technologies from those that have been used in business so far is the availability of multi-task computers using operating systems separating functionality from hardware, the ability to use software functionality to solve specialized and complex problems without freezing capital in infrastructure-related assets, communication through ubiquitous internet connectivity, a multitude of relationship interfaces at various levels - with and without human intervention (Dasí, 2017).

According to Deloitte study conducted in 2018 robotics and automation, predictive analytics and internet of things are the technologies that have the highest potential to disrupt or create competitive advantages by the companies (Fig. 1).

Figure 1. Technologies with potential to disrupt or create competitive advantage




Source: "The 2018 MHI Annual Industry Report: Overcoming Barriers to NextGen Supply Chian Innovation", Deloitte Development LLC, 2018.

Nowadays, it is recognized that digital technologies are the main competitive factor by creating so-called digital innovations, which are a combination of knowledge and digital technology. Digital innovation is the creation of market offers, business processes or models (and the effecting changes) that result from the use of digital technologies. A feature of digital innovation is therefore that digital technologies and related digital transformation processes are an immanent part of a new idea, its development, diffusion or assimilation (Nowicka, 2019).

Due to continuous digital technologies implementation into the activities and business processes the digital transformation take place in the organizations. Digital transformation is a special type of organizational change (Sobczak, 2013). According to Day-Yang, Shou-Weii and Tzu-Chuan Chou digital transformation is such a transformation of an organization that results in the integration of digital technologies and business processes. This is to lead to the creation of a new model of functioning of a given unit, whose core will be digital technologies (Day-Yang, Shou-Wei & Tzu-Chuan Chou, 2011). Stolterman and Fors indicate that digital transformation can be understood as a change that causes digital technology to permeate all aspects of human life (Stolterman & Fors, 2004). Finally, in a report prepared by the MIT Center for Digital Business and Capgemini, digital transformation was defined as the use of digital technologies to radically improve the performance and effectiveness of an organization. According to the report's authors, the digital transformation affects three areas of the organization: the experience of the organization's customers (understanding customer needs, introducing multiple contact channels and elements of self-service), operational processes (internal processes of the organization and the working environment, as well as mechanisms for monitoring performance) and the organization's operating model (which products/services the organization provides and to which markets) (Westerman, *et al.*, 2011).

**Supply Chain Competitiveness**

According to M. Christopher, the supply chain is a network of organizations involved, through links with suppliers and recipients, in the implementation of various processes and activities that create value in the form of goods and services provided to consumers (Christopher, 2016). This approach is closer to business practice, where there are actually networks of relationships between partners in supply chains. These networks are demand-driven, so using the term supply chain in practice reference *de facto* to demand networks. The literature on the subject also includes the concept of the supply chain business model, according to which it was assumed that it is the way a network creates and delivers value in specific environmental conditions through available resources that enable it to take advantage of emerging opportunities (Nowicka, 2017).

Supply chain management aims to get the right product in the right way, in the right quantity and the right quality, at the right place, at the right time, and at the right cost (Mangan & Lalwani, 2016). However, the increasing complexity of the supply chain (demand network), greater demand volatility, subversive technological changes, and shortening the time make supply chain processes management increasingly difficult (Christopher & Holweg, 2017). When analysing the factors of supply chain competitiveness, it is worth first underlying the areas that can be a reference point for decisions regarding the structure of resources or the selection of instruments to compete. It is therefore important to determine the expected effect in the selected area of competition. This, however, is in direct relation to the adopted strategy of the enterprise and the subsequent supply chain strategy. To sum up, the strategy and its goals dictate certain expected results, the achievement of which allows adequate choice of resources and instruments of competition in the selected sector, i.e. in relation to certain specific conditions.

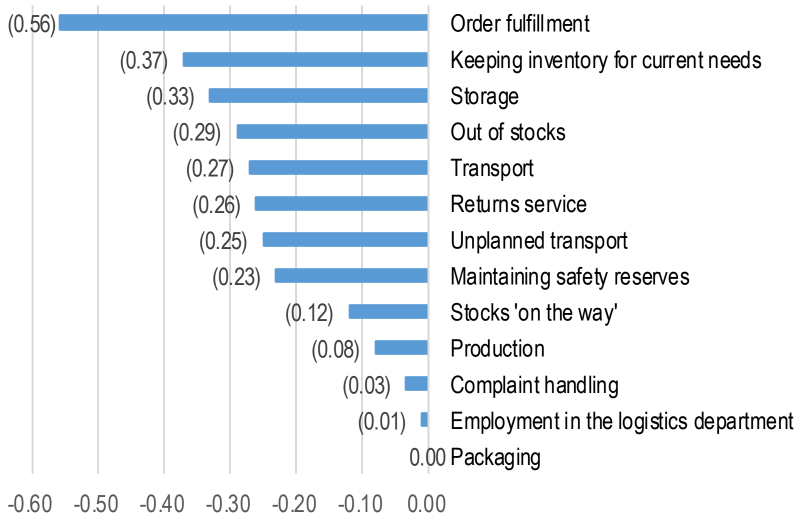
The most important determinant of achieving supply chain efficiency is the level of cost, quality and time (Szymczak, 2015) that impact the competitiveness of the supply chain. In this perspective, it is therefore worth examining digital technologies influence on particular determinant that enhances the competitiveness of the supply chains.

**Digital Technologies Impact on Supply Chain Competitiveness**

To diagnose the impact of digital technologies on supply chain competitiveness the quantitative empirical research was conducted in November and December 2018 using standardized questionnaire interviews (i.e. containing questions with a strictly defined order and unchanging wording, generally closed). Computer-Assisted Telephone Interviewing (CATI) methodology was used and the sample was random. The study was conducted with representatives of supply chain management. The sampling frame consisted of micro, small, medium and large enterprises (respectively: employment: up to 9 employees, 10–49, 50–249, 250+) from the manufacturing, service, production and service sectors located in the Bisnode Polska database. Contact was established with 1397 enterprises, 120 full interviews were carried out. The response rate of completed questionnaires was 8.59% . The randomization algorithm built into the telephone testing software provided an equal chance for each of the records in the database to be in the sample.

Respondents were asked how usage of digital technologies (i.e. cloud computing, blockchain, internet of things, robotics, drones, etc.) impacted on the level of costs, quality and time in supply chain activities. In general, the use of digital technologies has reduced costs in the supply chain, as evidenced by the negative values of the obtained indicators (Fig.2). The main decrease related to the costs of order processing. It was also observed that the costs of maintaining inventories for current needs, storage, handling complaints and exhaustion of inventories were statistically significantly lower compared to the costs of employment in logistics departments. Among the pre-defined types of costs, only packaging costs have not been reduced. In addition, respondents did not indicate any increase in costs resulting from the use of digital technologies in the area of supply chain management (Nowicka, 2019a).

Figure 2. Digital technologies impact on the supply chain costs (median)

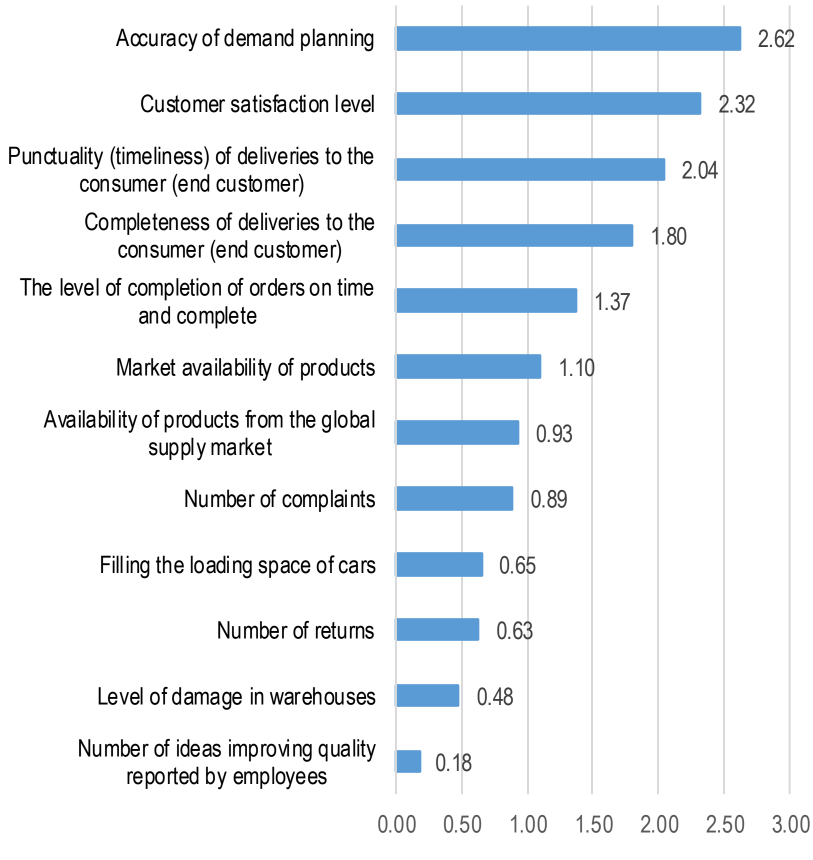



scale 5–0, where: 1 - costs increase; 0 - no impact; -1 - cost decrease

Source: own elaboration.

Next, comparative analyses of the impact of digital technology application indicators on quality in supply chain management were made. In general, according to research participants, digital technologies affect the accuracy of demand planning, customer satisfaction and punctuality of customer deliveries. However, this impact is minor. The role of digital technologies in the context of management quality in the area of completeness of deliveries to customers, punctuality of deliveries, level of customer satisfaction and accuracy of demand planning was statistically significantly higher in comparison to the level of damage, loading space filling, number of returns, global product availability, number of complaints, product availability and level of order completion on time. Areas mostly impacted by digital technologies implementation in terms of quality are presented on Fig. 3.

Figure 3. Digital technologies impact on quality (average)

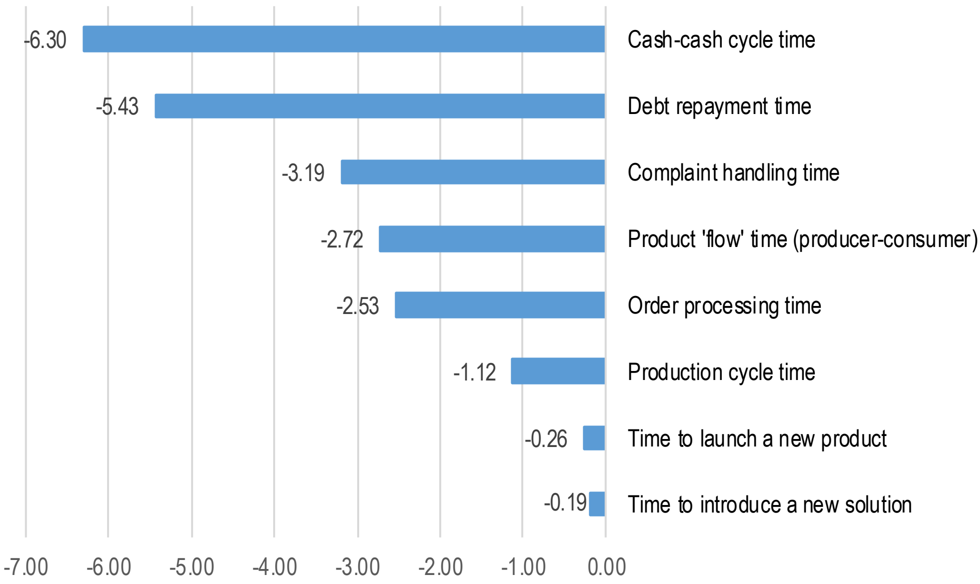



scale 5–0, where: 5 - very high growth, 4 - high growth, 3 - significant growth, 2 - slight growth, 1 - no change, 0 - decrease

Source: own elaboration.

The last researched area in this part concerned the impact of digital technologies on the duration of activities in supply chains. The indicators of the level of this impact obtained on the basis of the study carried out in all the analysed areas indicated a decrease in that time. The use of digital technologies has changed, above all, the time of the cash - cash cycle, in which the average number dropped by about 6.3 days. The second area in which the largest changes were noted was the time of repayment of liabilities, which according to respondents was reduced by an average of about 5.4 days. The third area of changes was the complaint handling time, which saw an average decrease of about 3.2 days. A slight increase in time was recorded in the implementation of activities related to the introduction of a new solution and a new product on the market (Fig. 4).

Figure 4. Digital technologies impact on time (number of days; median)




Source: own elaboration.

Analysing the importance of digital technologies for improving the efficiency of the supply chain, it should be noted that they play the most important role in reducing costs and shortening time of the duration of activities. It is worth emphasizing that these are the main areas of competition in supply chains. However, it is also important to note that the use of digital technologies has not shown a significant role in improving quality in supply chain management. This concerns the currently key aspect of the quality of customer service indicated additionally as the most important strategic goal of supply chain management in the medium term (until 3 years). In addition, according to managers, customer needs are the main stimulus for technology implementation in supply chain management (Nowicka, 2019a).

Therefore there is a need to pay more attention on how digital technologies might improve quality of activities to enhance customers experience in terms of their satisfaction and loyalty improvement.

**5. Supply Chain Digital Transformation Driven by Customer Experience**

While costs and time are relatively simple to measure, the quality of supply chain management can be understood in many ways. It is worth noting that the quality in supply chain management is influenced both by activities undertaken in the area of customer service, i.e. completeness, punctuality of deliveries, and the level of customer satisfaction, as well as the quality of activities not in direct relationship and contact with the customer, i.e. related to internal efficiency organizations (Hugos, 2011) that indirectly influence these effects. These include, for example, accuracy in demand planning, product availability, level of damage in warehouses, etc. Both these groups can be compared to sets of actions with market effects and economic effects that interact with each other and, as a consequence, constitute the entire set of actions determining the quality of supply chain management.

However those activities might still be not enough in terms of accuracy in meeting customers' needs. Therefore the specific so called "track and tracing" of customers "journey" during their relation with the whole supply chain seems to be needed. To gain in value from having such an information some digital technologies might be expected to implement in particular processes of the supply chain management. First of all it should be clarified that customer experience can be defined as customers' perceptions – both conscious and subconscious – of their relationship with brand resulting from all their interactions with brand during the customer life cycle (www.sas.com/en_us/insights/marketing/customer-experience-management.html). But customers' journey and the experience from that "journey" seems to be more important since it covers experience from many stages of the process of order fulfilment and enables supply chain personalization for particular customer (Nowicka, 2019b).

According to Deloitte analysis, marketers will not "be seating behind the wheel" anymore but the customer. And therefore, during the next 18 to 24 months, we should expect more companies to launch their own *beyond marketing* journeys. Organizations are exploring opportunities to integrate different parties' data, cognitive analytics, machine learning, and real-time/right-time touchpoint delivery into their data management stacks. The experience creation process is a dynamic feedback loop that turns interactions into insights. This interaction is based on digital technology and covers the following steps of customer experience creation (Briggs & Buchholz, 2019):

Marketers develop strategies and metrics for improving customer experience and work with IT to set up technical enablers.

The customer interacts with brand across various channels (Web, mobile apps, social media, store, call centre, etc.).

Customer interactions are transformed into data and tied to a unique customer ID trough data ingestion, integration and hygiene processes.

Marketers and IT build self-learning model that predict outputs by analysing historical data.

The models determine which content, offers and interactions resonate most with consumers at specific times.

The system decides which action to take and delivers the experience.

The system analyses customer responses to improve the next experience, and marketers use augmented intelligence to optimize strategy.

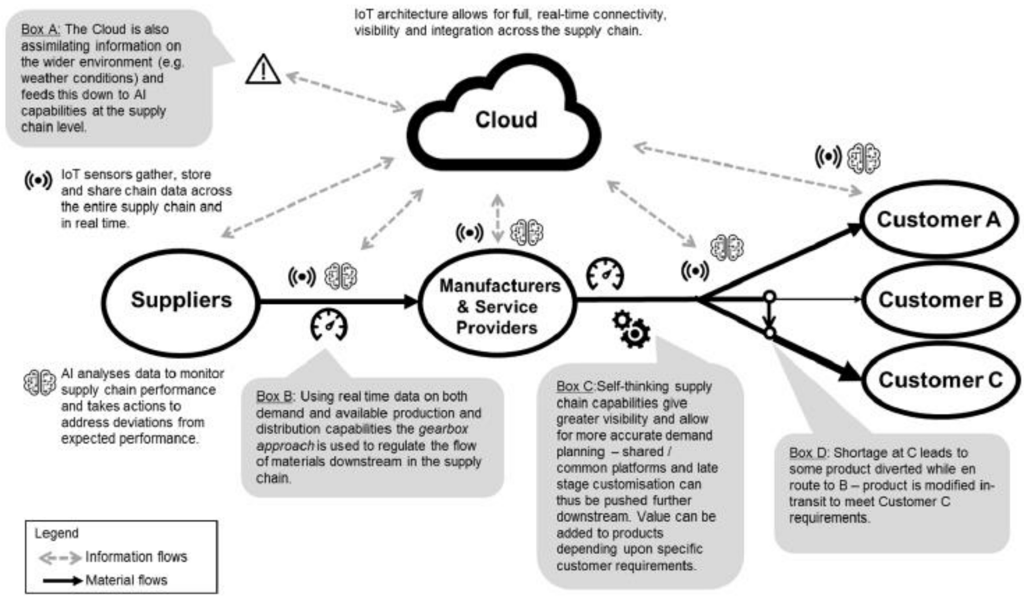
Based on the above steps the best in class customer experience can be recognized that is characterised by real-time dynamic, outcome orientation, data-driven processing, across channels development and customization based on customers' needs (Briggs & Buchholz, 2019).

However it must be underlined that today's technology features make customers being able i.e. to identify and track place of production, stock level for particular SKU (stock keeping unit) in different localizations, time and speed of delivery, compare the results between different competitors and share their opinions with other customers and non-customers online in real time. Thus digital technologies are a tool, which is changing the level of customers' expectations and at the same time it is the strongest accelerator for improving customers' service within whole supply chain activities. This is also the reason why marketing activities leading to build best in class customer experience seem to be not enough when seeking competitive advantages through the use of digital technologies or innovations driven by them.

In reply to new customers' demand and power, supply chains are developing in the direction of the digital supply chains. The digital supply chain is a new supply chain business model based on the properties of digital technologies that aims to deliver higher values than before (Nowicka, 2019a). Digital supply chain results from digital transformation that can be understood as a transformation of the supply chain business model that provides new value based on digital technologies in order to reach higher efficiency as part of achieving the strategic goals set for supply chains (Nowicka, 2019a).

The concept of digital supply chains changes the current way of organizing flows - by reconfiguring them - and adds value to them in a diverse way. New supply chain business models are emerging, and the quality of implemented processes is significantly improved, additionally costs and risks associated with supply chain management are reduced (Chui, *et., al.*, 2010), as well as the problem of trade-off choices ("The 2017 MHI Annual Industry Report. Next-Generation Supply Chains: Digital, On-Demand and Always-On", 2017). One of the example of digital supply chain can be the self-thinking supply chain developed by Calatayud, Mangan and Christopher (Fig. 5). This supply chain is based on IoT, AI and cloud computing. Increased connectivity amongst supply chain partners enabled by IoT, together with AI, allows i.e. for more accurate demand forecasting, predictive maintenance and continuous optimization (Calatayud, *et. al.*, 2018). Those factors impact directly on supply chain costs, but also on time and quality delivered.

**Figure 5. The self-thinking supply chain**




Source: Calatayud, A., Mangan, J., & Christopher, M., (2018), "The self-thinking supply chain", Supply Chain Management, An International Journal, p. 10.

It must be underlined, that the digital supply chain is described in terms of digital technologies usage from the perspective of the company (or the supply chain integrator). And today – as already mentioned – this is a customer who plays central role in the supply chain management. At the same time it is worth noting that "customer journey" term addresses the processual and experiential aspects of service processes as seen from the customer's viewpoint (Følstad & Kvale, 2018). Additionally, Kankainen et al. (2012) view the customer journey perspective as a means to "describe the process of experiencing service" (p. 221). This perspective underlines the role of customer as a decision maker of supply chain configuration and the need for its reconfiguration based on customers' perspective especially in light of customer journey, which is also described as the repeated interactions between a service provider and the customer (Meroni & Sangiorgi, 2011).

Therefore, having in mind the wide usage of digital technologies by customers and the concept of digital supply chain, it is worth to analyse interaction between the customer and the supply chain during the customer's journey with the support of digital technologies or even designing supply chain on-demand. In this approach this is a customer who decides on supply chain digital transformation being an initiator of the new business model development. Hence for the supply chains which are customers centric and see potential of competitive advantage improvement by digital innovation implementation **the supply chain digital transformation can be understood as transformation of the supply chain business model that is driven by customers journey experience and provides new value based on digital technologies in order to achieve higher efficiency and competitiveness**.

The concept of supply chain digital transformation driven by the customer concentrates on improving value on a different stages on customers' journey map. Therefore first step is to analyse customers' behaviour and expectations and build the map describing how customer might interact along the supply chain process. Those might concern activities starting from i.e. product's design, selection of raw materials used for the production, deciding on production localization, type of transport means used on different levels of the supply chain, etc. All of those decisions might be taken in relation to costs and time and impact on sustainable development.

Developing the concept of supply chain digital transformation driven by the customers extends the current view on the scope of customer service provided by the supply chains today. It enables involving customers on very early stage of supply chain flows and decide not only on the "last mile" of the supply chain but also on other activities (i.e. "first mile") impacting on whole process of order fulfilment and its design. However this concept could only be developed when digital technologies are implemented within supply chain – which means involvement of many companies is supply chain digital transformation – and the customer wants to engage (interact) in the development of the quality of his/her customer journey experienced during the relation with the particular supply chain process.

## 6. Conclusions

Today supply chains starting to be more and more digitalised and are undergoing the digital transformation. Digital technologies that are impacting on digital innovation might clearly improve supply chain competitiveness in terms of time, costs and service quality. This competitiveness is developed in light of improving customers' satisfaction and experience. However, it is worth to pay attention on supply chain digital transformation in the perspective of customers view. This means that this is a customer how might decide not only on where to pick up his order, but also on how and where it is produced. This solution, namely – supply chain digital transformation driven by the customer – enables companies to design whole supply chain in the way that meets all the customers' needs and to accomplish the customers' centric supply chain goals.

Engaging customers on very early stage of supply chain configuration might be difficult and costly for most of the companies and their supply chain organization. Therefore to gain in value and improve competitiveness the digital supply chain that is already implemented in the organization would be the most adequate environment since it is characterised by flexibility, adaptability and quick response to the market.

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# Factors Influencing Organizational Performance: Work Environment, Training-Development, Management and Organizational Culture

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## Abstract

Public sector performance has attracted the attention of many researchers, because it is considered as one of the key factors for efficiency and positive results in the public sector. Various studies have identified many variables that influence performance in public organizations. Four of them were considered in this study: organizational culture, work environment, training and development, and management. A sample of 162 local government employees were surveyed to carry out this research. Statictical tests such as Cronbch Alpha, KMO and Bartlett, factor analysis, correlation and regression were used to achieve the results. The study shows that variables as: work environment, training-development and management are important determinants of organizational performance. Meanwhile, organizational culture doesn't corelate positively with organisational perfomance.

**Keywords:** organizational performance, organizational culture, work environment, management, training and development

## Introduction

Since the end of the 20th century, the research, identification and implementation of effective practices for managing organizational performance in public sector organizations has attracted the attention of researchers and academics of management and public sector professionals (Schiavo-Campo, 1999). Great emphasis has been put on the development of measures (or indicators) that are appropriate for the evaluation of measured organizational performance results (Schiavo-Campo, 1999).

Focus on the organizational performance of public institutions has been highlighted especially after the manifestation of various problems (referred to as "public sector diseases" by some authors) (Schiavo-Campo, 1999; Olson, 1973). Moreover, as the individual performance of smaller units (e.g., a single employee may represent a smaller operative unit in a larer organizational system) has been identified as a relevant determinant of the larger unit's general performance (e.g., a department or another subdivision within the organization as a whole), or the entire organization (Welbourne, 1996), thus it represents a relevant determinant of the public organization's final performance.

The multitude of factors identified as relevant determinants of organizational performance results is extensive. However, this study will take into consideration factors known to exercise considerable influence on the organizational performance of public institutions. Hunnes, Kvaløy, & Mohn (2008) have identified, among others, organizational culture as a major factor affecting performance results in an organizational environment. Studies conducted on the further exploration of such a relationship have shown that determining variables of organizational culture (Brewer & Coleman Selden, 2000; Petty, Beadles, Chapman, Lowery, & Connell, 1995) were related to objective measures of organizational performance. Such studies, albeit few, have generated similar results in public sector organizations as well (Brewer & Coleman Selden, 2000). Nevertheless, specifically addressing public organizations, (Musmuliana & Mustaffa, 2012) have found additional relevant factors affecting organizational performance, i.e., leadership/managerial practices, training and development, as well as working environment (Brewer & Coleman Selden, 2000).

The study focuses on the aforementioned model composed of these four independent variables (hence, organizational culture, work environment, leadership/managerial practices and training and development activities), as well as on the pattern through which such constructs influence organizational performance. Data was collected from a sample composed of local public sector organizations. The absence of studies and research in the local public sector is notweworthy, and hence this study strives to fill such a void identified in the research literature body, by exploring what results are generated by this model in the context of local governance public sector organizations in Albania. Its main aim is to posit whether the observed relationship between variables in other contexts is replicable, based on the construction of this model as tested earlier.

**Literature review**

**Performance and influencing factors**

The first factor that should be taken into consideration is that the evaluation of performance and career opportunities is significantly affected by the characteristics of the local work environment and its constituting elements, including organizational culture, its focus on expertise, skills and knowledge flexibility, etc. (Hunnes et al., 2008).

Others have suggested that there are additional factors influencing organizational performance, such as managerial practices (Guest, 1997; Musmuliana & Mustaffa, 2012), or the physical spaces, composture and condtions of the work environment (Brewer & Coleman Selden, 2000). Secondly, it is worth mentioning that performance evaluation is one of the most complex and disputed practices in the fields of management and human resource. Critics of such an approach argue that the practice, at the very least, should be revised (Roberts, 2003). Some of the arguments brought include: the creation of a wrong impression that individual performance evaluations are perfectly accurate, the augmentation of conflict in the workplace because of the unhealthy competition it foments between employees, placing much of the burden of poor performance on employees' shoulders without previously assessing contextual factors associated with the work environment or other correlated variables; and thus being usually associated with the "X Theory" of management, which regards employees as undisciplined and untrustworthy, further emphasizing the need of rigour, control and negative critique directed at them (Roberts, 2003).

However, the same study that names the abovementioned problems, concludes that performance evaluation of employees in public agencies is a necessary process that should meet several requirements. It is strongly emphasized that performance evaluation must be dynamic and inclusive (thus, being guaranteed of the participation in it of the subject whose performance is being assessed), for the process to meet two basic criteria, namely transparency and effectiveness. Inclusiveness and participation are of quintessential relevance to such an approach as they address three basic needs: conveying motivational value, enlarging the pool of information sources, and enabling the vocalization of the employee. However, the inclusive approach is not immune to irregularities. A lack of training, the uncertainty or an absence of strategies employed to "assess" evaluators, as well as supervisor resistance to impartial feedback, are elements of an ineffective inclusive performance evaluation system.

More than ever in recent decades, even in developing countries, the quest for identifying and implementing quality managerial practices for managing performance in the public sector and developing indicators that are appropriately-tailored for measuring results has gained academic attention (Schiavo-Campo, 1999). As individual employee performance affects general organizational performance (Welbourne, 1996), and given the focus attained by public sector organizational performance in the second half of the last century; complemented by the perpetual dissatisfaction manifested against increasingly bureaucratic government structures and public sector employees' rigidity, an increase in the size of government pursuant to provisions of Wagner's Law, thus exerting much more pressure on public finance, the implementation of the paradigm dubbed "New Public Management" (Schiavo-Campo, 1999), the perception of public entities as giant and slow elephants that are unnecessarily bureaucratic and inefficient (Olson, 1973); the importance of identifying factors that are of significant interest to performance evaluation in public sector organizations has gained more prominence than ever (West & Blackman, 2015).

**Organizational culture**

Organizational culture is one of the most relevant components of an organization, despite the ownership status of an organization (i.e., whether it is publicly, privately or co-owned). Organizational culture and its constituent dimensions are issues that occupy a central role in the field's academic debate (Desson & Clouthier, 2010). Per se, culture is concept that traces its ancestry to the field of anthropology (Tharp, 2009). There is no single exhaustive definition of the term "culture" that is universally acceptable by researchers in the various disciplines that analyze it as a concept. Generally, culture is defined very broadly, simply describing a "social process" (Tharp, 2009). The latter has defined culture as: "a pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems" (Tharp, 2009). Similar to definitions of culture itself, those of organizational culture are as well numerous, broad and varied (Tharp, 2009). (Desson & Clouthier, 2010) define culture as "the personality of an organization; capable of guiding the thought and action of its members at work, and central to the values, beliefs, attitudes and interpersonal behavior of crucial actors, which defines the way an organization functions.

Some scholars suggest that organizations that have developed a culture with attributes appropriate to their operational context generate higher financial performance (Barney, 1986; Siehl & Martin, 1989). The influence of organizational culture on the economic activity of organizations has been extensively studied by economists (Martinez, Beaulieu, Gibbons, Pronovost, & Wang, 2015). Martinez et al (Martinez et al., 2015), also describe the process by which organizational culture exerts influence on performance. They argue that aspects of organizational culture, whether broad and large, or slow and gradual, exert influence on large and small scale organizational economic activities, including the determinants of behavior within political and legal institutions. Moreover, they analyzed the influence that four components of organizational culture (namely: adaptability, mission, consistency, and inclusiveness) exhibit on organizational performance (Fisher, 1997; Martinez et al., 2015).

Ovidiu-Iliuta (2004) states that organizational culture first influences performance indirectly, through the influence it exerts on the development of managerial practices that are utilized for the evaluation of performance per se. Thus, the organization enhances its performance through culture if it implements managerial practices that promote job security, fair remuneration, appropriate incentives, hence enabling it to attract those employees that are best aligned with existing organizational values (Martinez et al., 2015; Ovidiu-Iliuta, 2004; Siehl & Martin, 1989). Further, other studies point to the profound impact of organizational culture on a multidimensional spectrum of organizational functions (Ovidiu-Iliuta, 2004). The results suggest that if employees share values and respond to shared norms within the organization, they will maximize their work efforts (Luqman, Khan, & Shabbir, 2012), generating higher organizational performance (Ovidiu-Iliuta, 2004; Shahzad et al., 2012). Correspondingly, organizational culture has the potential to enhance organizational performance, increase employee satisfaction and problem-solving capacity (Kotter, 2008). It accomplishes this by enhancing employee organizational commitment to performance of their organizational functions (Nikpour, 2016).

Data on the relationship between organizational culture and performance at the individual and organizational level within public institution units is more limited (Breuer & Coleman Selden, 2000). Only a few empirical studies that seek to identify a link between organizational culture and its performance have been conducted (Breuer & Coleman Selden, 2000; Fisher, 1997). However, studies conducted on the investigaton of such a relationship have revealed that culture-defining variables of organizational performance (Breuer & Coleman Selden, 2000; Petty et al., 1995) were related to the objective measuring units of organizational performance. If organizational performance is related to organizational effectiveness, the findings suggest that organizational effectiveness is also influenced by organizational culture. However, another model of organizational culture was developed by Nikpour (Nikpour, 2016), according to which organizational culture exercises a direct positive impact on organizational performance, as well as indirectly through its influence on employees' level of commitment. Indirect impact is greater than direct impact (Nikpour, 2016; Shahzad et al., 2012).

**Training and development**

On-the-job training is also considered as a set of activities planned by the organization to enhance on-the-job knowledge and skills or modify members' attitudes and behavior in ways that are consistent with the organization's goals and job requirements (Musmuliana & Mustaffa, 2012). There are other definitions that are given regarding training and development as a single concept. One defines training and development as the process by which people acquire or absorb skills and knowledge that enhance their effectiveness. They do this in a variety of ways, such as: guidance and leadership, headship, organization, and influencing others (Khan et al., 2011; Musmuliana & Mustaffa, 2012).

The effectiveness of training can also be determined based on the amount of training that an individual has achieved. Other important training elements to consider regarding the effectiveness of this practice are the advantages of training and the importance of participating in training. Key training and development objectives include gathering knowledge that is necessary for staff to accumulate, knowledge that assists in performing work tasks correctly and effectively (Truitt, 2011). For their part, employers may not be sufficiently attentive to staff development needs as they tend to provide training only for those services or work processes that are most valuable to them (Truitt, 2011).

However, other authors have considered training and development practices, on-the-job training, training design and delivery as some of the most important areas in the field of organizational studies (Musmuliana & Mustaffa, 2012; Truitt, 2011). Training plays a key role in the development of organizational objectives and accomplishes this by incorporating organizational interests with those of its workforce. Developing training objectives is a very important procedure for the organization and its executives, and there are many reasons for this.

Foremost, it is a major contributor to the development of a society's human capital. This is attained through the impact it exerts on the educational policies of the unit or organization where it is being implemented, through training provided to public officials, and by improving quality of service and productivity. It also enables it (the organization) to influence employers in investing more in training and development of their employees. Secondly, it will provide a very important service to employees, equipping them with an expertise that is necessary and very convenient, especially in the context of developing countries (Musmuliana & Mustaffa, 2012). The quality of training is also capable of having a direct impact on the level of income and financial performance of the unit or organization. Another important function is to train employees to improve the expertise that they can provide to subsequent generations of employees. Other important training and development functions are mentioned, among which the most relevant are: improving the relationships within the organizational staff, the overall image of the organization, investing in a higher degree of professionalism, which can lead to an increase in the recruitment capacity and influence of the institution (Khan, Khan, & Khan, 2011).

Managing public organizations requires a certain amount of skills and professionalism for attaining effective and efficient results (Musmuliana & Mustaffa, 2012). Worldwide, productivity, performance improvement and competitive advantage have become central issues for scholars studying the organization of work. One of the strongest arguments in favor of employee training is that it helps in the proper and effective development of organizational resources. Other findings point to the direct positive effects of training, such as: job security, increased productivity and, in particular, improved performance outcomes (Shadare, 2010).

**Work environment**

The work environment is also a multidimensional variable in terms of how it has been dealt with in the literature. It refers to the physical dimension of the organization in which staff perform relevant functions (Foldspang et al. 2014; Jain & Kaur, 2014), as well as the non-physical context and social dynamics in which individuals interact and exercise their core functions. Another definition describes the work environment as the organizational dimension that encompasses all aspects affecting employees' minds and bodies (Jain & Kaur, 2014). However, there are other defining elements of what constitutes the work environment of an organization, such as patterns of delegation of competencies, authority, roles and control (Musmuliana & Mustaffa, 2012). Other determining factors in the work environment include coordinating interactions between key stakeholders in the organizational context (Musmuliana & Mustaffa, 2012), communication channels, and dissemination of guidance between employees and their managers (Musmuliana & Mustaffa, 2012; Robbins, DeCenzo, & Coulter, 2008).

People work individually but at the same time, they interact with others in the shared work environment, which requires different workplace solutions (Chandrasekar, 2011; Musmuliana & Mustaffa, 2012). Thus, the work environment is inevitably linked to employees and the dynamics of relationships created in the shared work environment in which people shape professional and personal interconnections (Chandrasekar, 2011; Musmuliana & Mustaffa, 2012; Robbins et al., 2008). Some authors (Chandrasekar, 2011; Robbin et al. al. 2008) describe in their empirical study in detail the process by which relationships at work condition employees' behavior and are influenced by the shared work environment. According to them, the intensity and complexity of relationships formed between individuals in a work environment is crucial in terms of the level of professional involvement and commitment that employees exercise. Robbins et al., (2008) in their study of the psychological and psychosocial effects of the work environment on employee well-being and productivity argue that the work environment, through the so-called "psychological contract", turns out to be determinant of emotional reactions at work, thus becoming responsible for both positive and negative impacts on the employees' professional and psycho-emotional well-being.

The effect of organizational structure and its environment on the behavior of its members has been an important topic of discussion and analysis in the literature for a very long time (Musmuliana & Mustaffa, 2012). In the industrial context, the problem of increasing production and transforming the work environment into a more pleasant one has been approached through the introduction of a work environment that favors and supports long-term and sustainable change (Malik et al., 2011; Musmuliana & Mustaffa, 2012). As we discussed above, the work organization environment includes components that are further identified with two main categories, namely: physical and psychosocial. During the first decades of research and development in the field of industrial psychology, the physical dimension of the environment and the workplace has been given greater prominence and considered to be dominant in employee productivity. Earlier studies focused on identifying the effects that basic elements of the work environment, such as: lighting, temperature, noise, and atmospheric conditions exercise on worker productivity (Musmuliana & Mustaffa, 2012; Srivastava, 2008). Work environments also include tools, materials and equipment, working conditions, employee performance, leader behavior, organization policies and objectives, availability of required information, time availability, and other elements (Srivastava, 2008). Notwithstanding, the working environment in organizations has grown significantly since then (Musmuliana & Mustaffa, 2012).

The term workplace performance implies a workspace whose fundamental objective is to clearly support work performance and transform it into an environment that optimizes employee productivity levels (Musmuliana & Mustaffa, 2012). Although employee productivity is understandable in a broad economic context, it risks being vague and general in relation to the set of results of the desired behavioral outcomes in the contex of work. The lack of a clear definition of what productivity is and how it is measured has made it difficult to identify environmental factors that influence employee performance (Musmuliana & Mustaffa, 2012). However, multiple studies have come to conclusions stating that the level of productivity varies depending on the suitability and effectiveness of the work environment of an organization (Musmuliana & Mustaffa, 2012; Robbins et al., 2008).

**Management/leadership**

Human resource management is a very broad concept that has been extensvely discussed in the academic literature. The term has been given many definitions and connotations in the literature. Some of these definitons are outlined below (Prasad & Gulshan, 2001). Frederick Taylor defines management as "the art of knowing and recognizing what one desires to achieve, and seeing how something can be done effectively and efficiently" (Taylor, 1914). Taylor focused on productivity, as indicated by the definition brought above, which he attached to management in general (Levin-Waldman, 2015; Witzel & Warner, 2015). He emphasized that people should exploit the utilization of human capital, machinery, money and materials for yielding the desired outputs. According to him, having in-depth knowledge of the job and chosing the most rational alternative possible should be of foremost priority. Specifically, one of the harshest criticisms of Taylor's philosophy was its low focus on people's needs and the relationships and bonds formed between them at work, whether formal or informal (Prasad & Gulshan, 2001).

However, Taylor's successor, Henri Fayol viewed management as the ability to generate forecasts, plan, organize, command, coordinate and ensure that maximum control is achieved in all of the processes mentioned above (McDonald, 2010; Prasad & Gulshan, 2001). The novelty in the definition that Fayol brought to the field of management was that for the first time someone mentioned and listed specific management functions that constitute prerequisites for attaining the desired results (Prasad & Gulshan, 2001). Fayol explained that management was a sequence of interrelated processes, including: planning, organizing, directing, coordinating, and controlling (Prasad & Gulshan, 2001; Wren, Bedeian, & Breeze, 2002). In spite of the existence of varous other definitions of the concept of management, formulated accordingly to extract the essence of the concept, not only theoretically but empirically as well, they share some common components: the basic managerial functions discussed above (Prasad & Gulshan, 2001).

Management has been considered as one of the key components affecting performance (Aguinis, 2013; Aucoin, 1990; Polidano et al, 1999). Furthermore, scholars in the field, emphasizing the importance of following effective management practices in generating high levels of performance, argue that trust in management is just as important, as a psychological component, in improving effort and achieving higher performance levels. Performance management is a specific term that intrinsically refers to the management process related to performance output. Performance management and financial management systems are the means by which the government achieves its budgetary objectives (Campos & Pradhan, 1996; Pollitt, 2001). In the public sector, the integration of performance management systems with those of financial management is of significant relevance for the establishment of sound human resource practices, given the importance of such practices to the organization's ultimate performance (Pollitt, 2001). (Campos & Pradhan, 1996) have identified a number of objectives that can serve as guiding benchmarks for performance standards in public organizations. Accordingly, it is argued that: (i) maintaining fiscal discipline, (ii) allocating resources in line with government priorities and (iii) promoting efficiency in using budgetary resources for the efficient delivery of public programs and services; will assist institutions in configuring their organizational management systems, financial and performance management systems, through directing them at developing the necessary tools and building appropriate incentive systems needed to minimize problems and fulfill objectives (Campos & Pradhan, 1996; Pollitt, 2001).

**Methodology**

**Research instrument**

The questionnaire was utilized as a research instrument for gathering sample data in this study. It was translated and localized into Albanian for purposes of this study based on models suggested by scholars such as (Brewer & Coleman Selden, 2000; Musmuliana & Mustaffa, 2012). The questionnaire is composed of 6 parts, serving the study's purpose. The first part includes demographic data such as gender, age, education, income, department of employment and job position/qualification.

The second part includes questions regardin organizational culture measured through a Likert scale. The third asks questions regarding the work environment, measured through a 5-point Likert scale (ranging from 1 – fully disagree, to 5 – fully agree). Likert-scale questions measuring variables related to training and development, management/leadership, and organizational performance constituted the fourth, fifth, and sixth parts of the questionnaire, respectively.

**Table 1. Research instrument**

| Factor | Question | Scale (1 – fully disagree; 5 – fully agree) | Source |
|---|---|---|---|
| Organizational culture | 7 | *5-Likert* | (Fisher 1997) |
| Work environment | 5 | *5-Likert* | (Mohapatra & Srivastava, 2003) |
| Training and development | 5 | *5-likert* | (Khan, 2010) |
| Management/leadership | 5 | *5-Likert* | (Bartram, 2005) |
| Organizational performance | 6 | *5-Likert* | (Brewer&Selden, 2000) |

**Sample**

The sample selected for the purpose of this study was composed of employees of four municipalities: Tirana, Kamëz, Kukës and Dibër. Employees have intentionally been allocated to several departments/directorates, namely: Department of Services, IT, Urban Planning, Taxation, Human Resources, Archive, Public Procurement, Legal, Water and Sewerage, Media, Finance, Territory Planning, Social Assistance, and Transportation and Licensing. The whole sample consisted of 162 respondents out of which 85 were males and 77 females. Of these, 21% held leadership positions within the respective departments, whereas 79% were specialists at operational level.

For the conduction of this study, 200 questionnaires were distributed to the respective institutions: 70 to Kamëz, 50 to Tiranë, 40 to Kukës, and 40 to Dibër. Only 162 valid questionnaires were returned back.

**Data analysis**

**Reliability**

All variables affecting organizational performance were tested for reliability and validity. To assess the reliability of the data, reliability tests was performed by estimating Cronbach's Alpha for all variables. The minimum acceptable alpha value is 0.5, according to (Nunnally, 1967). Data analysis shows that Alpha is above 0.8 in 4 cases, and 0.799 for training and development. This tells us that the range of reliability values is highly satisfactory, and that the questions examined correlate with each other. Hence, constructs are reliabe and appropriate for further scrutiny.

Table 2. Cronbach Alpha

| Variable | Cronbach Alpha | Questions per variable |
|---|---|---|
| **Organizational culture** | 0.854 | **This construct was composed of 7 questions utilized for addressing reliability** |
| **Work environment** | 0.805 | **This construct was composed of 5 questions, of which only 4 have been utilized as B5 was removed to further aid the analysis** |
| **Training and development** | 0.799 | **This construct was composed of 5 questions utilized for addressing reliability** |
| **Management/leadership** | 0.802 | **This construct was composed of 5 questions utilized for addressing reliability** |
| **Organizational performance** | **0.802** | **This construct was composed of 6 questions, of which only 5 have been utilized as K1 was removed to further aid the analysis** |

## Validity

For assessing data validity, the KMO test was applied in which a value higher than 0.6 was reported for each construct, hence being closer to 1, and attesting to the reliability of data collected by the sample.

**Table 3. KMO dhe Bartlett**

| Variables | KMO and Bartlett's Test for variables | | |
|---|---|---|---|
| **Organizational culture** | KMO and Bartlett's Test | | |
| | Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .811 |
| | Bartlett's Test of Sphericity | Approx. Chi-Square | 459.696 |
| | | df | 21 |
| | | Sig. | .000 |
| **Work environment** | KMO and Bartlett's Test | | |
| | Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .767 |
| | Bartlett's Test of Sphericity | Approx. Chi-Square | 211.076 |
| | | df | 6 |
| | | Sig. | .000 |
| **Training and development** | KMO and Bartlett's Test | | |
| | Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .787 |
| | Bartlett's Test of Sphericity | Approx. Chi-Square | 200.041 |
| | | df | 10 |
| | | Sig. | .000 |

| | | | |
|---|---|---|---|
| **Management/leadership** | KMO and Bartlett's Test | | |
| | Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .748 |
| | Bartlett's Test of Sphericity | Approx. Chi-Square | 255.320 |
| | | df | 10 |
| | | Sig. | .000 |
| **Organizational performance** | KMO and Bartlett's Test | | |
| | Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .707 |
| | Bartlett's Test of Sphericity | Approx. Chi-Square | 321.918 |
| | | df | 10 |
| | | Sig. | .000 |

## Factor analysis

According to the factor analysis, for section A, the factor that loads the most ot the common component is A3 (0.813), however it should be noted that each of these questions loads to the common component significantly: each above the 0.65 level, as the literature suggests the exclusion level for queries is 0.25-0.3. Following the analysis in section B, the factor that loads the most to the common component is B2 (0.866). Likewise, for section H, the component that loads the most to the component is H1 (0.811) and for section I, we have I4 (0.784) as the factor that loads the most to the component.

In the case of K, factor analysis resulted in the creation of two factors/components. All questions K2 to K6 load both to the first and second component. From the literature we learn that in such cases it should be proceeded as follows: the question that loads to both factors will be considered valid for that factor where it loads more (the exclusion criterion kept in mind). In this case, the factor that loads the most to the component is K5 (0.819).

**Table 4. Analiza Faktoriale**

| **Variablat** | **Factor analysis** | |
|---|---|---|
| **Organizational culture** | Component Matrix[a] | |
| | | Comp.1 |
| | My opinion matters in the workplace | .683 |
| | In my workplace, there is a sense of cooperation and team work | .704 |
| | My organization promotes a high level of ethical standard and public interest | .813 |
| | My organization ensures the safety of its employees from arbitrary decisions | .778 |
| | My organization does not discriminate against its employees and protects them from preferential treatment | .743 |
| | My organization has a mechanism to protect its employees from active political pressure | .733 |
| | My organization protects employees in case of revealing confidential informaton | .658 |
| **Work environment** | Component Matrix[a] | |
| | | Comp.1 |
| | How satisfied are you with the environment and spaces in your office/workplace (e.g., meeting room, hall, etc.)? | .784 |
| | How satisfied are you with equipment and tools provided by your organization? | .866 |
| | Your organization has provided you with the necessary tools for performing adequately | .812 |
| | Noise level in your workplace is tolerable | .715 |

**Training and development**

Component Matrix[a]

| | Comp.1 |
|---|---|
| You are satisfied with the training provided by your organization | .711 |
| Training has positively affected your performance by demonstrating higher levels of it | .814 |
| I have the opportunity to practice my knowledge and skills at work | .775 |
| Training is important and provides me with numerous benefits | .731 |
| I am always involved in training sessions offered by my organization | .704 |

**Management/leadership**

Component Matrix[a]

| | Component |
|---|---|
| | 1 |
| I am free to voice my opinion on the management of the organization | .679 |
| Leadership demonstrates high performance | .779 |
| I am on good terms with my leader | .781 |
| My leader offers positive feedback to me for each issue raised | .787 |
| You are generally satisfied with the leadership in your organization | .697 |

**Organizational performance**

Component Matrix[a]

| | Component | |
|---|---|---|
| | 1 | 2 |
| In the last 2 years, productivity has increased in my operating unit | .681 | .609 |
| Improvements made by my operating unit offer reasonable return on taxes to the public | .710 | .576 |
| Generally, people belonging to the same ethnic.religious group as me are respected in the organization | .773 | .190 |
| You are satisfied with the performance of your colleagues within your team | .819 | .398 |
| My organization treats employees and applicants with respect, in spite of differences in political opinion/affiliation, ethnicity, faith, gender, civil status, age or physical properties | .749 | .468 |

Correlation

Correlation assists in understand the relationship between two variables. Hence, through correlation the causality link is discovered. Based on the correlation coefficient analysis, we conclude that:

Table 5. Korrelacionet

| | | Organizational culture | Work environment | Training and development | Management/leadership | Organizational performance |
|---|---|---|---|---|---|---|
| **Organizational culture** | **Pearson Correlation** | 1 | | | | |
| **Work environment** | **Pearson Correlation** | .549** | 1 | | | |
| **Training and development** | **Pearson Correlation** | .406** | .373** | 1 | | |
| **Management/leadership** | **Pearson Correlation** | .556** | .497** | .406** | 1 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Organizational performance | Pearson Correlation | .500** | .429** | .564** | .513** | 1 |

**. *Correlation is significant at the 0.01 level (2-tailed).*

First, **organizational culture** positively relates (0.500) to organizational performance. This implies that as organizational culture grows, then we expect organizational performance to increase, or vice versa.

Second, the **work environment** positively relates (0.549) to the organizational performance factor.

Third, **training and development** resulted in a positive relation (0.406) to organizational performance factor and, finally, **management/leadership** positively relates to (0.556) organizational performance.

Regression

Table 6. Regression

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | .097 | .065 | | 1.500 | .136 |
| | Management/leadership | .562 | .068 | .585 | 8.229 | .000 |
| 2 | (Constant) | .106 | .062 | | 1.721 | .088 |
| | Management/leadership | .372 | .082 | .387 | 4.517 | .000 |
| | Training and development | .295 | .078 | .324 | 3.781 | .000 |
| 3 | (Constant) | .101 | .061 | | 1.661 | .099 |
| | Management/leadership | .327 | .083 | .341 | 3.923 | .000 |
| | Traning and development | .265 | .078 | .291 | 3.396 | .001 |
| | Work environment | .160 | .072 | .165 | 2.232 | .027 |
| | Organizational culture | .116c | 1.312 | .192 | .116 | .566 |

Dependent Variable: Organizational performance

The regression conducted suggests that the relationship between the dependent variable and the independent variable is linear, meaning that this relation is characterized by a proportional ratio: increasing the independent variable by one unit yields a *b*-unit growth for the dependent variable. For our case, 3 different models were constructed to test and highlight relevant factors affecting the independent variable of the approach being studied. Regression results show that **management/leadership** (0.00), **training and development** (0.001) as well as **work environment** (0. 27), are important factors in determining **organizational performance**. On the other hand**, organizational culture** (0.566) does not fit into this frame. The significance of the first three factors exceeds the 95% confidence level, a parameter that is tested by the student statistic criterion.

This result is supported by the conclusions of Fisher's statistic test (R2 = 0.42, F = 32.2; Prob_F = 0.000). This means that management/leadership, training and development, and the work environment are factors that explain and determine the performance of the organization.

Coefficient 0.327 indicates that when *management* increases by one unit, then expected performance shall increase by 0.327 units. It can be emphasized that all three variables express a positive relationship with organizational performance and only organizational culture is rejected as a defining variable of the organizational performance construct.

## Discussion

One of the main factors influencing organizational performance in the public sector is organizational culture. From studies conducted to investigate this relationship, it has been found that the determining variables of organizational culture (Breuer

& Coleman Selden, 2000; Petty et al., 1995). were related to objective measurement units of organizational performance. Other authors have also argued in favor of such a link: some scholars suggest that organizations that have developed a culture with attributes appropriate to their operational context generate higher organizational performance (Barney, 1986; Siehl & Martin, 1989). However, such a relationship is controversial in this study. Although a positive relationship between organizational culture construct and organizational performance has been identified, this link is not as sufficiently significant based on the regression analysis as to consider organizational culture a significant determinant of organizational performance. The level of statistical significance is 0.566 which contradicts the results derived by Brewer & Coleman Selden, (2000). However, despite the authors indicating that there is a relationship between these variables, there are also authors such as Gordon & DiTomaso (1992) who point out that culture has a short-term impact on organizational performance, as long-term organizational strategies affect the performance of the organization.

However, the findings for other constructs: namely (work environment, training and development and management/leadership) exhibit links with above-average strength and high statistical significance, implying that these constructs are important determinants of organizational performance in the context The growth of each of the above constructs is associated with an increase in organizational performance. These findings are also supported by the arguments of numerous researchers in the literature that have identified the work environment, training and development activities, and management/leadership to be important determinants of organizational performance Musmuliana & Mustaffa, 2012; Breuer & Coleman Selden, 2000).

## Conclusions and recommendations

Performance of public organizations has become an area of major interest and research for scholars, whose main aim is to provide public services as adequately and cost-efficiently as possible. The focus has particularly shifted towards organizational performance in public institutions after the identification of several public sector issues, that have collectively been described as "public sector diseases". To generate empirical data from this study, several statistical tests were applied. Initially, a Cronbach Alpha validity test was utilized, which in four cases was above 0.8 and in one case 0.799, values that are consdered adequate enough to proceed with the conduction of reliability tests. Reliability tests such as the KMO and the Bartlettt test were used, which have shown satisfactory levels of validity. Factor analysis, correlation and regression were also employed by the study to generate statistically valid conclusions.

Regression analysis showed management (0.00), training and development (0.001), and work environment (0. 27) to be important factors in determining organizational performance. On the other hand, organizational culture (0.566) was not representative. The significance of the first three factors exceeds the 95% confidence level which indicates the validity of the factors analyzed. This highlights the fact that with improved working conditions, leadership, and skill flexibility, organizational performance is positively affected. However, the study has also encountered several limitations in sampling, which are further reflected into the difficulty of generalizing our findings. As the sample was chosen conveniently and no probability sampling technique was employed, we cannot generalise findings into the wider Albanian context, hence outside the insttutions chosen. Furthermore, limitations are exacerbated by a pronounced gap in research and literature in the organizational performance of public sector institutions in Albania.

In the current context of general structural reforms that the country is undergoing under the frame of prospective EU integration, public sector reform is of particular relevance. We recommend further studies be conducted to explore the relationship between the constructs studied in this paper and organizational performance in public institutional settings, as well as the exploration of further latent constructs and causality relationships, otherwise not identified by this study.

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# Challenges and Opportunity of Housing for Black Miner in South Africa

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**Abstract**

Mine companies are experiencing a change in the political system of the country (South Africa). This political change from apartheid government to the government of Democratic has brought about a totally different system of government; this change has led to the transformation of mines companies from employment section to housing of mineworkers from their operation system, how are the mines companies / houses dealing with this change? Changes in the political and economy of the gold mining in the 1970s - 1980s have prompted management to begin moving away from migratory labour and implementing alternative accommodation strategies for black mine workers. The paper aims to provide some understanding of the current housing situation and housing needs of mineworkers more than a decade after the abolition of the legislation which had shaped the living environments of mineworkers in South Africa, and will look at the different / alternative approaches for housing black mine workers and how they can afford housing.

**Keywords:** Housing, Miner workers, Hostels

## 1. Introduction

### THE COMPOUND SYSTEM

The mine owners built compounds to house, contain and control their African employees from the late 1890s. The compounds were not new to South Africa; mine owners had developed the compound system in the diamond mines of Kimberly. In this compound all the workers were housed in large buildings next to the mine, where Africa workers ate and slept together. One of the functions of compounds has been seen to the control mine workers in the mines.

CHARACTERISTIC OF A COMPOUND SYSTEM

Life in the compounds was very different from the reserve / village life at home. There was no privacy anywhere in the compound. The toilets were nothing but a long bench with holes where 20 men could relieve themselves at the same time. Washing was also a public business and in the rooms the men dressed and undressed in full view of each other. The lights were left on all night, because of different shifts that the workers had. In the compounds / hostel there is no privacy in the rooms nor in the open lavatories, nor in the shower rooms. It is against the tradition that a son sees his father naked or on toilet. But hostel life has forcefully changed that.

PATTERNALISM

Paternalism on the mines entails the provision of accommodation, food, health and recreational facilities by mine management to migrant workers.

FOOD

The compound was supposed to provide most of the food for the workers needed to stay alive. The Chamber of Mines made an agreement with the mining companies that the ratios should be the same in all the compounds.

LEISURE TIME

In those early mining years compound mine workers had very little spare time, often they were so tired after a shift underground that they spent their space time sleeping. According to one compound manager, miners should either be 'working', resting or in hospital.

**LIQUOR AS A FORM OFCONTROL**

When the gold mines first started, liquor was given to recruits to tempt them to work in the mines. Mines owners began to invest in the liquor industry, and in the early years, many mine managers had a policy of rewarding hard workers with 'tot' at the end of a shift (Daw,1998).

**Why were compounds set up in the gold mines?**

In Kimberley the compound system prevented stealing, but gold could not be stolen out of the rock, in the same way as diamonds. The Rand mine-owners therefore did not need compounds to prevent stealing. Nevertheless the compound system had so many other advantages for the diamond mine owners that the gold mines owners (Chamber of Mines) decided to use the system as well. There are at least five main reasons for this:

**CHEAP MANUAL LABOUR**

**COST CUTTING**

**LOW ABSENTEEISM**

**CONTROL OF WORKERS**

**PREVENTED UNIONIZATION OF THE BLACK LABOUR FORCE**

**Challenges of accommodation.**

According Daw O.D (1998), there are five problems which exist in the mining industry for

accommodation of black mine workers:

The current situation is that the company owns the hostels and houses and rents them out to the workers, workers do not have any say over the running of the housing.

Family housing, the only alternative finally to hostels, remains the preserve of a small elite.

There are mine workers who like to move with their families to the cities, but, given the 'status quo' of the mine accommodation / housing, this is impossible,

The reaction of black mine workers to management of these mine companies benefit all the mine workers has been less than enthusiastic. The top-down, non-consultative strategies of housing delivery are clearly inappropriate and inaccessible to the mass of black mines.

No corporation has committed itself to the dismantling of the compounds completely.

**RESTRUCTURING OF THE COMPOUND SYSTEM**

Corporate embarrassment about compound life, brought about in part by a number of academic studies published in the 1970s (Wilson, 1972, Johnstone 1976, Websten 1978, Lipton 1980), motivated the mining houses to reform and improve the mine residence and substantial sums of money were pumped into upgrading and as Lipton (1980:95) put it ameliorating the condition of mine life'. Room size and propinquity were reduced, private ablution and toilet facilities provided, electricity was supplied and recreation and bar facilities became part of the hostel environment. The compounds were modernized quite considerably in the 1970s and part of this modernization was a 'HOSTEL'. The modernization of the compound did nothing however to alter its basis social character as an institution.

**PROBLEMS WITH THE HOSTELS SYSTEM**

Overcrowding

Separation from family

No privacy

No place for visitors

The only positive thing about the hostels is that they are close to work and friendship with other workers. All residents were able to cook their own food or eat at the dining hall which prepared food centrally. Food was served by the mine company's catering department according to menus chosen by the residents. Residents resented the dehumanising effect the hostel had on them. They wanted accommodation which matched the standard of living enjoyed by white mineworkers and which allowed them to stay with their families.

Since the 1980s the induna system has been gradually dismantled, making way for new structure such as elected boards of representatives and governors which attempts to manage hostels on a democratic basis.

While there are numerous constraints on improving productivity levels in South Africa mines, one argument put forward by the mining industry is that productivity would increase if migrant workers were stabilised in family accommodation. Absenteeism is lower among mines housed in family accommodation than among hostel dwellers.

Despite the drawbacks of paternalism, mining houses seem to be reluctant to change the hostel system owing to cost constraints. The industry is however, considering giving mineworkers more choice by granting then an all-inclusive wage, and allowing them to decide where to rent accommodation and obtain food, the present structure of accommodation for mineworkers in the mines are:

Hostel

Married housing

Home-owners

Living-out

Visitors' quarters

**2. (a) WHAT KEEPS THE MIGRANT WORKERS IN HOSTELS?**

Daw (1998) states five factors that keeps the migrant workers in hostels as follows:

The high cost of providing family accommodation is another serious obstacle, particularly for the mining industry, which argues that it is hard-pressed to find the frame for housing development.

Wage levels of migrant mines are too low to enable them to pay for market related family housing.

Financial institutions provide loans for the purchase of conventional housing only, and there is an urgent need to lower housing standards.

While most mining houses are keen in principle on providing family accommodation to all employees the cost factor limits this mainly to workers in higher job categories, i.e. semi-skilled and skilled workers. In any event, in view of the limited availability of land for housing it would be difficult to provide all employees with family accommodation.

The bulk of employees on the mines are unskilled and cannot meet market- related housing cost.

## 3. INTRODUCTION OF HOME-OWNERSHIP SCHEMES

Democracy has seen a shift by mining houses towards the reduction of hostel accommodation in accordance with the demands of the Mining Charter which envisages the provision of family housing to all workers. This may be provided by the employer, government or workers' housing schemes. This strategy has been strongly supported by National Union of Mineworkers **(NUM)** in reaction to the hostels role in workers' exploitation under apartheid

According to the Government Gazette (RSA, 1996:5), the government is responsible for the creation of opportunities and favourable economic conditions that will enable all South Africans to obtain housing units within their means. The government had four major subsidies for low cost housing:

Individual Subsidy

Project Linked Subsidy

Social Housing Subsidy

Consolidation Subsidy

### 3. (a)South African Housing Subsidy Policy

The South African housing policy has seven strategies: stabilising the housing environment; mobilising credit; subsidy assistance; supporting the people's housing process; rationalisation of institutional capacity; release of serviced land; and co-ordination of state assistance. The subsidy assistance with reference to the South African housing policy is provided through the introduction of what the World Bank refers to as targeted housing subsidy.

This targeted subsidy is available to all heads of households with a total income of less than R3 500 per month, who are legally married and/or have financial dependants; are South African residents (or, as the Constitutional Court has recently rules, who have permanent residential status in South Africa); who have not benefited from government funding for housing in the past; who are 21 years of age or older, and who are first time home-owners. Table 1 provides an overview of the subsidies available and how these have changed since 1994.

**Table 1: Housing subsidies per income category, 1994-2004**

| Income categories | Subsidy size 1994 - 1998 | Subsidy size 1998 - 2002 | Subsidy size 2002-2004 |
|---|---|---|---|
| R0-R800 | R15 000 | R16 000 | R23 100 (if not rural subsidies or People's Housing Process subsidies, an own contribution of R2 479 is required) |
| R801 - R1 500 | R12 500 | R16 000 | As above |
| R1 501 - R2 500 | R9 500 | R10 500 | R14 000 |
| R2 500 - R3 500 | R5 000 | R6 000 | R7 800 |

Source: Africa insight Vol 36 no1, 2006

These subsidies are made available by means of six subsidy programmes; individual subsidies, project-linked subsidies, consolidation subsidies, institutional subsidies, relocation assistance and rural subsidies. A background information relating to three of these programmes need to be discussed I, namely individual subsidies, project subsidies and institutional subsidies

Individual subsidies are ownership-based and can be accessed by means of an individual application to the relevant authorities (usually by means of an attorney). Project subsidies also provide full title and are accessed by means of a developer being awarded a project by the relevant authority (mainly the provincial government). Institutional subsidies are subsidies provided for rental housing or rent-to-buy housing, and are delivered through social housing institutions. Thus, the first two subsidy methods are extremely relevant for the provision of family housing to mineworkers, while the institutional subsidy provides, in theory, for the acquisition of some form of rental housing by mineworkers (Marais and Venter 2006).

**Development of subsidy schemes**

The subsidy schemes of most mining houses are designed to give their employees access to market related finance via financial institutions. Despite the fact that both subsidies and collateral, which are designed to access mechanisms, are high, the home-ownership option has been slow to take root in the migrant workforce (mines). The biggest single problem from the migrant point of view is the high cost of conventional housing. At Vaal Reefs, management admits that 70% of the target groups of 45 000 miners who are to be settled at Kanana township are unable to afford housing at the market rate despite subsidies. The major problem therefore lies in the low wage levels. Although companies such JCI and Anglo have made their housing schemes available to all employees, a JCI spokesman said that those making use of the scheme are mainly employees in category B4 (clerical and administrative employees and team leaders) and upwards.

Mining houses which pay a living-out allowance to some of their employs do so to overcome the responsibility of housing them, whether in hostel of family housing. This allowance is designed in part of address the problem of miners who which to have family accommodation but cannot afford market-related conventional housing. Workers who wish to take up the option of informal housing are excluded from the mining companies subsidy schemes and are therefore unable to raise finance.

Another way in which employers in mining industry are addressing the issue of access to housing is the living-out allowance. This is designed ostensibly to allow migrant mines freedom of choice between living in hostels or making other arrangements for their own accommodation. It has the advantage of relieving employers of the responsibility to provide food, accommodation and health facilities to employees. The living-out allowance does not however, address the acute shortage of land and housing, it could in fact promote squatting, which might have a negative effect on productivity

According to Strydom and Russell (2010), the living out allowance has had a number of undesirable consequences over the years. These include:

A serious drop in mine workers living standards as many chose to spend as little on accommodation off-mine as possible in order to have more disposable income for other needs;

Proliferation of informal settlements in mining regions due to a shortage of affordable accommodation to rent;

Poor living conditions in such informal settlements due to a lack of basic infrastructure - clean water, sanitation, refuse removal, electricity, etc.

Mine workers choosing to leave their wives and children in rural areas and to establish second families close to their places of work, the additional financial burden of running two households notwithstanding.

The all-inclusive wage, on the other could have a positive effect by attracting already urbanised labour to the mines. It may also be beneficial to the migrant workers and his family as it facilitates access to housing. Many migrants are reluctant to take up urban family accommodation because this would imply abandoning the extensive network of people who depend on their earnings in the rural areas. Older migrants who have invested in land, cattle and housing in the household in the rural areas are reluctant to move their families to urban areas, many migrant also perceive the urban townships as an unwholesome environment for their families. It is therefore recognised that migrant and hostel will continue to remain a reality on the mines for a considerable period of time, and on remote mines they may not disappear at all.

4.(a) Housing Opportunity in Lonmin/Marikana

Platinum mining in South Africa is concentrated in the Bushveld complex in the North West Province, the reserves are mostly in the traditional authorities of Bapo Ba Mohale and Lonmin leasing the Marikana land from them, it mine pays royalties to the traditional authorities.

According to Crispen Chinguno 2013 housing facilities of Lonmin comprise 1 798 houses and 544 family and 95 bachelor units. In addition, it has three hostel complexes for unskilled and semi-skilled labour (Lonmin 2010). Lonmin thus provides accommodation to about 2 342 of its 28 000 direct employees. This constitutes less than 10% of its direct workforce. The majority of the workers are in private accommodation which has exerted pressure on access to the few Lonmin houses.

Lonmin highlights that the LOA living out allowance is paid as an alternative to company accommodation and thus most workers end up in informal settlements. To be eligible for this allowance a worker has to prove occupation outside company accommodation usually through a letter from the landlord approved by a commissioner of oaths. The following forms of settlement for Lonmin workers are: hostels, family units, mortgage housing schemes, low density housing, skoomplaas.

Lonmin offers hostel accommodation at Karee Wonderkop and Eastern but in line with the Mining Charter aims to convert all of them into family units by 2014. At the Wonderkop Hostel , for example, at least eight workers shared a room with no privacy or dignity.

**Family accommodation:** As part of phasing out traditional hostels, Lonmin was converting some into family units. A hostel unit, for example, for eight single workers was converted into a one-bedroomed family unit for a single worker. The conversion of hostels into family units has reduced the capacity for accommodating single workers Acquiring family unit accommodation is not easy as the demand is high, numbers limited and access is through registration on a long waiting list.

Marikana West housing scheme

As part of its Social Labour Plan Lonmin has set up the Marikana Housing Development Company which builds houses and gives mortgages to its staff. Some houses have been developed and allocated to workers. Lonmin had a target of constructing 5500 units by 2009 under this scheme but was unable to achieve it (Lonmin 2010).

People who live in housing scheme accommodation are usually those who have permanently settled in the area and see a future here beyond their employment. A high proportion of women workers reside in this area as a majority of women workers are from local communities. This makes it easier for them to take out a mortgage in contrast to migrants from the Eastern Cape, Mozambique and Lesotho who are constrained by many having two families. In addition, their only attachment to the area is as workers and they see no future in the area beyond employment.

**Skoomplaas** Before the demise of the compound system, a number of houses close to hostels were reserved as married quarters for senior black staff. These houses are now reserved for senior workers amongst the unskilled, semi-skilled and administrative staff (Chinguno,2013).

**Nkaneng informal settlement: Nkaneng** is an informal settlement adjacent to Lonmin operations in Marikana. The councillor and his committee have reliable statistics on numbers living there. They estimates at least 12 000 residential stands with an average of eight households on each stand.

Nkaneng is a post-apartheid phenomenon. Senior residents indicated that people started living there in the early 1990s following the release of Nelson Mandela. They settled illegally without sanction from the local traditional Chief Bapo ba Mohale, the custodian of the land which was used for cattle grazing. The area has no accessible roads, water or electricity , sewerage or refuse removal. Before 1994 mine workers at Lonmin lived in hostels. The first mineworkers to live outside hostels rented rooms within adjoining villages. The reasons for staying outside hostels varied but it usually concerned a prolonged visit by a wife or relative. The mine authority usually only provided accommodation up to a maximum of two weeks. Some subsequently relocated in the villages permanently.

Some of the workers argued that they moved into the informal settlement to save on rentals and supplement their low incomes with the LOA of R1 850 a month. It cost an average rental of R220 for a single room sharing in the hostel while a single room in an mkuku (shack) costs R300. A brick one room in the informal settlement cost R600 per month. A worker explained why he constructed his own shack, 'i have a family here and in the Eastern Cape. I cannot afford R3 000 to pay a mortgage (Chinguno, 2013).

5. (b) Housing provision in Kathu

Kathu in the Northern Cape has lately experienced an extraordinary growth in the demand for housing, due to the increased demand for iron ore from China. As in the case of many small towns, the economy of Kathu is largely based on a single resource: iron ore. The mine was founded by the erstwhile company, ISCOR, just after the Second World War; and the town of Sishen was established. The ore in the area has always been extracted by means of an open-quarry method; and over the course of time, the length of the quarry necessitated a shift in the location of Sishen, resulting in the founding of the town of Kathu in the 1970s, approximately 15km to the east (Nel & Van Wyk, 2007).

Owing to a combination of factors, such as the backlog caused by apartheid mineworker-housing strategies, the fact that the mines have sold the residential properties that they historically owned, and the recent expansion of mining activities, a substantial housing shortage has arisen in Kathu (Nel & Van Wyk, 2007). In addition, increased private - sector interest as a result of expanding mining activities

has seen the prices of houses skyrocketing As a consequence, middle-income mineworkers have found it increasingly difficult to access housing in the town. In an attempt to provide housing for their workers, the Kumba mining company contracted the Matlapeng Housing Company, which is subsidized indirectly by various methods, to assist it is regard. In some cases, Kumba donated the land and paid for the provision of infrastructure; while the institutional housing subsidy from the government has also been utilised for those households that qualify. Three different models of tenure are followed in this regard (Nel & Van Wyk, 2007):

Individual ownership - this option is available for those who can afford it, in cases where the approval of the banks can be obtained. The survey indicated that 27,5% of households in the new housing development have opted for this form of tenure.

Instalment sale agreement - the house is acquired by means of an instalment sale agreement, which means that formal transfer does not take place on day one. Half of the households that were interviewed selected this option. The immediately advantage of the instalment sale is that it provides an option for households whose credit record is not good enough to qualify for a mortgage bond. Although there is very little difference between the monthly payment in respect of the instalment sale, and the payment that applies in the case of a mortgage bond, the fact that transfer does not take place at the beginning of the transaction contributes to a reduction in initial costs. At the same time, the instalment finance model is designed (obviously at a cost) to allow the participant to default for approximately three months. A further advantage of this approach lies in the fact that, should the household be unable to pay the instalments, they would lose their house, but would not be blacklisted for defaulting on a mortgage, or held responsible for the asset, since in such cases the house remains the property of the Matlapeng Housing Company.

Rental option - finally, it is also possible to rent the housing unit from Matlapeng. The remainder of the sample 22,5% of households - fell into this category. Rental housing is between 20% and 40% cheaper than the instalment sale or the ownership option.

## 6. Discussion

In the past black mine workers exclusively lived in mine hostels, this has changed following the attainment of democracy in 1994, mine companies have since abdicate the duty to provide accommodation by Substituting this with a living out allowance (LOA), when the mines started to pay living out allowance, black miner workers moved out of mine hostels and into informal settlements on surrounding land. There are over 38 informal settlements around the Rustenburg platinum belt, and what increase this number of informal settlement is that some of the black miner will buy plots from the local chief and build rows of shacks and rent them out to other black miner workers, and in this informal settlements there is no services in this plots/land there is no roads , electricity, health care centers or even a school , and it appears that neither the mine companies nor the local municipality have interest in the development of infrastructure settlement around the mine in South

Africa. In conclusion black miner workers argued that living in the informal settlement next to the mine is a matter of choice and an expression of freedom , the hostels were designed to maintain employer control over the workers beyond the workplace including their social life, in the hostel workers are restricted in drinking , noise and female visit. All this restrictions are resolved by moving into a informal settlement.

## 7. Conclusion

The mining company wishes to shift the cost of providing housing for mineworkers to the mineworkers themselves, while government policy on migrant workers and mining hostels is vague. The government has introduction difference housing schemes with the mining houses which can benefit the black miner workers to have a house.

According to Marais &A Venter 2006 only 1.3% of the South African respondents have received a housing subsidy before. This means that 98.7% of the South African mineworkers are eligible for a housing subsidy. Approximately 38% of the on-mine residents have been residing at their current residents for less than 10years, compared to 43% of the off-mine workers. These figures also suggest that the permanency of mineworkers has increased during the last 10 years and that staff turnover at mining areas has decreased considerably.

The living out allowance is paid as an alternative to company accommodation and this result in Black miners workers end up in informal settlements. The government with the mine houses in South Africa can develop a affordable housing scheme which can benefit the low-income black miners in South Africa.

In essence the socio-economic profile of mineworkers suggests a fairly stable workforce with well-established households which might be more orientated towards providing housing for the family.

## 8. Recommendations:

Development of a Housing Subside scheme for black low-income miners in South Africa.

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# What Psychological Type Can Do in the Organization

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**Abstract**

Each one of us being either boss or subordinate approaches activities at the workplace from the perspective of the language of the Psychological type. Employees develop strategies, solve problems, reduce stress in the workplace through the perspective of the Psychological type, and the same psychological type helps us to address different situations we encounter in the workplace as effectively as possible. Once the psychological type is identified, the managers pay more attention to the employee's work style so that he can use it in the most profitable way, as well as in developing effective relations with the employees within the organization. An employee who is ready to take risks, fulfill initiatives and become effectively productive, of course involves a lot of factors but surely one could see that, workplace performance is affected by skills, dominant and specific that a person holds. If the workplace tasks are compatible with the type of personality of the individual, then the work itself can become an interesting, stimulating one. Experts in the field of human resources say that the way in which we work today is also the effect of changing tomorrow; we must achieve more using less time, less people, and fewer resources.

**Keywords:** psychological type, dominant traits, individual differences, MBTI (Myers-Briggs Type Indicator), organizational type; team

## Introduction

The study of the Psychological type of the individual at the present stage is required in the social science sphere as a result of the rapid changes in the environment and the increasing expectations regarding the rapid discovery of new ways of functioning of the organizations and implicitly of the behavior of their members. However, there are other external pressures that contribute equally to the presence of internal factors in the development and understanding of the individual psychological aspects that allow us to strengthen and develop the strengths of the organization. Despite the problem of mass migration of people from the Republic of Moldova, as well as the globalization or even the merging of national and global markets, new requirements are imposed on the policies and practices and their members, focusing on the field of study of the organizational behavior that has won its own status among the research fields.

The specific analysis of the Psychological Type of the individual could be considered as a research modality composed of two fundamental elements: the people and the organizational variables. And since no organization could maintain a certain level of efficiency, independent of the consolidation of the types of motivations and satisfaction in the work of its members, the role and the responsibility of the management in integrating and harmonizing the human variables with the organizational ones are evident.

From the perspective of organizational behavior, three major themes or priority concerns for organizations can be highlighted:

People, both as individual persons, as well as in their actions and interactions that are associated with different psychological types;

Management, as organizer and coordinator of human resources;

Organizations, as integrating structures of human actions and interactions in order to achieve clear, well-defined goals (both individual, and organizational).

The study of the Psychological type of the individual is dedicated to the description of the characteristics of the members of the organizations as individual persons (personality, perceptions, attitudes, better study of the employees, compatibility with the job description, values, motivations) and relevant or less relevant to the organizational context.

Review of literature

Multiple specialized theoretical researches all over the world show that the psychological profile of individuals and the work team plays a decisive role in boosting activism and production capacity. The authors (Tieger&Barron-Tieger, 2001) provide a systematic and effective way of assessing strengths and likely weaknesses of the Psychological Type approach. This research was conducted earlier (Bridges, 2000) that guided thousands of individuals and hundreds of organizations do deal more productively with personality differences.

MBTI proves understanding of the organizational dynamic (Bradley&Hebert, 1997); (Barr&Barr, 1989); (Kroeger&Thuesen, 2002). As shown on the basis of the consultancy practice majority of the organizations in western world are of the STJ type (Barr&Barr, 1989). Being a quite traditional way of organizational management it proves to be the most widespread despite popular management manuals and reviews acclamation for the lack of the efficiency and flexibility. Many organizations that have initially adopted a very innovative and flexible approach with time tend to turn into more traditional organizational structures as they reach a certain level of growth. The larger the organization, the more it tends to become bureaucratic. NF organizations and SP organizations are found very few. The characteristics for the NF and SP organizations can be found under NF and SP leader temperament. These types of the organizations rarely reach the large dimensions and survive in the crude and pragmatic environment.

MBTI and building teams

MBTI - provides developed systems and approaches in building effective teams. it has been used widely to help developing and streamlining the existing teams and organization. The Type system of personality assessment is based on four basic aspects of human personality:

Dimension of interaction with the world and direction of one's energy;

Dimension of the kind and the way of the information collection;

Dimension of the way one's makes decisions;

Dimension of the life style preference: structural or spontaneous;

*a. Dimension of interaction with the world and direction of one's energy E (extraversion) or I (Introversion).* Dimension of interaction with the world: E (extraversion) or I (Introversion). Everyone's personality falls onto one side – extraversion – or the other side – introversion – of this dimension, which is called preference. In reality one uses both sides in daily life, but a person has innate preference for one of the sides.

The concept of "extraversion" and "introversion" describes how we live in the world outside ourselves and in the world inside ourselves. Each of us has a natural preference for either the outer or inner world, although by necessity, we all function in both. Functioning in our preferred world energizes us; functioning in the opposite world is more difficult and can be tiring. Those who prefer the outer world are Extraverts and those who prefer the inner world are Introverts.

*b. Dimension of the kind and the way of the information collection S (Sensation) or N (iNtuition).* The second dimension concerns the kind of information one naturally notices. Some people focus on "what is" while others focus on "what could be". These approaches are fundamentally different.

The perceiving functions: sensation and intuition. The letter S stands for sensations and the letter N stands for intuition. These two functions are in conflict with each other. That is, they cannot be used at the same time. Types who prefer sensation generally focus on direct sensory experience. This type is aware of appearances, facts and details and their surroundings have a direct impact on them. Types who prefer intuition generally ignore the material surface of things and consider the larger picture. This type is interested in meaning and future possibility, not facts and details. Intuitive maybe so focused on a situations potential that people of this type overlook present obstacles.

*c. Dimension of the way one's makes decisions F (Feeling) of T (Thinking).* The judging functions are thinking and feeling. The third letter is T or F stands for thinking or feeling which is known as the judging functions. When one use Thinking he organizers his behavior in terms of general impersonal predictability: rules, laws, principles logical or numerical sequence, definition, hierarchy and so forth. When one uses Feeling he organizes his behavior in terms of specific personal criteria: the signs and rituals that convey shared beliefs, values, moral sensibilities, identification with others and social relationships.

*d. Dimension of the life style preference: structural or spontaneous P (Perceiving) or J (Judging).* The fourth dimension of the information perception: P (Perceiving) or J (Judging). They tell which of these two functions one uses in the relations to the external conditions. P-types like to live in a spontaneous way and are happiest when their lives are flexible. They have a perceiving attitude and like to stay open to all kinds of possibilities. Perceivers seek to understand live rather than control it. J-types are called judgers, tend to live in an orderly way and are happiest when their lives are structured and matters and settled. They have judging attitudes and like to make decisions. Judgers seek to regulate and control life. Judgers are not necessarily judgmental; they just like to have issues resolved.

None of the two organizational types could be considered ideal as no ideal personality type exist. One has to be are of the specific situation, organization scope and the specific environment organization operates to understand what would be the most efficient and specific type is the most appropriate for the organization. Below is a review of the strengths and weakness of the different types based on (Barr&Barr, 1989)

Research methodology

There are several types of methodology used in this research. The collected data and information from several sources. It combined the qualitative research collection through interviews of the people in the organization, information collected from discussions with an organization's leadership, program coordinator and the staff, collection of MBTI tests from all organization employees and persons in the recruitment process. Once the data has been collected, they have been interpreted against the organization effectiveness and efficiency. Below sample organization's MBTI representation is shown based on the collected data from a sample organization with the Personality Type, frequency of its appearance, codified with capital letter A or B, depending on the team within the organization, and a number specifying number of team members.

*Table 1. Sample organization's MBTI Representation*

| | | | |
|---|---|---|---|
| ISTJ<br>2 (17%)<br>B2, A2 | ISFJ<br>3 (25%)<br>B1, C2, C3 | INFJ<br>1 (8%)<br>A3, | INTJ<br>2 (17%)<br>A5, C1 |
| ISTP<br>0 (0%) | ISFP<br>1 (8%)<br>C4 | INFP<br>0 (0%) | INTP<br>0 (0%) |
| ESTP<br>0 (0%) | ESFP<br>0 (0%) | ENFP<br>1 (8%)<br>B3, | ENTP<br>1 (8%)<br>A1, |
| ESTJ<br>1 (8%)<br>A4, | ESFJ<br>0 (0%) | ENFJ<br>0 (0%) | ENTJ<br>0 (0%) |

Systematization of the collected data along the temperaments and extraversion-introversion duality is provided for the analysis of the results.

Table 2. Organization Introverts-extraverts proportion, Temperaments' representation

| | | |
|---|---|---|
| Extroverts | 3 | 25.0% |
| Introverts | 9 | 75.0% |
| | | 100.0% |
| | | |
| Temperaments | | |
| NF | 2 | 16.7% |
| NT | 3 | 25.0% |
| SJ | 6 | 50.0% |
| SP | 1 | 8.3% |
| | 12 | 100.0% |

**Analysis of results**

Sample organization has 2 NTJ, 1NFP, 2 SFP, 3 STJ, 4 SFJ types. The team is outbalanced by ST(F)J type in both Team A and Team B. The team has strong delivery capacity and productivity. The team does not use efficiently NTJ type member A5. In conclusion the team tends to STJ style, however in practice the very active role of the sample organization's leader with strong NTJ shapes the more active and innovative organization. As a recommendation, the team should better make use of existing NTJ of member A5 or when vacancy appear, a person with N preference is hired.

*STJ organizations.* The primary theme of the STJ organization is hierarchy. Authority, title and status delineate the structure around which other dynamics in the organization moves. The core values of the organizations are: respect your boss; observe the chain of command; follow standard operating procedures; control decisions and interactions by policy and procedure; pay your duties before moving up in the hierarchy; take only carefully calculated risks within the structure; make contributions clearly measurable in a competitive area.

The organization's characteristics reveal many ill-suited facets to deal with the today's volatile and rapidly changing environment. STJ organization is very traditional with strong values for the conservatism and stabilization. With change and unpredictability, the question of the survivability of the STJ organization and its productivity as well as cost-efficiency is always critical and hard to achieve. STJ organizations appeared work well in a more stable world that operated at a slower pace.

The STJ management role is usually the dominant controller of work. The work is merely emphasized rather than the worker, which is a part of the hierarchical scheme. The focus is on the work and the roles required completing. Individuals are valued as much as the role they play in work accomplishment. STJ organization favors employees for their loyalty, responsibility, preferring down-to-earth, economical solutions and fast turnaround. STJ organizations have many string points as the ability to uniformly and comprehensively implement the task until the job is finished. At the same time STJ organizations and STJ managers have a set of negative possibilities. The possibility to get stuck in a set of a preference without thorough development finds itself in a dysfunctional managerial form. The danger of a managerial style being reinforced by the same organizational structure is the false encouragement to the manager to be satisfied with the STJ style that is not enough for the challenge.

*NTJ organizations.* NTJ type organizations are another organization personality type. The experience shows that there are more NTJ leaders at the top of the organizations but the organizations are STJ-dominant organizations. NTJ type organizations are not that widespread. The larger the organization it is more likely to adopt STJ type like of personality as it requires rely on the procedures, chain of command, multiple policies and rules. The NTJ organization drives itself to grow and develop. It must be creative in its effort to maintain the leading edge in innovative programming; it does continuous planning for organizational change to meet future needs. This type organization is finding itself well suited to today's ambiguous business climate.

NTJ organization is continuously innovating. The driving force of the organization is improvement. The type values originality, creativity and the new things of doing things. The mission is more important than anything else. The NTJ organization is driven by a vision of the ideal system and seeks continuously to develop prototypes, pilots and models throughout the organization that are conceptually harmonious with that vision. The NTJ organization uses creativity, uniqueness, applicability and status as their criteria. NTJ management style tend to be impatient to standard operating procedures, slow progress and failure to learn from errors, has great ability to stand alone and move forward a vision. Strengths could be easily become weaknesses when losing the ability to interpret objectively the data that challenges that vision. NTJ managers have to work hard to develop their sensing, feeling, perceiving skills and are to develop a more balanced approach. MBTI team theory suggests that sample organization should have the so called "NTJ" style of work. This style best suits the innovative and highly organized in delivery team focused on the opportunities. "NTJ" style is opposed to "STJ" style that suits best to the team with high execution ability focused on the present in a relatively stable environment.

The numeric dominance of the ST type is expressed by the fact that the organization has developed a whole system of bureaucracy and procedures that have not remained unfelt by the people in the organization as audit shows. At the same time, people express the general impression of the organization as a constantly moving entity that from time to time makes real changes.

**Conclusions and suggestion for further research**

From the analysis and findings of the study on testing Psychological type of all members of the organization suggest that there is some important contribution that a Personality type can make to the field of organizational development. A general look from the individuals and teams, from the organization suggests that great success results in being aware of the strengths and weaknesses associated with the Psychological type, finding the right profession that is compatible with the individual allowing to do what they do best, and conferring an advantage in the recruitment and selection process. By using the Psychological Type of Personality, interpersonal communication can be more effective, conflict situations in the organization can be resolved more quickly, and work can be done more easily. The Personality type can help managers better understand who the people are, what they do well and what they do not do. It is a good useful tool, but it is not entirely responsible for the actions because there are many other factors involved.

One line of farther research is the comparative analysis of the Type distinguished organizations against the same or similar objectives are carried out.

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# Intergenerational Management Succession: Specificities of the Portuguese Family Business

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## Abstract

Family firms are considered the world's most predominant form of business organisation. Notwithstanding the fact that there is a lack of consensus with regards to their definition, on recognise that family firms are different from non-family businesses due to their specific relations at three levels, namely ownership, business and family. It would appear that the family influences, shapes and conditions both the firm and its continuity, mainly through the intergenerational management succession, its planning and effectiveness. According to a recent research focused on the entrepreneurial succession in Portugal (AEP, 2011), 50% of family businesses are not passed on to the second generation, and only 20% reach the third generation. Also, taking into account the main results from the project "Roadmap for Portuguese Family Businesses" (NORTE2020/FEDER), the empirical findings have proved that the business succession planning has been identified as one of the most challenging steps in the life of the family firm, which demands for appropriate analysis. In fact, resistance to succession, relationship founder/ successor, planning of succession, type of organisational culture, among others, explain how executive succession is one of the most important and hardest tasks in organisational life. In this article, we aim to discuss the main management challenges of a family business, particularly the importance of succession preparation and the role of the family in the socialisation of the second (third or subsequent) generation. Based on an online survey (N 1148) and on in-depth interviews conducted to founder/ manager/ owner (N 23), we will seek to point out major challenges faced by the Portuguese family business, as far as this matter is concerned.

**Keywords:** North of Portugal, family business, Professionalisation, Intergenerational Succession

## Introduction

The family-owned business is an important agent in the creation of wealth, employment, and territorial and social cohesion in most countries. In the last decades, studies have frequently dealt with the definition and specific features of family business, in an attempt to clarify the differences between family and non-family firms. Literature related to this topic has stated its relevance in the academic arena (Litz, 2008; Sharma, 2004; Gallo, 1995; Habbershon & Williams, 1999; Davis & Tagiuri, 1989). However, notwithstanding the fact that there is a lack of consensus with regards to their definition, on recognise that family firms are different from non-family businesses due to their specific relations at three levels, namely ownership, business and family (Moores, 2009; Gallo, Tàpies & Cappuyns, 2004; Gersick, K., et al. 1997; Tagiuri & Davis, 1996). The family subsystem plays a key role in the firm's cultural configuration and goal-setting (Churchill & Hatten, 1987) however, enterprise subsystem must be ruled by meritocracy standards, professional governance and economic sustainability. Due to its complexity and the impact that intergenerational succession has on the organisational structure, succession in companies requires full involvement of all family members. A deliberate and systematic transference in the preparation of succession implies to assure, on the one hand, the continuity of the key positions and, on the other hand, the retention of human capital. The successor tends to present several types of dilemmas that he/she has to solve on a daily basis. He/She must deal with personal and intimate relations based on affections and principles of equality towards family members; moreover, he has to rule by objective criteria oriented to meritocracy and economic sustainability in the performance of functions and positions in order to ensure the future of the company. Family succession issues, as well as other topics, such as performance of family firms and governance are crucial to explain how the family could influence, shape and condition both the firm and its continuity.

In fact, bad planning at the time of succession could result in the loss of 6.3 million jobs, according to estimates by the European Observatory. The European Commission (2001) points out that approximately 30% of companies in a transfer situation are on the verge of bankruptcy due to poor preparation of the succession. According to a recent research focused on the entrepreneurial succession in Portugal (AEP, 2011), 50% of family businesses are not passed on to the second generation, and only 20% reach the third generation. Furthermore, taking into account the main results from our project "Roadmap for Portuguese Family Businesses" (NORTE2020/FEDER), empirical findings have proved that the business succession planning has been identified as one of the most challenging steps in the life of the family firm, which requires appropriate analysis (Marques, 2018a). Resistance to succession, relationship founder/ successor, planning of succession, type of organisational culture, among others, explain how executive succession is one of the most important and hardest tasks in organisational life.

This paper aims to contribute to the debate of the intergenerational management succession, its planning and its effectiveness. The structure of the paper is articulated as follows: firstly, a literature review focus on the topic of intergenerational succession process is outlined; Secondly, the research goal, expected outputs and methodological design are presented; Thirdly, the main results of the online questionnaire applied to several segments of family businesses in the Northern region of Portugal are presented and discussed; Finally, some attitudes and representations towards the succession process based on interviews of a broad range of family manager/ owner as second generations are highlighted. Particular emphasis will be given to the main management challenges of a family business and representations regarding the professionalisation of management.

**1. Resistance to the intergenerational succession**

In the last decade, many authors have stated that Intergenerational management successions are one of the most challenging steps in the life of the family firm (Costa & Rio, 2011; AEP, 2011; Chrisman, et al., 2010; Zahra, 2005; Miller, Steier & Le Breton-Miller, 2003). Most recently, the European Family Business Barometer (KPMG, 2017) anticipates that, in the next five years, the greatest transfer of power and intergenerational wealth of modern times will be seen at European level. As we will attest in our empirical research, most of the family firm leaders are often concerned with the long term and the continuity of the business.

However, the question of succession remains at the same time one of the critical points and challenges of any family business, particularly the failure to prepare the successor (Deloitte University EMEA CVBA, 2017). In fact, this topic has not been properly explored yet. The succession process is described as a mutual adjustment between the role of the founder and the next generation. It is an evolutionary course with multiple periods, characterised by a gradual increase in the involvement of the successor, accompanied by a diminution of the founder's involvement, which, in a final phase, culminates in the transference of power between the founder and the successor (Jayantilal, 2016).

In fact, the founder's inability to leave the firm has been cited out as one of the major obstacles for succession (Sharma, Chrisman, Pablo & Chua, 2001). Some key themes tend to be present in the current succession theoretical approach, such as resistance to succession, relationship founder/ successor, planning of succession, type of organisational culture, among others. In many situations, the succession is not explicitly assumed as a medium or long strategic decision for the economy, which must be made in order to assure the sustainability of the firm. Succession is often indefinitely delayed and neglected due to the strong link between the founder and the firm (Bachkaniwala, Wright & Ram, 2001), which explains a kind of naturalisation of this transition. The founder believes that the velocity at which change occurs, coupled with his uncertainty regarding his children's career ambitions, make him reluctant to plan too far ahead. The succession process can be traumatic for the founder who may suffer motivation problems and feel a sense of loss of status and power and, therefore, grow reluctant to let go. The founder might even try to undermine the successor's capabilities to make the firm more dependent on himself (Morris, Williams & Nel, 1996; Seymour, 1993). As a matter of fact, many founders see the family firm as an extension of themselves, something which they want to control completely (Lansberg, 1999; Dyer, 1986).

Another problem arises when the founder remains in the firm, retaining significant power, even after the succession process has supposedly been completed. This is described as the generational shadow (Davis & Harveston, 2001). The generational shadow refers to the negative effect of the founder. If the founder decides to stay in the firm, the outcome can be quite positive if he/she adopts the role of mentor or consultant. Having a clear role definition is of vital importance for both parties (Sharma, Chrisman, Pablo & Chua, 2001). Also, the founder seems to feel that leaving the firm he is leading will eventually be its end (Barnes & Hershon, 1989). Consequently, to reflect on succession the founder has to accept his/her mortality, which can be a very demanding psychological process. In this sense, Jayantilal, Jorge and Palacios (2016) demonstrate the importance of making the founder assume an active approach in order to increase the possibility of appointing his preferred child. The results confirm that founders who are passive and simply do not assume the matters of the succession process have a greater risk of not ensuring intergenerational executive continuity of the firm.

Furthermore, the interaction, relationship, commitment and involvement of the founder are factors which influence the succession. Szulanski (1996) emphasizes intimacy and the smooth flow of communication as vital, and according to Handler (1994) and Lansberg (1999) the success of the transfer depends on the relationship between predecessor and successor. The reality is that more often than not, father-son relationships tend to be tense and complex (Kets de Vries, 1996). The age gap has been presented as a factor that contributes to the quality of the relationship (Davis, 1983).

Therefore, authors have emphasised the importance of planning the succession (Kets de Vries, 1993; Handler, 1994, 1990) to avoid unnecessary conflict which might arise from unplanned succession and untimely death of the founder (Harvey & Evans, 1994). As we pointed out earlier, the preparation of the succession plays a key role in the dynamics of family business, in case of the continuity of the next generation is assumed in the management strategic decisions for the future. However, in most family firms, the lack of succession planning prevails, and is directly related to the founder's resistance (Lansberg, 1999). For the purposes of this paper, we intend to explore mostly some attitudes toward succession, framed by the resistance shown in the behaviours both of the founders, and of the second generation or subsequent ones.

## 2. Main goal of Research, expected outputs and methodological design

"Roadmap for Portuguese Family Businesses" is a project funded within the framework of NORTE-02-0853-FEDER-000018 and is headed by the Interdisciplinary Centre of Social Sciences - University of Minho (Portugal), in co-promotion with the Portuguese Entrepreneurial Association (AEP). It is a two-year project (2017-2018) which includes as partners expert researchers and scholars, consultants, the main associations (industry, trade and others) registered in the Northern region of Portugal, as well as businessmen and women who will take part in the various actions set out in the project (Marques, 2018a, 2018b; Marques & Couto, 2017).

The main goal of the project is to analyse and assess the impact of the family businesses of the North of Portugal on the local, national and international economy (Marques, 2018a). Conventional statistical data (namely, economic and financial) will be cross-referenced with more in-depth information, such as intergenerational succession process, business organisational structures, and human resources profiles (e.g. gender, qualifications, age-groups). This will entail mapping out the family business by district, which will enable us to update data on this economic sector and allow for the governmental and economic authorities to acknowledge its impact in financial terms and in terms of job creation.

Related to this main goal, the expected outputs will be achieved through the following actions:

Action 1: creating a reliable and comprehensive data base of the types and segments of family businesses in the North of Portugal, so as to inform and support the policy decision-making process;

Action 2: designing an online questionnaire for the different types and segments of family businesses in the North of Portugal, complemented by in-depth interviews to reinforce their economic and social role.

Action 3: disseminating and disclosing information on the project's official website, which will contain documents and a variety of initiatives connected with the project, its partners and collaborators. It will contain a wide range of information, such as news, events, statistical analyses, thematic reports and other documents that may substantiate the different family business profiles in the North of Portugal;

Action 4: holding workshops and seminars to disseminate the main findings of the project and to involve and engage family businesses in the planned activities.

In order to carry out the empirical research, we adopted the family business definition provided by the European Commission Expert Group (EU, 2009): 1) the majority of the decisions are made by the founder of the firm, or by the person(s) who obtained the rights to the firm as the natural heir(s), or by an immediate family member; 2) the majority of the decision-making rights are indirect or direct; 3) at least one family member is formally involved in the governance of the firm; 4) and, finally, registered firms are considered as a family business when the person(s) who founded the firm or their families or descendants possess 25 per cent of the decision-making rights mandated by their share capital.

The methodological design is based on different approaches, namely quantitative, qualitative and participative, accompanied by respective research and treatment techniques of data. This paper will be supported mainly by both quantitative and qualitative data[1].

The quantitative approach has been supported by two steps. The first step required the construction of a database with all family companies formally registered in the North of Portugal, using all available information sources such as the consultation of the Justice Portal, IES (Simplified Business Information)/ Ministry of Justice: SICAE (Information System of the Portuguese Classification of Economic Activities), and the contacts made available by the Portuguese Business Association (AEP). The information fields that are part of this database are fixed and updated annually. The fixed information refers to the identification of the family company (e.g. taxpayer number; company name; location: company address, economic activity, website; date of establishment and start of activity; legal form; and management and administration bodies). As for the information that can be updated annually, it refers to elements subject to variations, such as the number of employees, turnover and export weight.

The second step was geared towards the conception and application of an online survey (LimeSurvey platform) to the family entities collected in previous step, in order to better characterise the profiles of family companies. The distribution of the final sample can be observed in the following table (Table 1), which proportionally represents the family companies in each of the Nomenclature of Territorial Unit (NUTS III)[2]. Between June 2017 and February 2018, equivalent to 9 months of intensive field work, a total of 1.148 questionnaires were collected (it was possible to ensure the constitution of a robust sample in terms of representativeness of the target universe, guaranteeing a 95% confidence level, with a maximum error of 3% .).

**Table 1**. Final sample by NUTS III and family firm size (number of workers)

| NUTS III | Nº of workers | | | | |
|---|---|---|---|---|---|
| | Micro ≤ 3 | Micro (4 – 9) | Small (10 – 49) | Median and large firm (≥ 50) | Total |
| Alto Minho | 10<br>14.9 | 28<br>41.8 | 20<br>29.9 | 9<br>3.4 | 67<br>5.8 |
| Alto Tâmega | 2<br>9.5 | 10<br>47.6 | 6<br>28.6 | 3<br>14.3 | 21<br>1.8 |
| Área Metropolitana do Porto | 200<br>36.8 | 146<br>26.9 | 142<br>26.2 | 55<br>10.1 | 543<br>47.3 |
| Ave | 25<br>18.1 | 40<br>29.0 | 45<br>32.6 | 28<br>20.3 | 138<br>12.0 |
| Cávado | 45 | 56 | 59 | 29 | 189 |

[1] The participative methodological approach will not be developed in this paper.
[2] The Nomenclature of Territorial Unit is used for statistical purposes and represents a territorial division in a region or country. In this study, the North of Portugal is represented as NUT II and is one of five NUT II which define Portugal. The North of Portugal is itself defined by eight sub regional divisions (NUT III).

| | | | | | |
|---|---|---|---|---|---|
| | 23.8 | 29.6 | 31.2 | 15.3 | 16.5 |
| Douro | 16<br>30.2 | 18<br>34.0 | 13<br>24.5 | 6<br>11.3 | 53<br>4.6 |
| Tâmega and Sousa | 25<br>22.7 | 28<br>25.5 | 34<br>30.9 | 23<br>20.9 | 110<br>9.6 |
| Terras de Trás-os-Montes | 3<br>11.1 | 14<br>51.9 | 8<br>29.6 | 2<br>7.4 | 27<br>2.4 |
| Total | 326<br>28.4 | 340<br>29.6 | 327<br>28.5 | 155<br>13.5 | 1148 |

In the qualitative approach 23 in-depth interviews were conducted with the family managers/ owners who represented all the diversity of this business typology, taking into account , for example, the sector of activity, size, years of foundation, sex and so on (Table 2). It was possible to reconstruct the "history" and "culture" of the family business and kinship networks, so as to recover the trajectory of the founder(s), main critical moments of business turnaround/ transformation, as well as issues related to the present situation and the challenges for the future. This activity was based on a semi-structured script to support the interview which was recorded and had an average duration of 1h: 30m. In addition, this activity has allowed the team of researchers to visit some family businesses and record the information resulting from the observation and interaction between several family and non-family members.

Of the 23 interviewees, two-thirds are males, between the ages of 30 and 60 (the most significant is the age range of 40-50), and the overwhelming majority holds higher education (bachelor's degree, including master's and doctoral degrees). They are founder or in 2nd generation or subsequent, who predominantly assume the status of managing partners or CEO.

**Table 2.** Identification of the family manager/ owner interviewed

| Nº | Size of firm | Year of foundation | Sector of activity | NUT III | Nº of generat. | Sex | Age | Academic qualifications |
|---|---|---|---|---|---|---|---|---|
| E1 | Small | 2010 | Trade | Cávado | 1 | Female | 35-40 | Bachelor |
| E2 | Micro | 2010 | Consulting | Douro | 1 | Female | 40-45 | Bachelor |
| E3 | Small | 1935 | Tourism | Alto Tâmega | 3 | Female | 30-35 | Master |
| E4 | Micro | 2015 | Tourism | Douro | 1 | Male | 50-60 | Bachelor |
| E5 | Micro | 1993 | Consulting | Douro | 1 | Female | 45-50 | PhD |
| E6 | Medium | 1918 | Trade | Área Metropolitana do Porto | 4 | Male | 40-45 | Bachelor |
| E7 | Medium | 1981 | Industry | Ave | 1 | Male | 40-45 | Bachelor |
| E8 | Small | 1992 | Tourism | Alto Minho | 2 | Male | 55-60 | Vocational Training |
| E9 | Medium | 1896 | Industry | Área Metropolitana do Porto | 5 | Female | 30-35 | Bachelor |
| E10 | Small | 1987 | Consulting | Terras de Trás-os-Montes | 1 | Male | 45-50 | Bachelor |
| E11 | Medium | 1988 | Industry | Ave | 2 | Female | 35-40 | Bachelor |

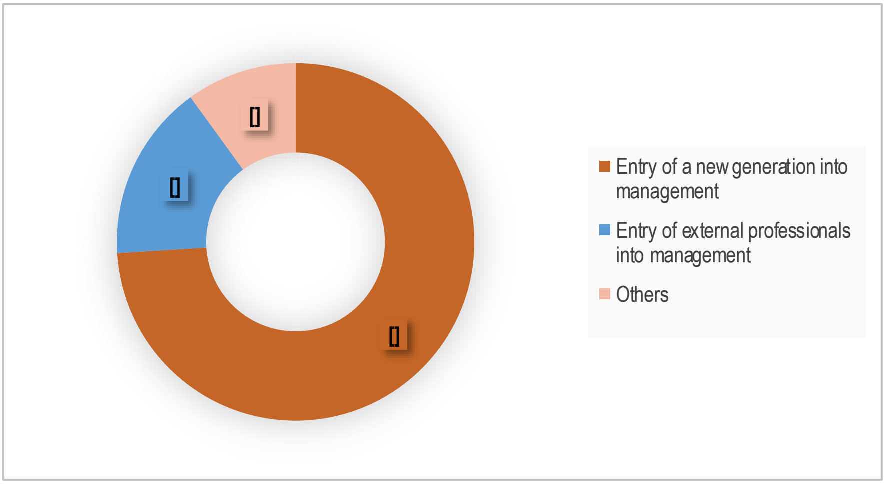
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| E12 | Medium | 1977 | Industry | Ave | 2 | Male | 40-45 | Post-secondary |
| E13 | Medium | 1958 | Industry | Área Metropolitana do Porto | 3 | Female | 35-40 | Bachelor |
| E14 | Small | 1951 | Trade | Área Metropolitana do Porto | 3 | Male | 60-65 | Secondary education |
| E15 | Small | | Industry | Cávado | 4 | Male | 40-45 | Bachelor |
| E16 | Medium | 1853 | Industry | Área Metropolitana do Porto | 5 | Male | 70-75 | Vocational training |
| E17 | Small | 2007 | Trade | Área Metropolitana do Porto | 3 | Male | 54-50 | Bachelor |
| E18 | Small | 1973 | Construction | Área Metropolitana do Porto | 2 | Female | 45-50 | Bachelor |
| E19 | Small | 2009 | Industry | Área Metropolitana do Porto | 1 | Male | 70-75 | Bachelor |
| E20 | Micro | 2008 | Consulting | Área Metropolitana do Porto | 1 | Female | 40-45 | Bachelor |
| E21 | Micro | 1939 | Industry | Área Metropolitana do Porto | 4 | Male | 40-45 | Bachelor |
| E22 | Small | 1956 | Trade | Área Metropolitana do Porto | 3 | Male | 40-45 | Bachelor |
| E23 | Small | 1992 | Trade | Área Metropolitana do Porto | 3 | Male | 45-50 | Vocational Training |

### 3. Main challenges of management in family businesses

There are many managerial challenges experienced within the context of family businesses. In addition to the traditional demands required to any business or entrepreneurial activity – e.g. the need for constant innovation to maintain leadership, to deal with competition in the economic activity sector in which they operate, to ensure a good relationship with clients and suppliers, to manage their human resources efficiently, to invest in prospection and to ensure, on the whole, the stable financial health of the business – in the case of family businesses there are also specific internal challenges specifically related with their family nature. Among these challenges we can emphasise: heritage taxes, donations, access to financing without losing company control, but also the preparation of business succession, namely through the definition of family protocols, the preparation of the successor(s), the management of potential conflicts, professional management, among others.

In this section emphasis will be given to the main results arising from the project's quantitative research component (Marques, 2018a, 2018b). The survey results revealed that among the companies that declared they expected to introduce changes in management (leadership succession) in the short-term (3 to 5 years), the main change would occur with the presence of the younger generation to management (74%). This stance contrasts significantly with the possibility of having managers who don't belong to the family, which only gathered 16% of the answers (cf. Figure 1).

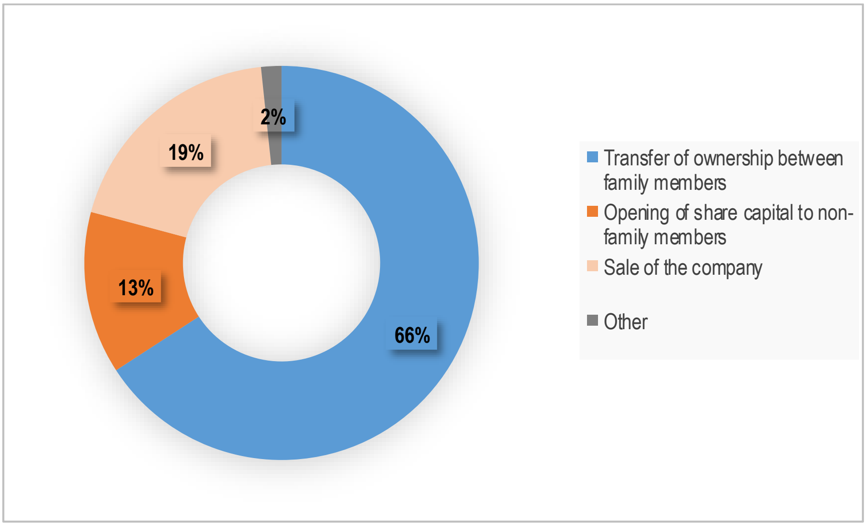
**Figure 1.** Main change in leadership succession management




Source: Project's online survey to Family Business

Identical results, regarding the maintenance of the family nature of the business, namely in the structuring dimensions of its activity - like the shareholder structure of the company - were equally identified in the question regarding projections on change of the shareholder structure (property succession). In fact, regardless of key-variables such as seniority or the dimension of the family -run business, the results show that if changes in succession are to be introduced in property succession, these will be more than half of the companies that will transfer property among family members (65,8%), rather than through changed which that show an openness (versus maintenance/closure) of the family property, such as selling the business (which gathered 19.2% of the answers) or openness to social capital to non-family members (which, in turn, gathered 13.3% of the answers) (Figure 2).

**Figure 2**. Main change in shareholder structure (succession of ownership)



Source: Project's online survey to Family Business

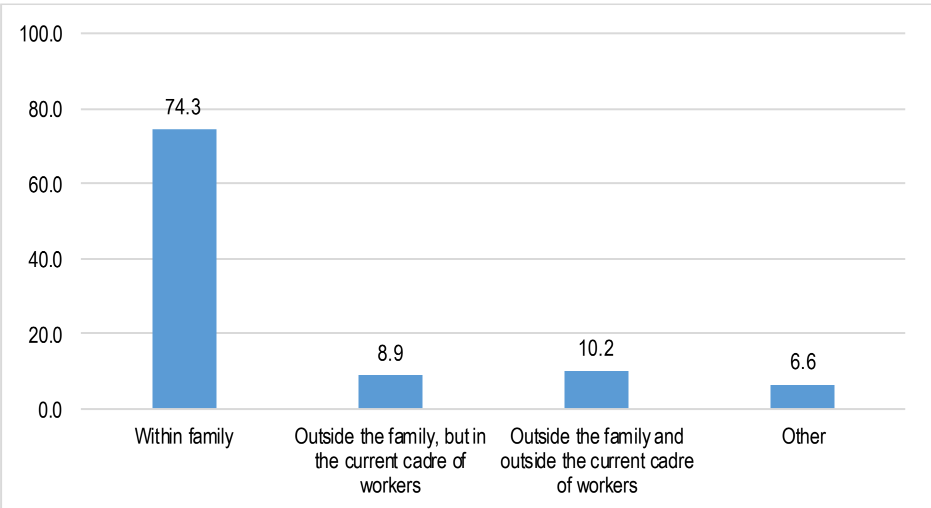
In effect, the results of the survey by questionnaire, applied to a large number of family businesses from the northern region of Portugal are very significant as regards this positioning of preservation of the family nature of this corporate segment, when aspects like the future of the business and matters of succession are approached, either in terms of leadership or in terms of property.

In accord with these results, we can equally find a very significant positioning of the total number of businessmen interviewed (N= 1148) regarding the target of the business successor search: 74.3% of the total of family business owners referred that the search for a successor should take place within the family (Figure 3). In other words, the succession choice is limited to the family members. Assuming that the successor is searched outside the family, opinions subdivide, with slight differences between outside the company's staff (10.2%) and inside it (8.9%).

The online survey developed within the research project also integrated one question related to key factors for the success of the family businesses, taking into account the perspective of the family business leaders (Figure 4). The results revealed that the most valued factors are: (i) preparation and training of the successor before the effective beginning of the role (78.1%); (ii) existence of strategic planning (medium and long term) (76.1%); (iii) separation between the interests of the family and those of the business (75.1%); (iv) prevalence of professional criteria in decision making on regarding property, government and company management (73.1%).

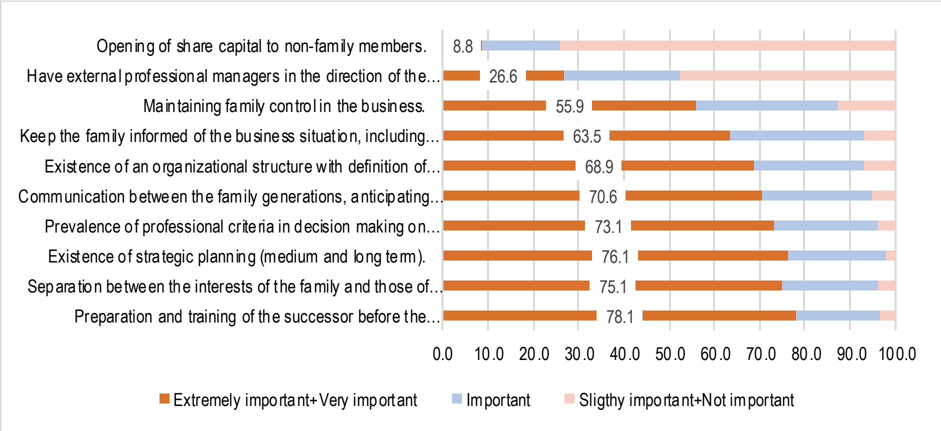
This means that most of family company leaders are often concerned with the continuity of the business, and within this medium/short-term challenge they tend to avoid solutions or answers to these challenges that imply external openness of the business, that is, non-family solutions. Such is demonstrated when we analyse the less valued factors referred by the leaders: (i) the opening of share capital to non-family members (8.8%); (ii) having external professional managers in the company management (26.6%).

**Figure 3.** Search for the successor of leadership




Source: Project's online survey to Family Business

**Figure 4**: Key factors for the success of the family businesses




Source: Project's online survey to Family Business

## 4. Attitudes toward succession: the legacy and naturalisation of the process

In an initial stage of the family business, the founder holds a unique and privileged position in the creation of the basic cultural identity of the business, establishing his/her values and beliefs. These are formed by his/her own personality and cultural history, and hence they reflect the founder's education, childhood, life experience, family, and predecessor. The testimonies are very diversified and of an extreme richness, and mirror the enterprising dimension, the risk and the boldness of the founder at the launch of the business family and throughout its maintenance.

> "All my family was influenced by the way he was and how he behaved [founder], and I say this because lots of people are still fond of him, so many years later, after 18 years! (…) Having lived with him on a daily basis, I think we can say he was old school, with all the pros and cons you can expect." (E22_Male_3rd Generation_Trade)

> "Stamina! I think you need to have stamina, and also a strong belief and a bit of luck. You can only build an empire if you can have strong dedication, from people, from the odds and if you understand what you can achieve. That's about it, I think" (E13_Female_3rd Generation_Industry)

The interaction, the relationship, the comittment and the involvement of the founder and of the first generations with the future ones are factors which influence succession. In some situations, the founders tend to welcome new ideas and products, showing that conservativeness or a greater resistance to change shouldn't always be attributed to the founder.

> "My uncle was an amazing person with a strong behaviour, in good but also in situations that are not so good (…). In the bad situations it was complicated to deal with him; in good circumstances he was someone whose work capacity and vision were unusual at the time we were going through and taking into account his training and education. He had only completed primary school. In fact, he was ahead of his time (…)." (E12_Male_2nd Generation_Industry).

> "An important occurred when we started producing *vintage*. Nowadays, it is something ordinary in the wine universe. But back then, for many years, my great-grandfather was always very critical when he produced vintages. V*intage* is one of the premium categories of Port wine and he considered vintage wines to be an English monopoly! He thought that it was in some way related with a certain degree of confidence they showed when it came to producing vintage, and after emphatic resistance from my father and my uncle, he finally gave in, and the first *vintage* was born in 1960 (…)." (E6_Male_4th Geração_Comércio)

Taking on the legacy of the grandparents, parents, uncles, and other family members, with loyalty and, commitment and confidence is a common trait to all the life experiences of these interviewees. Carrying on the family business is shown to be a visible imperative in the vast majority of the speeches, although it implies having "full availability" or "lack of quality time during the weekend" or "offer full dedication to the business"

As we described before, the succession process is defined as a mutual adjustment between the role of the founder and that of the future generation and constitutes an evolving journey. As the family members gradually increase and despite the fact that there is a greater number of options regarding the choice of the next executive successor, there might be a larger number of family members, tough they might foresee deriving benefits from it. These attitudes may create, on the one hand, some tension among the family members and the members who work for that company *versus* those who don't and, on the other hand, they may escalate existing conflicts Thus, it is essential to establish rules of conduct that will define how the family interacts in the cough the definition of *governance* structures so as to promote the continuity of the family business and protect it from possible conflicts and contentions.

Although the executive succession is one of the greatest challenges that the family business faces, this topic hasn't been conveniently dealt with by these businesses. From the testimonies gathered we can see that the matter of succession is not yet an issue, and if it is discussed, it is only thought of as a *natural* process, to ensure that a normal transition is guaranteed to the direct and indirect descendants.

> "I haven't thought about it yet [sucession]! I have two children, and they also like this space a lot. Succession will naturally be theirs, but we will evaluate where we stand in two years' time. We'll wait and see!" (E4_Male_1ª Generation_Tourism)

> "It is still early days because my bother has two daughters and I have a son. The fact is, this business is in their name, and that probably won't change! It will depend on his daughters' will. Having said that, he still wants to have a third child, a boy (…)." (E1_Female_2nd Generation_ Trade)

> "For now, they [the children] are still studying and they are still too young, although the eldest has already worked with us operating some machinery and helping us in other ways. In fact, that's a good way of giving him some responsibility and the possibility to earn his own pocket money. Being paid for that is also challenging for them." (E20_Female_1st Generation_Consulting)

> "Once again, the natural order of things is to have the capital dispersed among more members because people will have more children, or they'll go abroad, I don't know … but maybe in twenty or thirty years' time, the structure of the capital will be very different. One of the aspects we have discussed has been to establish a set of rules, written rules, formal ones, related with the family, in which we may define several domains. These rules will include, for example, under which circumstances a family member can work in the business; under what circumstances a shareholder, for whatever reason, wants to sell and can sell his shares or part of his shares; whether there is a preference from the other members, and if that is so, in what conditions; the retirement age of the people who work in the family business… This is something we have been discussing, and which I think is of the utmost importance!" (E6_Male_4th Generation_Trade)

> "Something I learnt in one of the training sessions on succession which I attended was the rumour that family businesses usually disappear in the third generation! That's when I started to wonder about the future, the division of the business, the shareholders… the matter of the descendants, the children and their involvement needs rethinking and needs to be prepared" (E9_Female_5th Generation_Industry)

Most of the narratives considered emphasise the postponement in the formalisation of succession. Only in residual narratives does the interviewee assume he/she has already thought about a family protocol which defines a set of rules or proceures to be followed in the planning of succession of leadership/ business management.

> "We have already considered that! Once we had a meeting the Association of Family Businesses, (…) and then we thought about writing down the family protocol, we almost did it (…) I believe family protocol is very important, because we need to safeguard some situations that can occur!" (E3_Female_3rd Generation_Tourism)

When succession takes place, not exempt from conflict, its preparation was decisive, as is shown in the following excerpt from one of the testimonies:

> "In 2001, my father and my uncle realised that in order to continue, this company depended on us and on the invested capital (…)! So, they realised that if they donated it to us or gave us the opportunity to continue operating it, they would be able to have a fixed income, a consistent yield, up to the time of their death. And that's what happened. There were deals, meetings and they decided we [my sister and I] would be the successors. This

succession was prepared by him after our decision! We said we wanted guarantees! (…) That is, a document … one part is given to us by donation and the other by right of use, which could be claimed at any moment (…). There were conflicts…obviously! There were differences of opinion, and at times it seemed it wouldn't work. We moved forwards, backwards, but eventually, it worked! I think credit should be given, in this particular case, to my father and my uncle for accepting, but we have merit as well because we assured them they would always be linked to the business, and safe!" (E23_Male_3rd Generation_Trade)

## Concluding remarks

The process of transmitting the business in family-run businesses has been pointed out as the most critical phase in the business life cycle of this type of company. Awareness of new generations towards family business continuity is the main purpose and mission of succession processes. It should also be pointed out that the "Roadmap for Portuguese Family Businesses" project focuses on the role and impact of family businesses in the economy and its main challenges, in order to establish a relevant agenda in terms of increasing the visibility, by producing not only accurate and reliable statistics, but also the knowledge that may aid the policy decision-making process.

Based on our empirical research we may point out major challenges faced by the Portuguese family business as far as this matter is concerned. As we are well aware, most of the decisions of family firms are more influenced by intangible emotional factors anchored in family and affective ties, rather than by strictly business interests. However, for the sustainability and professionalisation of the family business, it is important to ensure a separation between the interests of the family and those of the business. Nevertheless, the informality of decisions and planning characterises the model of governance of Portuguese family companies. Due to family influence on business decisions, family firms are more permeable to the informality of the decisions, the lack of structured communication circuits, and the strategic planning in the medium and long term.

Additionally, the main results from the "Roadmap for Portuguese Family Businesses" project which was previously discussed – also revealed that the entrepreneurs of the family businesses do not neglect the importance of early and professional management, which implies designing strategic plans, preparing and training the successor and affirming the need to keep family interests and business interests separated, but they achieve this by looking inwards (the family - *internal professionalisation*), and not outwards (*external professionalisation*). Family companies tend to reveal an unfavourable positioning to the openness to external members (either in terms of the possibility of participation in the share capital, or in terms of integration in the company's management), indicating, therefore, some resistance to the *defamiliarisation* of the enterprise/company management. In other words, the priority managerial motto - within this corporate segment and considering a main topic of management such as succession - seems to be: *Keep it (professional but) in the family*!

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# Digital Maturity of HR in SMEs

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**Abstract**

Digitalization and digital transformation processes pose chances and challenges to companies in a variety of different aspects. The present paper focuses on the digitalization of HR management in SMEs. The situation if discussed both in the light of SMEs, who are faced with unique challenges in terms of digitalization and its subsequent management. The role of the entrepreneurs/head of SMEs in driving the digitalization process is discussed. In a similar vein, the role HR departments can take both in their own digitalization and in the one of the company is displayed from various points of view, citing evidence that HR departments – especially of SMEs – often lag behind in terms of digitalization, thus not living up to their full potential as internal service partners of companies. An empirical study based on a quantitative survey explored these challenges further. A total of *n* = 16 experts from HR departments of German SMEs assessed the digital maturity of their own departments. The results show that – in accordance with the findings derived from the literature – HR departments are still struggling with digitalization, barely making use of their data and not connecting yet to other IT systems within the company. Most experts describe the role of their departments as reactive instead of active. These findings are discussed in the light of studies on digital maturity, showing that the situation in Germany/Central Europe for SMEs and their HR departments is a complex one: On the one hand it seems clear, that digitalization can help the companies and departments on a long-term perspective – which, according to some findings, is also well-known to the executives. At the same time, HR departments typically lack the (financial) resources and the involvement to actively work on their digital strategy.

**Keywords:** digital transformation; digital HR; HR strategy; digital maturity; SMEs

## Introduction

### State of Research

### Digitalization and Digital Transformation

Authors such as Tapscott and Barry (2009) see the digital transformation of companies as a consequence and also as the basis of digitization. While digitization on the one hand creates the necessary technological basis for digitally transformed business processes, it also makes such a transformation necessary. Tapscott and Barry (2009) particularly emphasize the role of IT departments. According to the authors, these were purely service providers within the company for a long time and were primarily responsible for ensuring that the actual business processes were able to operate smoothly.

Today, on the other hand, IT departments shape the business itself and, as a promoter of innovation, are responsible for generating new business models and are therefore increasingly involved in strategic decisions. The importance of IT departments in the development of new business models as well as products and services is also emphasized by Gulati and Soni (2015). The authors explain that it is becoming increasingly difficult for companies to only survive in competition through the quality of their own products. On the contrary, related services, services and new business models are also required in many areas. The authors cite the product-as-a-service models of many companies as prominent examples, which often even open up additional utilization options through the use and acquisition of data.

The position of Chief Digital Officer (CDO) is often mentioned in connection with this (Dumeresque, 2014). This relatively young position is responsible for the digital transformation of a company. Dumeresque (2014) particularly emphasizes that the CDO usually occupies a strategic position alongside the CEO or CFO and is therefore clearly located at the strategic level of a company and is therefore involved in long-term strategy planning and actively contributes to it. Johnson and

Lederer (2010) describe this close connection between the CDO (and thus a representative of the digital transformation agenda) and the management level as a key success factor for the implementation of digital strategies in companies.

A study conducted by PwC (Greif, Kühnis & Warnking, 2016) looked at the degree of digitization of Swiss SMEs. According to the authors of the study, this varies greatly between the individual companies and is positively correlated with the size of the companies and negatively with their age: In other words, younger companies are more advanced in terms of digitization. The most digitized companies include companies from the IT or telecommunications industry.

Greif, Kühnis and Warnking (2016) also found differences within the company regarding digitization. As a result, internal processes are digitized the most on average, while sales or customer contact are digitized comparatively little. On the one hand, the authors of the study see this as an indication that it is easier to digitize internal processes than to actually adapt the business model or actively involve customers. On the other hand, the involvement of the company's own employees in the digitization process seems to have progressed relatively strongly.

In addition to the size and age of the company, Greif et al. (2016) also identified another relevant predictor of the degree of digitization. Following the consideration that primarily the younger generation is familiar with the topics of digitization and that decisions about whether digitization is usually made at the management level, the authors of the study also examined the relationship between the age of management and the degree of digitalization of the company. In fact, the authors were able to establish a tendency between age and degree of digitization: The younger the management, the more digitized the company is on average.

In summary, Greif et al. (2016) once again state that digitization - regardless of the industry - is associated with increased corporate success and is therefore a key challenge for European SMEs. For Switzerland – as an example of a central European country – as a business location, in particular, the experts see a need to catch up and a particular relevance here: Swiss consumers are above average active in the use of digital content, and due to the high personnel costs in Switzerland, automation (as a part of digitization) can make long-term success of Switzerland as a location.

**The Situation in Small and Medium Enterprises**

Digital transformation of small and medium-sized enterprises (SMEs) - such as Li, Su, Zhang and Mao (2017) - is a relatively unexplored area in which the authors identify a research gap. At the same time - as Chen, Jaw and Wu (2016) describe - digital transformation offers a multitude of opportunities, especially for SMEs, to increase their success. Li et al. (2017) describe that the digital transformation itself, as well as its causes, success factors and consequences, have already been well researched. According to Li et al. (2017), the path from the search for optimal internal management systems (as one of the first stages of digital transformation) to cross-border technologies such as e-commerce and completely changing business models is generally well explained. Relevant factors for the digital transformation of SMEs are, according to the researchers, their skills, whereby they place particular emphasis on leadership and organizational skills in their research. Based on the Theory of Dynamic Managerial Capabilities (DMC), the authors defined leadership as the ability of managers to expand, integrate and reconfigure the organization's skills and resources. The organizational skills are described by Li et al. (2017) defined as the ability to perform tasks in an efficient and satisfactory manner. They also point out that there must be an overlap between the requirements of the respective industry and the skills that an organization needs.
They found that entrepreneurs with a shortage in these skills and resource areas were able to drive digital transformation in their companies, in particular through services and functionalities from third-party providers.

At the same time, however, the focus is on the role of the entrepreneur himself: he initiates and accelerates the path to digital transformation and is responsible for the strategy (Li et al., 2017). Li et al. (2017), however, do not go into what happens if the entrepreneur does not push the path himself.

Implementing the role of the CDO is also seen as one of the main challenges for SMEs (Becker, Schmid & Botzkowski, 2018). Its roles differ significantly from those of CDOs in larger companies: In SMEs, the CDO's primary responsibility lies in digitization and strategic management. According to the results of Becker, Schmid and Botzkowski (2018), these two task clusters take up 66% of the time of CDOs for SMEs. This leaves relatively little scope in the areas of IT, marketing and program development. In comparison, this ratio seems to be much more balanced for larger companies.

The situation seems to be even accentuated for SMEs in the field of craft and trade, as authors such as Frederiksen and Runst (2016) point out. A lack of organizational structures and digital knowledge from which a big share of SMEs in these fields suffer, can imply that digitalization efforts are either not undertaken at all, are not very successful or are even diametral to success. Therefore, Hammermann and Stettes (2016) point out, that skills necessary for successful digitalization should be stronger focused on, especially in SMEs. In order to do so, the HR department seems to play a major role, as Petry and Jäger (2018) point out. HR departments are one of the core functions of companies to support the digitalization process by providing knowledgeable employees and creating an innovation fostering corporate culture. This, of course, also implies that HR departments themselves have to face the challenge of digitalization and digital transformation.

For example, as stated by Petry and Jäger (2018), Oertig, Estermann and Thoma (2017) also describe that the HR position has a double role in the digitization process. On the one hand, HR is encouraged (as also postulated by Ulrich, 1998) to drive the transformation of the company as a change agent. On the other hand, it is itself subject to the task of increasingly digitizing.

In response to this challenge, Oertig, Estermann and Thoma (2017) attempted to develop a maturity model that shows how far the digitalization of an HR department has progressed. The authors postulate three phases on the way to digital maturity, which are achieved by testing, consolidating, automating and optimizing.

**Digital HR**

The past decade has led to a significant increase in the use of innovative, IT-driven developments in the area of HR management (Marler and Parry, 2016). The basis for this is the increasing spread of enterprise resource planning (ERP) software, which is the starting point for the increasing standardization and automation of many HRM activities. By automating many standard processes - as Marler and Parry (2016) argue - HR management can gain strategic importance and become more involved in such processes. This is a requirement that researchers in the field of strategic and sustainable human resource management have been making for a long time (Kramar, 2014).

Results from Melanthiou, Pavlou and Constantinou (2015) show that digital recruitment can have an advantage over classic methods: The authors speak of a time saving of up to 30 percent if the application process increasingly uses digital strategies to recruit new employees is set. The use of video conferences is also cited as a valuable contribution to digitization: This means that the costs of an application can also be significantly reduced for applicants and, in turn, a more efficient process is made possible.

There are also corresponding advantages of digital measures on the cost side: If new job ads are placed via social media instead of classic ads or other offline access, this can mean a cost saving of up to 90% . In addition, the authors emphasize, this strategy can also help a company to present itself in a more modern and contemporary way, which - in the context of employer branding - can in turn offer an advantage. This is particularly important for companies in the IT or high-tech sector.

Successful companies tend to make bigger use of their data than less successful ones, LaValle, Lesser, Shockley, Hopkins and Kruschwitz (2011) argue – not only in their general business decisions but also in the field of HR, where successful companies follow more data-driven strategies than their less successful competitors.

**Methodology**

The current paper followed a quantitative approach, driven by the proposal of Oertig, Estermann and Thoma (2017) who described a model of assessing the digital maturity of HR departments in SMEs. The authors proposed three major stages on the way to digital maturity, starting with a phase labelled *Ad Hoc*, where digital solutions such as Microsoft Word and Microsoft Excel are used, but no connection of HR functions to other digital platforms in the company exists. Problems are solved when necessary, in this step, without strategic, long-term goals in the field of digital transformation. The second stage is labelled *Integrated Solutions.* This step, according to Oertig et al (2017) sees digital connections of the HR function to other departments and their digital platforms. Digital processes are supporting and guiding the work of the HR departments in this stage. Data is widely accessible and first steps towards automatization of tasks are taken in this stage. The third and final stage of digital maturity of HR departments is labelled *Analytics* and describes one of the core goals of digital transformation, as mentioned in chapter 1.3 with a gaze towards the work of LaValle et al (2011): The usage of data to make meaningful predictions is one of the most powerful applications of digitization and characterizes the third stage of digital maturity (Oertig et al, 2017).

This classification was taken as a base for a quantitative survey with 11 items conducted via the Online Platform *SurveyMonkey*. The questions were posed as closed questions and formulated in close accordance with the classification presented by Oertig et al (2017).

A total of $n = 16$ participants stemming from an expert group of HR managers in German SMEs took part in this study in regards to the digital maturity of their own departments.

**Empirical Results**

The 11 items implied different aspects of digital maturity, ranging from the usage of digital measures in the recruitment process to the connection of HR applications with other company applications and the usage of data. The general implementation of these modern principles of HR management were considered for the sake of this analysis to be indicators of digital maturity of HR departments. Selected results will be presented within this segment of the paper, with a conclusion of the empirical findings forming the end of the segment.

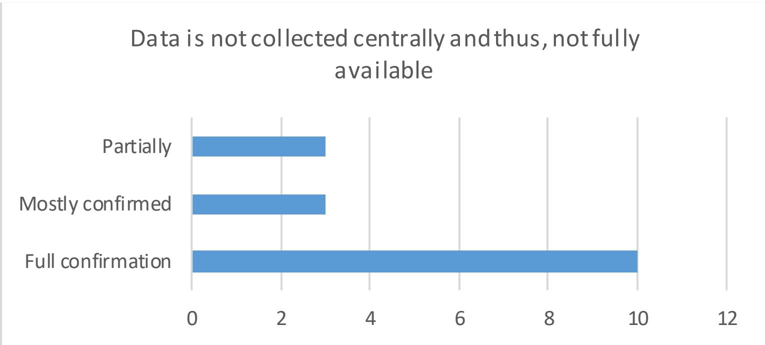


Figure 1 - Data collection by HR

10 out of 16 experts fully agreed, that so far data is not stored centrally and thus also not fully available for further usage (figure 1). The remaining four experts stated that this is either partially or mostly the case, with none answering the opposite way, which would imply a more advanced handling of data. In regards to IT solutions a similar picture presented itself (see figure 2). Again the vast majority of HR experts stated to use un-connected solutions with no or barely any connection to other departments and their IT systems and solutions.

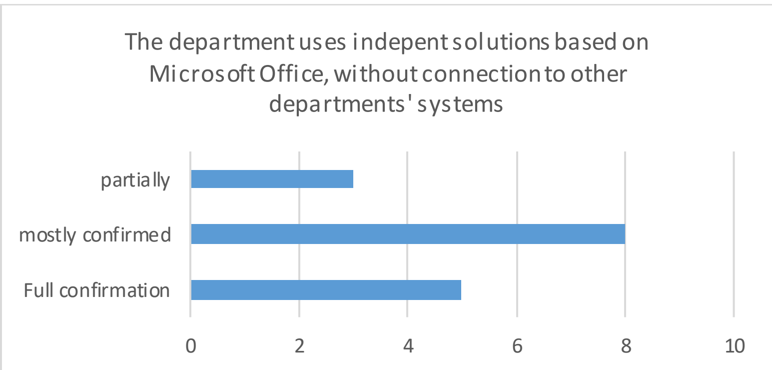


Figure 2 - Independent HR solutions

In regards to the general data usage the biggest share of experts agreed that this is partially happening already, with one expert pointing out, that there is already a comparatively strong data usage in place in their department. Five of the experts, however, claimed that big data is not yet an issue for them and their departments.

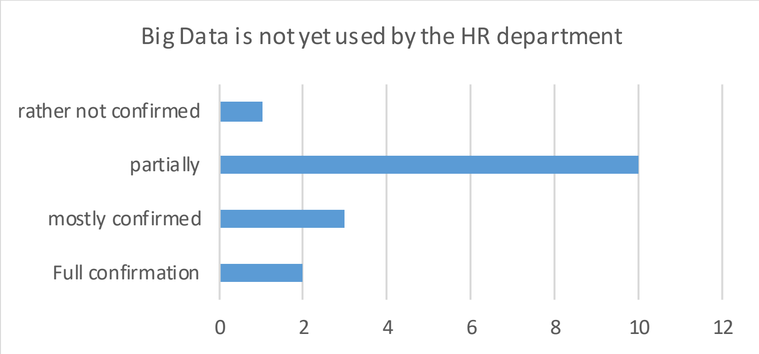


Figure 3 - Big Data usage

In general, the experts also mostly shared the opinion that their respective departments were mostly reacting to changes in the company instead of actively driving those (figure 4).

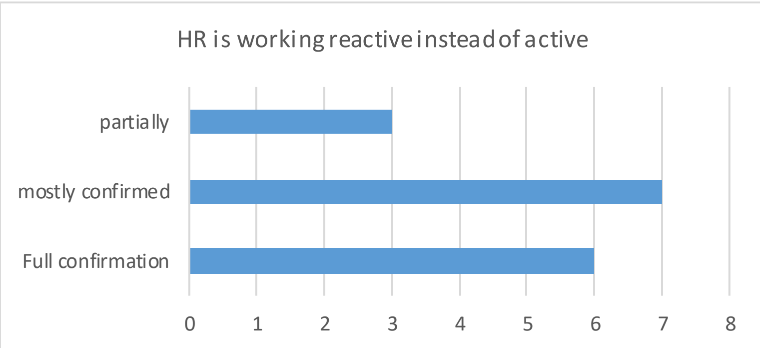


Figure 4 - Reactiveness of HR departments

Concludingly, the analysis of the experts' opinions on their own departments and their respective implementation of digital strategies showed, that the results by Oertig et al (2017) still seem to ring true. Oertig et al (2017) stated that a majority of SMEs struggle with the digitalization of their HR departments, which, subsequently, poses a major challenge for the companies. The results found within this empirical assessment of 16 HR departments of SMEs showcases the same situation – HR departments seem to be not very strongly connected to the rest of their business environment with digital solutions that do not make use yet of company-wide IT systems or central data-storing. There seems to be a reactive strategy in place in terms of handling new developments and approaches – most experts fully or mostly agreed, that their department reacts instead of acting itself.

**Discussion and Conclusion**

Digitalization of HR departments is an important challenge for companies, as this process does not only allow for more efficient HR processes but also acts as a supporter of other business units and processes. The more digitalized HR departments become, authors such as Oertig et al (2017) or Petry and Jäger (2016) show, the more likely they are to actively support the other business units of companies in their drive for digitalization. This general digitization, subsequently, is seen as one of the core drivers of corporate success, which seems to be especially true for SMEs, who are – as findings such as the ones by PWC (Greif et al., 2016) show – among the strongest benefiters of digital transformation. HR departments can strongly shape the success of company-wide digitalization as they can provide the necessary skills or adequately skilled employees, that are needed for such processes – a challenge with which especially SMEs in trade and craft sometimes seem to struggle (Frederiksen & Runst, 2016). Melanthiou, Pavlou and Constantinou (2015) also show, that the digitalization of the HR department cannot only be a strong supporter for other business units but can also yield direct results for the HR departments themselves – their processes can be made more (cost and time) efficient and it can lead to better results in the recruitment process, as modern HR approaches (such as employer branding and digital recruitment) can attract talent.

However, the survey of 16 experts from the HR management of German SMEs showed, that most HR departments in this field do not yet seem to be in the later stages of digital maturity, rather they seem to still be struggling with the implementation of such processes and approaches. These findings, however, do not necessarily imply a fault of the HR departments. Authors such as Kramar (2014) showed that HR departments typically lack funding especially for development processes. HR departments, Kramar (2014) points out, need monetary and general support by top-management in order to live up to their true potential. Ulrich (1998) postulated, that HR departments should be drivers of change and innovation in companies. As Petry and Jäger (2016) show, the necessary support for HR departments does seem to be a problem, especially for smaller companies which – as Hammermann and Stettes (2016) point out – would urgently need the best possible employees, especially in the light of a general lack of talents in the areas of trades and craft (Hogeforster, 2001). Scientific literature, however, for the biggest part focuses on the optimal implementation of modern, digital and sustainable HR management and discusses these approaches often in the field of IT or high tech companies. However, observations such as those by Brandenburg, Haas and Byrom (2006), show, that similar challenges (those arising from digitization, globalization, ageing societies and the resulting lack of employees) exist in branches such as trade, craft and construction. However, little is known about how these challenges are addressed within these branches, also Brandenburg et al (2006) imply, that they are not "as diligent in implementing strategic HRM programs as other industries" (p. 89). This also shows in the empirical findings of this work – most experts agreed in various items, that the HR strategy of their respective companies is barely satisfying.

The responsibility to push for stronger digital transformation – especially in SMEs – lays with the entrepreneur or top management itself, authors such as Li et al. (2017) point out. They explain that companies in this segment heavily rely on their owner's or manager's ability and awareness in terms of digital transformation. One of the major steps that can be conducted in order to foster this transformation is the instalment of a CDO, who can act as a connector between various business functions, including the HR function. The digital HR strategy thereby should be part of a general digitalization strategy, with a close link of CDO, C-level management and the HR department being of utmost importance in order to foster a successful approach towards HR management (Kramar, 2014).

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# Digital Transformation in the Drugstore Industry: A Case Study

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**Abstract**

The phenomenon of digital transformation has become widespread and relevant in a variety of industries. This era of transformation has changed the traditional business models. However, the implementation of digital services in the drugstore industry, has developed at a relatively slow pace. The core of the drugstore business model has remained product-centric and therefore pharmacies are still in an experimental phase when it comes to offering more than the traditional products. Digital services play a vital role in such occasions because they accelerate the process, making it easier to implement. This research, using the case of an innovative pharmacy located in Albania, will give an outlook of the challenges faced by this industry on daily basis and the opportunities for innovation, how important is for the costumer the value added to the products they purchase, and also an overview of what the process of digitalization might look like for this industry.

**Keywords:** Drugstore Industry, Digital transformation, Digitization, Online Service

## Introduction

In recent years, the pharmaceutical industry has been going through extensive changes. This industry is being shaped by digital transformation as digital services surpassing the product itself are getting combined into the variety of offerings. Healthcare players, differing from other industries, have been falling behind in offering digital tools to the customers. This digitization era is changing what healthcare system looked like and connected health, as a concept, shows great potential for the ones involved to benefit by delivering a value-added experience, improving health products with a smaller cost. Understanding how important is providing services that go more than just being pharmaceutical products, Joseph Jimenez, CEO of Swiss healthcare giant Novartis claimed that “beyond the pill is a logical and inevitable path forward for all” (Bloomberg 2014).

Digital transformation has transformed the way pharmaceutical companies have been operating their business for years now. But in the forthcoming business models of pharmaceutical companies what will be the exact position of digital services? Although currently this industry is testing and putting into action such services, we can say that the main focus on this business model at the moment is the product itself. The real question remains to how far these services can shift the course of the business model. This period can be thrilling and fast forwarding for the whole pharmaceutical industry because this will mark the beginning for future business.

The aim of this paper is to estimate how far will go the restructure of the existing business model of pharmaceutical companies, especially pharmacy “Daja”, using digital transformation and new digital services that came with it. The results should disclose the purpose that digital transformation will serve and give insight into the interaction between new services and products. This study should provide suggestions to pharmaceutical companies who will want to pursue with the digital transformation and integrate new services into their actual business model. The scope is to pilot the digitization as applied to the one of most well-known drugstores in Tirana. Qualitative empirical research was conducted to gain more insight into customer’s demographics, what they want, what they expect from the pharmacy and how they feel about this whole new movement towards digitalization. A total of 40 surveys were collected from two different locations where pharmacy "Daja" operates.

## 2. Literature Review

### 2.1 Value co-creation

Every company's goal is to create competitive advantage among other businesses, and this cannot be done by selling standardized products or even by giving their costumers superior value in relation to its competitors. Nowadays companies must do more than that, they must co-create value with their customers. Co-created value result from being able to offer customized and unique experiences for the customer.

If the customer can provide his or her experience by interrelating with a company's product or service and make a positive recommendation throughout the lifetime period of its usage, the ultimate goal of the organization is achieved. In this way, both customer and the firm are satisfied, in this way the firm derives greater value thus higher profits, customers' loyalty and brand equity. We can define value for the customer as an event that makes them feel better, supported by the process to create value. The companies' role in this process is to serve as an intermediary by offering value suggestions, not delivering value. To create value is needed both the one that offers and the one that benefits. (Grönroos, 2008).

In the early 20th century the company focus shifted from a product-centric model to a more consumer-centric model. This kind of change happened progressively where awareness of customer satisfaction would increase towards business models that endorsed the importance of marketing. The customer became the center of attention and not just the recipient of products. The reasons for this change from product-centric towards consumer-centric are diverse. By stressing to improve marketing productivity there was an increase in market diversity and increase of competition as well. Having said that, consumers demanded more and were better informed, mainly because of advances in technology. If a company will move from product-centric to consumer-oriented model concepts, like mass-customization, co-production, becomes applicable. A customer-centric model requires more than just increasing customer satisfaction. Such model means "collaborating with and understanding from customers and being able to adjust to their personal and unique needs. This logic implies that value is determined by and co-created with the consumer rather than being fixed in final product". (Vargo & Lusch, 2004).

### 2.2 Digitalization as a whole

Digitalization is that central force that influences and changes largely our society. Just like industrialization, a force of transformation, digitalization is not only showing us new ways to improve the quality of our lives, but is doing much more, is bringing major changes to how we all, as a society, work and function. All these changes coming in waves did not only brought new products, technology and services but they also affected deeply our human behavior. (Bosch, 2017).

Digitalization invisible hand touches and affects virtually everything making it look like we can have it all under control but at the same time it is fully imaginable and ambiguous. (Crnkovic, 2017). Multiple factors effect on the opportunities that rise from digitalization where the most important ones are the evolution of the Internet, developments in infrastructure for ITC (information communication technology), globalization etc. The results from this development are completely new business models, optimizations in resource use and production, automation of processes and a lot more. All these opportunities may seem great, but with the rapid changes the world is going by, they require a maintainable approach.

Digitalization is everywhere, it takes part in many different industries like Industry 4.0, Mobile Apps, Internet of Things etc. Several terms, sometimes used instead of each other, are used to define the procedure of applying digital technology to improve and boost a business. There has always been some misperception when it comes to terms like digitization, digitalization (even though there is only a 2-letter difference) and digital transformation. Digital innovation in businesses requires exploring every present procedure to make the needed improvements to accomplish their digital objectives. A problem that every firm has to go through is whether they stay in the digitization of the business procedure or actually complete the digital transformation of the business. Two of the terms that get confused all the time are "Digitization" and "Digitalization", yet they have diverse meaning. Likewise, the expressions "Digitization" and "Digital Transformation" are blended in numerous writings, making it difficult to distinguish one from the other.

Digitization is called the process where information is converted into a digital format, left as it is, or it could be improved and optimized for a better outcome. The result can be an image, an object, a document etc. When we hear, a business say they have been digitized, it probably means that they just converted all their analogue paper documents into digital and that instead of manual procedures they have created models of procedures represented digitally. Normally and in most business cases it's far more important that the data which capture software can retrieve from the scanned image, by using all sorts of intelligent and less intelligent capture technologies, are extracted in a digital form and leveraged to feed a workflow, a business process, a system, whatever is needed to achieve an outcome. This Digitization is a good start, but it is not a Process Digitalization nor a Digital Transformation. (Brynjolfsson & McAfee, 2012).

Digitalization in businesses instead, refers mostly to allowing, improving, converting business models, processes, functions or activities, by using digital technologies and a wider use and context of digitized information they already have, turned into a asset ready to be used with a specific benefit in mind. Digitalization is used to transform manual procedures into digital procedures in a more dynamic way, more efficiently, more beneficially and with a bigger satisfaction, when it comes to the experience their clients will have with the firm in their face to face or digital involvement. It needs digitization of resources, but it is much more and in the middle of it is data. Although digitization is more about recording data into systems and, facilitating customer's journey, digitalization is about improving customer experience and making their interactions simpler and seamless by using digitized procedures and information. So, digital data is in the core of digitalization and it is crucial in finding the best outcome and generating new income by optimizing its costs and creating that new valuable customer experience.

It can be said that digitalization has become more and more real and has spread to that extent that is part of all businesses on a way or another. Even costumer's expectations are higher now and to respond to these changing expectations, even companies that have nothing to do with technology must implement it. (Bosch, 2017; Grebe, M., Morbé O., & Döschl, S. 2014).

**2.3 Digital Transformation**

Digital transformation is the process that does the incorporation of digital technology into all areas of a business causing in important changes to how the firm operates and how they create and deliver value to customers. On top of that, this transformation is a cultural change that all the businesses must go through. The beginning might be difficult because it means walking away from traditional business procedures that companies were used to in favour of quite new processes that are still being shaped. Digital Transformation is about doing things in a different way, it is not just about programming or incorporating technology into an existing procedure to increase the present value chain, but to, adjusting the business model, changing the value chain and creating a new source of products and services, which lead to a new and better way to deliver customer value. This means that the current processes will undergo through modernization, simplification also new processes will be created in order, to make everything in the new business rethinking run smoothly. (Broy, 2017).

Changes, regarding the strategy, technology, operations and overall culture of the business will be happening, where procedures have a key role combined with the data. Digitization itself cannot make a transformation, it is essential to incorporate digital technologies into current procedures to accomplish a business evolution, also called digitalization, properly using digital data, giving added value to customers, earning more revenue and optimization of business processes. Also, digitalization is not enough for a whole digital transformation of the business, as it will be needed to give a feedback to the new business models that have endorsed the new automatic business processes that give you the possibility to give the new offers when it comes to services and products for its customers.

The key factor of success for digital transformation process is the goal that the businesses have to deliver and maintain a dynamic organization that can continuously reposition itself (Bosch, 2017). Firms don't have to be the first to invent something in order for them to use it later, they can adapt to the technology that can be found in the given time. The difficult part for the one thinking to transform is that they have run their existing business, while at the same time continuously innovating for tomorrow. This can be sometimes frustrating for the managers and the ones in charge because even though they believe in the full potential of disruptive technologies, and their ability to bring change for the best, it can be hard sometimes to get the wanted result in a short period of time. (Brynjolfsson & McAfee, 2011; Fitzgeraldet al., 2013). As has been mentioned formerly, businesses are starting to feel the necessity to implement digital solutions. Firms in different fields of business have set the expectations for an up-to-date, interactive digital business. But, technology by itself holds no real value. The gains from implementing a disruptive technology dependent on how value is created and captured using the business model (Teece, 1986). Chesebrough (2010) states this through the statement:

*“A mediocre technology pursued within a great business model may be more valuable than a great technology exploited via a mediocre business model”* (Chesebrough, 2010, p. 354)

Not only digital transformation but also business model innovation are ways that businesses go through to renew their competitive advantage. Both forms can be used to boost their activity in a never sleeping world. A big difference, though, is that digital transformation lies its focus in introducing and implementing the new technologies into the business model, without consideration whether it is made on a strategical or operation level. (Brynjolfsson & McAfee, 2011).

A digitally transformed business is not always a built from scratch kind of business, but more of a traditional business model using and selling the same products but this time brought to the public in an improved way, wrapped with digital technology. Companies that restructure their organization through digital technology or introduce digital products, and services like online consulting, that complement what they were already doing, would go broaden and create a new digital business. Pharmaceutical companies with this new wave are pushed into increasing what they have to offer and focusing on creating value. As a response to the need of discovering profitable innovation in a market that already exists, pharmacies must find a way to integrate their services and products to value-added services and use business models that turn the value into revenue (Rand, 2012).

### 2.4 Pharmaceutical Industry

In 2017 with almost US $1.1 trillion in drug sales worldwide, the pharmaceutical industry has become one of the largest industries in the world and it is expected to reach nearly US $1.5 trillion by 2021 (Aitken, 2016). Even though this industry is one of the biggest industries it is followed by strict regulations in a highly risky market with a long and very costly research and development periods. The whole industry goes around patents and their importance is crucial in the process of research and development which often takes monopolies side. Brand name companies are called companies that gets the executive right to produce and sell self-developed drugs and medicines. In the moment, these patents expire the whole market can produce and sell drugs using the same the same compounds of elements.

Pharmaceutical companies are formed in a such scheme where can be found a correlation between doctors, pharmacists and healthcare payers directing the process of drug selection and reimbursement. Doctor prescribed medications need the doctor approval for buyers to purchase from authorized pharmacists. Meanwhile, ‘over-the-counter’ drugs can be bought without the need of the doctor to authorize the purchase for you. Healthcare payers is called the person or the organization, such as the government or the insurance companies, that pays or reimburse the total or partly cost of health services or number of prescript drugs.

The pharmaceuticals market in Albania is perhaps the most problematic market in terms of regulation and competition where prices and quality are at odds with developed countries. Unlike in other markets, drug demand is not directly determined by the consumer (patient), but by doctors, and thus the consumer is unable to make his choice based on cheaper prices and better quality but as a rule follows the doctor's instructions. Doctors, in a few cases, have connections with pharmaceutical companies and have a significant impact on their competition or market distortions. So, the demand for medicines is inelastic and the consumer has no role in deciding on competing products and determining their price. On the supply side, competition is limited because of the high degree of market power by patent holders. For these reasons, it is understandable that the pharmaceutical market cannot function in terms of competition and by the fact that many governments consider health a necessary public good (the concept that regardless of the patient's financial condition, he should have a pharmaceutical service) the market is regulated. But despite regulation, it is acknowledged that competition can and should play a key role in market well-being for patient benefits, meaning more choices, more innovative products, and lower prices.

Information asymmetry is often encountered in the pharmaceutical industry due to the relationship between the doctor and the patients, the doctor and pharmaceutical producers/ importers and is one of the main causes of market failure on demand and supply basis. But the main issue of regulation and competition in this market remains that the price is controlled by the ones who have the patents whose main goal is maximizing their revenues. On the demand side are the doctors who decide “in the name” of the patient and of in their prescriptions often ignore the pricing criteria and that the patients may not able to buy the product. Today's pharmaceutical industry is suffering the paradox of “generic products” after the expiration of patents, which allow the price cut when the product is produced generically (as a rule, patents for a drug last for 10 years). Even in Albania, the price of drugs in the market is controlled through fabrication and trading margins, which are determined by government decisions. This control over medication prices becomes important also due to the fact that some of the drugs that are traded are reimbursable by the state. The maximum selling price of medicines by domestic manufacturers is determined by calculating a margin of up to 20% above the cost of production. The maximum price limit for imported drugs that are not included in the Refunds List is set by calculating a margin of up to 18% above the price of CIF (cost, insurance, freight), in ALL. For Refunded Drugs, differentiated margins are applied, which for wholesale are respectively 12% . (Melani, 2014).

### 2.5 Digitization of Healthcare

Every industry, including the healthcare industry, is going through important transformations due to the implementation of digital technologies. This part provides an outline of these developments that cover the way for the digital transformation in the pharmaceutical industry.

Modern medical practice is determined by observed and proven methods for the curation of illnesses. Different laboratory testing, diagnoses using specific devices, and further data sources give them needed information about the patient to make an informed decision possible. In this procedure patient, itself does not take part in neither collection nor interpretation of this information, digitization is now allowing them to be part of this process; 'patient-driven health care' (Swan, 2009). These days it has become an increasing trend these wearable devices that allow individuals to collect "biological, physical, behavioral or environmental information" about himself, an activity called 'quantified self-tracking'. Over 3.7 billion healthcare apps downloaded in the android and iOS virtual stores in 2017 prove this transformation of patients to a digital era of healthcare (Uzelf, 2017).

Together with the patients' rising participation in healthcare delivery, digital technology progressively structures the whole healthcare landscape and its nature of interaction between all parties involved. This healthcare information technology comes in forms of electronic health records which are digital substitutes for traditional medical records, personal health records collected from the patient himself wrought different individual devices such as smartwatches, Fitbit. Digital transformation in health sector guarantees significant benefits when it comes to efficiency, quality and delivery of care (Chaudhry et al. 2006). The health data gathered, can be accessed, shared and examined anywhere with the help of health information technology, using a method called 'connected health'. Because of healthcare records becoming digital it is easier to communicate and manage this information. Not only the doctor-patient communication become easier, but patients and healthcare providers amongst each other are connected and empowered to exchange data, experience and advice.

## 3. Methodology

The following chapter outlines the research methodology used in this study. This research has followed descriptive research analysis. Descriptive approach illustrates the ideologies of population. The collected data are quantitative in nature and are validated through numbers and percentages. It can make valuations and can compare factual data describing relevant phenomena. (Kothari, 2005, p. 3).

The best method for this research was thought to be by conducting a survey that random costumers would fill out after purchasing something at any of the locations of pharmacy "Daja". Because of the anonymity of surveys customers tend to give more truthful and valid answers. To have the most accurate data, the clients need to be as open and authentic as possible with their answers. Surveys conducted anonymously provide an opportunity for more unambiguous and honest responses than other types of research methodologies.

When deciding for the questions to ask was little difficult this for the only fact that clients that enter the pharmacy might not have time or might not want to answer the survey because they don't feel like writing a response. That is why the final survey is only composed of scale questions from 1 to 5, also called Likert scale and two yes/no questions. Using this type of questions like Likert Scale questions has its own advantages meaning it is a universal method of collecting data, which makes it is easy to understand them by all. Working with quantitative data, it is easy to come to a conclusion, report results and draw graphs from the responses. Additionally, since Likert Scale questions use a scale, it facilitates the process because people are not forced to express an either-or opinion, rather allowing them to be neutral should they so choose. Once all responses have been received, it is very easy to analyze them. (Gee, 2017).

The main goal for this research is asking 'how' much understanding the clients of pharmacy "Daja" have on the process of digital transformation and how ready are they to be part of this transformation.

### 3.1 Sample and data collection

The researcher had a direct contact with the owner of one of the pharmacies and after agreed to what questions would be the best suitable for the business and also for the researcher the entrepreneur helped with the process of delivering and collecting the primary data. The survey conducted was distributed to random costumers that entered the pharmacy to purchase something.

The available period to fill the surveys was 2 weeks, from June 1st to June 14th and during this time from both locations where Pharmacy "Daja" operates were completed 40 questionnaires. The aim of conducting this research is to understand better the consumer, how satisfied he is, what he wants and how he reacts to new models. After the preparation of the survey it was delivered to the main pharmacy and later, they distributed also at the other location when there was a 2-week period to fill them. After this period, the researcher gathered the data from the pharmacies and since they were filled in paper base, he had to manually refill them into Google form so he could get the descriptive statistics and frequencies for each question. The survey was composed of a total of 12 questions grouped in parts so it would be easier to interpret. Starting with residency and age would give us un insight on the demographics of the costumers that purchase there. The third question helps in understanding if the costumers that answered the survey are regular clients of the pharmacy. The next group of questions were the yes/no questions that would lead to the approach the costumers have with the idea of the online model pharmacy, if they ever thought to purchase drugs or get help online. The other section questions related to their opinion on how helpful it would be for them if pharmacy "Daja" opened a website for online orders and consulting. The last group of questions was mostly useful to understand what is important for them when it comes to quality or price of products, their approach with the instore environment and suggestions related to online presence of the pharmacy.

## 4. Analysis and Findings

Directly after collecting the surveys from the pharmacies all the data gathered was entered into google forms which generated the summarized tables with the frequencies for each question answered, to be analyzed later on. All the questions were grouped into subgroups to make it easier the interpretation.

### 4.1 Costumer demographics

In this group, there are questions regarding the residency and age of customers that answered the survey. Most of the clients are from Tirana, making this the most frequent answer. It can be said that its main source of income comes from Tirana and there is a huge gap with other cities.

Age is an important factor to understand costumers and the way they think and approach to the digital transformation because different generations have different knowledge related to the digital technology. It resulted that the mode of this sample is age 36. It can be said that most of costumers are from a young age up to the age 34 making the understanding of new approaches easier. The highest frequency is between age 25 and 34 with 35% , and the other two groups 35-44 and 45-54 have equal percentage 17.5% . there is only 2% over 55 of age.

Table 4.1 Age frequency

| Age Groups | Frequency | Frequency in % |
|---|---|---|
| Less than 18 | 1 | 2,5 |
| 18-24 | 9 | 22,5 |
| 25-34 | 14 | 35 |
| 35 - 44 | 7 | 17,5 |
| 45-54 | 7 | 17,5 |
| 55 and over | 2 | 5 |

### 4.2 Brand Recognition

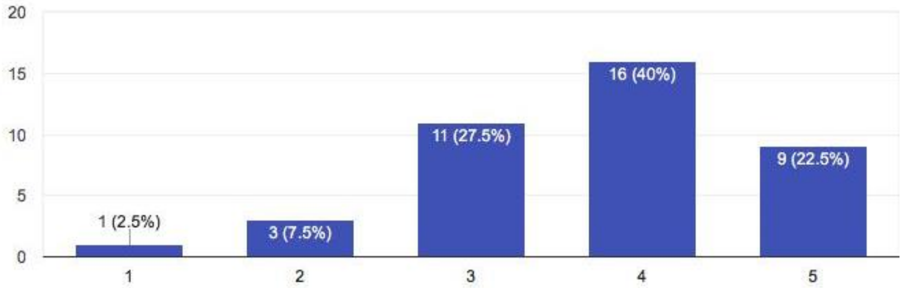


Figure 4.1 How well do costumers know what pharmacy "Daja" has to offer.

Figure 4.1 shows how good costumers know what product and services the pharmacy offers them. Of the total number of respondents, more than 60% of respondents happen to know the products and services good or very good, 27% are neutral and only 7% of them have little knowledge about the pharmacy. This means that 62.5% of costumers that answered the survey go at the pharmacy regularly and only 10% go at the pharmacy rarely.

### 4.3 Approach to online medical products

The following questions give an overview on whether customers are used to this new model of online stores. Have they ever thought to purchase a pharmaceutical product online? Have they ever thought of getting medical consultancy online? Answers of these questions will show the view of respondents and will help the analysis process of the researcher.

When costumers are asked if they would buy pharmaceutical medicine online, as seen from figure 4.2 below, 62.5% answered no and only 37.5 yes. This outcome might be related to the nature of not trusting, not having faith on online orders. Also, another reason might be related to the low level of online purchasing patterns in Albania which might have influenced costumers to answer in this way.

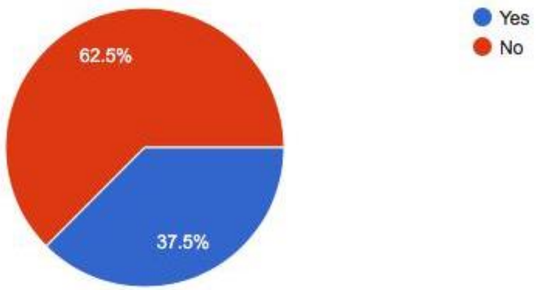


Figure 4.2 Purchasing drug store medicine online

### 4.4 Online Medical Consultancy

As it can be observed from figure 4.3 below, 65% of costumers are psoitive when asked if they would look for online medical consulting when it comes to health issues. Apparently 35% do not believe on online consulting and prefer face to face consulting.

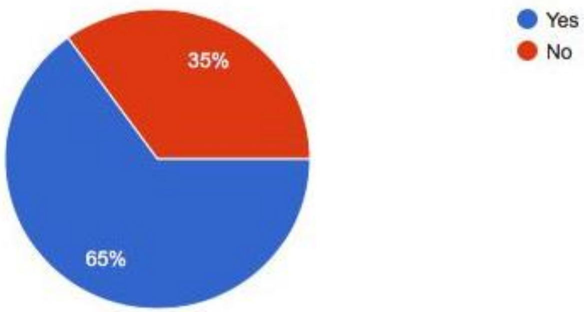


Figure 4.3 Online consulting

**4.5 Future projections**

These questions give an overview on what costumers think for this new wave of business models that are going through digital transformation. They were asked if it would be helpful for them to open an online page where pharmacy "Daja" sells different products and provides online consultancy. When asked how helpful it would be for costumers, if the pharmacy would sell different products online, as seen in figure 4.4 below the majority of them (83.5% ) claimed that it would be helpful or extremely helpful. Only 5% were neutral and 12 % costumers found this not at all helpful or interesting. Seeing this alternative as helpful might come as a result of costumers having trust on the new business models or the pharmacy itself.

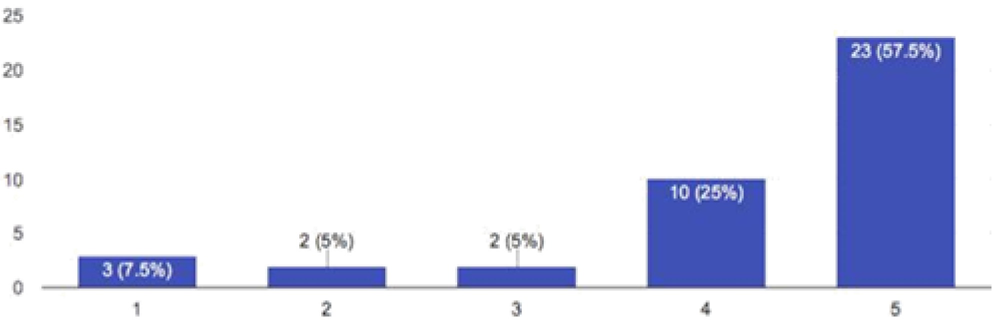


Figure 4.4 How helpful is opening an online store

Figure 4.5 below, shows how helpful do customers find the opening of a consulting centre. 85% of respondents would find this as a great idea and optimal solution to their needs. Only 12% of them think it would not be helpful at all or fairly helpful. This solution might have come because of the trust and faith customers have on the pharmacy and personnel there that offers them advices and consults.

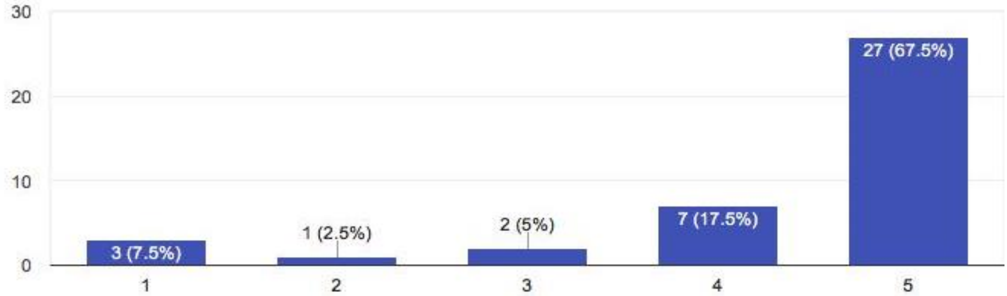


Figure 4.5 How helpful is opening of a consulting center

### 4.6 Important Factors

This section is dedicated to what costumers find important when they purchase a product, in terms of quality, price, the service they receive. They were asked how important online presence and online consulting was. These questions tend to provide the researcher with an insight of what is significant for customers so that the pharmacy could according provide them later.

#### 4.6.1 Importance of price

Price is an important factor affecting decision-making in every market and the pharmaceutical market does not differ from the rest. When asked how important the price of the product they purchase was, as seen in figure 4.6 below, 67.5% of respondents stated that it was important or very important for them, meaning that price affects their purchase decision and costumers are more willing to go towards cheaper products. Only 10 % of respondents think that price is not important at all or it is relatively less important.

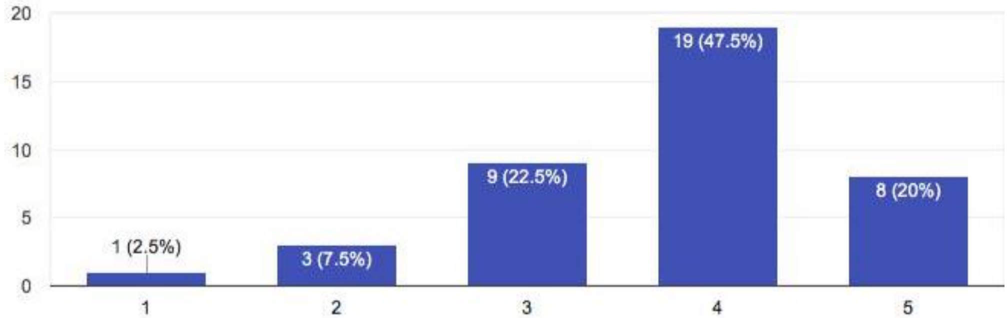


Figure 4.6 Importance of price

#### 4.6.2 Importance of online medical consulting

Figure 4.7 below, illustrates the importance of online medical consulting for a costumer. Here answers are more distributed than in other questions, 60% find online consulting as very important or important, 25% are neutral meaning there is a high chance of them to try this service if provided. Only 15% do not like the idea and find it not important or relatively less important.

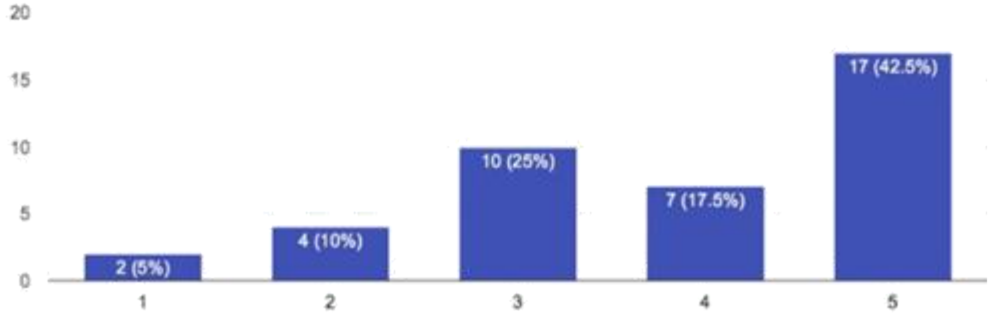


Figure 4.7 How important is online consulting

### 4.6.3 Importance of online presence

One of the core features of digital transformations is going online, meaning the online presence in different forms like social media, advertisements on different pages or even having a website. Figure 4.8 below, shows that 72.5% of respondents claim that having an online presence is very important or important for them, 17.5% are neutral and only 10% find this not important at all or relatively less important. Online presence makes it easier for costumers to find the pharmacy and increases the activity of the business.

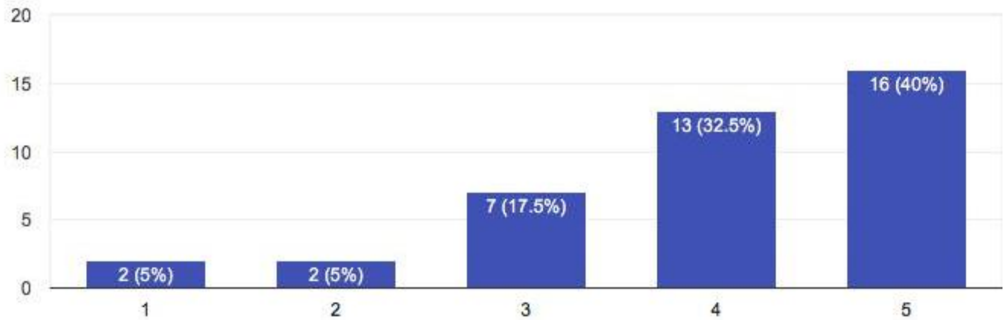


Figure 4.8 How important is online presence

## 6. Conclusion

Based on the findings of this paper, pharmaceutical companies should adapt their traditional product-only business model by merging products with digital services. The focus on products will, however, not be abandoned and the best seller drugs will always remain an essential part of the strategy. In the long-term, these services should play the role of 'outcome-enhancers' and contribute to a new outcome-focused value proposition.

Looking at the results from the survey conducted, the researcher proposes that pharmacy "Daja" should start incorporating the digital technologies of the new era of digital transformation into their business model. Given these findings, the pharmacy should capitalize on the fact that more than 80% of the costumers that answered the survey would found it helpful if the pharmacy "Daja" is to open an online page not only to sell its medicines and galenic products they make, but also to offer online consulting. This is something not seen before in Albanian market and it would drown a lot of attention on the pharmacy translating into more revenues. Even though the question where the costumers were asked if they thought of online purchasing the medical products was 62.5% negative, it might be correlated with the fact that in Albania the credit card services are not so popular also the sample size was mostly populated by a younger age that not necessary have this kind of facilities. Yet, the costumers found it helpful if especially pharmacy "Daja" were the one opens an online store/consulting centre, meaning that they trust on the products they have and, in the staff, they have recruited. The costumers knew really well the pharmacies "Daja" products as was seen from the survey meaning that they already have a competitive advantage comparing to others. In an evolving market, to stay competitive, companies should develop and arrange services that have the potential to create value and after that turn it into the outcome. The main key to success is rebranding and making sure that the business, in this case the pharmacy, has turned into a trusted partner for the consumer and providing value for all the ones involved. Another suggestion might be to strengthen their online presence and be more active with posting on social media since nowadays that's the only resource of information most of the people use.

Despite the usual business need to offer digital services, digital transformation also presents major opportunities. The drugstore industry should embrace the oncoming wave of digital change and seek tangible means of further developing business models. To be more precise on what kind of digital services the whole industry should incorporate so I could move forward and in what way it can integrate digital into their DNA, further research is necessary.

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# The Picketing in Turkish Labour Law

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**Abstract**

The Collective labour disputes between the employee and the employer parties, during negotiations to conclude a collective labour agreement, can be resolved through peaceful and combative ways. Strike is a combative method that employees leave their work or disrupt their activities in the workplace in order to improve their working conditions economically or obtain new rights. If there is a strike which fulfils the conditions of a lawful strike regulated in the Law No. 6356 on Trade Unions and Collective Bargaining Agreement, there will be a lawful strike. The second type of strike which is the unlawful strike; is any strike that happens without fulfilling the conditions of a lawful strike. Picketing is also a combative method that is applied to solve the collective labour disputes in labour law, and has an importance within the freedom of expression. In daily language; picketing is defined as a personal or collective protest by using banners against an event or a person. In terms of labour law; picketing is defined as employees gathering at the entrance of their workplace while there is an ongoing strike, in order to complain about the employer to the other employees and to the society, and also to persuade the other employees to leave their jobs and join the strike. The aim of this study is to examine the concept of picketing in terms of Turkish labour law by comparing with the Anglo-Saxon law.

**Keywords:** picketing, Turkish, labour, law

## Introduction

The existence of industrial action is important in the development of relations between employee and employer in the history of labour law and is one of the basic concepts of labour law. Industrial action, which remained on an individual level until the industrial revolution, has continued with collective labour movements after this revolution. The unions are the main actors of an industrial action. The unions especially organized to protect employees' rights collectively, directly contribute to the development and maturation of fundamental rights. The unionism movement is an actor that plays a prominent role in the birth and settlement of the contemporary understanding of freedom. The unions are the pioneers and guards of the rights that employees have and the rights that they will gain in the future. An independent unionism movement and modern democracy are complementary parts. In a free and democratic environment, unions are the protectors of both economic and social rights and classical fundamental rights and freedom (Kapani,1993:278).

The strike is a right that is considered within the union right. In addition, the right to strike is linked to the right of assembly and protest marches. The right of free speech and the right of assembly and protest march are directly linked especially in terms of "picketing".

Disputes arising from labour law may arise in legal relations between the employee and the employer in working life. The conflict between a single employee and employer is an individual labour dispute and a conflict between a employee union and an employer union or an employer is a collective labour dispute (Tunçomağ and Centel, 2018:419; Demir, 2018:703). The collective labour dispute has two sides. There is a trade union on the one hand and an employer or an employer union if the employer is a member of the union. The conflict between these parties to improve or change working conditions is collective labour dispute (Tunçomağ and Centel, 2018:419).

The collective labour dispute is about the regulation of working conditions such as working time and wages, such disputes are called collective right disputes (Tunçomağ and Centel, 2018:419). Conflicts arising from obtaining a new right or interest and making arrangements for a new right are called conflict of interest (Demir, 2018:704). Collective conflict of interest is the result of a conflict of interest in sharing the production income between capital and labour (Narmanlıoğlu, 2013: 499). Collective rights dispute arises due to the improper enforcement of the provisions of the legislation and collective agreement between the parties (Tunçomağ and Centel, 2018:420; Demir, 2018:704). Rights disputes arise from not granting or violating a right regulated in the sources of labour law (Tuncay and Kutsal, 2015: 314). In Turkish labour law, disputes of rights are resolved by courts or arbitration.

In Turkish labour law, the resolution of collective conflicts of interest is done in peaceful and combative ways. Peaceful ways are mediation, reconciliation and arbitration. The main combative solutions are strikes and lockouts. However, a peaceful solution must first be applied for a legal strike in Turkish law. There are other combative methods in the labour world besides the strikes applied by the employees. Boycott, picketing and blacking are examples of this (Tuncay and Kutsal, 2015: 315).

The word "strike" in Turkish law comes from French; the word "strike" was used in the first Labour Act No. 3008, which came into force in 1937, and "the strikes" were prohibited by this Act (Sur, 1987: 7). Collective labour disputes arising during the Act no. 3008 were resolved through mediation and compulsory arbitration (Çelik et al., 2017: 936).

The strike is the resistance of a professional group to leave a job against a situation or decision in sociological terms (Sur, 1987: 7). The strike is an economic pressure tool for the employer. The strike has the aim of influencing the will of the employer and putting pressure on the employer to improve the working conditions in the workplace (Narmanlıoğlu, 1990: 6). Strike is a employees-specific bargaining tool (Sur, 1987: 2). The strike is a method that employees use to improve their running conditions, but the strike may have other purposes. The strike is a fact that also completes the democratic process and the employees who apply to the strike have the opportunity to express their views and make their voices heard (Narmanlıoğlu, 2013: 534).

Apart from strikes, employees can also apply to other means in order to have the employer accept their requests. Employees also want to use pressure tools other than the usual and known methods to reduce the negative effects of the strike on themselves. It is important whether the repression tools are important or not rather than strike (Narmanlıoğlu, 2013: 682). If the method to be applied against the employer is not legal, the employee will have to bear the consequences of the illegal strike. If the method that the employees apply collectively is legal, employees' industrial action will be protected by law. The right to strike in Turkish law is a right where the intervention of the state is intense. The Trade Unions and Collective Labour Agreement Act No. 6356, which came into force on 7 November 2012, is the basic law that regulates the right of employees to establish unions, to contract collective labour agreements and to strike. This Act has been criticized by Özveri (2012) for taking the state's interfering approach to the right to strike. Act No. 6356 extends the scope of the illegal strike, causing illegal acts of employees. (Özveri, 2012: 164).

Picketing is also a kind of economic pressure on the employer, such as strike. This industrial action as described below (Teller, 1942: 201):

"*Picketing is the marching to and fro before given premises with a banner usually containing assertions that the picketed person is " unfair to organized labor," or that his employees are on " strike".*

The number of the strikes is dramatically decreasing in Turkey. It is declared that the number of annual strikes between 2001-2015 decreased by 85 percent compared to the period 1985-2000 (www.bianet.org).

The effecacy of the strikes is discussed due to the decrease of the number of the strikes in USA (Rachleff, 2003:87). Picketing has a function that it is informational and designed to publicize the fact that a dispute exists with the employer (Twarog, 2006: 9).

The employees need more industrial action ways to express their opinions, especially about working conditions. The problem is that of which the industrial actions shall be assumed legal or illegal. The legal ways of industrial actions shall be protected by the law. But the illegal industrial actions will come across the sanctions of the law. The labour contracts of the employees who join the illegal industrial actions can be terminated by the employer without any compensation.

**The Concept of Industrial Action**

Collective industrial action is the resolution of collective labour disputes by the help of collective actions in the resolution of collective labour disputes. Peaceful solutions are not included in the collective industrial action concept (Tuncay and Kutsal, 2015: 315).

The concept of industrial action in Turkish law includes concepts such as strike, lockout and boycott (Tunçomağ and Centel, 2018:437). Picketing and blacking are also among the combative methods (Tuncay and Kutsal, 2015: 315). Blacking is the refusal of employees to perform a job or an order from the employer (Tuncay and Kutsal, 2015: 315).

Industrial action is the way employees or employers seek to put pressure on the other party and have their wishes adopted in order to achieve a specific purpose by following a given decision of struggle. Parties to industrial action are the community or organization of employees or employers. The reason why industrial action on the employees' side is collective (Tunçomağ and Centel, 2018:437) is because the employees are economically and socially weak against the employer on the employee's side (Ertürk, 1999: 6,8). One employee cannot be a party to industrial action (Tunçomağ and Centel, 2018:437).

Industrial action, which aims to change and improve working conditions, is among the subjects of labour law. The feature of industrial action in labour law is that it is challenging and repressive (Ertürk, 1999: 21,24). In industrial action, the peace of working with mass movement should deteriorate and a certain purpose should be found. The aim of the employee and employer's side in industrial action is to eliminate a collective conflict. The aim of both sides of this struggle is to continue the legal relationship between them.

Parties explain their wishes and thoughts in non-repressive business struggles having the characteristic of warning, condemnation and demonstration (Ertürk, 1999: 24).

**Strike and Boycott**

The strike is a primary expression of working people's power since the emergence of wage labor and industrial capitalism some 200 years ago (Rachless, 2003:87). The lexical meaning of "strike" is "*employees connected to a workplace collectively quit their own will and don't work*" (Narmanlıoğlu, 1990: 5). The strike is quitting the job that is applied by the employees to obtain their requests and it causes the employment contract to be temporarily not applied. (Tunçomağ and Centel, 2018:450).

The reason for the employees to use the strike as a pressure tool is to improve their working conditions. Employees strike with requests such as increasing wages, regulating working times, increasing rest periods and increasing compensation amounts (Tunçomağ and Centel, 2018:462). Although the strike is an economic pressure tool, the strike has other purposes. The aim of the strike is to defend trade union rights and freedoms, to defend employees' rights in the workplace and to correct the economic and social policies implemented (Narmanlıoğlu, 1990: 7).

Strike is one of the industrial action tools that provide and protect employees' benefits to employers (Narmanlıoğlu, 1990: 5) and it is an industrial action method that only employees can apply (Tunçomağ and Centel, 2018:452). Two basic elements are necessary for the presence of the strike. The first element is the cessation of a job, which is the characteristic feature of the strike (Tunçomağ and Centel, 2018:452). Although the boycott is also an industrial action mediator, this element is not present in the boycott (Narmanlıoğlu, 1990: 52,61; Ertürk, 1999:31).

Strikes in the world can occur in many ways in working life. Examples include sitting strikes, partial strikes, alternately strikes, zealotry strikes, sympathy strikes, political strikes, general strikes and key personnel strikes. These striking actions are considered illegal strikes if they do not meet the definition of a legal strike in a country (Tuncay and Kutsal, 2015: 316).

The boycott, which is not a typical industrial action, is an aid to strike and lockout (Ertürk, 1999:31,56; Tunçomağ and Centel, 2018:440). A boycott is when a community of people interrupts their social or economic relationship with the person or persons they set up, following a plan. Economic relations are broken up and the market areas of these people are narrowed. However, the strike does not aim to weaken the person boycotted economically (Sur, 1987: 11; Tunçomağ and Centel, 2018:441). Boycott is a way of social reaction outside of working life (Ertürk, 1999:55). Boycott action can also be applied in business life (Tuncay and Kutsal, 2015: 318) In terms of labour law, the boycott requires the presence of the organized employee and employer side and must be of a nature that supports the strike or lockout (Ertürk, 1999:57).

Employees on the strike stop working for specific purposes while their employment contracts continue (Sur, 1987: 13). The quitting of the job, described as the material element of the strike, must be voluntary and in a collective decision (Narmanlıoğlu, 1990: 52,61). In order for a job cessation to become a strike, those who leave the job must have the right to strike legally and quitting the job should aim to halt or substantially disrupt business activity (Narmanlıoğlu, 1990: 54). Quitting the job means that the employees who stopped the job and participated in the strike left the workplace. If the employees just quit the job without leaving the workplace, like sit-in-protest, it is not considered a legal strike (Çelik et al., 2017: 949).

The second element is that there is an agreement to quit the job or the decision of a employees' organization (Narmanlıoğlu, 1990: 50,77; Tunçomağ and Centel, 2018:454).

**Right to Strike**

In the category of rights, the right to strike is handled within the right to welfare. The reason for this is that the right to strike is aimed at improving the social situation of individuals or groups or increasing their welfare (Erdoğan, 2016: 274).

The right to strike is a social right exercised through unions (Narmanlıoğlu, 1990: 11-12; Ertürk, 1999:206) and it has the nature of balancing the economic power of the employer against the employees (Sur, 1987: 2). The aim of the right to strike is to reduce social inequality, protect people who are economically weak and ensure social justice (Narmanlıoğlu, 2013: 539). The right to strike includes the employee being able to quit his job duly with other employees, avoiding work during the strike, and resuming at the end of the strike (Narmanlıoğlu, 2013: 535). One of the main features of the right to strike is that it has an inalienable right (Narmanlıoğlu, 2013: 540).

The right to strike is one of the most important basic rights of the employees in a democracy understanding that develops over time and takes into account social rights (Narmanlıoğlu, 1990: 8; Demir, 2018:709). The right to strike must be used within the legal rules (Narmanlıoğlu, 1990: 9). The right to strike, which is used in accordance with the legal rules, gives the employee the right to quit his job and the employer cannot terminate the employee's employment contract due to absenteeism (Narmanlıoğlu, 2013: 535).

The right to strike is a right granted to both employees and trade unions. The right to strike cannot be exercised individually by a single employee. The right to strike should be used collectively by the labour union decision. Therefore, the right to strike is also a distinctive right (Narmanlıoğlu, 2013: 537).

The right to strike was regulated in Turkish law for the first time in article 47 of the 1961 constitution as a constitutional right. The right to strike was included in the third part that regulates social and economic rights and duties. According to Article 47 of the 1961 Constitution, employees had the right to strike. According to the reasoning of Article 47, the right to strike is a right enforced by the democratic order. In the 1982 Constitution, which came into force after the 1961 Constitution, the right to strike was regulated under the title of social and economic rights and duties. According to Article 54 of the Constitution, employees have the right to strike. Therefore, public officers do not have the right to strike. According to the Constitution, the right to strike can only be regulated by Act. The 1982 Constitution regulated the right to strike in detail, but in the article regulating the right to strike in the constitution, the right to strike is narrower than the 1961 constitution (Sur, 2012: 163).

It is important to identify the action to be covered by the right to strike. Because actions that fall under the scope of a legal strike benefit from the protective provisions of a legal strike. In this respect, it is important whether or not "picketing" will be considered in the context of a legal strike in Turkish law.

The right to strike has the same and inseparable objectives as the right to union, the right to collective agreement, and there is a close-knit relationship between all these rights. The absence of one right in collective social rights makes it impossible to use another (Narmanlıoğlu, 1990: 14; Özveri, 2012: 162). Therefore, rules restricting the right to strike negatively affect the right to union and the reasons for function and existence of the unions (Narmanlıoğlu, 1990: 17).

**The Unions and Collective Bargaining Agreements Act No. 6356 That Regulates the Employees' Right to Strike**

Act No. 6356 is an act regulating the collective labour relations abolished the Trade Unions Act No. 2821 and Collective Labour Agreement, Strike and Lockout Act No. 2822. The Act No. 2821 and Act No. 2822 had been amended many times since the date of their enforcement on 7 May 1983 to extend trade union rights. Act No. 6356 is a law that regulates the union rights of employees as a rule. The definition of the employee concept was not made in the act, and reference is made to the Labour Act No. 4857 for the definition of the employee. In Labour Act No. 4857, which is a basic law that regulates individual business relations in Turkish labour law, the employee is defined as a real person working on the basis of an employment contract. In addition to the Labour Act No. 4857, there are also employees working under the Press Labour Act, the Maritime Labour Act and the Act of Obligations. All employees working under the laws in force in Turkish labour law are included in the Act No. 6356. Besides, the Act No. 6356 also counted the real persons who independently carry out professional activities outside the employment contract to carry on working for a fee, according to the contract of work, power of attorney, publication, commission and unlimited company agreement. However, these employees, who are deemed as employees, have the right to establish trade unions and to become members of a union in Act No. 6356. Only employees' unions have the right to conclude collective labour agreements and strike regulated in Act No. 6356. Other employees" unions that the Act No. 6356 counts as employees are not entitled to conclude collective bargaining agreements and to strike.

**Legal Strikes and Illegal Strikes in Turkish Labour Law**

There is a distinction between legal strike and illegal strike in Law No. 6356. The strike is defined as follows in the law: "*The employees leave the job by agreeing among them or following an organization's decision not to work collectively for the same purpose in order to stop the activity in the workplace by collectively not working or to disrupt it significantly according to the nature of the work*" (article 58/I).

The first condition for a legal strike is that it was done at a work or workplace that is not covered by the prohibition of strikes[1] (Tunçomağ and Centel, 2018:461). The second element of the legal strike is that the strike can only be carried out for certain purposes. This purpose, which is named as professional purpose, (Tuncomağ and Centel, 2018:462) is only to protect and improve the economic and social conditions of employees and working conditions. A legal strike decision can be made at the time of collective agreement negotiation. Strikes to resolve conflicts of interest that arise in collective agreement negotiations will have the nature of a legal strike (Tunçomağ and Centel, 2018:462). According to Article 54 of the Constitution, which regulates the right to strike and Article 58 of Law No. 6356, there must be a dispute for the existence of a legal strike during the "collective agreement negotiations". The area of recognition of the right to strike in the Constitution is set and limited in a certain framework. However, these limits can be extended by law (Sur, 2012: 165). According to Erdogan (2016), the right to strike can also be used for disputes that are not related to collective agreements. Law 6356 also regulated the rules of the form of a legal strike in detail. A strike contrary to these rules will not be a legal strike.

In order to take a legal strike decision, it is compulsory to pass the mediation stage, which is a peaceful solution, as required by Act No. 6356. The parties to the collective agreement negotiation cannot decide not to apply to the mediator (Narmanlıoğlu, 2013: 506). Mediation in Turkish law is a service provided by the Ministry of Family, Labour and Social Services and affiliated provincial directorates. The mediator is officially appointed and takes formal action. The mediator is the person who strives for the agreement of the parties to the collective agreement, but the mediator's proposals are not binding for the parties. If the mediator cannot provide the agreement of the parties of the collective agreement, he prepares a mediation report and this report is notified to the parties (article 50). Within 60 days from the notification of this minutes, the authorized labour union can take a strike decision and determine the date of the strike. The strike must have started within a 60-day period. In the calculation of this period regulated by the law, the calendar day is calculated and (Tunçomağ and Centel, 2018:465). The strike start date is reported to the employer or employer union by the authorized trade union, which is the other party to the collective labour dispute. The strike start date may be at least six working days from the date of this notification. The authorized labour union loses its power to conclude collective agreements, if the law does not

[1] The prohibitions of strikes and lockouts are regulated hereinbelow (Art. 62 of Act No. 6356):
(1) It shall not be lawful to call a strike or order a lock-out in the following works: Life or property saving, funeral and mortuary, production, refining and distribution of city water, electricity, natural gas and petroleum as well as petrochemical works, production of which starts from naphtha or natural gas; banking services; in workplaces operated directly by Ministry of National Defence, General Command of Gendarmerie and Coast Guard Command, fire fighting and urban public transportation services carried out by public institutions and in hospitals.
(2) Where the life of the community is paralysed by natural disaster, the Council of Ministers may prohibit strikes and lock-outs in the workplaces located in such areas as may be necessary, provided that it will be effective for as long as the situation continues. The strike and lock-out shall be implemented within sixty days after the prohibition is lifted, provided that the opposite party is informed six working days beforehand.
(3) It shall not be lawful to call a strike or order a lock-out in sea, air, rail and road transportation vehicles, which have not finalised their journey in places of domestic destination.

decide to strike within the 60-day period, does not inform the other party of the strike start date or does not start the strike on the reported strike start date.

A legal strike is defined in Article 58 of Law No. 6356. In the justification of Article 58, general strikes, political strikes and solidarity strikes, and slowing down work, reducing productivity, and other resistance not being regulated by law would not cause these actions to be legal. There is no regulation that gives the right to carry out these actions and boycotts or that makes them lawful (Demir, 2018: 710; Sur, 2012: 166; Kaya, 2013: 151).

**The Concept of Picketing**

Picketing is a kind of industrial action applied mostly in the countries where Anglo-Saxon Law is applied. There are many articles discussing the dictums of the courts about picketing in USA, Great Britain (Vorspan, 1998: 593) and, Canada. The legal frame of the union rights is different in England from USA (Vorspan, 1998: 593).

Picketing is also a kind of economic pressure on the picketed employer, such as strike. It has also relationship with the boycott. Because, picketing is a physical activity in the nature of a parade or procession engaged in as part of a boycott, at the beginning of 1900's, the practice of picketing had been seen, that picketing was a tort (Teller, 1942: 202, 204). Besides, picketing is not always used as an industrial action. A type of picketing called informational picketing is a public, visible demonstration that takes place usually in front of the hospital or facility where the dispute occurs. During picketing, the group of employees gather together and, hold signs and who walk along the property line in front of the facility. The participants of picketing often chant or sing as they walk and, also the non-employees participants can participate the picketing (Twarog, 2006: 9).

A clue to the concept of picketing can be found in a decision enacted in 1937 in USA law. In this decision, it was accepted that union members would make the facts known within the scope of freedom of expression. Picketing is a concept that has meaning from different perspectives. The most important feature of this concept is that it is under constitutional protection in USA law. The word picketing was used in 1956 for a protest in front of the Russian embassy in the USA. Banners were used in this protest, and the media used the word "Picketing" for this action. However, such actions not including employees' organizations are not considered picketing (Forkosch, 1957: 391). The protest of a single person carrying a banner is not counted as picketing (Forkosch, 1957: 394).

The first element required for picketing is about where this action is done. The employer's own employees' picketing in the workplace is "primary picketing". Secondary picketing, on the other hand, is the picketing faced by other entrepreneurs with whom the main employer is wanted to put strain on. Picketing needs to be done for the workplace of the employer who is intended to put strain on (Forkosch,1957:397).

If the picketers seek to organize the employees of the picketed employer, that is, organizational picketing;' or economically to coerce the employer into signing a contract; or to inform the public or the employees, or both, of the facts in the situation, that is, informational picketing; or to educate the employees of the benefits to be derived from joining the union, that is, educational picketing (Forkosch, 1957:398). For a peaceful picketing, a strike by a union must exist (Teller, 1942: 186). In a dictum in 1941 had been stated that that peaceful picketing could not constitutionally be enjoined even though it was carried on by a union in the absence of a labour controversy between the picketed employer and his employees (Teller, 1942: 186).

During the picketing, the picketer does not need to speak, and yet his placard and his presence speak for him (Forkosch, 1957:404).

The elements of pure picketing are (Forkosch, 1957:407):

"*pure picketing may involve a fact situation in which one or more individuals, uttering no slanders, imprecations, or untruths, carrying a reasonably-sized placard or sign and perhaps handing out throw-aways which likewise contain no untruths, walk not too slowly or rapidly to and fro in front of the employer's place of business, without blocking traffic, causing any congestion, or otherwise creating a disturbance, for a purpose or end which is not coercive, does not coerce, and does not seek primarily to injure anyone, is not to compel anyone to break any laws or obligations, and is to obtain benefits for the picketers or their principals, factually or legally, directly or indirectly*". Only this type of picketing will be protected by the constitution of USA. Pure picketing will be protected in the scope of free speech.

Picketing is also an economic pressure method that is among the industrial action methods. In every day language, it means that soldiers patrolling up and down in a particular area. In the concept of picketing as a collective industrial action method, employees gather in front of the workplace entrance and carry a banner in their hands. In the banners, the employees write down their requests and try to get them accepted by the employer. Another aim of the employees participating in picketing is to persuade the employees who did not participate in the strike (Tuncay and Kutsal, 2015: 319).

According to Isaacson, there are two types of picketing (1959: 347) Organizational picketing is the picketing by a minority directed to employees in order to persuade them to become union members or to win their adherence to the union cause. The second type of picketing -Recognition picketing- is a picketing directed to an employer in order to compel recognition of a minority union-to bring pressure on an employer to bring pressure on the employees to join a picketing union.

Picketing is an industrial action method seen in Anglo-Saxon law, and this concept plays an important role in industrial action law. The picketing done by the participants of the strike against those who are willing to work during the strike is called peaceful picketing (Junker, 2010:27).

Picketing is a pivotal labor tactic that employees embraced as their most powerful and weapon The Word "picketing" was first used in a legal sense in 1867 in England. The word referred to men stationed by a trade union outside an employer's premises to publicize a strike and persuade employees not to work. Picketing has an important role during strikes. It is the significant factor which determines the success or failure of strikes (Vorspan, 1998: 596).

Picketing is not a legal industrial action method due to the legal strike definition of Law No. 6356 in Turkish Labour Law. Therefore, the action of employees participating in the picketing action will be considered an illegal strike in Turkish law (Tuncay and Kutsal, 2015: 319).

The behaviours related to the abandonment of the job, which does not have the phenomenon of quitting the job completely or not carried out with the intention of a strike, are not considered as a strike. These actions, which do not have the nature of a legal strike, are considered illegal strikes (Narmanlıoğlu, 2013: 684). Due to the definition of legal strike in Law No. 6356, employees' actions that do not carry the elements of the legal strike will also be considered illegal. The action of employees to quit their collective work without a union decision has the nature of an illegal strike. Law No. 6356 abolished employees' right to collective action in other cases, except in case of a dispute during the conclusion of the collective agreement (Özveri, 2012: 165).

**Strike Pickets in Turkish Labour Law**

The concept of picketing in Turkish labour law has a different meaning in the Act of No. 6356. According to Article 73 of Act No. 6356, the labour union that has declared a strike at the workplace can employ a strike-picket to ensure compliance with a legal strike decision and without threats. Strike-pickets can only be appointed by the competent union in the presence of a legal strike. Strike-pickets are selected from employees who are members of the authorized trade union. Strike-pickets cannot prevent entry and exit from the workplace and stop the people to control those entering and leaving the workplace.

In the Collective Bargaining Agreement Strike and Lockout Act No. 2822, which was in force before the Act No. 6356, it was forbidden to hang noticeboards such as posters and banners, except for the phrase "There is a strike in this workplace". It was decided that shelter vehicles such as huts, sheds and tents cannot be established for strikers or strike-keepers in and around the workplace by the employees or the trade union. (Article 48 / II, III). These bans have been lifted in Act No. 6356.

**Conclusion**

In the labour history in Turkey, strikes were forbidden and, deemed as a tort-crime at the first decade of the 20th century. The Constitution of 1982 regulates the right to strike as a constitutional right. The right to strike is regulated by the Act No. 6356 only for he employees. In Turkish law, the public officers do not have the right to strike constitutionally. In Turkish labour law, the definition of the strike is limited by the Act and, only the legal form of the strike is assumed "legal strike". Other forms of strikes or any industrial action shall be deemed as illegal.

The doctrine in constitution law regards other forms of industrial actions legal in the scope of the constitutional rights, especially in the scope of free speech. On the contrary, by the doctrine in labour law using the positive sources of labour law, the industrial actions which are not in the form of legal strike deemed as illegal.

In Anglo-Saxon law countries, the concept of picketing has been discussed by the doctrine and, the courts from the end of the 19th century. Strike was a crime or a tort activity at the beginning of its implementation in the history. Picketing was described as a tort activity by some USA courts during the first half of the 20th century.

Most of the picketings are related to the labour, some of them not. Whatever the picketing is related to, the most high point of picketing is being the core of the free speech. The labour life, the improvement and implementation of social rights - union rights- is directly affected by the existence of democracy understanding in a country. According to the regulations in Turkey, a picketing during a strike shall be deemed as an illegal strike.

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# The Factors Behind Bulgaria's (Non) Convergence

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**Abstract**

This paper looks at the real convergence of Bulgaria in the period 1999-2018 and tries to identify and describe the factors that have stimulated or impeded the growth and the convergence of the economy. The research is based on the sigma-convergence method for estimation of the disparities in terms of real GDP per capita among the six Central and eastern European (CEE) countries with a derogation and among them and the average euro area income per capita. A comparative analysis is applied when analyzing the factors for convergence and their evolution in the period as Bulgaria is compared to the other CEE economies. The results of the research show the presence of a sigma convergence in the observed period. The convergence has been more pronounces in the first ten years. Although Bulgaria demonstrates one of the highest growth rates, this growth has not been sufficient to close the significant income gap between Bulgaria and the EU and euro area averages. While some factors have played positive role in the convergence process, some weaknesses have not been overcome and continue to play negative role and impede the convergence.

**Keywords:** real convergence, convergence factors, Bulgaria

## Introduction

In recent years Bulgaria has declared its intention to pursue entry into the ERM II mechanism and the country is in the process of implementing the necessary elements for an entry into it. As per the rules, it should be expected that after at least two years in the exchange rate mechanism, Bulgaria can be allowed to join the Economic and Monetary Union. Bulgaria fulfills all nominal convergence criteria, except the exchange rate criterion. But this is not the case for the state of real convergence. That's why the paper focuses on studying the degree of its real convergence in the last twenty years (1999-2018) and examines the factors, that have been drivers or impediments to the country's real convergence. The position of Bulgaria is compared to that of the remaining countries with a derogation from Central and Eastern Europe (CEE), as long as they are facing the same perspective the join the EMU in a certain point of time and because of the similarities between those economies and their economic development in the last twenty years.

Although real convergence is not a mandatory precondition for EMU membership, it is considered of great importance, because real convergence among monetary union member- states is a guarantee that they would not be affected by asymmetric shocks and if they are, they would respond symmetrically to the impulses of the single monetary policy.

The paper is structured as follows: the firs part represents a review of the theoretical concepts about real convergence and the factors, driving convergence as well as a review of the empirical research of the Bulgarian real convergence; the second part describes the methodology; the third part reveals the state and the evolution of real convergence of Bulgaria, compared to that of the other CEE counties with a derogation and studies the factors for growth and convergence; the forth part concludes with a discussion of the results.

**Theoretical background and empirical literature review**

The real convergence is a complex and multidimensional concept. It is evidenced by the fact that there is no single, universally accepted definition, neither a single method to measure real convergence. In the strict sense real convergence is the reduction of disparities in a group of countries in terms of income and labor productivity. In a much wider sense real convergence is understood as structural convergence where a homogenization of economic structures and homogenization towards higher levels of institutional quality is achieved. For example, Buiter (2005) defines real convergence as "convergence of productivity levels, real per capita income, structures of production and employment, financial markets and institutions, quality of regulatory and supervisory institutions".

The concept of convergence comes from the growth theory, which provides that countries, having lower income per capita levels are expected to grow faster than countries with higher income per capita levels. When this process takes place, the differences between countries diminish and they start to display greater similarity in terms of GDP per capita levels, thus achieving real convergence. The neoclassical growth models, based on research of Solow (1956) and Swan (1956) describe that the rate of growth is negatively corelated to the initial GDP per capita level. The main assumption in the models is for a diminishing marginal productivity of capital, which explains the fact that less capital-endowed countries display greater return on investment and hence greater levels of economic growth that allows for the catch-up process. In those models the technology is an exogenous factor and without technological change the convergence stops when the group of countries reaches their long- term steady-state. The fact that growth is driven by exogenous factors is a drawback of this first generation of growth models, that is overcome by the endogenous models of economic growth, that appeared in the eighties of the 20-th century. Those models explain that the economic growth can be sustained by technological change that is endogenous, i.e. can be driven by purposeful investments in scientific research or in human capital. In contrast to the previous models, the marginal productivity of capital does not decline, therefore the growth can be sustained. Some research, belonging to the endogenous growth models look at the technology distribution. The technological progress depends on the rate of innovation in the leading economies and the time needed for the other economies to copy the technologies. These models also predict convergence and higher growth rates for less developed economies, because it takes less time and resources to copy than to invent a technology.

These strands in the growth theory set the ground for the hypotheses of absolute and conditional convergence. According to the absolute convergence hypothesis, based on the neoclassical models, the poorer countries, that are capital-scarce and have lower initial income levels will always grow faster and catch up with the richer and capital intense countries. Given the only difference between them is the level of capital in the economy, all countries converge to a single, equal steady-state. In contrast, the conditional convergence hypothesis admits that the countries differ in their factor endowment and fundamental economic conditions and thus they do not converge to a single, equal steady-state, but each country converges to its own, specific steady-state. Thus, the growth rate is positively related to the distance between the starting level of income per capita and the country's own steady-state. The greater is the distance to the steady-state, the faster the country will grow. In this assumption, poorer countries are not necessarily supposed to grow faster than richer ones. They would grow faster, given they are away from their steady-state.

The different approaches to convergence explain the different methods to measure it. Sigma- convergence (σ-convergence) is measured by the standard deviation of a given variable and its evolution in a given period. There is a sigma convergence when the standard deviation declines overtime. When applied to variables like GDP per capita or labor productivity, this method can be used to measure real convergence. A sigma-convergence in per capita income among a group of countries is an evidence of diminishing disparities between them. Beta-convergence (β-convergence) on the other hand shows the speed with which a group of countries get closer to one another or to a reference value in terms of GDP per capita or labor productivity. An absolute beta-convergence exists when poorer economies grow faster than richer ones and catch up with them in terms of per capita income. It can be estimated by a regression, in which the rate of growth is regressed by the initial level of GDP per capita. The method of conditional beta-convergence allows to include different factors in the regression, that characterize the economies, so that we can understand their impact on growth and we can hold for the different steady-states. The presence of beta-convergence is a necessary but not sufficient condition for sigma-convergence. The faster growth of poorer economies will not necessarily lead to a reduction of disparities among the group.

It is worth noting that there is no common framework for identifying the factors that determine economic growth and hence convergence. We can approach the problem by looking at the above theories of convergence, which emphasize the importance of several factors for growth and by adding some other variables, taken from other economic theories and models, as well as empirical research, that play a role in the growth process. When looking at the neoclassical growth models, they put forward the availability of physical capital and labor supply as drivers of convergence. The endogenous growth models emphasize on the importance of innovation and investment in human capital as growth factors. The broader interpretation of additional theories and models allow for the inclusion of additional factors in the analysis.

An important factor for convergence, that is rooted in the growth theories is the availability of capital. The availability and the expansion of physical capital that contributes to the growth level is determined by the level of investments. The investments in the economy can be measured by the gross fixed capital formation (GFCF), inflows or stocks of foreign direct investments (FDI). GFCF is a measure of the net acquisition of fixed assets, or the domestic investments. On the other hand, the FDI inflows measure the investments from the rest of the world and they are associated with transfer of know-how and technology which stimulates technological progress and productivity increases in recipient economies. Some authors prove an unconditional positive relation between FDI and growth, while others show that there is a statistically significant positive relation only in the presence of other factors like quality of institutions, development of financial markets and quality of human capital.

Well-grounded in theoretical and empirical studies is the importance of labor force and human capital quality. On one hand, the trends in population growth, age structure, life expectancy and migration of population determine the availability of labor force. On the other hand, the quality of educational, health and social systems, as well as government policies affect the quality of human capital. In a study that covers 98 countries in the period 1960-1985, Barro (1991) reveals a significant positive link between the quality of human capital and economic growth. The human capital that accumulate knowledge and skills can increase the productivity of physical capital. The human capita quality can be characterized by variables like social expenditures for education, average years of schooling, labor force with secondary/tertiary education etc.

Technological progress is a growth factor, taken from the theory of economic growth. It enables the more productive use of factors of production. It can be studied by variables like gross domestic expenditures on research and development as percentage of GDP (GERD), people employed in the technological sector and others.

There are numerous studies, that reveal the importance of political and economic stability, quality of governance and institutions. Those factors are considered prerequisites for all other growth factors to play their role. Countries that have stable institutions that encourage factor productivity, innovation and investments display higher rates of economic growth. North (1990) determines institutions as rules of the game that set the limits to human behavior. As far as their influence for economic growth is concerned, institutions are crucial in guaranteeing protection of property rights, management of conflicts of interests, fight with corruption and effectiveness of macroeconomic policies. The quality of institutions is crucial for creating competitive market environment and attracting foreign capital. As far as macroeconomic stability is concerned, possible variables that can capture it are rate of inflation, budget balance, public government debt. Useful tools for analyzing quality of institutions are the indexes developed by international organizations or private institutes, that capture the quality of governance or the overall market environment.

The financial system is also playing a role in the convergence process, given its function for efficient allocation of resources, asset prices formation and management of risks. More developed and deeper financial markets are expected to fulfill better their role of channeling savings into productive investment. For example, King and Levine (1993) study the importance of several indicators for the size and the depth of the financial system on economic growth. The empirical studies include variables like assets of the banking sector, market capitalization of listed companies, bank credit for the private sector, structure of the financial system and others to estimate the role of the financial system. The accumulated domestic savings are a factor for growth on their own, because they determine the level of investments. They depend, on one hand on the development of the financial markets, and on the other hand on demographic trends, productivity, income.

Economic openness, trade and economic integration have a role in the convergence process as well. Economic openness means that the residents can freely trade with the rest of the world and make investments abroad, and non-residents can also make investments in the domestic economy. The study of Di Giovanni and Levchenko (2009) find a positive relation between trade openness and economic growth. The openness is associated with better allocation of resources, due to specialization, economies of scale and transfer of technology. The length of membership into a regional economic block has a positive effect for the economic growth, more pronounced for poorer economies, as evidenced by a study of Crespo-Cuaresma, Dimitz and Grunwald (2002). The results are explained with the better access to technologies and financial resources that the poorer economies get with their inclusion into a regionally integrated market. The trade liberalization measures, associated with such regional integration give additional positive results. Variables that capture the importance of trade for growth are openness of the economy and change of export market share.

The real convergence of Bulgaria has been the subject of an empirical research in various studies. In a comprehensive research Grela et al. (2017) study the factors, driving the convergence process of six Central and Eastern European countries, including Bulgaria, towards EU15 in the period 1997-2014. The belief of the authors is that those six economies converge towards similar long-term steady-states. Using the absolute and conditional beta- convergence method, the research proves that there has been an absolute convergence in the observed period and that the process of convergence has been driven by the traditional growth factors as the level of investment in the economy and the human capital factor, but also by innovation activity and trade. The authors find that the dominant growth model for the region prior the Global financial crisis, based on large capital inflows of FDI has been exhausted overtime and the growth path of those economies is becoming more dependent on factors like innovation, quality of institutions and policies. In a similar vein a study by Zuk et al. (2018) identifies the factors for the convergence of Central Eastern and Southeastern economies in the period 2000-2016, emphasizing the growing role of quality of institutions, openness and external competitiveness. The empirical research also points out to the presence of convergence in terms of labor productivity among NUTS2 regions of CEE member states, as evidenced by Peshev and Pirimova (2020). Stateva (2015) identifies the conclusions that can be taken out from the euro adoption experience of the Baltic economies. More recent studies on real convergence of Bulgaria include Horatiu (2019) and Kaneva (2018).

**Methodology**

First, I use the sigma convergence method to identify whether there is a presence of real convergence in the period 2000-2018 among several Central and Eastern European states.

The countries chosen are Bulgaria, Czech Republic, Croatia, Hungary, Poland and Romania (given in alphabetical order). Those countries share some common characteristics, one of them being the fact that they all have the status of countries with a derogation and are expected to join the EMU in a certain moment. Another common characteristic of those countries is that the period after 1999 was marked by a transition from a command to a market economy, which significantly impacted their economic development and growth.

I explore the convergence between the six countries and among the six countries plus and the euroarea, as I take the average GDP per capita value for the nineteen euroarea countries (EA19).

Further on I use a descriptive analysis to study the factors that have contributed or impeded the growth and the convergence process of Bulgaria. The factors considered are those identified in the previous section of the article. The primary source of statistical information is the Eurostat database. An analysis is made of the development of those factors during the period 1999-2018 and to the extent relevant, comparisons have been made with the other CEE countries with a derogation.

Findings for the state of real convergence and the factors for real convergence

**Real convergence**

During the observed period Bulgaria's real GDP per capita has been growing faster than that of the euroarea. The period can be divided into two subperiods of 10 years, with the Global financial crisis being the break between them. In the subperiod 2000-2008 Bulgaria's real GDP per capita grew by 6,7% annually, while for the same period EA19 grew by only 1,5% average annually. This period was marked by preparation for the accession of Bulgaria to the European Union in 2007. The positive expectations associated with it, as well as the favorable global economic conditions contributed to the significant growth. The peak growth was registered in 2005, when GDP per capita grew by 7,7%. The same trends were observed in the other derogation countries. The record growth was registered by Romania in 2004 and in 2008 when its GDP per capita grew by 11,1%. Unfortunately, the Global financial crisis and the economic slowdown that followed interrupted the catch-up process and the subperiod 2009-2018 was characterized by much lower growth rates. The euroarea was severely hit by the sovereign debt crisis which resulted in very low growth rates. The average annual growth rate for EA19 was 0,55% for 2009-2018. For the same period Bulgaria's real GDP per capita grew by 2,48% annually. The biggest growth rate was registered in 2011 when the GDP per capita grew by 4,9%. Among the other countries Romania displayed the highest growth rate in 2017 when it grew by 7,7%.

Taking the whole period concerned, Bulgaria displayed an average annual growth of 4,5%, which is the second highest among the compared countries, with Romania being the best performing economy in terms of growth (4,69%). Among the countries observed Croatia has registered the lowest average economic growth. At the same time the EA19 grew by only 1% annually. The fact that Bulgaria and Romania grew about 4 times higher than the Euroarea allowed the economy to catch up and close the gap in the living standard.

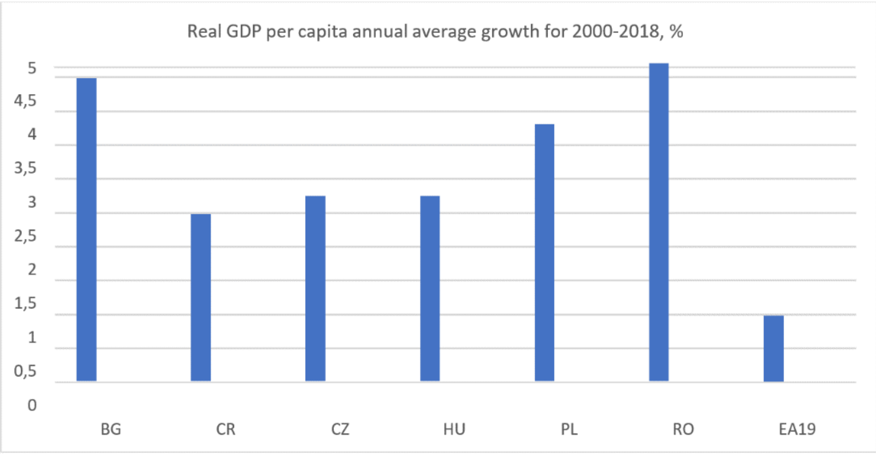


Figure 1. Real GDP per capita annual average growth for the period 2000-2018.

The fact that the two countries with the lowest income per capita have achieved the highest growth rates is signifying of a convergence process to have taken place. As depicted in Figure 2 the period has been marked by a sigma-convergence, as evidenced by the declining values of the relative standard deviation of real GDP per capita for the 6 CEE economies and for the 6 CEE economies + EA19. This implies that in the period 2000-2018 the income disparities between the six CEE countries as well as between them and the average euroarea income have been reduced. The convergence process in both cases has been much faster in the first subperiod. The convergence lines till 2008 are much steeper and after 2008 they become flatter, meaning that the Global financial crisis has impacted negatively the convergence process.

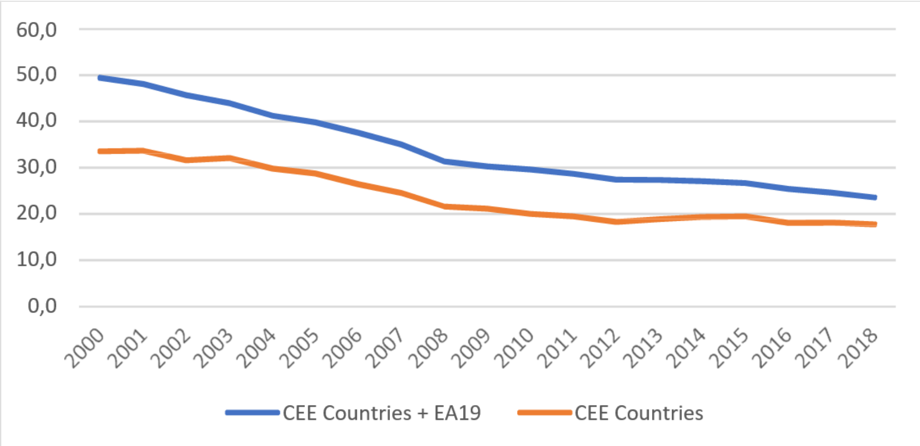


Figure 2. Relative standard deviation (% ) of real GDP per capita in PPS in 2000-2018.

Despite the presence of convergence, Bulgaria remains the worst performing among the countries with a derogation in terms of GDP per capita. In 2000 its GDP per capita stood at only 29% of EU 27 average, while at the same time Czech GDP per capita stood at 73% of EU average. The only country that performed worse in 2000 was Romania with GDP per capita at 26% of EU average. But till the end of the period Romania has significantly advanced and its GDP per capita level in 2018 stands at 65% of EU average, while Bulgaria's GDP per capita reached half of EU average (Figure 3.).

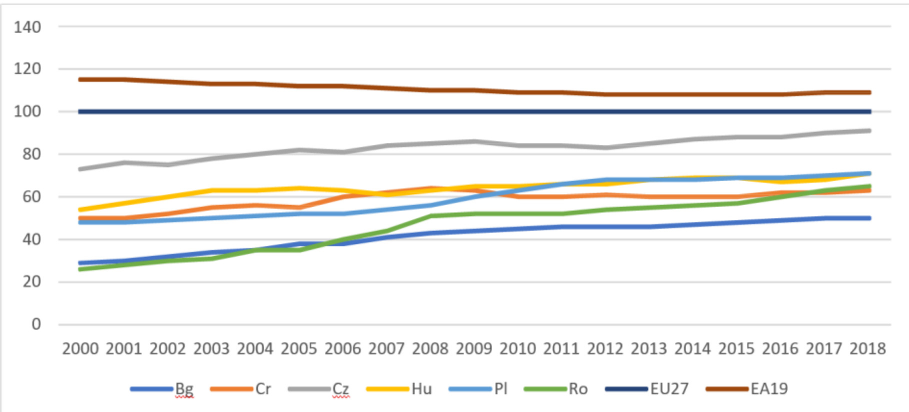


Figure 3. Purchasing power adjusted GDP per capita in 2000-2018 (EU 27=100).

The same holds for the state of real convergence in terms of labor productivity, measured by GDP per person employed. In 2018 Bulgaria's labor productivity was 47,4 % of EU 27 average. Bulgaria displays the lowest labor productivity when compared to the other derogation countries. Romania and Hungary that follow next have labor productivity in 2018 of 68,2% and 69,4% of EU average respectively. In Czechia the labor productivity has reached 83% of the EU level in 2018.

The convergence that have taken place seems was not sufficient for closing the income and productivity gaps between CEE economies and the EU averages, particularly in the case of Bulgaria. Partially it is because of the very low initial position of Bulgaria in the beginning of the period, and it will take a long time to see its income converging to the EU average. But looking at figure 3 it seems that despite the similar starting positions, the growth patterns differ from country to country. While Bulgaria and Romania start from the same point and share the same convergence path till 2008, both countries follow different paths in the second subperiod and Romania's income per capita exceeds the Bulgarian one. The same holds when comparing Croatia and Poland and the development of their income per capita over time. Therefore, the factors driving the convergence and their different manifestation in the economies should be taken into consideration.

The drivers or impediments to convergence

**The availability of capital in the economy**

The capital is a key driver of economic growth as per the neoclassical theories and in the endogenous theories of growth. The GFCF in Bulgaria in 1999 is just 16,3% of GDP and it grows steadily to reach its highest point of 33% of GDP in 2008. Afterwards it declines to reach 18,8% of GDP in 2018. It is below the level of investments in peer economies, except for Poland and below the EU and Euroarea averages (around 21% ). The GFCF have had positive contribution to economic growth in Bulgaria in most of the years of the period explored, except for the years 2009-2011 and 2016. The business sector is the main contributor for the investments in the economy. The manufacturing sector plays the most important role in recent years. While construction sector has been important contributor in the past, its role has been diminished in recent years. The investments in transport and storage and other services sectors have also increased. The public sector investments represent on average 4% of GDP for the period after 2007 and about two third of public investments are based on EU funds.

The investments from the rest of the world have played a major role for Bulgarian convergence, especially in the first subperiod. The FDI inflows have increased significantly in the first ten years of the observed period and in 2007 they reached EUR 9 billion, which represent 31,2% of GDP (given just 6,05% of GDP in 1999). Then they declined to 1,9% in 2014 and stabilized at around 4% of GDP in 2018.

The analysis of the data points out to the low levels of investments in the economy that prevent the accumulation and renewal of capital stock and the introduction of new technologies. The declining trend of domestic and foreign investments in the second subperiod has hindered the growth prospects for Bulgaria. The dependence of Bulgarian economy on FDI and on EU funds to sustain growth is also evident.

**Labor force and human capita quality**

Labor force and human capital quality are key factors for growth and drivers of convergence. Unfortunately, the demographic developments in Bulgaria, that determine the availability of labor force are negative. During the whole period observed the crude rate of total population change[1] that combines the natural population change and the migrations is negative. Bulgaria is one of the few EU countries in which the natural change and net migrations are both negative. The

[1] The crude rate of population change is the ratio of population change to the average population during a given year, expressed per 1000 persons.

severity of the situation in Bulgaria can be compared to that in Romania, and to a less extent to that in Croatia and Hungary. On the other hand, Czech Republic and Poland have positive crude rates of total population change. The projections of UN 2017 show that the Bulgarian population is going to contract by 0,8% annually and in 2050 it is going to be 5,4 million people (down from 7,05 million as of January 1, 2018) and the working age population is going to contract even faster. The negative trends predetermine labor shortages in industry, construction and services.

Overall the activity rate has risen from 60,7% in 1999 to 71,5% in 2018. Behind that positive general trend, a serious problem for Bulgaria is that the activity rate and employment among certain groups of the population is very low, namely among the low-skilled, living in rural areas and the Roma. The lack of integration of those groups in the labor market can be serious impediment that can hinder future growth prospects. Bulgaria shows one of the highest rate in the EU of young people (aged 15-29) that are not in education, employment or training.

The educational attainment is a key factor determining the employment prospects and therefore the labor force availability and its quality. The percentage of people aged 15-64 that have successfully completed upper secondary education has increased gradually from 48,9% in 1999 to 53,6% in 2018, and of those that have completed tertiary education have increased from 15,1% to 24,8% in the same period. The share of people employed, that have completed tertiary education to the total employment has also risen from 23,2% in 2000 to 31,7% in 2018.

Despite those positive developments there are some other facts that can hinder future growth. Bulgaria is among the EU countries that records high level of early school leaving (12,7%), which is particularly high for rural regions and the Roma population. Furthermore, an European Commission report (European Commission, 2019) reveals that Bulgaria shows significant gaps in the acquisition of basic and digital skills. As far as the basic skills are concerned, the PISA annual surveys disclose the share of underachieving 15-year-old students. In 2018 in Bulgaria nearly 44% of 15-year-olds lack basic knowledge in mathematics, 46,5% in science and 47,1%

in reading, which is almost double the EU averages. The situation is similar in Romania, while other derogation countries, especially Czech Republic and Poland show better results, than the EU averages. Bulgaria has the highest share of population among EU countries without any digital skills (37 %). Digital skill levels are also low among the young, as 45,7 % of people aged 16-24 do not have basic digital skills, compared to the EU average of 18,1 %.

The above data presented shows that the negative demographic developments and low achievements regarding human capital quality may have played negative role over the last twenty years. Active measures on the labor market and in the education and healthcare system would be needed to overcome those negative developments and improve the quality of human capital in the future.

**Political and macroeconomic stability, and quality of institutions**

During the whole period Bulgaria displays macroeconomic stability, when judged by macroeconomic variables like inflation rate, budget balance and government debt to GDP ratio. After a severe episode of hyperinflation in 1997 Bulgaria introduced a currency board arrangement which contributed for installing and sustaining macroeconomic stability. By fixing the Bulgarian lev to the Deutschemark mark in 1997 and then to the Euro in 1999, the monetary policy discretion was surrendered, and the monetary policy sources of inflation disappeared. This move helped reduce inflation from 10,3% in 2000 to 2,3% in 2003. The period of high economic growth since 2003 till 2008 was marked by increase in inflation rate, which reached its highest level of 12% in 2008. For the subperiod 1999-2008 the average annual inflation rate of Bulgaria is 6,75%, compared to 2% in the EA19. The positive inflation differential can be explained by the high aggregate demand, significant FDI inflows, high commodity prices, labor market developments and excise taxes harmonization. It also reflects the catching up status of the Bulgarian economy. After the Global financial crisis, the inflation was substantially reduced. In the subperiod 2009-2018 the average annual inflation rate of Bulgaria was 1,15%, compared to 1,25% for EA19.

The rules of the currency board contributed to the health of government fiscal position as well. For the whole period of 20 years there are only two years (2009 and 2014) in which the government budget deficit exceeded the level of -3% of GDP. As far as the government debt to GDP ratio is concerned, Bulgaria started the period with a level of 75% which was gradually reduced to 13% of GDP in 2008. Afterwards it started to increase slightly till 2014, when the collapse of the Corporate and Commercial Bank burdened the government finances and the debt to GDP ratio reached 27% . In 2018 the debt to GDP ratio of Bulgaria is 22,3% , which is the third lowest in EU next to Estonia and Luxembourg. It is worth noting, that after 2001, Bulgaria has sustainably maintained a level of debt to GDP below the threshold of 60% and a level that is much lower than the EA19 average, which is an evidence of fiscal discipline.

Another factor that influence economic growth and hence convergence is the size of the government sector, measured by the final consumption expenditure of the government as a percent of GDP. Although the empirical research is ambiguous in its findings, most of the papers point to a negative relation between the government size and the economic growth. The government spending in Bulgaria has been reduced from 41,7% in 1999 to 36,5% of GDP in 2018 and it is lower than the average for EA19 (47% in 2018).

The Heritage Foundation Index of Economic Freedom measures the government policies effectiveness and economic conditions and compares them among 186 countries around the world since 1995. This is a composite index that measure the economic freedom based on 12 qualitative and quantitative indicators, grouped into four broad categories: rule of law (property rights, government integrity, judicial effectiveness), government size (governments spending, fiscal health and tax burden), regulatory efficiency (business freedom, labor freedom, monetary freedom) and open markets (trade freedom, investment freedom and financial freedom).

Bulgaria's overall score has improved substantially for the period under review. In 1999 Bulgaria's score was 46,2, while in 2018 it is 68,3 and thus for two decades Bulgaria has moved from being repressed to moderately free economy. In recent years the indicators that drag us down are government integrity and effectiveness of the judicial system that show no improvement. In the beginning of the period it was the government spending, fiscal health and monetary freedom that weighted most heavily on our score but were significantly improved during the years. Comparing the index to that of other CEE derogation countries we see that Bulgaria's score is better than that of Croatia (61) and Hungary (66,7) and worse than that of Czech Republic (74,2), Poland (68,5) and Romania (69,4). Among the countries observed, Czech Republic has the highest score, belonging to the mostly free economies. The remaining economies all belong to the moderately free economies category, with Croatia having the lowest score.

Another index measuring the quality of the market environment is the Doing Business Index of the World Bank. It is a good measure of the effectiveness of business regulations. In 2018 Bulgaria ranked 50, ahead of Croatia which ranked 51 (among 190 countries around the world). At the same time Poland ranked 27, Czech Republic 30, Romania 45 and Hungary 48. The problematic areas for the country are starting a business and getting electricity due to lengthy procedures and ineffective institutions.

As the first index shows the effectiveness of the judicial system is a weak point for Bulgaria. Since its accession to the EU in 2007, Bulgaria (and Romania as well) was put under scrutiny, because of further needed progress with the judicial reform, fight with corruption and organized crime. It is through the Mechanism for Cooperation and Verification (CVM) that the European Commission monitors the progress in those areas. A proof of the failure of institutions to tackle those problems is the fact that the CVM for Bulgaria, eighteen years after its introduction is not yet suspended. The failure in this filed plays its negative role on the efficiency of institutions and the regulatory process. Because of this the competitiveness of the economy is also hindered. Therefore, the political and macroeconomic stability are a good prerequisite for economic growth, but they need to be supplemented by further efforts regarding the effectiveness the judicial system and streamlining the administrative processes. The postponement of the needed reforms has hindered the Bulgarian growth up to this moment and would compromise the growth prospects in the future.

**Economic openness, trade and economic integration**

Bulgaria is a small open economy. The economic openness has been steadily growing from 78,2% in 2000 to 131,2% in 2018 (despite a temporary decline during the Global crisis). All CEE countries with a derogation are open economies too, displaying trade to GDP ratio above the world average in 2018 of 59,4% , with Hungary (166% ), and Czech Republic (150% ) being most open and Romania having the lowest degree of openness to trade (86% ). At the same time Bulgaria's export market share has also grown from 0,08% in 1999 to 0,18% of world exports in 2018. For the 2012-2017 the export market share has been increased by 15% , predominantly for basic metals and minerals, machinery and equipment and services as well.

Bulgaria is well integrated into the internal market of the EU, which is its main trading partner. In 2018 nearly 68% of Bulgaria's exports is for EU and 69% of imports is from EU countries. In 2007 when Bulgaria joined he EU the respective shares were 61,1% for exports and 51,7% for imports.

Further to the above positive developments the net exports have had positive contribution to the GDP growth in the second subperiod. Overall, the economic openness and the integration of the Bulgarian economy into the EU market has played a beneficial role for the convergence in the observed period.

**The technological factor**

As far as the technological factor is concerned the GERD in Bulgaria have increased over the last twenty years from 0,54% of GDP in 1999 to 0,75% in 2018. It is only Romania with GERD of 0,51 % of GDP in 2018 that stands behind Bulgaria. The averages for EU27 and EA19 are 2,19% and 2,22% respectively. Among the derogation countries the Czech Republic reports the highest GERD of 1,93% in 2018.

During the period under review the number of employed in high-technology manufacturing and knowledge intensive sectors has risen in absolute terms and as a share of total employments. While in 2000 the employment in these sectors stood at about 3% of the total employment, in 2018 it is 3,9% , which is comparable to the EU and EA19 average level of 4% . At the same time Hungary and Czech Republic have the highest share of employment in the technology sector – 5,2% and 5% respectively. Croatia has a similar level as Bulgaria. Poland and Romania have lower levels of about 3% of total employment.

Since 2007 Cornel University in collaboration with INSEAD and World Intellectual Property Organization issue a Global Innovation Index, trying to capture and compare 126 countries around the world in terms of their innovation activities. The overall score is an average of variables that try to capture inputs (elements of the national economy that enable innovation) and outputs (the results of that activity). In 2018 Bulgaria ranks 37 in the world ahead of Poland (39), Croatia (41) and Romania (49) and behind Czech Republic (27) and Hungary (33). In 2007 when the index was published for the first time Bulgaria was ranked 81$^{th}$, and in the 2008- 2009 edition was 74$^{th}$, behind all the other derogation countries.

In the European Innovation Scoreboard for 2018 Bulgaria is on 27$^{th}$ place of all 28 EU members then (with only Romania behind), with its innovation performance being below 50% of EU average. The problematic areas that determine this position are weaknesses in categories like financial support for innovation, links between companies and research institutions and attractive research systems.

Despite the improvements in the field during the observed period, Bulgaria has still much work to do. An increase of the GERD towards the EU and euroarea averages would have simulative effect for growth.

**The financial system**

The financial system plays an important role in the economy by channeling accumulated savings to their most productive uses. During the observed period, the Bulgarian financial sector has functioned smoothly, except for the episode with the collapse of the fourth biggest bank in Bulgaria in 2014. This episode revealed some weaknesses of the banking supervision, performed by the Bulgarian National Bank and measures were taken afterwards to correct those defects.

The assets of the banking system have expanded from 15,9% of GDP in 1999 to 60,9% in 2017. The peak was reached in 2009 when banking assets were 72,9% of GDP and then they started to decline slightly. In parallel to those developments the bank credit to the private sector has risen significantly from 11% to GDP in 1999 to 51,3% in 2018. The highest level was reached in 2009, when the bank credit to the private sector stood at 69% of GDP. After the Global financial crisis, a mild moderation was achieved. Those developments were accompanied by accumulation of certain imbalances like the rise of the share of non-performing loans to total loans and the increase in the level of private sector debt. The consolidated private debt in 1999 was only 16,6% to GDP and during the period of high growth preceding the Global crisis it mounted to 140,4% in 2008 and 2009. Afterwards the value was gradually reduced to 95% of GDP in 2018. The share of non-performing loans has fallen as well but it remains among the highest in Europe.

Overall the developments in the financial system have been beneficial for the growth and convergence of Bulgaria.

**Discussion of the results**

The research on the Bulgaria's real convergence in the last twenty years shows that even though Bulgaria registers one of the highest average growth rates among the countries in consideration it has not managed to close the serious income gap. In the end of the period Bulgaria remains the poorest EU economy with its real GDP per capita and its labor productivity being half of the EU averages. During the period the disparities in terms of real GDP per capita between the six CEE countries with a derogation have been reduced as well as the disparities among them and the euroarea average per capita income. The convergence process has been more pronounced during the first subperiod and sluggish in the second subperiod.

This situation poses serious questions about the factors that have stimulated or impeded the convergence process in Bulgaria, on one hand. On the other hand, the situation poses the question as to whether it is appropriate for Bulgaria to pursue an EMU membership, given the low level of real convergence.

The analysis of the factors for convergence show that some factors have played a beneficial role in the convergence process, namely the macroeconomic stability, the improvement of the market environment, the increased trade and economic openness and the integration of the economy into the EU market, as well as the development of the financial market. At the same time some other factors have unambiguously exerted negative effect on the convergence process. The failure in the reform of the judicial system and the fight with corruption, the inability to make the administrative procedures more effective and reduce the administrative burden on businesses have negatively impacted the competitiveness of the Bulgarian economy. While in the period till the Global financial crisis the positive economic developments globally and the enthusiasm from our EU entry managed to mask those problems, their destructive effect became more pronounced afterwards. The drastic reduction of the FDI after 2007 as well as the low level of the domestic investments, heavily dependent on the EU funds drag the convergence process. The negative demographic developments and the low achievements in human capital quality have inarguably played against the Bulgaria convergence. While some progress has been achieved regarding the technological factor, Bulgaria still needs to advance. This points out to the actions and the reforms that should be undertaken to see Bulgaria converging to the EU and euroarea.

On this background it seems reasonable to question the intention of Bulgaria to join the EMU given its low level of income convergence. For the sake of comparison, when Slovakia, Estonia, Latvia and Lithuania joined the EMU in 2009, 2011, 2014 and 2015 respectively, they had a GDP per capita of 72% , 71% , 64% and 76% of EU average. I argue that joining the EMU would not have any destabilizing effects for Bulgaria and for the euroarea, as long as Bulgaria, being under a currency board arrangement for more than twenty years is in a currency regime that mimics the currency union. The EMU entry will allow Bulgaria to share the benefits of the single currency not only its costs. At the same time the macroeconomic stability, the lack of serious macroeconomic imbalances and the small size of the economy is a guarantee that a premature entry will not destabilize the euroarea.

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# Improving Employee Well-Being by Means of Virtual Reality – REALEX: An Empirical Case Study

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**Abstract**

The present paper seeks to analyse how a virtual reality system can foster employee well-being at the workplace. In order to answer the research problem, whether such a system can benefit employees in regards to their well-being, stress perception and relaxation, an empirical case study was conducted. Relevant literature both on the advantages of virtual reality systems in general and on different approaches to fostering employee well-being are displayed and discussed within the paper, leading up to a description of the methodology. Based on a sample of 52 participants from Germany, Austria and Croatia an empirical study with a quantitative, pre- and post-study approach was conducted. Participants were assessed in regards to their initial stress perception, before they used either the REALEX system (a VR based relaxation tool displaying natural landscapes in a virtual reality setting) or a video streaming service on a classical display. The statistical analyses revealed that the usage of the REALEX system was able to significantly improve participants' stress perception and well-being. In doing so it – also significantly – exceeded the positive effect that the control setting (video streaming) had in these regards. Potential limitations of the study are presented and recommendations both for practical work in the field of human resource management and for scientific research are deducted.

**Keywords:** Improving, employee, well-being, Virtual Reality, REALEX

## Introduction

### Problem Statement

For the last decades, a constantly growing intensification of all life spheres can be observed, especially work-related ones. Due to such major trends as the establishment of free markets, globalization, constant exposure to multiple information sources and digitization, the impact on societal mental well-being has grown dramatically (Tuomi, Vanhala, Nykyri & Janhonen, 2004). While on the one hand being considered as advantages of contemporary society and sources of potential opportunities, these aspects can act as sources of constant stress when managed poorly (Vasantha & Reddy, 2017).

Results of the EU Labour Force Survey prove that over the course of 8 years (1999−2007) 28% of European workers confirmed that they have been affected by psychosocial risk factors, with "too little time and too much work" being the main contributing factor (European Commission, 2010). According to the data of European Commision (2010) "stress, depression and anxiety" have been reported as the most serious work-related health problems.

Lasting exposure to stress, depression and anxiety causes significant problems at individual, organizational and societal levels. Thus, when the level of responsibility and amount or level of job-related tasks are significantly exceeding employees qualification, capability or resources, an employee becomes affected by stress factors (Thoondee & Oikonomou, 2017). In a short-term perspective stress leads to such health problems as general tiredness, headaches, irritability or frequent mood swings. Long-term consequences of stress lead to more severe problems such as cardiovascular problems, immune system problems, diabetes, and of course depression and anxiety (Michie, 2002).

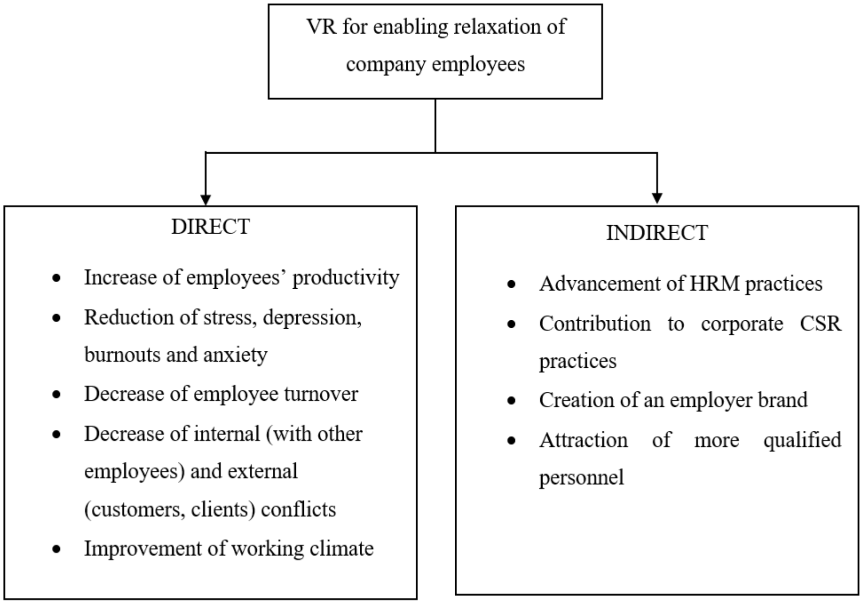
On organizational level stress leads to productivity decline, higher levels of absenteeism, staff turnover and general deterioration of the working climate. According to the data provided by the European Working Conditions Survey, already in 2007 around 40 million people were affected by work related stress. Similarly, in 2009 between 50 and 60 % of all lost working time was caused by stress related factors (Eurofound, 2012).

In spite of the fact that many organizations seem to share an understanding of an equation "happy employee = productive employee", in reality most of them consider investments only in the areas directly related to improvement of financial indicators (Nielsen et al., 2017). As Luthans and Youssef (2004) notice, many companies struggle to demonstrate how investments in human resources can be capitalized not only in the short, but also in a long-term perspective. In the conditions of changing demographic, growing competitions, fast changing societal demands towards an organization and a working place, as well as often nonstable economic and political situations, investment in employees' well-being and development becomes risky and often unaffordable for many companies. At the same time in order to ensure employees' well-being at the working place, a company should take efforts on several different levels (Nielsen et al., 2017). By means of efficient HRM practices and constructive and supportive leadership style, such as transformational leadership, companies should establish a healthy and productive spirit within an organization on both individual and group level. If a company fails to comply on one of the levels, employees' well-being will inevitably suffer (Tuomi, Vanhala, Nykyri & Janhonen, 2004). Thus, if an organization has inefficient HRM practices, they might disrupt a healthy environment even within an organization with an initially constructive group dynamic. Similarly, toxic leadership styles, which foster such destructive practices as bullying and harassment, lack of transparency, constant overworking and unhealthy competitions, will nullify existing healthy practices and result in an atmosphere with a high level of stress and anxiety among its employees (Darling & Heller, 2011).

Thus, ensuring employees' well-being is a challenging task for an organization, since it requires an understanding of the fact that in order to ensure organizational success in a long-term perspective, a company has to value its employees both as workers and as individuals. At the same time, in order to create a healthy atmosphere within an organization, a company has to ensure healthy working practices on individual, group, organizational levels, as well as a constructive and supportive leadership style (Nielsen et al., 2017).

In the current research we study the efficiency of virtual reality applications for employees' stress reduction and prevention of anxiety and depression in an office environment. Since the role and importance of technological advancements in a working and everyday life grow steadily, its application for creating a better and healthier working environment attracts more interest (Tuomi, Vanhala, Nykyri & Janhonen, 2004). While virtual reality has been applied in some companies for employees' training and simulation of real-life situations, such as handling customers' complaints, its application with a purpose of on spot in-office relaxation has rarely been studied (Thoondee & Oikonomou, 2017).

As it was mentioned, in order to maintain employees' well-being, a company should make efforts on several levels. In this regard, application of virtual reality is not proposed as *a remedy for all evil*, but rather as one of the solutions for dealing with the increasingly growing problem of stress and anxiety in a working environment. While solving a specific problem – making a relaxation and mental off-load in the office more available − application of such technological advancement for employees' well-being carries some certain characteristics of an employer as well. Application of virtual reality in the office for enabling employees' mental off-load and relaxation, apart from creating a more relaxed and productive environment, also characterises an organization as an employer with human-oriented HRM practices, that is progressive enough to consider an application of virtual reality technologies and caring enough to use these technologies for improving well-being of its own personnel. Benefits from virtual reality application by an employer for employees'relaxation in the office can, thus, be divided into direct and indirect ones (Figure 1).




**Literature Review**

**The usage of Virtual Reality for relaxation**

The first studies on VR as a new way of treatment various disorders started to appear in the beginning of the 90s. Most of VR-related studies back then were aimed at the exploration of VR in treatment of various phobias, such as claustrophobia (Booth & Rachman, 1992), arachnophobia (fear of spiders), acrophobia (fear of heights) (Rothbaum et al., 1995), fear of driving and public speaking, eating disorders, post-traumatic stress disorders and others. The results of most studies proved significant efficiency of VR in treatment of mentioned conditions, with most of the participants reporting significant decrease of anxiety, fears and related disorder symptoms. VR, thus, has proved to be an efficient mechanism for the treatment of various disorders in clinical conditions.

With proliferation of VR technologies, as well as its wider availability, studies regarding VR effect on other spheres of society started to spread outside clinical psychology. Thus, with a growing danger posed by stress in a contemporary society, there can be observed a growing interest towards exploration of VR effects on treatment of stress, anxiety and depression.

In a study conducted by Baños et al. in 2013, the authors tested the ability of VR to induce positive emotions, such as joy and relaxation on clinical patients. After using VR during four sessions with a duration of 30 mins each for one week, all patients demonstrated an increase in positive emotions and decrease in negative emotions, such as sadness and anxiety. A similar study by Herrero, Garcia-Palacios, Castilla, Molinari and Botella (2014) revealed that VR used as a part of psychotherapy for patients with a fibromyalgia syndrome leads to an increase of such positive emotions as joy, surprise, vigor and calmness, as well as increases self-motivation and efficacy. Results of these findings are supported by VR efficacy studies also with non-clinical samples. Thus, Serrano, Baños and Botella (2016) found that the use of VR is efficient even with people who do not have any initial anxiety or depression problems and that application of VR can increase a level of relaxation even in cases when it is initially high.

Since work related stress and its alarmingly negative impact on the work productivity of office employees is growing fast and steadily, mental relaxation for office employees is becoming crucial for both workers' mental health protection and for employers as a way for keeping productivity of their companies stable. The interest towards efficiency of VR application in offices as a way of decreasing work-related stress is increasing, even though the number of related studies is very low (Thoondee & Oikonomou, 2017).

A study aimed at researching efficiency of VR in dealing with stress at work was conducted by Thoondee and Oikonomou (2017) with the participation of 32 office employees of various age groups. The study consisted of two modes – pure VR-based relaxation and a mixed mode. During the first mode all the participants were proposed to wear VR reality glasses showing them natural landscape scenes. After the relaxation session all the participants were asked to evaluate their VR experience using a questionnaire. As a result, 28.1% told that they felt relaxed after their VR session, while 71.9% of employees reported that they were definitely relaxed. Beside, 93.9% wanted to use VR glasses again and 100% told, they would recommend it to someone else (Thoondee & Oikonomou, 2017). In the second part of an experiment authors tried blend in some of VR elements into office activities. Thus, some VR element were assigned to specific office routing – for example, an appearing flower was indicating a new e-mail, while a changing weather logo was meant to attract attention towards a beginning meeting. An idea of blending VR elements into daily working activities was also positively assessed by the employees as stress reduction measures (Thoondee & Oikonomou, 2017).

One of the reasons why VR systems seem to do such a good job at contributing to relaxation and improving mood-related outcomes lays in the deep immersion VR based systems offer (Slater & Sanchez-Vives, 2016). Slater and Sanchez-Vives (2016) argue, that because of this strong immersion effect offered by VR systems they might have a strong impact on peoples' lives – given that they are used in the right setting with the right circumstances, as the authors summarize. This is also pointed out by Makransky, Terkildsen and Mayer (2019) who describe that the usage of virtual reality (in a learning setting) can add to a feeling of presence during the process.

**Approaches to fostering employee well-being**

Employee well-being is a concept that spreads further than only taking care of employees' health, but also includes the creation of an environment in which people enjoy their work and that fosters healthy relations within an organization. Even though there is no existing consistency in regard to the definition of well-being as a concept, there is a relatively stable set of elements constituting the term. Well-being at work is defined by multiple factors, including those that are directly related to an organization and those outside of immediate organizational environment. Thus, factors defining workforce well-being from within an organization include such aspects as organizational environment and employees' relations, management practices, general workload and distribution of responsibilities, wage level, possibility for taking own decisions by employees. In organizations where employees constantly experience work overload, have lack of control over their own decisions or their skills do not match their responsibilities, level of workforce stress and associated mental health disorders such as anxiety and depression, is much higher than in organizations with a healthy working climate.

Considering additional outside-an-organization factors, such as general economic or political situations, that pose an additional pressure on an individual, organizations should take particular care of their employees well-being, if they want to avoid burnouts, staff turnover and, as a result, a declined productivity.

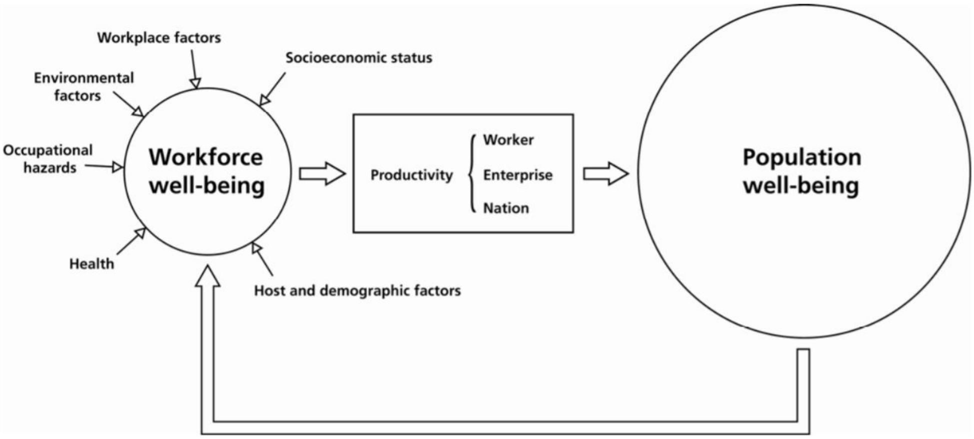



**Figure 2**. Relationship between workforce well-being, productivity and population well-being (Source: Schulte & Vainio, 2010).

As an individual does not exist outside the society, it is important while developing measures for promotion of employees' well-being to consider measures at organizational and wider societal levels (Schulte & Vainio, 2010).

In their research Nielsen et al. (2017) assess an importance of supporting employees' well-being on four levels: individual, organizational, group and leader level. After conducting an analysis of 84 studies, authors concluded that most of them explore workforce well-being support and performance on an organizational level (Nielsen et al., 2017). The most crucial organization-level resources were associated with an autonomy, followed by HR practices. Efficient HR practices are considered to be an efficient instrument for promotion of employees' well-being, while at the same time advancing an organization itself. On the group level, the authors found social support to be the most studied resource, followed by relatively few studies on team characteristics (Nielsen et al., 2017).

Transformational leadership and LMX theory were considered the most prominent leadership approaches promoting employee well-being and performance on a leader level (Arnold, Turner, Barling, Kelloway & McKee, 2007).

On the individual level the most studied resources regarding employee well-being and performance were related to Psychological Capital construct, namely self-efficacy, hope, optimism, and resilience (Avey, 2014).

Promotion of employee well-being at the workplace and stimulation of their efficiency should be conducted on different levels. Thus, it is important to foster in employees such qualities as self-efficacy, which can help in establishing the right level of autonomy for employees. These qualities can be stimulated by transformational leadership style, as well as proper HRM practices. At the same time, on the group level it is important that employees can establish such social connections that foster openness and mutual support.

**Research Methodology**

**Sample**

The sample consisted of 22 female and 30 male participants from Germany, Austria, and Croatia aged 23 to 58 years ($M$ = 37.42, $SD$ = 10.69) who are in full-time employment. We randomly allocated groups to one of the two experimental conditions.

The attendants were volunteers, did not receive any payment or credit for their collaboration and were recruited through direct contact (either by asking fellows directly or by getting in contact through mail or phone after announcing about the planned study). All participants gave written, informed consent before participating in the study.

Participants with a history of neurological disease were excluded from the experiment.

Design

To study the efficacy of different technologies (virtual realities on the way they are conveyed) on stress reduction and relaxation, a between-subjects design with two experimental conditions and repeated measurements (pre- and post-questionnaires) was used. We compared the following conditions:

*REALEX Condition:* subjects were presented with different natural environments on stand-alone VR glasses (Oculus Go, Samsung VR technology, Quad-ICD monitor with Fast Switch) with integrated spatial audio. *Video Streaming Condition:* equivalent video streaming of the platform YouTube was presented on a laptop (MacBook Air, 13,3”). It should be noted that the REALEX system used for this study presented 360° videos made for the purpose of relaxation based on pre-surveys.

The classification of the conditions and an overview of the socio-demographic questions can be seen in Table 1.

Table 1

*Sociodemographic data of the REALEX and the video streaming condition*

| | REALEX *n* = 31 | Video streaming *n* = 21 |
|---|---|---|
| Age in years | 39.16 (9.29) | 34.86 (12.27) |
| Gender (female:male) | 14:17 | 8:13 |

*Note*. Values are means (SD)

The content of the two conditions included various nature recordings (snowy landscapes, view of a lake, view of a bridge near a lake), each accompanied by nature sounds (birdsong, breeze, water noise, rippling brook). The videos differed neither in their length nor in the way they were presented visually or audibly.

**Measures**

In addition to the socio-demographic questionnaire, which also recorded the current stress load, its causes and previous experiences with media in virtual reality, different types of self-reported measures to evaluate (1) their mood (dependent variables with special focus on relaxation) before and after the media experience and (2) their feeling of presence during a VR experience (is levied after the intervention) were used before and after the virtual experience for each participant:

*Visual Analogue Scale* (*VAS*; Gross & Levenson, 1995). Participants are required to indicate how they feel at the specific moment of the questioning concerning each of seven ten-point visual analogue scales (where 1 = “I’m not feeling the emotion at all” to 10 = “I feel the emotion very strongly”) measuring the six basic emotions happiness, fear, anger, disgust, surprise and contempt according to Ekman (Ekman, 1992) and an added item for relaxation, which should record the degree of relaxation experienced before and after the intervention.

*Positive and Negative Affect Schedule* (*PANAS*; Watson, Clark & Tellegen, 1988). This questionnaire measures the positive and negative affects through ten positive (which compose the global Positive Affect Score) and ten negative (which compose the global Negative Affect Score) emotion adjectives. Survey Participants are required to indicate the extent to which they feel the emotions on a five-point scale (where 1 = “very slightly” or “not at all” to 5 = “extremely”).

The short-form version of the *Depression Anxiety Stress Scales* (*DASS-21*; Lovibond & Lovibond, 1995). This 21-item screening and dimensional severity measurement scale measures the presence of anxiety, depressive and stress states. It contains three seven-item subscales: anxiety, depression, and stress subscale, each item being scored on a four-point scale (where 0 = "does not apply at all" to 3 = "strongly accurate" or "applies most of the time").

The *UCL Presence Questionnaire* (Slater, Usoh & Steed, 1994) as a post-experience subjective measure was presented to the participants to capture the feeling of presence after the virtual reality experience. Respondents are required to provide ratings on a seven-point Likert scale on three questions like for example *Q1: "Rate your sense of being in the virtual environment*".

**Procedure**

At the beginning of the intervention, the subjects were asked to relax for five minutes and refrain from all activities to ensure a baseline of relaxation. Subsequently, the persons were instructed to fill in the first pre-questionnaires (Sociodemographic Questionnaire, VAS, PANAS, DASS), after which the participants were instructed about the use of the equipment in the REALEX condition, their possibilities to explore the virtual environment (turn head 180 degrees to discover the whole natural scene), and the intervention of about ten minutes was carried out. After the virtual experience, the post-questionnaires (VAS, PANAS, DASS, UCL Presence Questionnaire) were presented. The study took place daily between 11 am and 6 pm.

**Results**

Data were analyzed using IBM SPSS 25.0.0.1 with $\alpha = .05$ for all statistical tests. Preliminary data analysis with skewness and kurtosis showed that the video streaming condition scores were distributed normally, for the REALEX condition this was waived due to the central limit theorem. Using 1D-boxplots no outlier was found in both conditions and therefore all values were included in the calculations.

A two-factorial ANOVA with the within-subjects factor measurement time, consisting of the focused relaxation values of the VAS at times $t_1$ and $t_2$, and the between-subjects factor condition, divided into the two representations of virtual reality through the REALEX 360° glasses and the video streaming, shows a significance in the main effect measurement time ($F(1,50) = 11.369$, $p = .001$, $\eta_p^2 = .185$) so that the relaxation is higher after the intervention ($M = 6.15$, $SD = 2.57$) than before ($M = 4.89$, $SD = 2.24$), but no significant interaction between the measurement time and the condition ($F(1, 50) = 1.394$, $p = .243$, $\eta_p^2 = .027$). In another two-factorial ANOVA with the within-subjects factor measurement time of the values of the stress subscale of the DASS at times $t_1$ and $t_2$ and the between-subject factor condition of the two intervention types, a significant difference was also found in the main effect measurement time ($F(1, 50) = 29.97$, $p < .001$, $\eta_p^2 = .375$) so that the stress value is higher before the intervention ($M = 6.04$, $SD = 3.88$) than after the intervention ($M = 4.15$, $SD = 3.58$), but no significance was found in the interaction ($F(1, 50) = 1.337$, $p = .253$, $\eta_p^2 = .026$).

Despite the non-significant interactions, we examined the measurement times of the two conditions to detect different trends between the conditions (Table 2 and Table 3). A stress reduction (DASS stress subscale), as well as an increase in relaxation (VAS relaxation), could be achieved in both conditions, but the greatest trend to a stress reduction was achieved in the virtual reality with REALEX.

Table 2. *Relaxation (VAS) and Stress (DASS) Ratings before and after the exploration of the virtual environment in the REALEX condition*

| Measure | $t_1$ | | $t_2$ | | $t(30)$ | $p$ | Cohen's $d$ |
|---|---|---|---|---|---|---|---|
| | $M$ | $SD$ | $M$ | $SD$ | | | |
| VAS Entspannung | 5.03 | 2.17 | 6.52 | 2.59 | -3.473 | .002 | 0.624 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| DASS Skala Stress | 5.77 | 3.48 | 3.58 | 2.85 | 4.720 | < .001 | 0.848 |

Table 3. *Relaxation (VAS) and Stress (DASS) Ratings before and after the exploration of the virtual environment in the video streaming condition*

| Measure | $t_1$ | | $t_2$ | | *t*(20) | *p* | Cohen's *d* |
|---|---|---|---|---|---|---|---|
| | *M* | *SD* | *M* | *SD* | | | |
| VAS Entspannung | 4.90 | 2.39 | 5.62 | 2.50 | -1.492 | .151 | 0.325 |
| DASS Skala Stress | 6.43 | 4.47 | 5.00 | 4.38 | 3.423 | .003 | 0.747 |

During subsequent calculations, no further statistical significance was found in the interactions between the measurement time*condition. The difference values of the instruments (VAS, PANAS, DASS) that were collected but are not the focus of this study are shown in Table 4.

In the further observations of the individual conditions, only the condition REALEX showed (after the alpha error correction by Bonferroni-Holm) a significant change in the anger indicated on the visual analogue scale: subjects of this condition showed higher values before the intervention ($M$ = 1.65, $SD$ = 2.68) than after the intervention ($M$ = 0.81, $SD$ = 1.99; $t(30)$ = 3.353, $p$ = .002).

Table 4. Changes in the other measurements (VAS, PANAS, DASS) over $t_1$ and $t_2$

| Measurement | REALEX | | | | Video Streaming | | | |
|---|---|---|---|---|---|---|---|---|
| | $t_1$ | | $t_2$ | | $t_1$ | | $t_2$ | |
| | M | SD | M | SD | M | SD | M | SD |
| *VAS Questionnaire* | | | | | | | | |
| Happiness | 6.42 | 2.06 | 7.00 | 2.08 | 6.00 | 2.39 | 5.86 | 2.63 |
| Fear | 1.26 | 1.57 | 0.71 | 1.35 | 2.10 | 2.51 | 1.14 | 2.08 |
| Anger | 1.65 | 2.68 | 0.81 | 1.99 | 1.52 | 2.21 | 0.62 | 1.12 |
| Disgust | 1.10 | 2.18 | 0.48 | 1.50 | 1.14 | 2.46 | 0.48 | 0.87 |
| Surprise | 2.45 | 2.45 | 3.10 | 3.18 | 3.24 | 3.25 | 2.52 | 2.93 |
| Contempt | 1.23 | 2.46 | 0.52 | 1.63 | 1.38 | 1.86 | 0.52 | 0.98 |
| Relaxation | 5.03 | 2.17 | 6.52 | 2.59 | 4.90 | 2.39 | 5.62 | 2.50 |
| *PANAS Questionnaire* | | | | | | | | |
| Positive Affect | 2.06 | 0.61 | 2.07 | 0.75 | 1.83 | 0.73 | 1.74 | 0.86 |
| Negative Affect | 0.43 | 0.58 | 0.25 | 0.45 | 0.61 | 0.67 | 0.41 | 0.69 |
| *DASS Questionnaire* | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Subscale Depression | 2.58 | 2.35 | 1.94 | 2.08 | 3.81 | 4.26 | 3.24 | 4.02 |
| Subscale Anxiety | 2.68 | 2.82 | 1.90 | 2.23 | 2.48 | 2.79 | 1.95 | 2.84 |
| Subscale Stress | 5.77 | 3.48 | 3.58 | 2.85 | 6.43 | 4.47 | 5.00 | 4.38 |

**Comparison with video streaming**

In a direct comparison of the conditions, clear trends towards an improved stress reduction as well as an increased relaxation induction through the 360° medium compared to conventional relaxation videos can be seen despite non-significant differences. This tendency is also apparent concerning the role of the present experience (measured by the UCL Presence Questionnaire) during the experiment: although there are no statistical differences between the conditions, people who experienced virtual realities through REALEX ($M = 3.75$, $SD = .91$) tended to show higher values than people who streamed video ($M = 3.25$, $SD = 1.16$; $t(50) = 1.735$, $p = .089$).

Main Causes of Stress and Stress improvements

The current level of stress load (based on the day of the survey, including the last seven days) recorded during the pre-test showed that 58% of the participants felt frequently or even constantly stressed, 38% reported an occasional stress load, and only 4% reported a never occurring stress level. In a further item, which was intended to record the possible causes of the current stress load, it was shown that 94% of the respondents see the causality in the occupational context and here (multiple answer set) particularly due to deadline or time pressure (83%), conflicts with colleagues (23%), an unsatisfactory working environment (21%) or a general dissatisfaction in the occupational context (21%).

Based on the existing literature as well as the available results, it is shown that a reduction of the prevailing stress level as well as an increase in relaxation can be achieved through the presentation of virtual natural environments. In the condition REALEX, 64.5% also stated that they could (very well) imagine using the programme during their work break in a professional environment.

**Discussion & Conclusion**

The present study was able to show that the immersive character of virtual reality solutions also translates well to the field of relaxation and to the business environment. While a small number of older studies exist that show similar results – the generally beneficial effect of VR based relaxation programs – they mostly focused on clinical samples. In those samples, in general a positive relaxation effect could be proven. However, most of the studies conducted before lacked the use-case described within this study. In the light of stress and stress-related illnesses being among the most prominent problems in the HR world and in regards to employee well-being, a system that can improve this situation can be seen as a valuable tool of HR management.

While the present study of course is not able to showcase long-term effects on employee's morale, motivation or general burn-out risk, the effects show clearly that the (even short-term) usage of a VR based relaxation system can benefit employees' well-being. The comparison with classic video-streaming revealed, that it not only the general digital presentation of natural environments, that benefits the well-being, but that this general effect is strongly amplified by the deep immersion provided by virtual reality.

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# The Rebound Effect – A Systematic Review of the Current State of Affairs

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**Abstract**

This publication is intended to present the current state of research on the rebound effect. First, a systematic literature review is carried out to outline (current) scientific models and theories. Research Question 1 follows with a mathematical introduction of the rebound effect, which shows the interdependence of consumer behaviour, technological progress, and interwoven effects for both. Thereupon, the research field is analysed for gaps and limitations by a systematic literature review. To ensure quantitative and qualitative results, a review protocol is used that integrates two different stages and covers all relevant publications released between 2000 and 2019. Accordingly, 392 publications were identified that deal with the rebound effect. These papers were reviewed to obtain relevant information on the two research questions. The literature review shows that research on the rebound effect is not yet comprehensive and focuses mainly on the effect itself rather than solutions to avoid it. Research Question 2 finds that the main gap, and thus the limitations, is that not much research has been published on the actual avoidance of the rebound effect yet. This is a major limitation for practical application by decision-makers and politicians. Therefore, a theoretical analysis was carried out to identify potential theories and ideas to avoid the rebound effect. The most obvious idea to solve this problem is the theory of a Steady-State Economy (SSE), which has been described and reviewed.

**Keywords**: Review, Critical, Systematic, Literature, Rebound-Effect, Sustainability, SSE) JEL Classification: O33

## Introduction

Technology, efficiency gains, sustainability, and automation play an important role in today's economy and society. Disruptive technologies influence the way work is done, people are educated, and products are consumed. Many of the new technologies aim to reduce resource consumption through efficiency gains. In public perception, but also in politics, this approach is rarely questioned. In fact, however, this approach should be critically questioned, especially if the so-called "rebound effect" is taken into account when considering i.e. sustainable management. Already in the 19th century, William Stanley Jevons discovered that efficiency gains through technological progress can have a negative impact on the overall consumption of resources.

This finding became known as the Jevons Paradox (Jevons, 1865). Among other gradations, the Jevons paradox describes the highest degree of the rebound effect (X > 100% ). Even though this case is rare, it is best to explain the effects of the rebound effect in and impressive way. The introduction and application of LED technology, for example, has led to a situation where a single LED consumes only one-twentieth of the power of an energy-saving lamp but has increased electricity consumption increase in many places. This was due to the fact that individual electricity costs were initially lower due to lower electricity consumption. However, consumers could either leave their lamps on longer at the same cost, use more lamps than before, and allow people to buy and install lighting fixtures that were previously too expensive. Both have increased the total power consumption caused by lighting (McRae, 2019).

The rebound effect is now measured by how strong the increase in total consumption is in compared to the savings potential. If, for example, the new consumption exceeds the savings achieved by the introduction of the new technology, this is called a rebound effect (Sorrell, Gatersleben, & Druckman, 2018). Depending on how strong and in what form this effect occurs, it can be classified differently. The present publication therefore attempts to present the fundamentals of research on the rebound effect, to outline the (current) scientific models and theories as well as to reveal research gaps and make limitations visible.

**Review Method**

This paper is based on the systematic review approach, which has been used to answer the research questions presented below. The aim of this working paper is, therefore, to identify all relevant studies of the rebound effect and to aggregate the current state of scientific research (Petticrew & Roberts, 2006). Therefore, an evaluation of relevant literature and an examination of the current state of affairs will be undertaken. In addition, knowledge of the terminology and the conceptual framework that determines the development of the rebound effect is analysed. To provide a detailed overview, the focus should also, but not exclusively, be on the following objectives (Arksey & O'Malley, 2005):

RQ1: What are the general scientific fundamentals of the rebound effect?

RQ2: What are the limitations and gaps in current research on rebound effect?

Due to limitations in processing time, capacity, and scope, the paper cannot summarise all the investigations carried out in a mutually exclusive manner. Rather, this paper is intended as a summary and basis for further specific research in this area; for instance, how the rebound effect and econometrics can be used as a scientific framework for mathematical and quantitative analysis to predict and review operational business decisions. In line with (Kitchenham, 2004), a three-stage coherent review process was applied. Each phase has specific, cohesive, and clear objectives, which are visualized in Figure 1.

I. Planning: The first and overarching aim is to define a specific and clear review topic. This process is followed by developing the review protocol and generating research questions. The research protocol predefines all important components of the systematic review and must be adapted for each study. The research protocol will serve as a guide throughout the project and therefore already contains an estimated time frame. Furthermore, the predefined protocol is designed to avoid the possibilities of biased review based on the selection of individual studies or personal expectations. Due to the crucial importance of the review protocol, a review in medically relevant research topics and even peer-review is necessary.

II. Implementation: Once the planning process is successfully completed, the implementation phase can begin. The implementation of a systematic review is based on the research protocol and a research strategy, which are the guidelines throughout the process. However, the selection of inclusion and exclusion criteria must be provisional, based on the research question, and documented in the review protocol. Within the defined boundaries, as many subject-related primary studies as possible must be identified, reviewed, categorized, and subsequently reported.

III. Reporting: The composition of a systematic review report depends on the review topic and audience. An individual composition of contents is therefore necessary.

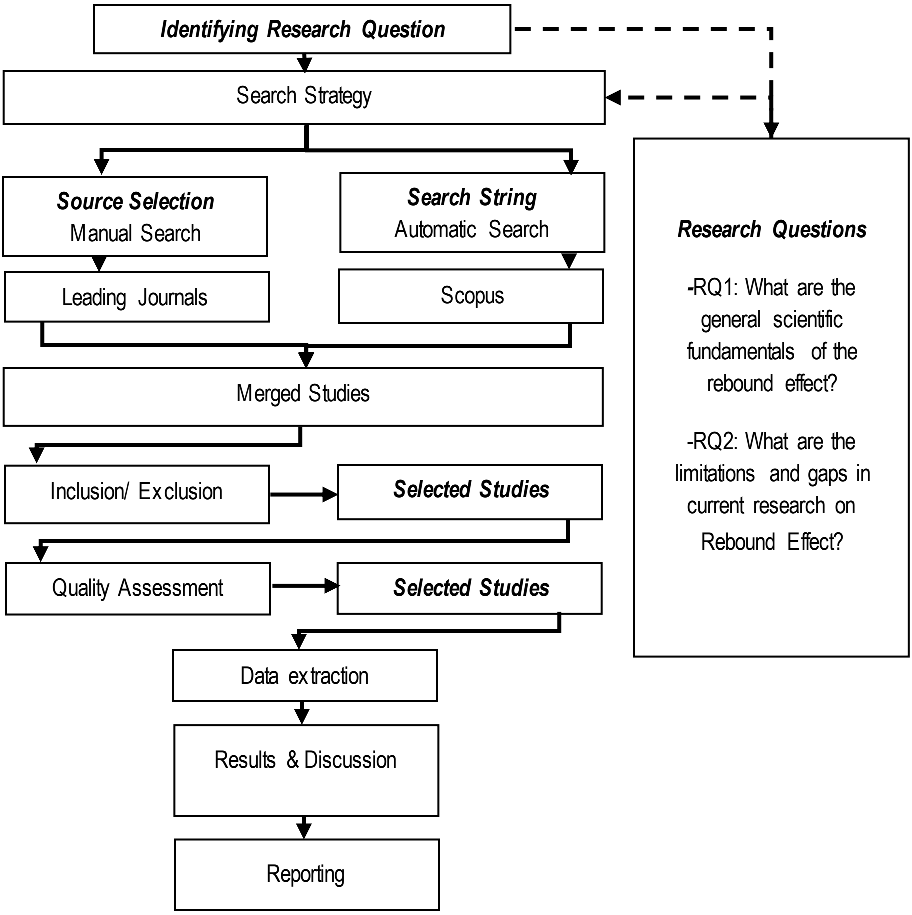



**Figure 5: Systematic review – Structure and concept**

Source: Own illustration

Two research questions have been identified for this paper, which are to be answered in a conclusive order.

**Results of Research Question I**

This chapter answers the question of how the rebound effect is defined, what the general principles of the rebound effect are, and to what extent the rebound effect can be subdivided, applied, and abstracted. In addition, a systematic overview of the framework, concepts, and current state of affairs relevant to the theory of rebound effect will be given. The chapter concludes with an overview of studies that show the intensity and extent of the rebound effect in different areas using various parameters.

Research Question 1: What are the general scientific principles of the rebound effect?

The rebound effect (R) is generally understood to be the interstice between potential energy savings from energy efficiency improvements (P) and actual energy savings (A).

The rebound effect is therefore mathematically represented by the formula:

$$R = [1 - \frac{A}{P}]$$

Furthermore, the authors Chitnis & Sorrell et al. (2015) have mathematically decomposed the rebound effect. The rebound effect is mathematically represented in a shortened form as follows:

$$R_T = n_{qs,qp} - \sum_{i(i \neq s)} Uin_{qi,ps}$$

$$R_D = -n_{\mathrm{qs,ps}}$$

$$R_1 = \sum_{i(i \neq s)} Uin_{qi,ps}$$

$$x = p_s q_s + \sum_{\mathrm{i=1,2...N}} pi\ qi$$

$x$ = $Total\ household\ expenditure$

$R_T$ = $Total\ Rebound\ Effect$

$R_D$ = $Direct\ Rebound\ Effect$

$R_1$ = $Indirect\ Rebound\ Effect$

$p_i$ = $Price\ per\ unit\ of\ good\ i$

$q_i$ = $Quantity\ per\ unit\ of\ good\ i$

$p_s$ = $Energy\ cost\ of\ energy\ service\ (i.e.\ \$\ lumen)$

$q_s$ = $Energy\ efficiency\ of\ energy\ service\ (i.e.\ lumen\ kWh)$

According to Saunder's paper "Fuel conserving (and using) production functions" (Saunders, 2008), the rebound effect is divided into 5 gradations. These can be described as follows (Saunders, 2008):

1. Super conservation (RE < 0): Efficiency gains lead to resource savings that are higher than previously expected. This type of rebound effect is negative. This specification always occurs when the increase in efficiency sustainably reduces the overall resource consumption.

2. Zero rebound (RE = 0): If the resource savings correspond to the expected savings, the rebound effect is neutralized.

3. Partial rebound (0 < RE < 1): In case of a partial rebound, the resource savings are less than previously expected. The rebound effect in this classification is between 0% and 100% . This is sometimes referred to as "take-back" and is most common in the economy or in "real world" applications.

4. Full rebound (RE = 1): Classified if the actual measured resource savings correspond exactly to the increased resource consumption. The rebound effect is therefore exactly 100% .

5. Backfire (RE > 1): The actual resource savings are negative, or the resource savings are less than the increased consumption triggered by efficiency gains. To the extent that consumption increases beyond the initial savings potential generated by efficiency gains, the rebound effect is higher than 100% . As already noted in the introduction, this state is also classified as Jevon's paradox.

According to papers of Andreas Goldthau, H. Herring, and S. Sorell, the classification of rebound effect can also be described as follows (Goldthau, 2013):

Economy-wide rebound effect: A fall in the real prices of energy services will reduce the prices of intermediate and final products throughout the economy and lead to a number of price and volume adjustments for energy-intensive goods. Improvements in energy efficiency can also increase economic growth, which in turn can lead to an improvement in energy consumption (Greening, Greene, & Difiglio, 2000; Goldthau, 2013; Roy & Hering, 2006). The economy-wide rebound effect is represented by the following direct and indirect forms of the rebound effect (Sorrell & Herring, 2009).

Direct rebound effect: Improved energy efficiency for a given service will reduce the effective price of that service and lead to an increase in energy consumption. This will compensate for the expected reduction in energy consumption due to efficiency gains (Greening, Greene, & Difiglio, 2000; Goldthau, 2013; Roy & Hering, 2006). The direct rebound effect itself is further divided into direct rebound effects for consumers and direct rebound effects for producers (Sorrell & Herring, 2009).

Direct Rebound Effects for Consumers:

- Substitution: A substitution effect where the use of the energy service replaces the use of other goods and services for the same benefit or consumer satisfaction.
- Income Effect: Increasing real income by improving energy efficiency will allow higher levels of utilization and consumption by increasing the level of consumption of all goods and services, including energy services.

Direct Rebound Effects for Producers:

- Substitution effect: The more inexpensive energy service supersedes the use of capital, labour, and inputs to achieve a constant level of production.
- Output effect: The cost reductions achieved by improving energy efficiency make it feasible to deliver a higher level of performance – and thus increase the consumption of all inputs, including energy services.
- Indirect rebound effect: A lower effective price of energy services will lead to changes in demand for other improvements in goods and services (Greening, Greene, & Difiglio, 2000; Goldthau, 2013; Roy & Hering, 2006). Furthermore, the indirect rebound effect can be split further into the embodied energy effect and the secondary effects in addition to the direct rebound effect (Sorrell & Herring, 2009).
- Embodied energy: Indirect energy consumption required to improve energy efficiency, such as the energy required to construct and install thermal insulation. (Roy & Hering, 2006)
- Side effects: These result from the improvement of energy efficiency, including supply and demand mechanisms or the increase in demand in the event of a price reduction.

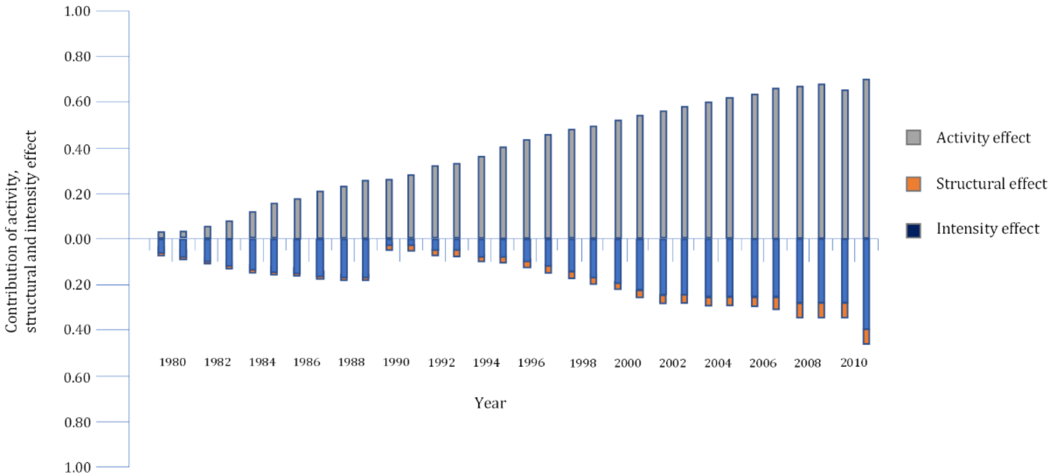
**Table 7: Economic estimates of the direct rebound effect for consumer energy services in the OECD**

| End-use | Range of values in evidence base (%) | Best guess (%) | Number of studies | Degree of confidence |
|---|---|---|---|---|
| Personal automotive transport | 3-87 | 10-30 | 17 | high |
| Space heating | 0.6 – 60 | 10 – 30 | 9 | Medium |
| Space cooling | 1 – 16 | 1 – 26 | 2 | Low |
| Other consumer energy services | 0 – 41 | X < 20 | 3 | Low |

Source: Data derived and modified from (Sorrell & Herring, 2009)

Table 1, based on the book "Energy Efficiency and Sustainable Consumption: The Rebound Effect" (Sorrell & Herring, 2009), shows various gradations of the rebound effect in consumer energy services. It is based on various studies, a range of the rebound effect results, which contributes to a rough estimate or classification of the rebound effect.

Due to its concept, the rebound effect is always closely interwoven with technology and technological developments. As a result, the total energy consumption of the world between 1980 and 2010 is shown in the following diagram. Efficiency gains and technological progress should, in principle, lead to a reduction in relative energy consumption since a larger output should be generated from a constant input.




Source: Figure derived from (Goldthau, 2013)

However, Figure 2 shows that energy consumption is constantly increasing, taking into account various factors such as technological development and behavioural aspects. According to the author Goldthau, activity growth increases energy consumption by 3.5% under exclusion of technology and behaviour. However, technological progress (energy intensity) reduces energy consumption by 2.4% , and structural changes reduce consumption by 0.13% (Goldthau, 2013). From this perspective, which does not initially consider the rebound effect, both technological progress and structural changes in society have a positive impact on energy consumption.

Table 2 shows a composition of estimated rebound effects from several studies collected and analysed by the authors (Sorrell, Gatersleben & Druckman, 2018) for different areas and metrics. The studies use income and price elasticities to estimate how households allocate the cost savings from efficiency gains to different resources, and they use expenditure intensities to estimate the corresponding energy usage and related emissions.

**Table 8: Studies to estimate combined direct and indirect rebound effects for households (income effects only)**

| Author | Region | No. Of expenditure categories | Measure | Area | Rebound measure | Estimated rebound effect (%) |
|---|---|---|---|---|---|---|
| Lenzen & Day | Australia | 150 | Effiency | Food & heating | Energy & GHGs | 45 - 123 |
| Alfred-sson | Sweden | 300 | Suff-iciency | Transport, electricity, heating, food | $CO_2$ | 7 - 300 |

| Author | Region | No. Of expenditure categories | Measure | Area | Rebound measure | Estimated rebound effect (%) |
|---|---|---|---|---|---|---|
| Thomas & Azevedo | US | 428 | Effiency | Transport, electricity, heating | Energy & GHGs | 15 - 27 |
| Murray | Australia | 36 | Effiency & Suff-iciency | Transport & lightning | GHGs | 4 - 24 |
| Chitnis et al | UK | 17 | Effiency | Electricity & heating | GHGs | 5 - 15 |
| Freire-Gonzalez | EU-27 | 163 | Effiency | Transport, electricity, heating | Energy | 30 -300 |
| Bjelle et al. | Norway | 12 | Effiency | Transport, electricity, heating, food, waste, other | GHGs | 40 - 58 |

Source: Own table derived with data from (Sorrell, Gatersleben, & Druckman, 2018)

Similar to Table 2, Table 3 shows a number of studies on the rebound effect. However, unlike Table 2, this table integrates both income and substitution effects of households.

**Table 9: Studies estimating combined direct and indirect rebound effects for households (income and substitution effects)**

| Author | Region | No. of resources categories | Measure | Area | Rebound Metric | Estimated rebound effect (in %) |
|---|---|---|---|---|---|---|
| Brannlund et al | Sweden | 13 | Efficiency | Transport; utilities | $CO_2$ | 120 |
| Mizobuchi | Japan | 13 | Efficiency | Transport; utilities | $CO_2$ | 12 |
| Lin & Liu | China | 10 | Efficiency | Transport; utilities | $CO_2$ | 37 |
| Kratena & Wuger | Austria | 6 | Efficiency | Transport; heating, electricity | Energy | 37 - 86 |
| Chitnis & Sorrell | UK | 12 | Efficiency | Transport; heating, electricity | GHGs | 41 - 78 |

Source: Own table derived with data from (Sorrell, Gatersleben & Druckman, 2018)

The authors of the study Sorell, Gatersleben and Druckman come to the following conclusion when evaluating the available studies in the tables shown:

It is difficult to draw concrete conclusions from the available data, as both the methodological limitations and unknown factors not taken into account may have an influence on the determined rebound effect.

If, however, the evaluation is limited to the available figures, the following summary and evaluation can be made: The Jevons paradox (rebound effects above 100%) is visible and obvious in the available data; furthermore, it is obvious that the indirect rebound effect is inversely proportional to the direct effect. Moreover, the direct and indirect effects appear to be greater for measures affecting road transport than for measures concerning electricity or heating oil. This could possibly be explained by the fact that road transport fuels tend to be taxed more heavily and thus have a greater impact on the range and intensity of the rebound effect. Finally, the rebound effects within a country tend to be greater for low-income groups in that country.

**Result of Research Question II**

The multifaceted research question has determined the search strategy and leads to a separation into a manual and automated search. The manual search is limited to leading journals related to sustainability, while the automated search string is more widespread and is performed by Scopus (Scopus, 2019a). The aim is to identify limitations and gaps in the literature on the rebound effect. In addition, research papers, studies, and researchers dealing with the rebound effect are analysed and evaluated. Building on this, this should be possible to systematically integrate the theory of the rebound effect into current affairs.

Research Question 2: What are the limitations and gaps in current research on the rebound effect?

A selection of the journals chosen for manual research is shown in Table 4.

**Table 10: Reporting overview**

| Author | Title | Citations | Year |
|---|---|---|---|
| Lorna Greening, David L. Greene & Carmen Difiglio (Greening, Greene & Difiglio, 2000) | Energy efficiency and consumption: The rebound effect – A survey | 915 | 2000 |
| Steve Sorrell, John Dimitropoulos & Matt Sommerville (Sorrell, Dimitropoulos & Sommerville, 2009) | Empirical estimates of the direct rebound effect: A review | 421 | 2009 |
| Peter H. G. Berkhout, Jos C. Muskens & Jan W. Velthuijsen (Berkhout, Muskens & Velthuijsen, 2000) | Defining the rebound effect | 390 | 2000 |
| Kenneth Small, Kurt Van Dender (Small & Van Dender, 2007) | Fuel efficiency and motor vehicle travel: The declining rebound effect | 386 | 2007 |
| Steve Sorrell & John Dimitropoulos (Sorrell & Dimitropoulos, 636-649, 2008) | The rebound effect: Microeconomic definitions, limitations and extensions | 367 | 2008 |
| Mathias Binswanger (Binswanger, 2001) | Technological progress and sustainable development: What about the rebound effect? | 354 | 2001 |
| Edgar G. Hertwich (Hertwich, 2005) | Consumption and the rebound effect: An industrial ecology perspective | 308 | 2005 |

Source: Own table

The selected keywords for the automated Scopus search are listed in Table 5.

**Table 11: Reporting overview for selected keywords**

| | |
|---|---|
| Rebound effect | Energy efficiency |
| Sustainability | Energy |
| Economy-wide rebound effect | Efficiency side effects |
| Energy paradox | Energy consumption |

Source: Own table

The identified studies must then be combined and form the basis for more detailed analyses. By matching inclusion and exclusion factors with the combined studies, the relevant unity for the following quality assessment is defined.

Therefore, the factors defined in this study are listed in Table 6.

**Table 12: Inclusion and exclusion criteria for defining relative unity**

| Inclusion criteria | Exclusion criteria |
|---|---|
| Publication date between 2000 and 2019 | Publication earlier than 2000 |
| Link to the research question | Irrelevant for the research question |
| Written in English | Written in a language other than English |
| Full text | Not peer-reviewed |
| Published in the selected database | Articles outside inclusion criteria |

Source: Own table

In addition to the general inclusion/exclusion criteria, a quality assessment is carried out:

- To have a secondary quality level according to inclusion/exclusion criteria,
- To reveal whether differences in quality lead to differences in study results,
- To weigh up the significance of individual studies in the synthesis of results,
- To guide recommendations for further research.

Once an article has passed the listed criteria and been identified as acceptable, it is included in the systematic review.

**Data extraction and synthesis**

Based on Scopus (Scopus, 2019a), 686 papers are identified in the period from 1957 to 2019 that deal with the rebound effect. (Figure 3)

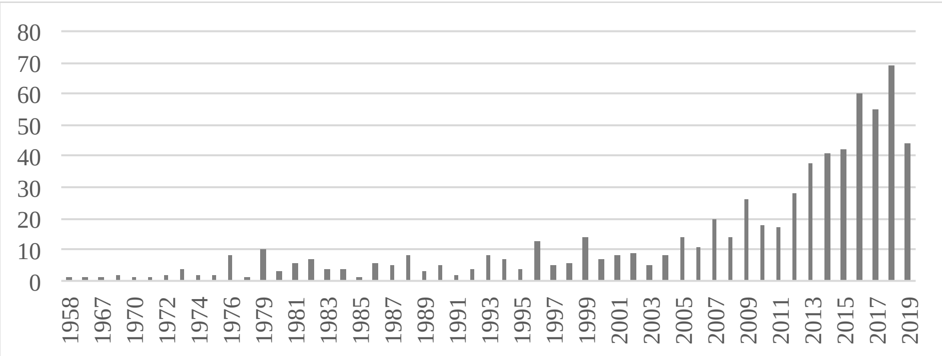



**Figure 6: Total number of rebound effect papers from 1957 to 2019**

Source: Own illustration

**Overview of publication sources**

A total of 387 journals and 5 conference papers are selected for analysis. This literature review focuses on the database Scopus (Scopus, 2019a) and excludes a small number of publications before 2000 on the rebound effect. Using the Scopus database and omitting these papers does not mean that there is no multidisciplinary view of the rebound effect. The scientific work is given by a large number of papers to minimize distortion. The inclusion of a small number of related papers published before 2000 would not have changed the overview of the literature on the rebound effect. (Table 7)

**Table 13: Dissemination of the rebound effect**

| Year | Number of Journal papers | Number of conference papers | Total |
|---|---|---|---|
| 2000 | 6 | - | 6 |
| 2001 | 3 | - | 3 |
| 2002 | 2 | - | 2 |
| 2003 | 2 | - | 2 |
| 2004 | 5 | - | 5 |
| 2005 | 6 | - | 6 |
| 2006 | 7 | - | 7 |
| 2007 | 14 | - | 14 |
| 2008 | 10 | - | 10 |
| 2009 | 13 | - | 14 |
| 2010 | 11 | 1 | 12 |
| 2011 | 14 | - | 14 |
| 2012 | 24 | - | 24 |
| 2013 | 26 | 1 | 27 |
| 2014 | 31 | - | 31 |
| 2015 | 29 | - | 29 |
| 2016 | 48 | 1 | 49 |
| 2017 | 42 | 1 | 43 |
| 2018 | 57 | 1 | 58 |
| 2019 | 37 | - | 37 |
| Total | 387 | 5 | 392 |

Source: Own table; Scopus 2019a

**Temporal view of the publications**

Table 7 shows that a total of 392 journal and conference papers were published in the last 19 years. In the years 2013 to 2018, the publication figures were highest. However, as only half of 2019 has passed, further publications may follow. It is therefore not entirely clear whether there will be a positive or negative trend in publication figures on the subject of the 'rebound effect' in the following years. However, it is clear that almost exclusively journal papers and hardly any conference papers were published. This has also been observed in many other areas in recent years. The reasons for this would have to be examined separately.

The first objective was to develop a system for accurate data processing. Second, a total of 392 publications were reviewed, and data were extracted using Microsoft Excel. The following lines have therefore been selected: Authors, Title, Year, Cited by, Source title, DOI and Link (Table 8).

**Table 14: Dissemination of the rebound effect**

| Extracted Data | Description |
|---|---|
| Authors | Names of all the authors |

| Extracted Data | Description |
|---|---|
| Title | The name of the paper which appeared in the searching stage |
| Year | Year of publishing the paper (2000–2019) |
| Cited by | The number of citations for that study obtained from Scopus |
| Source title | For instance: journal, conference proceedings |
| DOI | Digital object identifier |
| Link | The link to Scopus platform |

Source: Own table

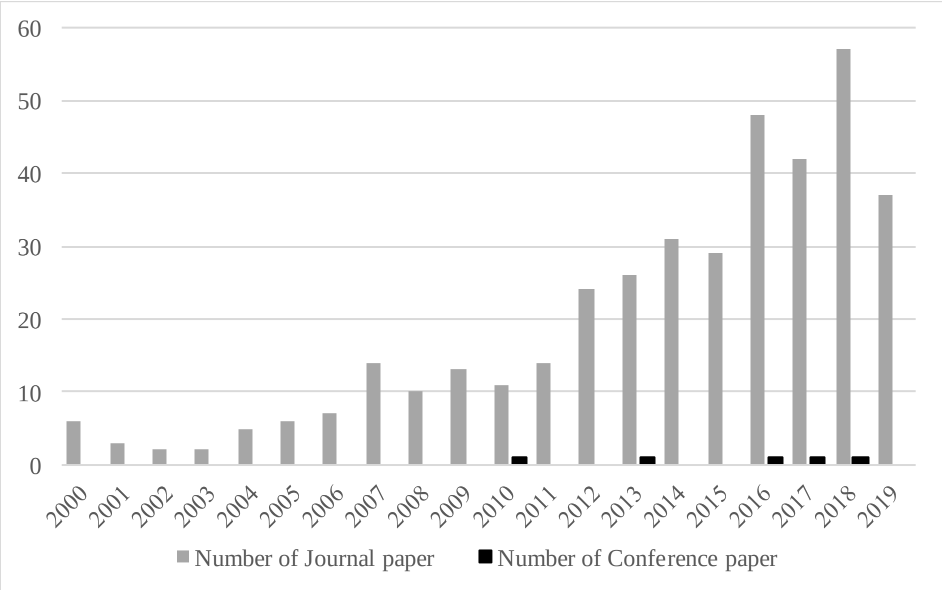



**Figure 7: Number of conference and journal papers of the Rebound Effect**

Source: Own illustration, data derived from (Scopus, 2019a)

**Citation status**

To assess quality and impact, a citation-statistical review was carried out, which was visualized in Figure 5. The corresponding statistics were compiled by Scopus and are intended to identify publications with high impact and reach.

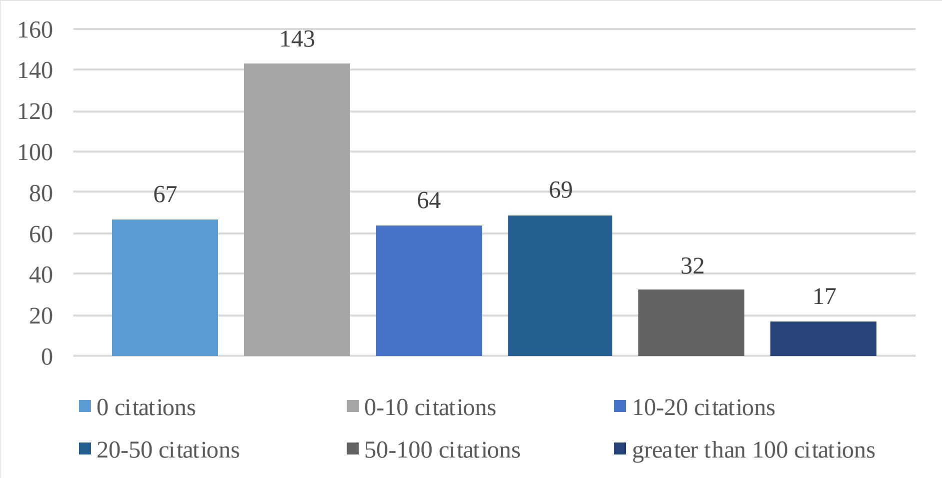



**Figure 8**: **Number of citations from 2000 to 2019**

Source: Scopus, 2019a

About 49 selected publications have more than 50 citations. 69 of the publications were cited between 20 and 50 times, while 64 were cited between 10 and 20 times. In addition, 210 publications were cited less than 10 times. However, as some publication have only recently been published, the citation rate cannot be used exclusively for quality assessments.

A central theme to be investigated in research papers is a research topic (Liang &Turban, 2011). In the following, the literature reviews are divided into three research topics: Definitions & benefits, Adoption, and Approaches & strategies for the rebound effect. Table 7 illustrates the research topics and the description of the papers on the rebound effect.

**Table 15: Rebound effect research topics and descriptions.**

| Research Themes | Description |
|---|---|
| Definitions & benefits | Papers focusing on the definition and benefits of applying the rebound effect, e.g. energy efficiency or cost savings |
| Adoption | Papers focusing on the processes for avoiding the rebound effect and on factors that motivate and influence individuals to avoid rebound effects, such as policies and taxes |
| Approaches & strategies | Papers that offer different approaches to avoid and manage rebound effects without government regulations |

The following selection focuses on the second research question and examines the literature on possible research gaps. In a secondary systematic, abstract overview, the basis of 392 publications was analysed with regard to content aspects to avoid the rebound effect.

1. Definitions & benefits

The majority of the 275 (70% ) publications in this paper focused on the definition and the potential benefits of the rebound effect. Nevertheless, the choice of definitions varies from author to author. Greening et al. provide “definitions and […] sources including direct, secondary, and economy-wide sources” (Greening, Greene, & Difiglio, 2000). Sorrell et al. focus on the “overview of the theoretical and methodological issues relevant to estimating the direct rebound effect” (Sorrell, Dimitropoulos, & Sommerville, 2009), while Berkhout et al. describe “the state of the art of empirical estimation of the rebound effect” (Berkhout, Muskens, & Velthuijsen, 2000). The paper by Small & Van Dender develops a “model [that] accounts for endogenous changes in fuel efficiency" (Small & Van Dender, 2007). Sorrell analyses the "theoretical work to provide a rigorous definition of the rebound effect" (Sorrell & Dimitropoulos, 2008). Binswanger shows "the potential relevance of the rebound effect to ecological economics" (Binswanger, 2001). The paper by Hertwich points out "[…] that the current focus on the rebound effect is too narrow and needs to be extended to cover co-benefits, negative side effects, and spillover effects" (Hertwich, 2005).

2. Adoption

The second category constitutes of 115 (29%) publications, focusing on the avoidance of the rebound effect through the implementation of restrictions and individual boundaries, consolidated as policies and taxes as a subsequent strategy to avoid the rebound effect. This approach is widespread among many authors and is based on the theory that individual or collective savings generated by technological progress are reinvested in increased usage (Birol & Keppler, 2000). Accordingly, some earlier savings are eaten up, and a rebound effect is created. Some authors such as Herring and Roy go even further by stating that energy reduction at the microeconomic level will ultimately lead to increased energy consumption at the macroeconomic level (Roy & Hering, 2006). Therefore, according to Santarius, a distinction must be made in policy-making between individual consumers, commercial consumers, and governmental agencies in order to reduce the rebound effect (Santarius, 2015). Another area of research identified is the impact of policies on actual energy consumption and the rebound effect. Leading authors include Gillingham, Rapson, and Wagner, who have critically examined the effects on overall energy consumption (Gillingham, Rapson, & Wagner, 2015). While different policy approaches are discussed by various authors, the main idea is to invent or extend a tax related to energy consumption (Roy & Hering, 2006).

3. Approaches and strategies

Only two studies (1%) provided a solution on how to avoid the rebound effect without governmental regulations. For example, Johannes Buhl speaks of shortening working hours in order to reduce the rebound effect. "The results show that time savings due to a reduction in working time trigger relevant rebound effects in terms of resource use" (Buhl, 2015), while Jørgen S. Nørgård pointed out that the problem with the rebound effect is not the increase in energy efficiency that results from the reduced consumption of resources, but the economy that recoups the savings by consuming the saved resources. His proposal to avoid the consumption of resources savings is a steady-state economy (Nørgård, 2009), which means 3.5% annual GDP growth and requires an improvement eco-efficiency by a factor of 80 in 2060 compared to 2000. At an annual GDP growth rate of 2%, the factor would be 35. In a steady-state economy, GDP is a constant 1%, and the factor is 10 (Schmidt-Bleek, 2000).

On the basis of the systematic literature research, the authors have concluded that the rebound effect and its impact on versatility have been clarified. Nevertheless, a significant gap was identified in terms of avoiding the rebound effect. The main research approach concentrates on the course and effects of the rebound effect, while avoidance is rarely targeted. It was found that only two studies (1%) had a relationship to avoidance. In-depth research has shown that the majority of authors have geared their avoidance theory towards the implementation of higher taxes and stricter policies. Although the fiscal and policy approach will avoid the repercussions of the rebound effect, it is not directly related to the elevated course indicated in RQ1. Therefore, further research has been conducted, focusing on the identification of alternative approaches to avoid rebound effects.

A limitation of these SLRs is that probably not all relevant assessments of the rebound effect that exist in literature are identified or have been biased by personal background and opinions when studies are manually included or excluded. These are limitations to which SLRs are generally subject. The risk of biased results was minimized by deriving only robust results. Like Mallet et al. defined, SLRs should be seen as "helping to get a robust and sensible answer to a focused research question". (Mallett, Hagen-Zanker, Slater, & Devendack, 2012)

## Conclusion

In summary, a hybrid system of literature analysis and general description and derivation of the rebound effect was applied. This has the advantage that the procedures, methods, and findings elaborated in the reviewed literature can be placed directly in a scientific context and evaluated within the set limits and conditions.

In mathematical terms, the rebound effect can be simply understood as a gap between possible energy savings through increased energy efficiency through technological progress and the actual energy savings influenced by consumer behaviour. In the general analysis of the rebound effect, it was found that various gradations, derivations, and applications of the rebound effect have been used and developed in the literature. In addition to the mathematical subdivision, the comprehensibility of the rebound effect was clarified on the basis of the gradations made by Saunders and Sorell. Starting with a negative rebound effect ($X < 0$), the maximum expansion level culminates in the Jevons Paradox ($X > 1$). Due to its conception and the close interdependence with technology and technological developments, the rebound effect is also dynamic in its field of application and effect. From the diagrams and values shown, in particular from the Goldthau breakdown, it is clear that consumer behaviour leads to increased consumption as opposed to technological resource savings. Therefore, in the current economic system, a reduction in resource consumption is not reconcilable with economic growth.

Finally, RQ2 provided an overview of recent research on the rebound effect within the previously developed and defined scientific framework. A systematic review approach was chosen to answer RQ2 in order to investigate rebound effects. The research questions place scientific papers published between 2000 and 2019 on the rebound effect in the context of a holistic view of the state of research. After carrying out various systematic processes, 392 papers were selected with a focus on the rebound effect. The remaining studies were not included in this review because they could not meet the eligibility criteria and were therefore considered irrelevant or scientifically value-bearing. After data analysis, the selected studies were clustered into three research topics: Definitions & benefits, Adoption, and Approaches & strategies. The results of this review showed that the 'Definitions & benefits' cluster was the most pronounced (70% ), followed by 'Adoption' (29% ).

Finally, for the paper as a whole, it should be noted that research on the rebound effect is not yet comprehensive enough and focuses mainly on the effect itself rather than on solutions to avoid it. The main deviation, and thus the limitations, is that not much research has been published on the actual avoidance of the rebound effect. This is a significant limitation for practical application by decision-makers and policymakers.

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