INTERACTION BETWEEN ORGANIZATIONAL CULTURE AND WORK ENGAGEMENT IN THE INFORMATION AND COMMUNICATION TECHNOLOGY SECTOR IN LATVIA

Arturs Barbars
BA School of Business and Finance, K. Valdemara Str. 161, Riga, Latvia
e-mail: arturs.barbars@gmail.com

Abstract

Purpose. The purpose of the study is to investigate the interaction between dimensions of organizational culture and work engagement within organizations operating in the ICT sector in Latvia.

Design/methodology/approach. The research methodology includes the monographic method and the quantitative method (survey questionnaire) as well as correlation and multiple regression analysis. The sample in the study comprises 393 employees of organizations operating in the ICT sector in Latvia.

Findings. The research results show that the organizational culture dimensions that have the most significant impact on level of work engagement among employees of organizations operating in the ICT sector in Latvia are *innovation*, *performance orientation*, and *social responsibility*.

Research limitations. Multiple research limitations are applicable to the study. The study covers organizations operating in the ICT sector in Latvia. The study only covers a part of the internal environment of the organization – organizational culture and work engagement. The research period is November to December of 2015.

Practical implications. The research results provide managers with information about how different organizational culture values are related to the level of work engagement. Based on the research results, managers will be able to make more informed decisions with regard to which cultural values need to be encouraged and which need to be reduced in order to improve work engagement within their organizations.

Originality/value. Even though organizational culture is widely studied in management science, and work engagement has also become a prevalent topic among management researchers in recent years, currently there are very few studies on the interaction between organizational culture and work engagement. There is a lack of knowledge regarding what impact different organizational culture values have on work engagement. This study, therefore, provides an insight into interaction between specific dimensions of organizational culture and dimensions of work engagement.

Research paper

Keywords: organizational culture, work engagement, leadership.

INTRODUCTION

Traditional sources of competitive advantage, such as product and process technology, access to regulated markets, economies of scale, etc., matter less today than in the past, leaving capabilities derived from how people are managed as relatively more vital (Pfeffer, 1994). Technology has become more available nowadays and is thereby decreasing as a source of competitive advantage. In comparison, human capital is much more difficult to imitate for competitors (Macey, et al., 2009). Due to an increasingly high deficit of human resources, management of human capital plays a very important role in the information and communication technology (ICT) sector in Latvia. According to the Ministry of Finance of the Republic of Latvia (2015), development of the ICT sector is an important matter in Latvia. The ability to create and export innovation is a prerequisite for economic growth.

Organizational culture is generally defined as a set of values and beliefs shared among members of an organization which has a major impact on their decisions and behaviour – the way in which things are done within the organization. Organizational culture is no longer a particularly new construct in management science. Nevertheless, during the past decade interest in organizational culture from practitioners in particular has been relatively high. The level of interest from the practitioner side differs to some extent between industries. In newer, more innovative and knowledge-intensive businesses there

Received: 15rd April 2017 Revised: 10th May 2017 Accepted: 17th January 2018

seems to be a stronger interest than in more mature and rationalization-oriented ones. Many information technology (IT) companies, for example, are credited with developing and sustaining distinct organizational cultures (Alvesson, 2012).

Work engagement is a relatively new construct in management science. Engagement is generally defined as a goal-oriented psychological state in which a person is fully focused on the task at hand. Work engagement is often mentioned among sources of increased employee commitment and performance as well as customer satisfaction (Albrecht, 2010). Engagement represents some kind of transformation, production of energy, and synergistic force that creates motion in a particular direction that is aligned with the organization's goals and this is different from other constructs studied in organizational sciences earlier (Byrne, 2015).

Like many other concepts related to the management of human capital, work engagement is a multidisciplinary one. Generally, engagement as such is very much related to psychology. At the same time, pre-requisites for employees to be engaged are largely dependent on how they are led and how the organizations they are working for are managed. On the other side of the equation, work engagement has a major impact on the performance of employees and consequently the organizations they work for. Therefore, work engagement is an important concept in management science.

Work engagement can only be created and sustained when it is supported by the culture of the organization (Macey, et al., 2009). Most organizations can create bursts of energy and contribution among their employees in the short term using approaches other than work engagement. On the other hand, building a culture of engagement takes effort. However, once established it will sustain high performance in the organization over time (Rice, et al., 2012). Yet organizations and leaders need to know which organizational culture values foster or limit work engagement in order to encourage the right values that lead to organizational goals. The purpose of this study, therefore, is to find the relationship between specific organizational culture values and dimensions of work engagement.

THEORETICAL FRAMEWORK OF THE RESEARCH

Organizational culture

Alvesson (2012) argues that organizational culture is one of the main subjects in the academic research of organizational theory as well as in management practice. Even in organizations where cultural issues receive little explicit attention, ways in which people think, feel, value and act are guided by ideas, meanings and beliefs of the socially shared culture. Even though there is no agreement on a single definition, one of the most commonly used definitions of organizational culture has been formulated by Edgar Schein. Schein (2010, 18) defines organizational culture as "a pattern of shared basic assumptions learned by a group as it solved its problems of external adaptation and internal integration, which has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems". This definition is based on analysis of several other definitions, and is also used as the working definition in this study.

Many authors view *values* as the deepest level of culture. According to Parsons (1951), cultural tradition emerges around values, which are defined as elements of a shared symbolic system that serves as a criterion or standard for selection among the alternatives of orientation, which are intrinsically open in a situation. Values are also defined as ideas and objects with a special meaning on the individual as well as organizational level (Dubkevics, 2009). Most researchers agree that there are no good or bad values or cultures per se. A set of values is good – effective – if it reinforces the mission, purposes and strategies of the organization. To be effective, the culture must be appropriate to the needs of the business, company and employees (Wallach, 1983., Heskett, 2012). Culture can facilitate or limit strategies and how they are implemented. Effective cultures result from the following: a clear mission, shared assumptions, the *right* values and beliefs, the *right* behaviours, rites and rituals, a good fit with the organization's competitive strategy and how it is executed (Heskett, 2012). To be successful, an organization must ensure that it shapes its culture according to its business, mission, and strategy (Sanchez, 2006).

Work engagement

Engagement is mainly expressed in such employee behaviours as effort at work. It is described as the ability to bring all of who we are into our roles (Smith and Berg, 1987). Engaged employees stay focused on their tasks and work hard to accomplish their work-related goals (Kahn, 1992). They strive

to move their work forward and put energy into it (Schaufeli and Bakker, 2004). When employees are engaged, they fully inhabit their job roles, instead of just working. They are very present in doing their work (Kahn, 1992). According to Macey and his colleagues, engaged employees behave in more persistent ways, respond proactively to emerging threats and challenges, expand their roles at work, and adapt more readily to change (Macey, et al., 2009). As a result, work engagement is one of the key predictors of an organization's performance, financial and otherwise (Heskett, 2012). Individual employee behaviours determine an organization's collective success over time. Performance is the sum of what every employee does every day across the organization.

There are two definitions of work engagement that are quoted in research literature most often. One of them belongs to Schaufeli and his colleagues, who define work engagement as "a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption" (Schaufeli, et al., 2002, 74). The three dimensions of work engagement mentioned in this definition are described as follows:

1) Vigour – high level of energy and mental resilience while working, the willingness to invest one's effort in the work;

2) Dedication – being strongly involved in one's work, experiencing a sense of significance, enthusiasm, inspiration, pride and challenge;

3) Absorption – being fully focused and happily engrossed in one's work, whereby time passes quickly and one has difficulties with detaching oneself from the work (Schaufeli, et al., 2006).

The other popular definition belongs to Kahn (1990, 694), who is largely credited with introducing the concept of personal engagement at work, and defines work engagement as "the harnessing of organization members' selves to their work roles; in engagement, people employ and express themselves physically, cognitively, and emotionally during role performances." The dimensions of work engagement according to this definition are described as follows:

1) Physical engagement is related to the physical energy exerted by the employees to accomplish their work-related tasks;

2) Cognitive engagement concerns employees' beliefs about the organization, its leaders and working conditions;

3) Emotional engagement is related to how the employees feel about the organization, its leaders and working conditions – whether their attitude toward these factors is positive or negative (Kular, et al., 2008).

These two definitions of work engagement are used as working definitions in the study conducted as a part of this research. Despite slightly different perspectives, there are core commonalities between these two conceptualizations of work engagement, as both of them share similar physical-energetic (vigour), emotional (dedication), and cognitive (absorption) components (Schaufeli, 2014).

RESEARCH METHODOLOGY

Population size in the scope of this study is equal to the number of people working in the ICT sector in Latvia, which, according to the latest available information, was 26558 in 2014 (Central Statistical Bureau). For sample size calculation purposes in the scope of this study, the level of confidence was chosen at 95%, while the confidence interval is 5%. Calculations resulted in the minimum necessary sample size of 379. In total 426 survey questionnaires filled out by employees of organizations operating in the ICT sector in Latvia were collected. The sector includes organizations working with ICT manufacturing, ICT wholesale, and different ICT services, such as software distribution, telecommunications, computer programming and consulting, data maintenance, computer and telecommunications equipment repair, etc. After data cleaning, 393 questionnaire answers were accepted as valid. The survey questionnaire consisted of four parts:

1) Demographic and organizational tenure-related questions;

2) Revised version of the Organizational Culture Profile (OCPR) by Sarros, et al. (2005), where respondents are introduced to 28 organizational culture values that may describe an organizational culture. The respondents are asked to evaluate how much each of the values describes their organization, by choosing a number from 1 (not at all) to 5 (very much) on a 5-point Likert scale. The 28 values are divided into 7 groups – 4 values per group. The groups are: competitiveness, social responsibility, supportiveness, innovation, emphasis on rewards, performance orientation, and stability;

3) The Job Engagement Scale (JES) by Rich, et al. (2010). In the scope of the JES respondents are asked to evaluate the degree to which they agree with each of the 18 statements about their own engagement at work on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Example items include "I devote a lot of energy to my job" for physical engagement, "I feel positive about my job" for emotional engagement, and "At work, I devote a lot of attention to my job" for the cognitive dimension of work engagement;

4) The Utrecht Work Engagement Scale (UWES) by Schaufeli, et al. (2002), which is a self-assessment questionnaire where respondents are asked to assess the frequency with which they experience each of the characteristics of work engagement described in 17 items of the questionnaire on a 7-point Likert scale from 0 (never) to 6 (always / every day). Of the 17 items, 6 are related to vigour, 5 to dedication, and 6 to absorption dimensions of work engagement. Example items include "At my work, I feel bursting with energy" for vigour, "I find the work that I do full of meaning and purpose" for dedication, and "Time flies when I'm working" for absorption.

Two measures for assessing employee engagement used in this study are chosen because they represent two different dominant theories of work engagement in the field. Drake (2012) argues that despite the fact that these two instruments are based on different theories, there is a relation between the three dimensions of work engagement measured by JES and the dimensions measured by UWES. The concepts of physical, emotional, and cognitive engagement, assessed by the JES instrument, are in close parallel to the constructs of behaviour, affect and cognition respectively. Similarly, the concept of vigour, measured by UWES and defined as "having high levels of energy and mental resilience and willingness to invest oneself in one's work" (Schaufeli, et al., 2002, 74) is very similar to behaviour. Dedication, defined as "psychological identification with one's work" (Schaufeli, et al., 2002, 74), is similar to the concept of psychological affect. In addition, the authors of UWES used the concept of cognition in their definition of work engagement by defining engagement as a "…persistent, pervasive affective-cognitive state" (Schaufeli, et al., 2002, 74). Therefore, it can be argued that dimensions of work engagement measured by JES and UWES instruments are linked to the components of work engagement as shown in Table 1. Drake (2012) concludes that the conceptualizations of work engagement behind the two instruments are very similar, yet still distinct.

Table 1

Link between components of work engagement and dimensions of JES and UWES instruments

Component of work engagement	Dimension of JES	Dimension of UWES
Behaviour	Physical engagement	Vigour
Affect	Emotional engagement	Dedication
Cognition	Cognitive engagement	Absorption

Source: Based on Drake (2012)

Three main statistical analyses were conducted to determine the dominant organizational culture values, the level of work engagement, and the interaction between dimensions of organizational culture and dimensions of work engagement in the ICT sector in Latvia.

First, the mean score (the average of a set of observations) was used to determine the dominant organizational culture values according to the OCPR instrument as well as the level of work engagement in its different dimensions according to the JES and UWES instruments in the scope of this study. The mean score is the most commonly used measure of a central tendency (Aczel and Sounderpandian, 2008). Another alternative considered for the main measure to determine the scores of organizational culture and work engagement dimensions was the median. The mean was chosen over the median based on the results of distribution analysis, which showed that research data does not perfectly coincide with normal distribution. Distribution of data is left skewed as the skewness is negative for all seven dimensions of organizational culture measured by the OCPR instrument as well as all dimensions of work engagement measured by the JES and UWES instruments. Skewness of data distribution by all three instruments can be considered moderate, as the numbers are between -0.5 and -1 (Bulmer, 1979).

Secondly, Spearman's rank correlation was calculated between the scores for dimensions of OCPR and dimensions of JES as well as between dimensions of the OCPR instruments and dimensions of the UWES instruments in order to identify the relationship between organizational culture values and levels

of different aspects of work engagement.

Finally, multiple linear regression analysis with the forward method of variable selection was performed in order to determine dimensions of organizational culture according to the OCPR instrument that have the most significant impact on dimensions of work engagement according to the JES and UWES instruments. The forward method of variable selection starts with no variables in the equation. Variables are added to the model one by one, based on the criterion for entry (maximum level of significance). Selection of the independent variables starts with a variable that has the largest correlation with the dependent variable. If the variable meets the criterion of entry ($p \leq 0{,}05$), regression analysis is performed with only this variable in the first step. In the following steps, variables with the next strongest correlations are examined based on the significance criterion of entry and added to the regression model if they meet the criterion. The procedure continues until there are no remaining independent variables that have a significant effect ($p \leq 0{,}05$) on the dependent variable, or all variables are included in the model.

ANALYSIS OF THE RESEARCH RESULTS

Organizational culture

Even though organizational culture and its dominant values are qualitative attributes of an organization, they are often measured as quantitative variables. In the case of OCPR, items related to each of the 7 dimensions of organizational culture are evaluated on a scale of 1 to 5, depending on how much they describe the organization represented by the respondents. The mean score of each dimension measured by the OCPR instrument according to the employees of organizations operating in the ICT sector in Latvia is shown in Figure 1.

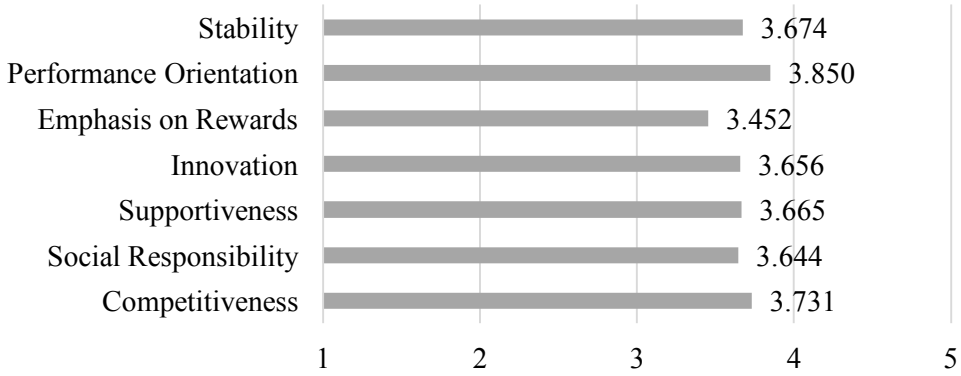

Figure 1. Organizational culture profile – score by dimensions of OCPR

The organizational culture profile in the ICT sector in Latvia can be characterized as balanced, since all seven dimensions of the culture are rated rather similarly by respondents. All seven dimensions of organizational culture have received average scores – between 3.45 and 3.85 of 5. Almost all dimensions are rated higher that 3.6, except for *emphasis on rewards*, which is rated at 3.45 out of 5. An average score of 3.2 was used to distinguish between positive and negative perceptions of the organizational culture dimensions by respondents, where scores above 3.2 indicate a positive perception and scores below 3.2 indicate a negative perception of the specific dimension. Such a cut-off point for differentiation between positive and negative perceptions is suggested by the Human Sciences Research Council (Odendaal and Roodt, 1998). Based on this differentiation it can be concluded that all dimensions of organizational culture in the ICT sector in Latvia measured by the OCPR instrument are perceived positively by respondents. The dimension evaluated the highest is *performance orientation*, which is rated at 3.85.

Cronbach's α by organizational culture dimensions is shown in Table 2.

Table 2

Cronbach's α by OCPR dimensions

Dimension	Cronbach's α
Competitiveness	0,707
Social responsibility	0,756
Supportiveness	0,779
Innovation	0,787
Emphasis on rewards	0,838
Performance orientation	0,816
Stability	0,754

Cronbach's α for all seven dimensions of organizational culture measured by the OCPR instrument range from 0,71 to 0,84 and are higher than 0,7, which means that the internal consistency is acceptable. For two of the dimensions – *emphasis on* rewards, and *performance orientation* – the coefficient is higher than 0,8, in which case the internal consistency is interpreted as good.

Work engagement

The mean scores of each of the dimensions of work engagement measured by the JES instrument are shown in Figure 2.

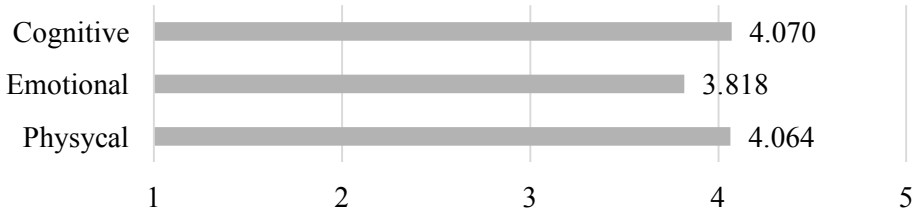

Figure 2. Work engagement – score by dimensions of JES

Internal consistency of work engagement measured by the JES instrument was determined by calculating the Cronbach's α coefficient. Work engagement is a multidimensional construct, and the JES instrument measures three dimensions of work engagement – physical engagement, emotional engagement, and cognitive engagement. Therefore, the α coefficient was calculated for each of the dimensions separately (Table 3).

Table 3

Cronbach's α by JES dimensions

Dimension	Cronbach's α
Physical	0,876
Emotional	0,914
Cognitive	0,906

Analysis of Cronbach's α coefficient shows that the internal consistency for the *physical* dimension of work engagement is good, while for the other two dimensions – *emotional engagement* and *cognitive engagement* – the internal consistency is excellent (higher than 0,9).

The mean score is used to determine the level of work engagement in each dimension in the scope of this study. The overall level of work engagement in the ICT sector in Latvia measured by the JES instrument can be regarded as average. Two of the dimensions – *cognitive engagement* and *physical engagement* – are evaluated slightly higher than 4 points out of 5, while the *emotional* dimension of work engagement has scored 3.8 out of 5.

The mean scores of each of the dimensions measured by the UWES instrument are given in Figure 3.

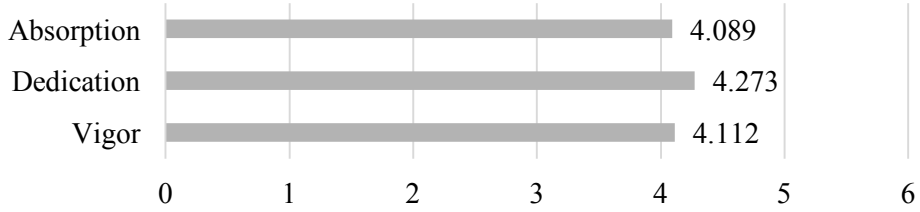

Figure 3. Work engagement – score by dimensions of UWES

Internal consistency of work engagement measured by the UWES instrument was measured by calculating the Cronbach's α coefficient. As work engagement is a multidimensional construct, and the UWES instrument measures three dimensions of work engagement, the α coefficient was calculated for each of the dimensions separately (Table 4).

Table 4

Cronbach's α by UWES dimensions

Dimension	Cronbach's α
Vigour	0,875
Dedication	0,897
Absorption	0,86

Analysis of Cronbach's α coefficient shows that the internal consistency for the work engagement dimensions *vigour*, *dedication*, and *absorption* is good.

The mean score of each dimension is used to determine the level of work engagement. The overall level of work engagement in the ICT sector in Latvia measured by the UWES instrument can be regarded as average. One of the dimensions – *dedication* – is rated slightly higher than the other two dimensions – 4.3 out of 6 instead of 4.1.

Interaction between organizational culture and work engagement

In the scope of correlation analysis between organizational culture and work engagement, Spearman's rank correlation coefficient was calculated between the dimensions of OCPR and the dimensions of JES. The correlation coefficients are displayed in Table 5.

Table 5

Spearman's rank correlation between OCPR dimensions and JES dimensions

$p < 0,01$		JES dimensions		
		Physical	Emotional	Cognitive
OCPR	Competitiveness	0,42	0,49	0,41
	Social Responsibility	0,42	0,56	0,41
	Supportiveness	0,36	0,50	0,33
	Innovation	0,46	0,53	0,42
	Emphasis on Rewards	0,26	0,48	0,28
	Performance Orientation	0,41	0,52	0,41
	Stability	0,31	0,49	0,32

The correlation between the dimensions of organizational culture and dimensions of work engagement measured by the JES is positive and statistically significant ($p < 0,01$). The strength of the correlation between different organizational culture dimensions and the *physical* and *cognitive* dimensions of work engagement is weak to moderate ($r = 0,28$ to $0,46$, $p < 0,01$). The only dimension that has a moderate correlation ($r = 0,4$ to $0,59$, $p < 0,01$) with all seven dimensions of organizational culture is *emotional* engagement. The correlation coefficient for the *emotional* dimension of work engagement ranges from $r = 0,48$, $p < 0,01$ with *emphasis on rewards* to $r = 0,56$, $p < 0,01$ with *social responsibility*. The organizational culture dimensions that have the strongest correlation with all three dimensions of work engagement measured by the JES instrument within organizations operating in the ICT sector in Latvia are *social responsibility* ($r = 0,41$ to $0,56$, $p < 0,01$), *innovation* ($r = 0,42$ to $0,53$, $p < 0,01$), and *performance orientation* ($r = 0,41$ to $0,52$, $p < 0,01$).

Multiple linear regression analysis with the forward method of variable selection was performed in order to determine the organizational culture dimensions that have the most significant impact on dimensions of work engagement. The two variables that are selected to be a part of the regression model based on their significance ($p \leq 0,05$), where the dependent variable is the *physical* dimension of work engagement measured by the JES instrument and the independent variables are organizational culture dimensions of the OCPR, are the organizational culture dimensions *innovation* and *competitiveness*.

Table 6 shows the regression model summary for the dependent variable *physical* dimension of work engagement.

Table 6

Regression model summary (dependent variable: physical)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,447[a]	,200	,198	,60196
2	,459[b]	,211	,207	,59878

a. Predictors: (Constant), Innovation

b. Predictors: (Constant), Innovation, Competitiveness

Based on the regression model summary it can be concluded that 19.8% (adjusted $R^2 = 0,198$) of the dependent variable – the *physical* dimension of work engagement – is determined by the organizational culture dimension – *innovation*. When the second predictor – *competitiveness* – is included in the model in addition to *innovation*, it accounts for an additional 0.9% (0,207 – 0,198 = 0,09) of variability. Such a model determines 20.7% of the *physical* dimension of work engagement. The proportion of variation in the dependent variable (*physical* engagement) explained by the independent variables (dimensions of organizational culture) is determined by the adjusted R square instead of R square, due to the model consisting of multiple independent variables.

The coefficients of the regression model for *physical* engagement are presented in Table 7 below.

Table 7

Regression coefficients (dependent variable: physical)

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,682	,143		18,769	,000
	Innovation	,378	,038	,447	9,893	,000
2	(Constant)	2,510	,161		15,587	,000
	Innovation	,288	,055	,341	5,244	,000
	Competitiveness	,134	,059	,148	2,274	,024

According to the coefficient analysis, the regression model suggests that an increase of 1 unit of the organizational culture value *innovation* would lead to an increase of 0,288 ($p < 0,01$) units of physical engagement, and an increase of 1 unit of the organizational culture value *competitiveness* would lead to an increase of 0,134 ($p < 0,05$) units of physical engagement, if all other independent variables remain constant. This leads to the following regression equation:

$$\mu \textit{ (Physical engagement)} = 2,51 + 0,288 \times \textit{Innovation} + 0,134 \times \textit{Competitiveness}$$

The three variables that are selected to be a part of the regression model based on their significance ($p \leq 0,05$), where the dependent variable is the *emotional* dimension of work engagement measured by the JES instrument and the independent variables are the organizational culture dimensions of the OCPR, are the organizational culture dimensions *social responsibility*, *innovation* and *stability*.

Table 8 shows the regression model summary for the dependent variable *emotional* dimension of work engagement.

Table 8

Regression model summary (dependent variable: emotional)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,540[a]	,292	,290	,67281
2	,572[b]	,327	,324	,65673
3	,587[c]	,344	,339	,64924

a. Predictors: (Constant), Social responsibility
b. Predictors: (Constant), Social responsibility, Innovation
c. Predictors: (Constant), Social responsibility, Innovation, Stability

Based on the regression model it can be concluded that 29% of the dependent variable *emotional* dimension of work engagement is determined by the organizational culture dimension *social responsibility*. When the second predictor – *innovation* – is added to equation, it accounts for an additional 3.4% (0,324 – 0,29 = 0,034) of variability. Finally, inclusion of *stability* adds an additional 1.5% (0,339 – 0,324 = 0,015) of variability. Such a model predicts 33.9% of emotional engagement. The proportion of variation in the dependent variable (*emotional* engagement) explained by the independent variables (dimensions of organizational culture) is determined by the adjusted R square instead of R square because the model consists of multiple independent variables.

Coefficients of the regression model for *emotional* engagement are presented in Table 9 below.

Table 9

Regression coefficients (dependent variable: emotional)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,778	,164		10,831	,000
	Social responsibility	,560	,044	,540	12,700	,000
2	(Constant)	1,534	,169		9,072	,000
	Social responsibility	,346	,064	,334	5,420	,000
	Innovation	,279	,062	,279	4,515	,000
3	(Constant)	1,356	,176		7,682	,000
	Social responsibility	,230	,073	,222	3,150	,002
	Innovation	,254	,062	,253	4,106	,000
	Stability	,190	,060	,186	3,169	,002

According to the coefficient analysis, the regression model suggests that an increase of 1 unit of the organizational culture dimension *social responsibility* would lead to an increase of 0,23 ($p < 0,01$) units of emotional engagement, an increase of 1 unit of *innovation* would lead to an increase of 0,254 ($p < 0,01$) units of emotional engagement, and an increase of 1 unit of *stability* would lead to an increase of 0,19 ($p < 0,01$) units of emotional engagement, if all other independent variables remain constant. This leads to the following regression equation:

$$\mu\ (Emotional\ engagement) = 1{,}356 + 0{,}23 \times Social\ responsibility + 0{,}254 \times Innovation + 0{,}19 \times Stability$$

The two variables that are selected to be a part of the regression model based on their significance ($p \leq 0,05$) are the organizational culture dimensions *performance orientation* and *innovation*.

Table 10 shows the regression model summary for the dependent variable *cognitive* dimension of work engagement.

Table 10

Regression model summary (dependent variable: cognitive)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,410[a]	,168	,166	,62905
2	,434[b]	,188	,184	,62222

a. Predictors: (Constant), Performance orientation

b. Predictors: (Constant), Performance orientation, Innovation

Based on the regression model it can be concluded that 16.6% of the dependent variable *cognitive* dimension of work engagement is determined by the organizational culture dimension *performance orientation*. When the second predictor – *innovation* – is added to the equation, such a model determines 18.4% of the *cognitive* dimension of work engagement. This means that *innovation* is accountable for an additional 1.8% (0,184 – 0,166 = 0,018) of variability. The proportion of variation in the dependent variable (*cognitive* engagement) explained by the independent variables (dimensions of organizational culture) is determined by the adjusted R square instead of R square, since the model consists of multiple independent variables. The analysis of the Durbin-Watson statistic does not detect the presence of autocorrelation.

The coefficients of the regression model for *cognitive* engagement are presented in Table 11 below.

Table 11

Regression coefficients (dependent variable: cognitive)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	2,665	,161		16,549	,000
	Performance orientation	,365	,041	,410	8,893	,000
	(Constant)	2,540	,164		15,456	,000
	Performance orientation	,220	,062	,247	3,555	,000
	Innovation	,187	,060	,216	3,105	,002

According to the coefficient analysis, the regression model suggests that an increase of 1 unit of the organizational culture dimension *performance orientation* would lead to an increase of 0,22 ($p < 0,01$) units of cognitive engagement, whereas an increase of 1 unit of the organizational culture dimension *innovation* would lead to an increase of 0,187 ($p < 0,01$) units of physical engagement, if all other independent variables remain constant. This leads to the following regression equation:

μ *(Cognitive engagement)* = 2,54 + 0,22 × *Performance orientation* + 0,187 × *Innovation*

Based on the regression analysis between dimensions of organizational culture measured by OCPR (independent variables) and the dimensions of work engagement measured by JES (dependent variables), it can be concluded that certain organizational culture dimensions have a significant impact on specific dimensions of work engagement. The interactions and the relative importance of the regression coefficients (standardized coefficient β) of the independent variables in predicting the dependent variables are displayed in Figure 4.

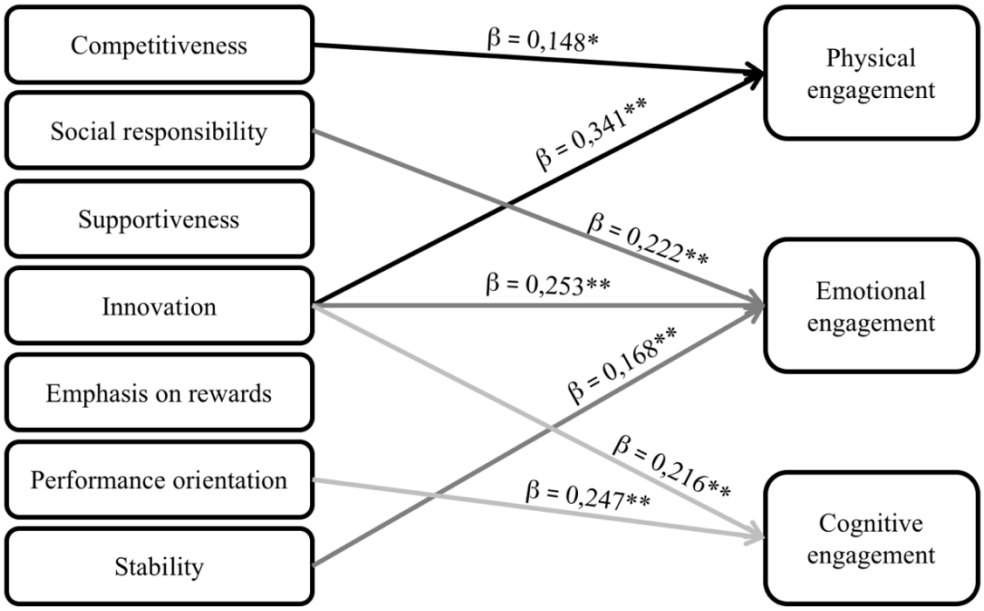

Figure 4. Dimensions of organizational culture that have a significant impact on dimensions of work engagement by JES (* $p < 0,05$, ** $p < 0,01$)

The only organizational culture dimension that has an impact on all dimensions of work engagement measured by JES is *innovation*. Four other dimensions of organizational culture each have a significant impact on only one dimension of work engagement – *competitiveness* has an effect on *physical* engagement, *performance orientation* on *cognitive* engagement, and *social responsibility* and *stability* on *emotional* engagement. The organizational culture dimensions *supportiveness* and *emphasis on rewards* do not seem to have a significant impact on the level of work engagement among employees of organizations operating in the ICT sector in Latvia.

In the scope of correlation analysis between organizational culture and work engagement, Spearman's rank correlation was calculated between the dimensions of OCPR and the dimensions of UWES. The correlation coefficients are displayed in Table 12.

Table 12

Spearman's rank correlation between OCPR dimensions and UWES dimensions

$p < 0,01$		UWES dimensions		
		Vigour	Dedication	Absorption
OCPR dimensions	Competitiveness	0,46	0,46	0,42
	Social Responsibility	0,47	0,51	0,44
	Supportiveness	0,42	0,42	0,37
	Innovation	0,48	0,51	0,43
	Emphasis on Rewards	0,42	0,47	0,35
	Performance Orientation	0,51	0,54	0,43
	Stability	0,46	0,43	0,33

The correlation between the dimensions of organizational culture measured by OCPR and the dimensions of work engagement measured by UWES is positive and statistically significant ($p < 0,01$). Based on the correlation strength criteria by Evans (1996), the correlation between different organizational culture dimensions and the *vigour* as well as *dedication* dimensions of work engagement is moderate (r = 0,40 to 0,59, $p < 0,01$). The only dimension of work engagement that has weak correlations ($r = 0,20$ to $0,39$, $p < 0,01$) with three of the seven dimensions of organizational culture measured by the OCPR instrument is *absorption* ($r = 0,33$, $p < 0,01$ with *stability*, $r = 0,35$, $p < 0,01$ with *emphasis on rewards*, and $r = 0,37$, $p < 0,01$ with *supportiveness*). Similarly to the previously described correlation analysis between different dimensions of OCPR and JES, the organizational culture dimensions that have the strongest correlation with all dimensions of work engagement within organizations operating in the ICT sector in Latvia are *social responsibility* ($r = 0,44$ to $0,51$, $p < 0,01$),

innovation (r = 0,43 to 0,51, $p < 0.01$), and *performance orientation* (r =0,43 to 0,54, $p < 0,01$).

The three variables that are selected to be a part of the regression model based on their significance ($p \leq 0,05$), where the dependent variable is the *vigour* dimension of work engagement by UWES and the independent variables are organizational culture dimensions of OCPR, are the organizational culture dimensions *performance orientation*, *stability* and *innovation*.

Table 13 shows the regression model summary for the dependent variable *vigour* dimension of work engagement.

Table 13

Regression model summary (dependent variable: vigour)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,521[a]	,272	,270	,94305
2	,538[b]	,290	,286	,93251
3	,552[c]	,304	,299	,92409

a. Predictors: (Constant), Performance orientation

b. Predictors: (Constant), Performance orientation, Stability

c. Predictors: (Constant), Performance orientation, Stability, Innovation

Based on the regression model it can be concluded that 27% of the dependent variable *vigour* dimension of work engagement is determined by the organizational culture dimension *performance orientation*. When the second predictor – *stability* – is added to the model, it accounts for an additional 1.6% (0,286 – 0,27 = 0,016) of variability. Inclusion of the third organizational culture dimension *innovation* adds 1.3% (0,299 – 0,286 = 0,013) of variability, leading to a regression model which determines 29.9% of the *vigour* dimension of work engagement. The proportion of variation in the dependent variable (the *vigour* dimension of engagement) explained by the independent variables (dimensions of organizational culture) is determined by the adjusted R square instead of R square, due to the model consisting of multiple independent variables. The analysis of the Durbin-Watson statistic does not detect the presence of autocorrelation.

The coefficients of the regression model for the *vigour* dimension of work engagement are shown in Table 14.

Table 14

Regression coefficients (dependent variable: vigour)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,253	,241		5,188	,000
	Performance orientation	,743	,061	,521	12,081	,000
2	(Constant)	1,012	,251		4,036	,000
	Performance orientation	,545	,087	,383	6,237	,000
	Stability	,273	,087	,193	3,145	,002
3	(Constant)	,861	,254		3,390	,001
	Performance orientation	,364	,107	,255	3,385	,001
	Stability	,249	,086	,176	2,885	,004
	Innovation	,256	,090	,185	2,852	,005

According to the coefficient analysis, the regression model suggests that an increase of 1 unit of the organizational culture dimension *performance orientation* would lead to an increase of 0.364 ($p <$ 0.01) units of vigour, an increase of 1 unit of *stability* would lead to an increase of 0.249 ($p < 0.01$) units of vigour, and an increase of 1 unit of *innovation* would lead to an increase of 0.256 ($p < 0.01$) units of the vigour dimension of work engagement, if all other independent variables remain constant. This leads to the following regression equation:

$$\mu\ (Vigour) = 0,861 + 0,364 \times Performance\ orientation + 0,249 \times Stability + 0,256 \times Innovation$$

The three variables that are selected to be a part of the regression model based on their significance ($p \leq 0,05$), where the dependent variable is the *dedication* dimension of work engagement by UWES and the independent variables are organizational culture dimensions of OCPR, are the organizational culture dimensions *performance orientation*, *social responsibility* and *innovation*.

Table 15 shows the regression model summary for the dependent variable *dedication* dimension of work engagement.

Table 15

Regression model summary (dependent variable: dedication)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,553[a]	,306	,304	,98102
2	,577[b]	,333	,329	,96293
3	,587[c]	,344	,339	,95585

a. Predictors: (Constant), Performance orientation

b. Predictors: (Constant), Performance orientation, Social responsibility

c. Predictors: (Constant), Performance orientation, Social responsibility, Innovation

Based on the regression model it can be concluded that 30.4% of the dependent variable *dedication* dimension of work engagement is determined by the organizational culture dimension *performance orientation*. When the second predictor – *social responsibility* – is included in the model, it accounts for an additional 2.5% (0,329 – 0,304 = 0,025) of variability. Inclusion of the third organizational culture dimension *innovation* adds 1% (0,339 – 0,329 = 0,01) of variability and leads to a regression model which determines 33.9% of the *dedication* dimension of work engagement. The proportion of variation in the dependent variable (the *dedication* dimension of engagement) explained by the independent variables (dimensions of organizational culture) is determined by the adjusted R square instead of R square, since the model consists of multiple independent variables. The analysis of the Durbin-Watson statistic does not detect the presence of autocorrelation.

The coefficients of the regression model for the *dedication* dimension of engagement are presented in Table 16.

Table 16

Regression coefficients (dependent variable: dedication)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,042	,251		4,148	,000
	Performance orientation	,839	,064	,553	13,124	,000
2	(Constant)	,752	,257		2,926	,004
	Performance orientation	,554	,095	,365	5,804	,000
	Social responsibility	,381	,096	,250	3,979	,000
3	(Constant)	,657	,258		2,551	,011
	Performance orientation	,430	,106	,284	4,066	,000
	Social responsibility	,274	,104	,180	2,644	,009
	Innovation	,263	,101	,178	2,608	,009

According to the coefficient analysis, the regression model suggests that an increase of 1 unit of the organizational culture dimension *performance orientation* would lead to an increase of 0,43 ($p < 0,01$) units of dedication, an increase of 1 unit of *social responsibility* would lead to an increase of 0,274 ($p < 0,01$) units of dedication, and an increase of 1 unit of *innovation* would lead to an increase of 0,263 ($p < 0,01$) units of the dedication dimension of work engagement, if all other independent variables remain constant. This leads to the following regression equation:

μ (Dedication) = 0,657 + 0,43 × *Performance orientation* + 0,274 × *Social responsibility* + 0,263 × *Innovation*

The three variables that are selected to be a part of the regression model based on their significance ($p \leq 0,05$), where the dependent variable is the *absorption* dimension of work engagement by UWES and the independent variables are organizational culture dimensions of the OCPR, are the organizational culture dimensions *performance orientation*, *social responsibility* and *innovation*.

Table 17 shows the regression model summary for the dependent variable *absorption* dimension of work engagement.

Table 17

Regression model summary (dependent variable: absorption)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,436[a]	,190	,188	,97088
2	,464[b]	,215	,211	,95702
3	,472[c]	,223	,217	,95349

a. Predictors: (Constant), Performance orientation

b. Predictors: (Constant), Performance orientation, Social responsibility

c. Predictors: (Constant), Performance orientation, Social responsibility, Innovation

Based on the regression model it can be concluded that 18.8% of the dependent variable *absorption* dimension of work engagement is determined by the organizational culture dimension *performance orientation*. When the second predictor – *social responsibility* – is added to the model, it accounts for an additional 2.3% (0,211 – 0,188 = 0,023) of variability. Inclusion of the third organizational culture dimension *innovation* contributes an additional 0.6% (0,217 – 0,211 = 0,06) of variability and leads to a regression model which determines 21.7% of the *absorption* dimension of work engagement. The proportion of variation in the dependent variable (the *absorption* dimension of engagement) explained by the independent variables (dimensions of organizational culture) is determined by the adjusted R square instead of R square because the model consists of multiple independent variables. The analysis of the Durbin-Watson statistic does not detect the presence of autocorrelation.

The coefficients of the regression model for the *absorption* dimension of engagement are presented in Table 18.

Table 18

Regression coefficients (dependent variable: absorption)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,752	,249		7,048	,000
	Performance orientation	,607	,063	,436	9,592	,000
2	(Constant)	1,497	,255		5,860	,000
	Performance orientation	,356	,095	,256	3,753	,000
	Social responsibility	,335	,095	,240	3,522	,000
3	(Constant)	1,426	,257		5,545	,000
	Performance orientation	,263	,106	,189	2,488	,013
	Social responsibility	,255	,103	,182	2,462	,014
	Innovation	,198	,100	,146	1,973	,049

According to the coefficient analysis, the regression model suggests that an increase of 1 unit of the organizational culture dimension *performance orientation* would lead to an increase of 0,263 ($p < 0,01$) units of absorption, an increase of 1 unit of *social responsibility* would lead to an increase of 0,255 ($p < 0,01$) units of absorption, and an increase of 1 unit of *innovation* would lead to an increase of 0,198

($p < 0,05$) units of the absorption dimension of work engagement, if all other independent variables remain constant. This leads to the following regression equation:

$$\mu\ (Absorption) = 1,426 + 0.263 \times Performance\ orientation + 0,255 \times Social\ responsibility + 0,198 \times Innovation$$

Based on the regression analysis between dimensions of organizational culture measured by the Organizational Culture Profile (independent variables) and the dimensions of work engagement measured by the Job Engagement Scale (dependent variables), it can be concluded that certain organizational culture values have a significant impact on specific dimensions of work engagement. The interactions and the relative importance of the regression coefficients (standardized coefficient β) of the independent variables in predicting the dependent variables are displayed in Figure 5.

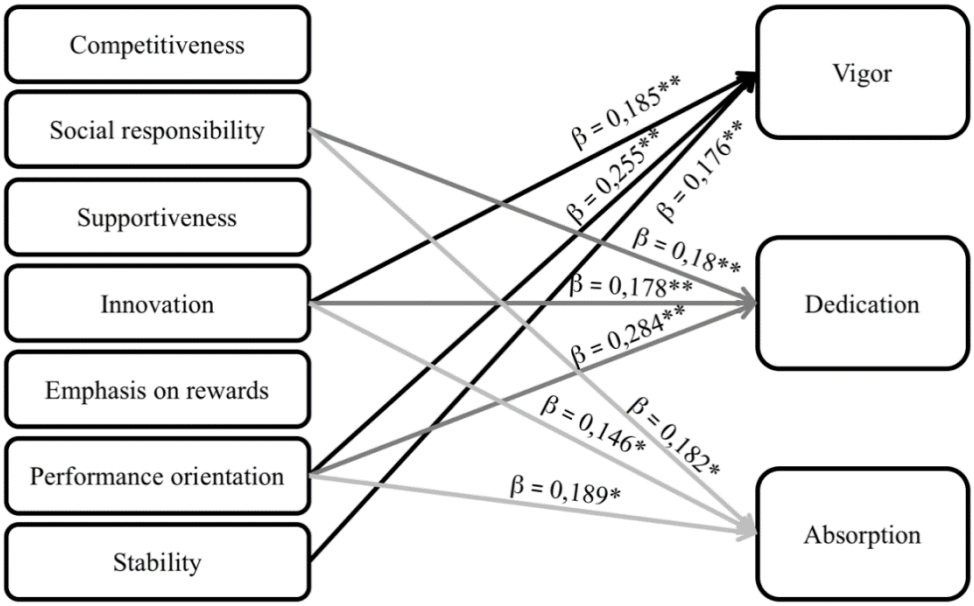

Figure 5. Dimensions of organizational culture that have a significant impact on dimensions of work engagement by UWES (* $p < 0,05$, ** $p < 0,01$)

Two organizational culture dimensions – *innovation* and *performance orientation* – have a significant impact on all three dimensions of work engagement measured by UWES – *vigour*, *dedication,* and *absorption.* The organizational culture dimension *social responsibility* has a significant impact on two of the work engagement dimensions – *dedication,* and *absorption* – while *stability* has an impact on *vigour*. The organizational culture dimensions *competitiveness*, *supportiveness,* and *emphasis on rewards* do not have a significant impact on any of the work engagement dimensions measured by UWES.

CONCLUSIONS AND DISCUSSIONS

Considering the importance and the limited availability of human resources in the ICT sector in Latvia, it can be concluded that the capabilities derived from how people are managed are an important factor for the competitive advantage of companies operating within the sector as well as for the economy of Latvia in general.

The organizational culture profile in the ICT sector in Latvia can be characterized as balanced, since all seven dimensions of culture measured by the OCPR instrument are rated rather similarly by respondents. All seven dimensions of organizational culture are perceived positively by the employees of organizations operating within the ICT sector in Latvia and have received average scores between 3.45 and 3.85 of 5. The dimension of organizational culture evaluated the highest is *performance orientation*, while the *emphasis on rewards* dimension received the lowest average score.

The overall level of work engagement in the ICT sector in Latvia measured by the use of the JES and UWES instruments can be regarded as average. With regard to the dominant dimensions of work

engagement, the use of two different instruments shows slightly different results. One possible reason for the difference in results might be the slightly different ways in which items in these two instruments are expressed.

Based on the results of the correlation and regression analysis between organizational culture dimensions measured by the OCPR instrument and dimensions of work engagement measured by the JES and UWES instruments, it can be concluded that the organizational culture dimensions that have the most significant positive impact on level of work engagement among employees of organizations operating in the ICT sector in Latvia are *innovation*, *performance orientation*, and *social responsibility.* Therefore, it is recommended that managers of organizations operating within the ICT sector emphasize values beneficial to the abovementioned dimensions of organizational culture in order to increase the level of work engagement among their employees.

It can be concluded that the purpose of this study has been achieved, and the impact that specific dimensions of organizational culture have on the dimensions of work engagement has been determined. However, further research within other sectors and individual organizations is required in order to verify the research results. The theoretical framework and research methodology of this study can be used for future studies. In addition, further studies should also investigate how values, considered beneficial for work engagement, can be implemented within the organizational culture of specific companies and sectors.

REFERENCES

1. Aczel, A., Sounderpandian, J. (2008), Complete Business Statistics, Seventh Edition, Tata, India: McGraw-Hill.
2. Albrecht, S. L. (2010), "Employee engagement: 10 key questions for research and practice", in Albrecht, S. L. (Ed.), Handbook of Employee Engagement: Perspectives, Issues, Research and Practice, Cheltenham: Edward Elgar Publishing Limited, 3-19.
3. Alvesson, M. (2012), Understanding Organizational Culture. 2nd edition, London: Sage Publications Ltd.
4. Bulmer, M. G. (1979), Principles of Statistics, New York: Dover Publications.
5. Byrne, Z. S. (2015), Understanding Employee Engagement: Theory, Research, and Practice, New York: Routledge.
6. Central Statistical Bureau of Latvia. "ITG24. Number of persons employed in ICT sector enterprises", available at: http://data.csb.gov.lv/pxweb/en/zin/zin__datoriz__ikt_sektors/IT0240.px/?rxid=cdcb978c-22b0-416a-aacc-aa650d3e2ce0 (accessed 30 January 2016).
7. Drake T. J. (2012), "Assessing employee engagement: A comparison of the Job Engagement Scale and the Utrecht Work Engagement Scale", available at: http://dspace.library.colostate.edu/webclient/DeliveryManager/digitool_items/csu01_storage/2012/08/22/file_1/170733 (accessed 26 March 2016).
8. Dubkevics, L. (2009), Organizacijas kultura / Organizational culture, Rīga: Jumava.
9. Evans, J. D. (1996), Straightforward statistics for the behavioural sciences, Pacific Grove, CA: Brooks/Cole Publishing.
10. Heskett, J. L. (2012), The Culture Cycle. How to Shape the Unseen Force That Transforms Performance, New Jersey: FT Press.
11. Kahn, W. A. (1990), "Psychological conditions of personal engagement and disengagement at work", Academy of Management Journal, 33, 692-724.
12. Kahn, W. A. (1992), "To be fully there: psychological presence at work", Human Relations. 45(4), 321–349.
13. Kular, S., Gatenby, M., Rees, C., Soane, E., Truss, K. (2008), Employee Engagement: A Literature Review, Kingston Hill: Kingston Business School.
14. Macey, W. H., Schneider, B., Barbera, K. M., Young, S. A. (2009), Employee Engagement: Tools for Analysis, Practice, and Competitive Advantage, West Sussex: John Wiley-Blackwell.
15. Ministry of Finance of the Republic of Latvia (2015), "Jārealizē Latvijas potenciāls IKT nozarē / The need to realize the potential of the ICT sector in Latvia", available at http://www.fm.gov.lv/lv/aktualitates/jaunumi/fm_ekspertu_viedokli/51731-jarealize-latvijas-potencials-ikt-nozare (accessed 25 May 2016).

16. Odendaal, A., Roodt, G. (1998), "Corporate culture and participation: Independent constructs?", Journal of Industrial Psychology, 24(3), 14-21.
17. Parsons, T. (1951), The social system, New York: Free Press.
18. Pfeffer, J. (1994), Competitive Advantage Through People, Boston: Harvard Business Press.
19. Rice, C., Marlow, F., Masarech, M. A. (2012), The Engagement Equation: Leadership Strategies for an Inspired Workforce, New Jersey: John Wiley & Sons.
20. Rich, B. L., LePine, J. A., & Crawford, E. R. (2010), "Job engagement: Antecedents and effects on job performance", Academy of Management Journal, 53, 617-635.
21. Sanchez, P. M. (2006), "Organizational Culture", in Gillis, T. (Ed.), The IABC Handbook of Organizational Communication: A Guide to Internal Communication, Public Relations, Marketing, and Leadership, San Francisco, CA: Jossey-Bass, 31-43.
22. Sarros, J. C., Gray, J., Densten, I. L, Cooper, B. (2005), "The Organizational Culture Profile Revisited and Revised: An Australian Perspective", Australian Journal of Management, 30 (1), 159-182.
23. Schaufeli, W. B. (2014), "What is engagement?" In Truss, C., Alfes, K., Delbridge, R., Shantz, A., & Soane, E. (Eds.), Employee Engagement in Theory and Practice, London: Routledge.
24. Schaufeli, W. B., Bakker, A. B. (2004), "Job demands, job resources, and their relationship with burnout and engagement: a multi-sample study", Journal of Organizational Behavior, 25(3), 293-315.
25. Schaufeli, W. B., Bakker, A. B. & Salanova, M. (2006), "The measurement of work engagement with a short questionnaire: a cross-national study", Educational and Psychological Measurement, 66(4), 701-716.
26. Schaufeli, W. B., Salanova, M., González-Romá, V. & Bakker, A. B. (2002), "The measurement of engagement and burnout: a two sample confirmatory factor analytic approach", Journal of Happiness Studies, 3, 71–92.
27. Schein, E. H. (2010), Organizational Culture and Leadership. 4th Edition, San Francisco: John Wiley & Sons.
28. Smith, K. K. & Berg, D. N. (1987), Paradoxes of Group Life: Understanding Conflict, Paralysis, and Movement in Group Dynamics, San Francisco, CA: Jossey-Bass.
29. Wallach, E. J. (1983), "Individuals and Organizations: The Cultural Match", Training and Development Journal, February, 29-36.