

St. Petersburg State University  
Graduate School of Management

**WORKING PAPER**

**A. Bordunos, S. Kosheleva**

**HIGH INVOLVEMENT WORK SYSTEM  
FROM ORGANIZATIONAL AND INDIVIDU-  
AL PERSPECTIVE**

**# 10 (E)–2016**

Saint Petersburg

2016

*A. Bordunos, S. Kosheleva. High Involvement Work System from organizational and individual perspective. Working Paper # 2 (E)-2016. Graduate School of Management, St. Petersburg State University: SPb, 2016.*

**Keywords and phrases:** HIWS, HCM, SHRM, engagement, resilience, strategic advantage

**Abstract:** This paper contributes to the search of suitable and sustainable strategy for managing corporate Human Capital. Drawing on the Self-determination theory, current research differentiates HCM strategies by resulting causality orientations of employees. In particular, the research focuses on the High Involvement-based Work System (HIWS), which is usually favored to create supportive environment for employees' engagement into Innovative Work Behavior. It implies high level of Autonomous Orientations.

In result of quantitative analysis, it turned out that HIWS is still a black box for many organizations: despite high importance of autonomy and relatedness for employees, the question about competence became a challenge. Furthermore, for top management and HR managers even question about relatedness was challenging. Thus, the research revealed that this strategic approach is still new for CIS countries: it increases employees' motivation, however does not lead to the increased engagement into Innovative Work Behavior or creativity development.

The research accounts for a contextual specificity of emerging markets and individual characteristics, and corresponds to such fields as SHRM, HRD, M&A, change management.

*Aleksandra Bordunos – Ph.D Researcher, Graduate School of Management, St. Petersburg State University*

*e-mail: [abordunos@bk.ru](mailto:abordunos@bk.ru)*

*Sofia Kosheleva - Professor, Graduate School of Management, St. Petersburg State University*

*e-mail: [kosheleva@gsom.pu.ru](mailto:kosheleva@gsom.pu.ru)*

**Contents**

Introduction ..... 4

Theory and Hypotheses ..... 4

Method ..... 7

Findings ..... 13

Conclusion and Discussion ..... 14

References ..... 16

## Introduction

Kaplan and Orlikowski (2014) define among crucial current challenges for organizations “making strategy under the uncertainties, posed by turbulent environments, intensified competition, emerging technologies, shifting customer tastes and regulatory change”. Turbulent and for many industries hostile environment with financial, social and political shocks, highly acknowledged externalities of business along with experience economy trends highlighted especial importance of organizational health, in particular corporate resilience (Salanova et al., 2012, Linnenluecke, 2015). Hamel and Välikangas (2003) differentiate resilience from renewal and revolution, highlighting that resilience is a continuous reconstruction, which “requires innovation with respect to those organizational values, processes, and behaviors that systematically favor perpetuation over innovation” before necessity to change becomes obvious.

Shift in corporate strategy influenced attitude towards Human Capital Management (HCM). Following Khan et al. (2015) by HCM we assume processes related to education, training, and other professional initiatives for increasing the levels of knowledge, skills, abilities, values, and social assets of employees, leading to satisfaction and performance of the employees, and eventually increasing firm performance. Employees are expected to be more agile, adaptive, and resilient (Sherehiy et al., 2007). Pulakos et al. (2000) define several important dimensions of adaptive performance, including creative problem solving, learning work tasks, technologies, and procedures, interpersonal adaptability. This is in line with the Self-determination theory (Ryan and Deci, 2000) and necessity to support employees' needs in autonomy, relatedness and competency, which is a basement for High-Involvement Work System (HIWS). Firms increase attention and amount of resources to enhancing employees' creativity as they strive to keep up with dynamic competitive environment (Hon et al., 2014).

The research purpose is to explore individual experience of employees' engagement into creativity (Innovative Work Behavior), along with personal and contextual characteristics as possible antecedents of it. The specificity of contextual characteristics is assured by emerging market setting: all respondents were born and raised in a soviet or post-soviet country, imprinting local traditions and values.

## Theory and hypotheses

### *The role of latent referent standards in SHCM research*

Strategic Human Capital Management (SHCM) approach is often differentiated by underlying High Performance Work System (HPWS) types. However, despite several decades of testing key HPWS models, results are still inconsistent. Most common reasoning is specificity of contextual factors: history, economy, culture (Tsui, 2006; Lawler et al., 2011), institutional opportunities (Wei and Lau, 2010), employees' motivation (Appelbaum, 2000), generation (Ganli et al., 2014) and gender differences (Galang, 1999; Pichler et al., 2014), etc. It leads to doubting universal applicability of the HPWS bundles (Mihail et al., 2013). However, in result of the in depth literature review, we conclude that inconsistency of results might also happen due to a possible conceptual bias in understanding the nature of HPWS types by researchers and thus model misspecification (Bordunos and Kosheleva, 2015). For our literature review, we used “path dependence” method (Dobusch and Kapeller, 2013) and theoretical thematic analyses on a latent level (Braun and Clark, 2006). Table №1 illustrates main findings, led to a conclusion about a new role of HPWS as a group of latent referent standards, which often unintentionally, due to institutional isomorphism (Scott, 2013), shape corporate SHCM approach.

Differentiation method is based on a self-determination continuum (Deci and Ryan, 2000). Institutional voids and sophistication might not allow firms to construct preferable

SHCM, intentionally predefining needed proportion of each HPWS (Bordunos and Kosheleva, 2015). Based on the “path-dependence” method, “lock-in” is a final step of a new concept emergency after contingency and self-reinforcement (Dobusch and Kapeller, 2013). This “irreversible state, which might be cognitive, normative, or resource-based”, happens due to increase of positive feedback to the emerging concept, however, positive feedback might start decreasing after a certain time, or different limitations could be revealed, motivating for a new “lock-in” of the alternative options (ibid). For instance, High Productivity-based WS was “locked-in” during Positioning Strategy dominance, High Commitment-based WS is associated with RBV and High Involvement-based WS shares same path with the Dynamic Capability Theory. So, later types of HPWS are perceived as more advanced ones, as they were “locked-in” after discovery of disadvantages of the preceding ones. In our research, we explore applicability of the most recent HPWS, which is based on high involvement.

*Table №1: Patterns for differentiating three HPWS types on a latent level*

<b>Strategic management assumptions (1)</b>	Market Positioning Strategy	Resource Based View	Dynamic Capabilities Concept
<b>Evolutionary context</b>	Information economy (2)	Knowledge economy (3)	Experience economy (4)
<b>Key strategic resource (5)</b>	Physical capital	Cultural capital	Social capital
<b>Strategy proxies</b>	Strategic market orientation (6)	Strategic learning orientation (7)	Strategic entrepreneurial orientation (innovativeness) (8)
<b>Organizational health</b>	Productivity	Vitality	Flexibility (Resilience)
<b>Corresponding HPWS</b>	High Productivity-based Work System	High Commitment-based Work System	High Involvement-based Work System
<b>Expected employees’ reaction to HPWS</b>	Workaholism (9)	Organizational Citizenship Behavior (OCB) (10)	Innovative Work Behavior (IWB) (11)
<b>Causality orientations of employees (12)</b>	Impersonal Orientations	Strong controlled Orientations	Autonomous Orientations

*Source: prepared by authors, cited references are marked with a star (\*) in the references list*

### ***Theoretical framework***

*Experience economy* shifted focus from external economic offerings, like commodities, goods and services, to personal experience through engagement on emotional, physical, intellectual, or even spiritual level (Pine and Gilmore, 1998). The new motto for companies was claimed to be “ING THE THING” (Pine and Gilmore, 2011, p.22), meaning a need to experientialize goods. Such shift strongly affected corporate strategies, intensifying interest in organizational innovation capacity: excellence in acquisition, filtering, and implementation of valuable ideas (Hansen and Birkinshaw, 2007), which could be operationalized through Strategic Entrepreneurial Orientation (Lumpkin and Dess, 1996), containing innovativeness as separate dimension (*ISO*). *Social capital* also plays crucial role in innovation capacity, due to four reasons-social ties: 1) facilitate flow of useful information; 2) exert influence on key decision-making agents; 3) increase accessibility to scarce resources; 4) reinforce recognition (Lin et al., 2001). Therefore, we hypothesize that:

**H1:** High level of *Social Capital* motivates companies to apply Strategic entrepreneurial orientation (*ISO*).

Similar shifts happened in HPWS, reinforcing interest in employees' engagement, which resulted in "locking-in" *High Involvement-based Work System*, so:

**H2:** *ISO* determines preference of *HIWS*.

The employees' impact into the company's innovation capacity could be perceived both as controlled and routinized. As noticed by Drazin et al. (1999), routinization of innovativeness means refusal from static approach and treating creativity as person's psychological engagement into a creative activity, which could be operationalized with the *Innovative Work Behavior* (*IWB*) concept. The latter is often defined as "individual behavior, aiming to introduce and implement new useful ideas, processes, products or procedures" (De Jong and Hartog, 2010). This suggestion is aligned with an evolutionary approach towards innovation, leading to understanding creativity in a broader sense as a problem-solving approach (Crossan et al., 2010). Following AMO framework (Appelbaum, 2000), helps to hypothesize that ability (A), motivation (M) and opportunity (O) determine employee's engagement into *IWB*.

*Ability.* Usually researches of innovation value-chain focus on the most evident cognitive abilities like creativity/discovery as a basement for ideas generation, or proactivity/delivery as preferred ability for ideas promotion (Zhu et al., 2014, Dyer et al., 2011). However, they confess that these skills could be easily developed. Therefore, the authors of the current research additionally focus on learning agility as ability for fast development of the required skills (Lombardo and Eichinger, 2000; Mitchinson and Morris, 2011; Ployhart and Bliese, 2006), hypothesizing that:

**H3:** Ability to generate ideas (*Ability1*) has positive relations with ideas implementation and championing (*IWB*).

**H4:** Learning agility (*Ability2*), mediated by *Ability1*, has positive relations with *IWB*.

*Motivation and opportunity.* Many scholars (Axtell et al., 2000, West, 2002, Shalley et al., 2009) stress that personal characteristics are necessary but not sufficient for innovation, highlighting important role of supportive environment (*SE*). Current research focuses on High-Involvement based HRD strategy that relies on intrinsic motivation, to analyze relationship between suitability of Human Capital Management (*HCM*) strategy and expected level of engagement into *IWB*, relying on findings of Lepak and Snell (2002), Katou et al. (2014) and Deci and Ryan (2000). It leads to the next two hypotheses that:

**H5:** *Motivation* has positive effect on *Ability2*, and thus positive mediated effect on *IWB*.

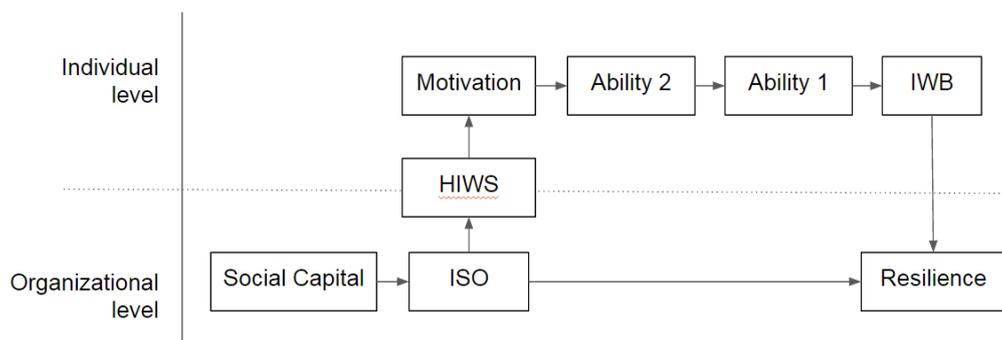
**H6:** Distinctive and consistent High involvement-based WS (*Opportunity-Int*) has positive effect on *motivation*, and thus positive mediated effect on *IWB*.

#### *Individual characteristics*

Ployhart and Bliese (2006) stress importance to account for external environment, as dynamic environment provokes higher productivity of more agile employees. That is why environment *turbulence* is accounted for as one of the potential control variables alongside with *city* as sources of context specificity (Williamson, 2000). Regarding individual characteristics we looked into past experience of employees, their age, gender.

Fig. №1 represents the theoretical structural model.

*Fig. №1: Theoretical structural Model*



*Source: prepared by authors*

## Method

### *Data collection & sample*

Current paper represents the exploratory part of the research. Data collection lasted between 10<sup>th</sup> of March and 04<sup>th</sup> of April 2016. The goal is to test applicability of the measurement scales and explore possibly missed factors. All data was analyzed in StataSe13.

The research follows deductive logic. It started with literature review, followed by six semi-structured interviews with heads of HR departments or senior managers, responsible for HR-related tasks, and resulted in preparation of two self-reported questioners, adapted to the research purpose. Questioners were published as Google forms on-line; additional responses were collected during structural interviews at the exhibitions. We added several open questions to explore possible omission variable bias. This is a cross-sectional research. However, it relies on introspection of employees' performance during the preceding year. The first form was used to explore organizational perspective, so it was filled in by the owners, directors, senior managers or HR managers, total sample at the first stage – 42 responses (Sample 1). Table №2 represents additional sample details. The second form aimed to collect individual employees' perspective, total sample – 88 responses (Sample 2, Table №3).

*Table №2: Sample 1 details*

Item	Mean	St. Dev.	Min	Max	Details
Gender (female)	1.61		1	2	Binominal
Gender role orientation (GRO) (masculine) (av.)	2.82	0.82	1	4.25	1-5 scale
Gender role orientation (GRO) preference (masculine)	2.9	1	1	5	1-5 scale
Management GRO (masculine)	3.36	1	1	5	1-5 scale
Generation (Y)	1.52	.	1	2	Binominal
Position (Head), same as Position (HR)	1.26		1	2	Binominal
Tenure (in a current company)	45.45	38.15	0,25	210	Months
Tenure (in a current profession)	6.21	4.8	0,5	20	Years
Tenure (in a current industry)	6.14	6.13	0,5	26	Years
Job location (St.Petersburg)	1.4		1	2	Binominal

Item	Mean	St. Dev.	Min	Max	Details
Nationality (Russian)	1.62		1	2	Binominal

Source: prepared by authors

Respondents could be from any part of the Globe; however, in both cases all respondents were native Russian speakers, so all questions were translated into Russian language, using back-translation and face-validity to ensure quality of translation and questions applicability. In order to avoid potential common method bias, we adopted several suggestions of Podsakoff, et al. (2003): the use of reversed questions and mixed order of questions; the introductory part stated that the survey is a) confidential, b) anonymous.

*Sample 1.* We measured *gender role orientation* with a 1-5 scale, where on the left side were qualities of the feminine behaviour preferences and on the right side – masculine, adjusting Bem Sex role inventory (Choi and Fuqua, 2003) for the list of qualities, while questions were based on SIS scale (Palan et al., 1999): “I feel as though I am..”, “I look as though I am ...”, “I do most things in a manner typical of someone who is ...”, “My interests are mostly those of a person who is...”. For the *management GRO* we used just one question, based on the second item from the scale above, due to possibility of its external observation. We added question, which GRO would be preferable by the corporate identity. For a *generation* item we offered to position oneself within one of the next following categories: A (1943-1963), X (1963-1984), Y (1985-2000) – all categories were present in a sample. For the nationality question among other answers the most common were Ukrainian, Tatar, Jewish, Belorussian.

Table №3: Sample 2 details

Item	Mean	St. Dev.	Min	Max	Details
Gender (female)	0.57		0	1	Binominal
Gender role orientation (GRO) (masc.)	2.3	0.63	1	5	1-5 scale
Management GRO (masculine)	3.31	1.15	1	5	1-5 scale
Generation (Y)	0.66		0	1	Binominal
Intrinsic past experience (volunteering)	0.19		0	1	Binominal
Low autonomy past experience (army)	0.13		0	1	Binominal
Level of position (specialist)	0.57		0	1	Binominal
Flexible working hours (full-time)	0.5		0	1	Binominal
Tenure (on a current position)	37	37.3	2	210	Months
Tenure (in a current industry)	6.25	4	0,5	26	Years
Job location (St.Petersburg)	0.48		0	1	Binominal
Nationality (Russian)	0.61		0	1	Binominal
Innovative Strategic Orientation (av.)	3.32	0.6	1	5	1-5 Likert scale

Source: prepared by authors

*Sample 2.* We used similar scales, asking to account only for the facts, which lasted longer than 6 months. For Strategic Orientation we adjusted scale by Rao and Weintraub (2013) “The building blocks of innovation survey”, embedding questions about positive attitude towards mistakes, ambiguity action-orientation, climate simplicity (no bureaucracy, personal accountability and decision-making).

### **Variables: inner models**

We divided theoretical structural model into two inner models. The first inner model (FIM) represents organizational perspective, the second (SIM) – individual. For the FIM we focused on *Resilience* as dependent variable and *Social capital*, *Strategic Orientation* and *HIWS* as independent ones. The SIM is comprised of five endogenous reflective latent variables. The dependent variable is *IWB* and independent are: *Opportunity-Int* (HIWS), *Motivation*, *Ability1* (Creativity) and *Ability2* (Learning Agility).

*Innovative Work Behavior and Ability1 (Creativity)*. Usually *IWB* is operationalized as a second-level latent variable, comprised of three or four factors, e.g. *Opportunity exploration*, *Idea generation*, *promotion* and *realization* (Messmann and Mulder, 2012). However, shifting from organizational to individual level of analysis makes us consider only implementation stage (*idea promotion* and *idea realization*), referring to a creative stage (*generation*) as justification of creative ability and *exploration* as part of learning agility. The informants were asked to rate the extent to which they agreed with the 12 statements, using a five-score Likert scale from 1 (strongly disagree) to 5 (strongly agree). Example of statements - Q2: «I actively seek to identify emerging trends by reading books, articles, magazines, blogs...» (Dyer et al., 2011). Table №4 illustrates the source of applied questions and the results of validity and reliability tests, using method of maximum likelihood, done after thorough data screening for possible outliers, missing values, skewness and kurtosis, performed in StataSe13.

Table №4: *IWB and Ability1*

Variable	Item	Mean	St. Dev.	Skewness	Kurtosis	F. Loading	Source
<i>Ability1</i>	gen1	3.5	1.09	0.12	0.25	0.73	Dyer et al., 2011
<i>Ability1</i>	gen2	3.6	1.06	0.07	0.59	0.86	de Jong and Hartog, 2010
<i>Ability1</i>	gen3	3.6	1.05	0.01	0.69	0.85	de Jong and Hartog, 2010
<i>IWB</i>	champ1	3.1	1.37	0.72	0	0.85	de Jong and Hartog, 2010
<i>IWB</i>	champ2	3.3	1.29	0.15	0	0.82	Holman et al., 2012
<i>IWB</i>	champ3	3.3	1.1	0.57	0.06	0.56	Holman et al., 2012
<i>IWB</i>	impl1	3	1.13	0.93	0.13	0.66	de Jong and Hartog, 2010
<i>IWB</i>	impl2	3.25	1.16	0.35	0.23	0.83	de Jong and Hartog, 2010
<i>IWB</i>	impl3	3.25	1.1	0.04	0.77	0.58	Holman et al., 2012

Source: prepared by authors

For skewness and kurtosis usual norm is between -1 and 1. Usual satisfactory level factor loading is 0.70 or higher. However, for exploratory research, the norm starts at 0.4. (Hulland, 1999; Wong, 2013). Therefore, the factor loading was done in two steps: first, to justify which items to keep, second – to assure reaching norm after deletion of factors. In the table №4 factor loading results illustrate second step. The eigenvalue of factors is >1: for *Ability1* it is 1.99 (alpha=0.85), for *IWB*=3.17 (alpha=0.86). This means that despite separation, items still explain an important amount of the variability in the data.

*Ability2 (Learning agility)*. To explore potential ability, we prepared a self-report inventory based questioner, consisting of 12 statements, adjusting existing scales to the research purpose. The table №5 represents existing scales and their interrelation.

The procedure was similar: we asked informants to assess statements, using a five-score Likert scale. Example of statements - Q1: "I am perceptive of others and use that knowledge in interactions" (Ployhart and Bliese, 2006). Before the analysis, all reversed questions were translated; items, related to idea exploration added, as a fast substitute to a need for ideas generation, associated with agility: Agil\_ment1 =0.6793, Agil\_ment2 =0.7476, IWB\_explore2 =0.4839, IWB\_explore3 =0.5118; eigenvalue is 1,5, alpha =0.6.

Table №5: Comparison of existing Learning Agility scales

1. "Choices Architect" by Lombardo and Eichinger, 2000	2. LA by Center for Creative Leadership, Mitchinson and Morris, 2011	3. I Adapt by Ployhart and Bliese, 2006	4. "Discovery vs Delivery" by Dyer et al., 2011	# of item in questioner (model), r if question is reversed
People agility	none	Interpersonal	None	1 (3), 2 (1), 3 (r/1)
Results agility	Perform	none	Delivery	4 (4), 5 (r/4), 12 (1)
Mental agility	Reflect	Learning	None	7 (3), 8 (3), 9 (2)
Change agility	Innovate Take risk Defend (r)	Creativity Uncertainty	Discovery	6 (r/2), 10 (r/2), 11(2)

Source: prepared by authors

*HIWS and Motivation.* Selection of Motivation assessment scale was based on an assumption that HIWS relies on autonomous orientations, meaning systematic satisfaction of needs in autonomy, relatedness and competence, which was measured by 6 statements for the FIM and 9 statements for the SIM (Deci and Ryan, 2002). However, employees might not be satisfied with such approach due to individual characteristics, which was controlled by adding Job Satisfaction construct - a Brief Index of Affective Job Satisfaction (AJS) developed by Thompson and Phua (2012). Similar construct we added to test motivation of respondents, who were filling in the first questioner, using questions from the WOLF scale of Bakker (2008).

Thus two constructs were formed: HIWS as *Opportunity-Int* and AJS as *Motivation*. After justification, the first construct is formed by three items – FIM: relatedness1 (0.69), relatedness2 (0.88), relatedness3 (0.71); eigenvalue is 1.76, alpha – 0.79; SIM: autonomous2 (0.66), relatedness1 (0.88), relatedness3 (0.59); eigenvalue is 1.6, alpha – 0.66.

Table №6 represents example of testing reliability of the scale with standardize items in the scale to mean 0, variance 1. *Item-test* correlation is expected to be roughly similar for all items, *item-rest* is the correlation between an item and the scale that is formed by all other items, which is useful for making decision about items deletion. *Alpha* represents changes in Cronbach's alpha, if this item will be deleted.

Table №6: Test of HIWS scale (first inner model)

Item	Item-test correlation	Item-rest correlation	Average interitem correlation	Alpha
relatedness1	0.8256	0.6077	0.6270	0.7707
relatedness2	0.8787	0.7126	0.4922	0.6597
relatedness3	0.8346	0.6248	0.6041	0.7532
<b>Test scale</b>			<b>0.5744</b>	<b>0.8019</b>

Source: prepared by authors

WOLF scale did not bring expected results, most probably due to decrease of the initial amount of items. While Brief Index of AJS showed high suitability, as all four items gained high factor loadings: motiv1 – 0.9, motiv2 – 0.86, motiv3 - 0.79, motiv4 – 0.85; eigenvalue is 2.9, alpha – 0.91.

*Social Capital* was measured adopting scale of Chang et al. (2011). Initially 17 questions aimed to collect information about vertical relationships of top management with other companies (SocCap1) and HR managers with external organizations (SocCap4), horizontal relationships between top management and HR managers (SocCap2), and of HR managers with other departments (SocCap3). In result of validity tests, only 8 items were left, forming two factors: SocCap11 (0.55), SocCap12 (0.79), SocCap15 (0.71), SocCap16 (0.85); and SocCap21 (0.98), SocCap22 (0.92), SocCap31 (0.71), SocCap32 (0.74); eigenvalue is 3.4 and 2.2, alpha – 0.88.

For *corporate strategy (ISO)* we adopted scale of Nasution et al. (2011), selecting 9 questions about autonomy (1.1-1.3.), risk-taking (2.1.-2.3.), process, (3.1.) product (3.2.) and administrative innovations (3.3.). However, eigenvalue is higher when items form just one factor, keeping just four items: 1.1 (0.89), 2.1. (0.58), 2.3. (0.5) and 3.3.(0.79), what resulted in eigenvalue – 1.99 and alpha – 0.78.

*Resilience* scale was adopted from the conceptual model for agility of Sharifi and Zhang (1999) and PWC model<sup>1</sup>, resulted in 8 questions about corporate responsiveness, flexibility (0.45), speed (0.76), competency (0.85), coherence (0.7), trust (0.45), relevance, adaptive capacity, eigenvalue is 2.23, alpha – 0.79. The first and the last two items were deleted. Table №7 represents information about regressors in both Inner models. Due to low sample, all items were averaged within mentioned constructs to build corresponding indexes.

Table №7: Inner Model Variables

Variables	Mean	Std. Dev.	Min-Max	Skewness	Kurtosis	Correlation analysis (0.05)				
						.1	.2	.3	.4	.5
1.1. Resilience	3.75	0.69	'2-4.8'	0.11	0.98	1				
1.2. SocCap	3.77	0.81	'1.5-5'	0.04	0.64	0.35	1			
1.3. ISO	3.82	0.85	'1-5'	0.01	0.1	n.s.	0.42	1		
1.4. HIWS	4.02	0.87	'1-5'	0.01	0.04	n.s.	0.62	0.43	1	
2.1. IWB	3.21	0.92	'1.3 - 5'	0.22	0.01	1				
2.2. Ability1	3.55	0.93	'1 - 5'	0.01	0.36	0.71	1			
2.3. Ability2	3.84	0.74	'2 - 5'	0.05	0.41	0.44	0.45	1		
2.4. Opport.-Int	4.03	0.8	'2.3 - 5'	0.03	0.04	n.s.	n.s.	n.s.	1	
2.5. Motivation	3.67	0.96	'1 - 5'	0.01	0.57	0.26	n.s.	0.31	0.44	1

Source: prepared by authors

### Confirmatory Factor Analysis (CFA)

CFA was performed only for the second inner model, as the first sample is too small.

IWB *unidimensionality* is confirmed, as all variables measures have loading higher than 0.5 and are statistically significant. There is also significant covariance between errors of IWB\_imp1 and IWB impl2 (0.44). Overall fit is positive Chi-square=9.952 (p>0.05), RMSEA = 0.053 (the norm is below 0.08), TLI =0.985 and CFI =0.992 (the norm is above 0.9), SRMR

<sup>1</sup> KTO ABTOP

-0.028 (the norm is  $<0.08$ ). *Convergent validity* test is also satisfactory: all loadings are significant, correlation between each indicator and corresponding latent variable is  $>0.5$ . *Reliability* is also high: AVE = 0.514 (the norm is  $>0.5$ ), CFR = 0.86 (the norm is  $>0.7$ ). Similar tests are performed for other variables (table №8). Variables, related to abilities did not pass reliability tests, thus they were reconsidered and merged into a single variable: IWB\_explore3 (0.42), IWB\_gen1 (0.73), IWB\_gen2 (0.86), IWB\_gen3 (0.85), eigenvalue = 2.17, alpha = 0.8. RMSEA scores for Ability and Motivation were slightly above expectations, however this might happen due to low sample and we decided to keep existing specification at this stage.

Table №8: Confirmatory factor analysis for the SIM

Variables	Unidimensionality	Convergent validity	Reliability
IWB	Chi2(2)= 9.95 (p>0.05), RMSEA =0,05 TLI =0.99, CFI =0.99, SRMR=0.02	Positive	CFR =0.86 AVE =0.514
Ability	Chi2(2)= 3.59 (p>0.05), RMSEA =0,1 TLI =0.97, CFI =0.99, SRMR=0.02	Positive, except IWB_explore3	CFR =0.82 AVE =0.54
Opport.-Int	Chi2(2)= 0, RMSEA =0 TLI =1, CFI =1, SRMR=0	Positive	CFR =0.84 AVE =0.53
Motivation	Chi2(2)= 5.8 (p>0.05), RMSEA =0,15 TLI =0.095, CFI =0,98, SRMR=0.02	Positive	CFR =0.9 AVE =0.73

Source: prepared by authors

#### Variables: outer models

*Gender role orientation* was measured with 4 items, here are results of factor loading:

- FIM: only first three items were retained (factor loading - between 0.6 and 0.97), eigenvalue is 1.83, alpha - 0.8.
- SIM: all factors gained high loading (from 0.42 to 0.9), eigenvalue is 1.8, alpha - 0.71.

*Turbulent environment* was assessed for the second model. It is comprised of 5-items scale, however, after factor loading just 4 of them were left (eigenvalue – 1.3, alpha – 0.64). KTO ABTOP, Nevertheless, the variable did not pass CFA tests. It could be explained by low awareness of employees about real affect external environment has on the company, which might happen due to their low involvement into decision making outside their position.

To select the most valuable control factors, we run correlation analysis between contextual variables and inner model factors (pairwise Pearson correlation – PC, point biserial correlation – PB and Spearman's rank correlation – SR). Tables №9 and №10 represent only significant correlations: according to Wong (2013), exploratory nature of the research implies the significance level of 5%.

Table №9: Results of the correlation analysis for the first outer model

	Resilience	SocCap	ISO	Opportunity-Int
Gender Role Orientation of management	n.s.	PC: -0.37	n.s.	n.s.
Gender Role Orientation of respondent	n.s.	PC: -0.31	n.s.	n.s.
Nationality (Russian)	n.s.	PB: -0.32	n.s.	n.s.

	<b>Resilience</b>	<b>SocCap</b>	<b>ISO</b>	<b>Opportunity-Int</b>
<b>Relations with suppliers</b>	n.s.	PC: 0.47	PC: 0.40	PC: 0.38
<b>Relations with consultants</b>	n.s.	PC: 0.39	PC: 0.33	PC: 0.32
<b>Relations with alliances</b>	n.s.	PC: 0.42	n.s.	PC: 0.35
<b>Relations with HR</b>	n.s.	PC: 0.51	n.s.	PC: 0.31
<b>Relations with Academies</b>	n.s.	PC: 0.49	n.s.	n.s.

Source: prepared by authors

*FIM.* None of the next following individual characteristics has significant correlation with the variables of the FIM: position in the company, age, city, tenure, and actual gender or Gender Role Orientation preference. The most vulnerable to the contextual factors turned to be Social Capital. It supports our notion to start decision-making process from the assessing value of Social Capital. Internal environment, in particular relatedness, is also strongly affected by existing relations. To avoid multicollinearity, we decided to keep Relations with supplier, GRO of management and nationality as controls.

Table №10 Results of the correlation analysis for the second outer model

	<b>IWB</b>	<b>Ability1</b>	<b>Ability2</b>	<b>Motivation</b>	<b>Opp.-Int</b>
<b>Intrinsic past experience</b> (volunteering)	PB: 0.28	n.s.	n.s.	n.s.	n.s.
<b>Job location</b> (St.Petersburg)	SR: -0.21	n.s.	n.s.	PB: 0.26	n.s.
<b>Nationality</b> (Russian)	n.s.	n.s.	n.s.	n.s.	PB: 0.28
<b>Innovative Strategic Orientation</b> (av.)	n.s.	n.s.	n.s.	SR: 0.30	PC: 0.29

Source: prepared by authors

*SIM.* Correlation between HIWS (Opportunity-Int) and Innovative strategic orientation (ISO) is consistent with our theoretical assumptions (table №1), however we expected the level of correlation to be higher. Lower level of correlation could signify intuitive approach to SHCM without intention to fit it to the Organizational Identity, in particular to the general corporate strategy, operationalized through Strategic Orientations. We also found interesting a positive significant correlation between gender role orientation of employees and of their managers (0.215), which might be explained by corporate identity specificity, however the level of correlation is not high, providing more freedom for employees. Another interesting findings are driven by a negative correlation between experience of army service and perceived turbulence (-0.25), and between volunteering experience in the past and full-time work in the present (-0.26), which slightly support suggestions about effect of past experience at the perception of present opportunities and facts. Shifting to a Spearman's rank correlation coefficients revealed positive correlation between job location and Innovative strategic orientation, which might signify nonlinear effect of institutional isomorphism (0.24), however, CFA of ISO variable was not satisfactory. Question about Nationality, turned to be too sensitive for respondents. Taking into consideration these facts and a sample size, we decided to control only for a job location.

## Findings

Table №11 illustrates results of the regression analysis. We applied OLS method, performed in StataSE13 (test for normality was positive). In order to confirm mediation

hypotheses, we followed a 4-steps guideline of Baron and Kenny (1986), and Judd and Kenny (1981):

1. To prove significance of the direct path between an independent and a dependant variable. Only Motivation variable passed this step. There is no direct path between Opportunity-Int and IWB or Opportunity and Ability.
2. To prove existing path between the regressors and the mediators. All direct paths were statistically significant.
3. To prove that the mediator has statistically significant relationship with the independent variable, while controlling for the observed regressor. Both Ability and Motivation variables passed this step.
4. If the dependent variable at this time will not have the statistically significant relationship, the mediation could be treated as a full one. Full mediation is confirmed.

Table №11: Results of OLS regression, standardised parameters

Model	Opp-Int-Motivation-Ability-IWB						Motivation-Ability-IWB			
	IWB	IWB	Motiv.	Abil.	Abil.	IWB	IWB	IWB	Abil.	IWB
Y										
Control-city	-0.4“	n.s.	n.s.	-0.3“	n.s.	-0.4*	n.s.	n.s.	-0.3“	-0.4*
x1-Ability	-	<b>0.7***</b>	-	=y	=y	-	0.7***	0.7***	=y	-
x2-Motiv	-	n.s.	=y	0.2“	-	-	-	n.s.	<b>0.2*</b>	0.2***
x3-Opp.-Int	-	n.s.	<b>0.5***</b>	n.s.	n.s.	n.s.	-	-	-	-
R <sup>2</sup> 4%		54%	20%	9%	5%	6%	53%	54%	8%	12%

Comments: “10% significance level, \* 5%, \*\*1%, \*\*\*0,01%

Therefore:

1. **H1** is confirmed: *Ability* has positive relations with IWB (0.7);
2. **H2** could not be confirmed due to poor CFA of learning agility;
3. both statements of **H3** are confirmed: *Motivation* has positive effect on *Ability* (0.2), and thus positive mediated effect on IWB (0.2);
4. only first statement of **H4** is confirmed: *Internal Opportunity* has positive effect on *Motivation* (0.5), but it does not have positive mediated effect on IWB.

Besides, there is negative effect of the job location in St.Petersburg on IWB, however, statistical significance of this relationship is low.

Additional analysis was made with assumption that poor CFA tests regarding learning agility and environment turbulence might happen due to lower sample size. Disregarding results of these tests, we incorporated these two variables into the model, which brought us to similar outcomes: all hypotheses are confirmed, except second statement of the H4 with regards to mediated effect of HIWS on the IWB: Motivation - Learning Agility (0.39), Learning Agility - Creativity (0.41), Creativity - IWB (0.63). Control for city and turbulent environment showed that Saint-Petersburg environment has negative relationship with IWB (-0.13), turbulent environment – positive (0.15).

## Conclusion and discussion

This research contributes to the search of suitable and sustainable strategy of managing corporate human capital, as important source of organizational resilience and a basement for a competitive advantage of the firm. Literature review provided suggestion that resilience is important at the situation when environment turbulence is high and thus implies HIWS

approach to employees. Interviews with the companies supported suggestions that on the individual level employees bring additional flexibility to the company being engaged into IWB. Therefore, current research reveals insights on the personal experience of engagement and its antecedents, like employee's past experience, institutional environment or individual characteristics. As result, we did not find interception between gender, generation, gender role orientation (GRO), level of position or tenure with IWB, motivation or ability. However, there is positive correlation between IWB and intrinsic past experience, as well as cultural environment, predefined by job location. There is also significant correlation between GRO and social capital, and between relations with stakeholders and ISO, HIWS, Social capital. This findings increase motivation for further research about role of social capital in competitive advantage of firms in CIS countries.

Compelling observations were obtained in result of splitting creativity into two dimensions – actual and potential one. It exposed interesting for Human Resources Development mechanism: higher affective job satisfaction stimulates employees to uncover own potential and thus become more creative. However, external contextual factors might strongly affect the outcome, meaning that it is not enough for SHCM approach to be effective – first, it should be suitable and match external requests, embedding cultural specificity and accounting for organizational strategic orientation. However, not satisfactory CFA tests results with regards to variables, related to environment turbulence and learning agility motivate for testing other scales, which could overcome issue of sensitivity towards questions about own competence. For instance, Sherehiy et al. (2007) systematize scales incorporating characteristics of employees' psychological capital along with learning agility, which might become a missing element in the current scale.

General limitation of the current research is its exploratory nature, resulting in smaller sample and exploitation of scales, which were not tested in local environment (except for turbulent environment construct). The design of the research implied Structural Equation Modelling (SEM), however small sampling at the first stage motivated search of other methods. Test for normality was positive, so OLS multivariate regression was favored, however PLS method could provide alternative explanation to the unconfirmed relations between HIWS and IWB. Sensitivity of important questions, related to competence and relatedness, alongside with emergent state of HIWS prototype inspire more qualitative researches, aiming to reveal opportunities for overcoming barriers for its implementation.

Another limitation relates to the variables, for instance Messmann and Mulder (2012) highlight two characteristics of IWB - its dynamic and context-bound nature. Referring to the past experience during the preceding year and controlling for contextual factors decreased this issue, but might not resolve it fully. Another limitation is having just one dependent variable – IWB, and neglecting other possible products of HPWS, like productivity, organizational citizenship behavior, due to the purpose of the research. Nevertheless, additional literature review or qualitative research could help revealing more products of HIWS and thus enrich its value.

Nevertheless, there are several important inputs made by the research. Academically wise, several scales passed approbation for the local contextual specificity: SIS scale for gender role orientation (Palan et al., 1999), a Brief Index of Affective Job Satisfaction (AJS) developed by Thompson and Phua (2012). Finally, we tested applicability of a newly introduced concept “latent Human Capital Management strategy”, which has potential to simplify decision process about strategic HCM suitability.

Key practical finding is that currently in CIS countries focus on HRD brings more valuable outcome than HCM. It means that a) reaching higher alignment between HCM and HRD needed; b) HIWS is still emerging approach for companies, promising to be a new source of a competitive advantage of the firm.

## References

- Appelbaum, E. (2000). Manufacturing advantage: Why high-performance work systems pay off // *Cornell University Press*.
- (8) Anderson, B.S., Kreiser, P.M., Kuratko, D.F., Hornsby, J.S., Eshima, Y. (2015). Reconceptualizing entrepreneurial orientation // *Strategic Management Journal*, 36(10), 1579-1596.
- Axtell, C.M., Holman, D.J., Unsworth, K.L., Wall, T.D., Waterson, P.E., Harrington, E. (2000) Shopfloor innovation: Facilitating the suggestion and implementation of ideas // *Journal of Occupational and Organizational Psychology*, 73 (3): 265–285.
- (9)Aziz, S., Wuensch, K.L., Duffrin, C. (2015) Workaholism, Exercise, and Stress-Related Illness // *Journal of Workplace Behavioral Health*, Vol. 30. № 4. P. 393-406.
- Bakker, A.B. (2008). The work-related flow inventory: Construction and initial validation of the WOLF. *Journal of vocational behavior*, 72(3), 400-414.
- Baron, R.M., Kenny, D.A. (1986) The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations // *Journal of personality and social psychology*, 51(6), 1173.
- (5)Bourdieu, P. (1986). The forms of capital // *Handbook of theory and research for the sociology of education*, pp. 241–258.
- Bordunos A., Kosheleva. S. (2015). The role of external reference standards in leveraging maturity of a Human Capital Management System // In *Proceedings of the GSOM Emerging Markets Conference-2015: Business and Government Perspectives, Doctoral Colloquium*. St-Petersburg University, Graduate School of Management, p. 80.
- Braun V., Clarke V. (2006) Using thematic analysis in psychology // *Qualitative Research in Psychology*. Vol. 3. № 2. P. 77-101
- Chang, K.C., Wong, J.H., Li, Y., Lin, Y.C., Chen, H.G. (2011). External social capital and information systems development team flexibility. // *Information and Software Technology*, 53(6), 592-600.
- Choi, N., Fuqua, D.R. (2003) The structure of the Bem Sex Role Inventory: A summary report of 23 validation studies // *Educational and Psychological Measurement*, 63(5), 872-887.
- Crossan, M.M., Apaydin, M. (2010) A multi- dimensional framework of organizational innovation: A systematic review of the literature // *Journal of management studies*, 47(6), 1154-1191.
- (11) De Jong, J., Hartog, D. (2010) Measuring innovative work behaviour // *Creativity and Innovation Management*, 19(1), 23-36.
- Deci, E.L., Ryan, R.R. (2000) Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions // *Contemporary Educational Psychology*, 25 (1): 54-67.
- Deci, E.L., Ryan, R.M. (2002) Self-Determination Research: Reflections and Future Directions // *Handbook of self-determination research*, 431.
- Dobusch L., Kapeller J. (2013). Breaking new paths: theory and method in path dependence research // *Schmalenbach Business Review*, 65, pp. 288-311
- Drazin, R., Glynn, M.A., Kazanjian, R.K. (1999) Multilevel theorizing about creativity in organizations: A sense making perspective // *The Academy of Management Review*, 24: 286-301.
- Dyer, J., Gregersen, H., Hristensen, C.M. (2011) The innovator’s DNA // *Harvard Business Review Press*, 87.
- Galang M.C. (1999) Stakeholders in high-performance work systems // *International Journal of Human Resource Management*, 10 (2), pp. 287-305.
- Ganli L., Long Y., Ming G. (2014) Effect of high performance work system on organizational citizenship behaviors from china new generation employees // *Pakistan Journal of Statistics*, 30 (5), pp. 911-922.

- (4) Gilmore, J. H., Pine, J. (1999) *The experience economy* // Cambridge: Harvard Business School Books.
- Hamel, G., Valikangas, L. (2003). The quest for resilience // *Harvard business review*, 81(9), 52-65.
- Hansen, M., Birkinshaw, J. (2007) The Innovation Value Chain // *Harvard Business Review*, June.
- Holman, D., Totterdell, P., Axtell, C., Stride, C., Port, R., Svensson, R., Zibarras, L. (2012) Job design and the employee innovation process: The mediating role of learning strategies // *Journal of Business and Psychology*, 27(2), 177-191
- Hon, A.H., Bloom, M., Crant, J.M. (2014). Overcoming resistance to change and enhancing creative performance // *Journal of Management*, 40(3), 919-941.
- Hulland, J. (1999) Use of partial least squares (PLS) in strategic management research: A review of four recent studies // *Strategic Management Journal*, 20(2), 195-204.
- Judd, C.M., Kenny, D.A. (1981) Process analysis estimating mediation in treatment evaluations // *Evaluation review*, 5(5), 602-619.
- Lepak, D.P., Snell, S.A. (2002) Examining the human resource architecture: The relationships among human capital, employment, and human resource configurations // *Journal of management*, 28(4), 517-543.
- Kaplan, S., Orlikowski, W. (2014). Beyond forecasting: creating new strategic narratives // *MIT Sloan Management Review*.
- (1) Katkalo, V. S. (2006). Evolution of Strategic Management Theory // *St. Petersburg. St. Petersburg State University*.
- Katou, A.A., Budhwar, P.S., Patel, C. (2014) Content vs. Process in the HRM Performance Relationship: An Empirical Examination // *Human Resource Management*, 53(4), pp. 527-544.
- Khan, M.T., Humayun, A.A., Sajjad, M. (2015). Connotation of “Human Capital: Concept, Effects and Benefits (Review) // *Business and Management*, 7(1).
- Lawler J.J., Chen S.-J., Wu P.-C., Bae J., Bai B. (2011) High-performance work systems in foreign subsidiaries of American multinationals: An institutional model // *Journal of International Business Studies*, 42 (2), pp. 202-220. DOI: 10.1057/jibs.2010.42
- Lin, N., Cook, K.S., Burt, R. S. (Eds.). (2001). *Social capital: Theory and research*. Transaction Publishers.
- Linnenluecke, M. (2015). Resilience in business and management research: a review of influential publications and a research agenda // *International Journal of Management Reviews*.
- Lombardo, M.M., Eichinger, R.W. (2000) High potentials as high learners // *Human Resource Management*, 39(4), 321-329.
- Lumpkin, G.T., and Dess, G.G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of management Review*, 21(1), 135-172.
- Messmann, G., Mulder, R.H. (2012) Development of a measurement instrument for innovative work behaviour as a dynamic and context-bound construct // *Human Resource Development International*, 15(1), 43-59.
- Mihail D.M., Links M.M., Sarvanidis S. (2013) High performance work systems in corporate turnaround: A German case study // *Journal of Organizational Change Management*, 26 (1), pp. 190-216.
- Mitchinson, A., Morris, R. (2011) Learning about Learning agility. Center for Creative Leadership. <http://www.ccl.org/leadership/pdf/research/LearningAgility.pdf>, accessed 04 December 2015.
- Nasution, H.N., Mavondo, F.T., Matanda, M.J., Ndubisi, N.O. (2011). Entrepreneurship: Its relationship with market orientation and learning orientation and as antecedents to innovation and customer value // *Industrial Marketing Management*, 40(3), 336-345.

- (7) Nybakk, E. (2012) Learning orientation, innovativeness and financial performance in traditional manufacturing firms: a higher-order structural equation model // *International Journal of Innovation Management*, Vol.16. № 5.
- Pine, B.J., Gilmore, J.H. (1998). *The experience economy* // Harvard Business Press.
- Pine, B. J., and Gilmore, J. H. (2011). *The experience economy: work is theater & every business a stage* // Harvard Business Press.
- Pichler S., Varma A., Yu A., Beenen G., Davoudpour S. (2014) High performance work systems cultures and gender demography // *Employee Relations*, 36 (6), pp. 693-707. DOI: 10.1108/ER-11-2013-0165
- Ployhart, R.E., Bliese, P.D. (2006) Individual adaptability (I-ADAPT) theory: Conceptualizing the antecedents, consequences, and measurement of individual differences in adaptability. *Understanding adaptability: A prerequisite for effective performance within complex environments* (Vol. 6). Burke, C. S., Pierce, L. G., & Salas, E. (Eds.) // Emerald Group Publishing.
- Podsakoff, P.M., MacKenzie, S.B., Lee, J.Y., Podsakoff, N.P. (2003) Common Method Biases in Behavioural Research: A Critical Review of the Literature and Recommended Remedies // *Journal of Applied Psychology*, 88, 879–903
- Pulakos, E.D., Arad, S., Donovan, M.A., Plamondon, K.E., 2000. Adaptability in the workplace: development of a taxonomy of adaptive performance // *Journal of Applied Psychology* 85 (4), 612–624.
- (12) Ryan, R.M., Deci, E.L. (2000) Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being // *American Psychologist*. Vol. 55. P. 68–78.
- Salanova, M., Llorens, S., Cifre, E., Martínez, I.M. (2012). We need a hero! Toward a validation of the healthy and resilient organization (HERO) model // *Group & Organization Management*, 37(6), 785-822.
- Scott, W.R. (2013). *Institutions and organizations: Ideas, interests, and identities* // Sage Publications.
- Shalley, C.E., Gilson, L.L., Blum, T.C. (2009). Interactive effects of growth need strength, work context, and job complexity on self-reported creative performance // *Academy of Management Journal*, 52(3), 489-505.
- Sharifi, H., Zhang, Z. (1999). A methodology for achieving agility in manufacturing organisations: An introduction // *International journal of production economics*, 62(1), 7-22.
- Sherehiy, B., Karwowski, W., Layer, J.K. (2007). A review of enterprise agility: Concepts, frameworks, and attributes // *International Journal of industrial ergonomics*, 37(5), 445-460.
- (6) Smirnova, M., Naudé, P., Henneberg, S. C., Mouzas, S., & Kouchtch, S. P. (2011). The impact of market orientation on the development of relational capabilities and performance outcomes: The case of Russian industrial firms // *Industrial Marketing Management*, Vol. 40. № 1. pp. 44-53.
- (3) Stevens, C. (1996). The knowledge-driven economy // *The OECD Observer*, Vol. 200, p. 6.
- Thompson, E.R., Phua, F.T. (2012) A brief index of affective job satisfaction // *Group & Organization Management*, 37(3), 275-307.
- Tsui A.S. (2006) Contextualization in Chinese management research // *Management and Organization Review*. Vol. 2. № 01. P. 1-13.
- Palan, K.M., Areni, C.S., Kiecker, P. (1999) Reexamining masculinity, femininity, and gender identity scales // *Marketing Letters*, 10(4), 357-371.
- Rao, J., Weintraub, J. (2013) How Innovative Is Your Company's Culture? // *MIT Sloan Management Review*, 54(3), 29.
- (10) Van Dick R., Grojean, M.W., Christ, O., Wieseke, J. (2006) Identity and the extra mile: Relationships between organizational identification and organizational citizenship behaviour // *British Journal of Management*. Vol.17. № 4. P. 283-301.

- Wei L.-Q., Lau C.-M. (2010) High performance work systems and performance: The role of adaptive capability // *Human Relations*, 63 (10), pp. 1487-1511. DOI: 10.1177/0018726709359720
- West, M.A. (2002) Sparkling fountains or stagnant ponds: An integrative model of creativity and innovation implementation in work groups // *Applied Psychology*, 51 (3): 355–387.
- Williamson, O.E. (2000) The new institutional economics: taking stock, looking ahead // *Journal of economic literature*, 38(3), 595-613.
- Wong, K.K.K. (2013) Partial least squares structural equation modeling (PLS-SEM) techniques using SmartPLS // *Marketing Bulletin*, 24(1), 1-32.
- Zhu, H., Djurjagina, K., Leker, J. (2014) Innovative behavior types and their influence on individual crowdsourcing performance // *International Journal of Innovation Management*, 18 (6): 1440015-1-1440015-18.
- (2) Zmud, R.W., Boynton, A.C., Jacobs, G.C. (1986). The information economy: A new perspective for effective information systems management // *ACM SIGMIS Database*, 18(1), 17-23.