

# Knowledge Sharing Barriers in Russian Universities' Administrative Subdivisions

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**Abstract:** The paper investigates the influence of a set of twelve various nature knowledge sharing barriers (shortly, KSBs) on the knowledge sharing speed and quality in the administrative subdivisions of six leading Russian universities. The respondents have been answering the questionnaire including questions regarding the KSBs' perceived strength from the knowledge requester and knowledge holder positions, thus creating four models tested via the IBM SPSS Statistics 22 package as linear regression equations. The testing results are showing statistically significant influence of several KSBs on the knowledge sharing speed and quality. The methodology and results of the study have both practical applicability and theoretical value, as administrative subdivisions are considerably unpopular objects of knowledge sharing research in higher educational institutions, in contrast to the research and teaching subdivisions. Several further research development directions are suggested, considering both the sample extension and changes in the research methodology.

**Keywords:** knowledge sharing, knowledge sharing barriers, knowledge holders and requesters, higher educational institutions, educational administration, educational institutions' administrative subdivisions

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## 1. Introduction

The notion of knowledge sharing barriers (an abbreviation "KSB" would also be used further) is a popular issue in knowledge management literature; from different industries that have received knowledge sharing barriers scholars' attention one of the most popular is higher education (Vashisth, Kumar and Chandra, 2010; Fullwood, Rowley and Delbridge, 2013). However, most studies of knowledge sharing barriers in higher education are focused on the academic staff and/or the students. The administrative employees are a rather unpopular research object (Kumaraswamy and Chitale, 2012; Jolaei, et al., 2014; Veer Ramjeawon and Rowley, 2017), despite their specific position compared to the other university staff.

The paper describes the results of the quantitative research examining the KSBs influence on the knowledge sharing speed and quality as perceived by the respondents from administrative subdivisions of several Russian universities. Current research follows the qualitative study for figuring out and classifying the perceived barriers to knowledge sharing faced in work activities of the particular University's administrative personnel (Blagov, et al., 2017), and is a further extension of the conference thesis (Blagov, Pleshkova and Begler, 2018).

## 2. Related studies

### 2.1 Knowledge sharing barriers classifications

The concept of knowledge sharing barriers reveals an idea that knowledge sharing in various contexts can be impeded by factors of various nature. This problem's importance can be illustrated by a fact that although knowledge management, including knowledge sharing studies, has begun developing as a specific research area since middle-late 1980's (e.g., the first use of the term "knowledge management" as a specific functional management area is attributed to K. Wiig (1988 (1986))), the discussion of factors impeding knowledge sharing has taken place in literature since even earlier times: e.g., in (Riege, 2005) this discussion is traced back to as early as (Katz and Allen, 1982).

Multiple KSB studies have been classifying and categorizing these barriers using several criteria. A popular classification distinguishes between "hard" barriers based on the peculiarities of the IT infrastructure used for knowledge sharing in researched context and "soft" barriers based on knowledge sharing process participants' personal psychological traits or the organisational structure and culture peculiarities in the researched organisations (Van den Hooff and de Ridder, 2004).

Another popular categorizing criterion is the hierarchical level of the barrier, e.g., individual, inter-individual, organisational, or external to the organisation (Riege, 2005; Olaniran, 2017). Finally, KSBs can be divided into the “demand side” barriers appearing on the side of knowledge sharing process participants requesting to get necessary knowledge, and the “supply side” barriers appearing on the side of the participants holding necessary knowledge (Husted and Michailova, 2002; Van den Hooff and de Ridder, 2004). Further in the paper, these sides will be further addressed as, respectively, “knowledge requesters” and “knowledge holders”.

In the current study, a set of barriers, comprising both “hard” technological and “soft” organisational barriers of various hierarchical levels, is analysed from the point of view of the respondents both as knowledge requesters and knowledge holders.

## **2.2 Knowledge sharing barriers in higher educational institutions’ administrative subdivisions**

Higher educational institutions are a considerably popular object of KSB studies. Most of such studies, though, are focused on the processes of knowledge sharing between the academic staff and/or the students, while the topic of the barriers to knowledge sharing between the higher educational institutions administrative employees receives much less attention (Kumaraswamy and Chitale, 2012; Veer Ramjeawon and Rowley, 2017). Nevertheless, this topic is interesting and important both from theoretical and practical perspectives.

Its theoretical importance lies in the ambiguous nature of the higher educational institutions’ administrative subdivisions in terms of the organisational culture friendliness to knowledge sharing. Indeed, higher educational institutions are widely recognized as highly tolerant to knowledge sharing (Fullwood, Rowley and Delbridge, 2013). However, this attitude is mainly based on researching knowledge sharing behavior of academic (i.e., research and pedagogical) staff and students, rarely including administrative staff, and when including – mainly researching their interaction with the abovementioned academic and student groups (Hamid, 2008; Kumaraswamy and Chitale, 2012; Blagov, et al., 2017). Higher educational institutions, though, usually tend to have hierarchical organisational structure with high centralization and formalization level (Billing, 1998; Blagov, et al., 2017), that is generally regarded as negatively influencing knowledge sharing intensity and efficiency (Rezaeian and Bagheri, 2017). This ambiguity also explains the practical importance of the topic, as increasing knowledge sharing intensity and quality in supporting administrative subdivisions can undoubtedly increase education quality in the respective educational programmes, at least by time expenses decrease (Zhukova, et al., 2016; Noaman, et al., 2017; Soares, Novaski and Anholon, 2017).

## **3. Research design and methodology**

Based on the actuality described above, an idea of the research project of which this paper is a part consists in specific in-depth inquiry into the knowledge sharing barriers faced by the administrative personnel of the higher educational institutions. The current study is investigating the influence of a set of KSBs on knowledge sharing in the administrative subdivisions of several universities. The methodology of the study is quantitative, based on a regression analysis of the independent variables (knowledge sharing barriers) influence on the dependent ones (knowledge sharing parameters).

### **3.1 Variables of the study.**

The **dependent** variables of the study, continuing the recommendations and further research suggestions of the work (Blagov, et al., 2017) uncover knowledge sharing speed and quality, looked upon from the knowledge requester and the knowledge holder point of view.

In the study questionnaire, the respondents answer to four question sets, asking about:

- 1.1 KSBs’ influence on the speed of knowledge obtaining by the respondents’ request (with the respective dependent variable further in the text referred to as  $DV_{11}$ ; the regression model with the  $DV_{11}$  dependent variable will be further also referred to as Model 11);
- 1.2 KSBs’ influence on the quality of knowledge obtained by the respondents’ request (respectively,  $DV_{12}$  and Model 12);
- 2.1 KSBs’ influence on the respondents’ speed of knowledge sharing by request (respectively,  $DV_{21}$  and Model 21);
- 2.2 KSBs’ influence on the quality of knowledge shared by the respondents by request (respectively,  $DV_{22}$  and Model 22).

The **independent** variables are mainly based on the results of the qualitative study described in (Blagov et al., 2017).

This work is using the grounded theory methodology, figuring out the factors perceived by the respondents as barriers to sharing necessary professional knowledge in their work activities from the unstructured interview transcripts.

The respondents of this stage had been 9 employees of the administrative subdivisions of one of the leading Russian universities involved in managing a particular Bachelor level educational programme. These respondents have been asked a question (in Russian language) translated to English as “How do you think, what factors are hampering the transfer of necessary knowledge in the usual knowledge sharing processes you are engaged in when taking part in the Programme’s management?”. From the transcripts of the respondents’ recorded reflections on this question (with a typical interview lasting from 30 to 40 minutes) the “first level” constructs, representing the respondents’ thoughts about the KSBs interfering with their work activities, have been figured out (more specific than the unstructured speech in the transcripts, but still individual for each respondent). These “first level constructs” have then been generalized into the “second level constructs” demonstrating commonalities between the respondents in perceiving the factors of various nature as KSBs.

However, the resulting “second level constructs” (possibility of documents loss in the obligatory all-University electronic document management system; low compatibility of document management systems used by different subdivisions; absence of possibility of simultaneous document editing by different users; absence of conference calls equipment; absence of electronic signature official recognition; ambiguous subordination structure; ambiguous job instructions; lack of understanding of what employee has what knowledge; lack of motivation to share knowledge as activity not included into the regular job duties; excessive communication processes centralization) are also too organisational-specific to be used as variables for quantitative studies of more wide and diverse samples, as no less than a half of these constructs are related to the specifics of not even a University as a whole, but a specific educational programme with its place in the University’s organisational structure and curriculum in particular.

Thus, these “second level constructs” have been generalized to constructs transcending the organisational specificity, being close by the abstraction level to typical KSB formulations in quantitative studies on the topic (reviewed in such works as, e.g., (Paulin and Suneson, 2012) or (Cleveland and Ellis, 2015)). These constructs are the basis of 9 of 12 independent variables of the study.

To these generalized constructs, several else constructs have been added as basis of the study variables, related to the former by the nature of barriers and having been used in literature as variables in the KSB studies together with the variables close to the generalized constructs.

The first of such constructs, the “requested knowledge importance for its holder”, is based on an interpretation of knowledge, as well as data and information, as a source of its holder’s bargaining power in relations with any counterparty, like any other resource or production factor (De Long and Fahey, 2000; Husted and Michailova, 2002). Thus, if the holder of a knowledge resource realises its properties of being “valuable, rare, inimitable and non-substitutable” in terms of (Barney, 1991), she could be reluctant to share it due to fear of jeopardizing this bargaining power (Cabrera and Cabrera, 2005; Sharma, Singh and Neha, 2012). This seems especially interesting for the higher educational institutions’ administrative subdivisions due to their organisational culture ambiguity, as the reluctance to share knowledge due to fear of its jeopardizing as a bargaining power source is described in literature as one of the traits differentiating more from less knowledge sharing tolerant organisational cultures (Kogut and Zander, 1992; Evans and Qureshi, 2013; Gu, et al., 2014).

Another recognised trait differentiating more from less knowledge sharing tolerant organisation cultures is the influence of the personal enmity between the knowledge holders and requesters on knowledge sharing (Bishop, et al., 2009), also seeming an interesting research object due to the organisational culture ambivalence of the higher educational institutions’ administrative subdivisions. Indeed, a traditional understanding of knowledge sharing tolerant organisational culture in knowledge intensive organisations implies overcoming of personal enmity as a knowledge sharing barrier due to the common understanding of knowledge sharing advantageousness for all its participants and for the organisation as a whole (Evans and Qureshi, 2013; Gu, et

al., 2014); in the heavily centralized bureaucratic organisational cultures it can be, on the contrary, a significant KSB (Rezaeian and Bagheri, 2017).

Finally, an interesting factor to be used as a basis for the independent variable of the study is a time deficit to share knowledge due to work overload, described as a significant knowledge sharing barrier in various studies of KSB as such (e.g., Husted and Michailova, 2002; Cleveland and Ellis, 2015) and KSB in higher education institutions in particular (Soares, Novaski and Anholon, 2017; Veer Ramjeawon and Rowley, 2017).

The resulting list of constructs is the following:

1. Low compatibility of document management systems used by a respondent and her colleagues;
2. Insufficiencies of document management systems used by a respondent and her colleagues;
3. Complexity of learning to use the document management systems used by a respondent and her colleagues;
4. Insufficiently strict job duties regimentation of the respondent and her colleagues;
5. Insufficient clarity of instructions given by the senior management to the respondent and colleagues;
6. Too strict job duties regimentation of the respondent and colleagues;
7. Insufficient level of decision making authority delegation given by the senior management to the respondent and colleagues;
8. Lack of material remuneration for knowledge sharing;
9. Lack of immaterial remuneration for knowledge sharing;
10. Requested knowledge importance for its holder;
11. Personal enmity between the respondent and her colleagues;
12. Time deficit to share knowledge due to work overload.

The independent variables of the study reflect the influence of these constructs as perceived barriers on the knowledge sharing parameters (described by the dependent variables).

Thus, the numeration of the independent variables is following the pattern  $IV_{xy}$ , where “x” is the number of the dependent variable, and “y” is the number of the construct in the list above. Thus, e.g., the perceived influence of the low compatibility of document management systems used by a respondent and colleagues on the  $DV_{11}$  will be having an index  $IV_{111}$ , and the time deficit influence on the  $DV_{21}$  will be having an index  $IV_{2212}$ .

### **3.2 Hypotheses**

The hypotheses of the research thus include 4 groups based on the respective dependent variables, each including 13 sets related to the respective independent variables. Each of the sets, in their turn, comprise the zero hypothesis ( $H_0$ ), suggesting absence of statistically significant relationship between the dependent and independent variables, and the alternative hypothesis ( $H_1$ ), suggesting the existence of such relationship.

The hypotheses numeration has a pattern  $H_{l,m,n}$ , where  $l = \{0; 1\}$  shows whether the hypothesis is zero or alternative,  $m = \{11; 12; 21; 22\}$  shows the dependent variable of the hypothesis, and  $n = \{1...12\}$  shows the “y” part (number in the constructs list) of the respective independent variable index.

The hypotheses formulations in each zero/alternative hypothesis set are identical.

For example, a hypothesis having an index  $H_{0,11,1}$  has a following formulation:

“Low compatibility of document management systems used by a respondent and colleagues does not exert a statistically significant influence on the speed of knowledge obtaining by the respondents’ request”.

A hypothesis having an index  $H_{1,11,1}$ , in its turn, has a formulation “Low compatibility of document management systems used by a respondent and colleagues exerts a statistically significant negative influence on the speed of knowledge obtaining by the respondents’ request”.

### **3.3 Sample and data collection**

The sample of the study comprised employees of the administrative subdivisions of 6 Russian universities. The respondents have been contacted via corporate e-mail addresses by messages containing short explanation of research motivation, approximate survey time (about 3-5 minutes) and link to the questionnaire created using the Qualtrics online platform with anonymous data collection. 283 e-mails have been sent, 106 respondents

have begun answering the questionnaire, giving the response rate of 37.46%; 97 respondents have answered all the questions, thus, giving the final response rate of 34.28%.

The questionnaire contained two sections for the knowledge requester and knowledge holder positions containing 20 questions each: 2 for dependent variables, 12 for independent variables, and 6 demographic questions. The survey questions (except for demographic questions) were presented using the Likert type scales from 1 to 7. In the dependent variable questions, the “1” answer option indicates the respondent’s perceived total dissatisfaction with the knowledge sharing speed or quality (from the perspective of the knowledge requester or the knowledge holder); the “7” answer option indicates the perceived total satisfaction. In the independent variable questions, the “1” answer option indicates the perceived absence of the KSB’s influence on the dependent variable, while the “7” indicates the perceived maximal influence.

#### **4. Results**

The hypotheses have been tested with linear regression equations in IBM SPSS Statistics 22 statistical package. Four equations have been constructed, depicting the models 11-22, i.e., four dependent variables and the influence of the 13 independent variables on each of these.

According to the indices of the dependent and independent variables described in the paragraph 3.1, the general specification of the linear regression equations can be represented as:

$$DV_i = \beta_0 + \beta_1 * IV_{i1} + \dots + \beta_{12} * IV_{i12} + \varepsilon_i,$$

where “*i*” is the index of the respective dependent variable.

After initial testing of each of the four regression equations, necessary diagnostic tests have been made, including the White’s heteroskedasticity test that has given a positive result for each of the regression equations. Thus, assessing the regression equations has been made using the robust standard errors assessment procedure. The Table 1 demonstrates the linear regression equations testing results.

**Table 1:** Linear regression equations testing results

	<i>DV<sub>11</sub></i>		<i>DV<sub>12</sub></i>		<i>DV<sub>21</sub></i>		<i>DV<sub>22</sub></i>	
	p-value	<i>IV</i> coefficient						
<i>IV<sub>111</sub></i>	<b>0.001</b>	<b>-0.5347</b>						
<i>IV<sub>112</sub></i>	0.355	0.1454						
<i>IV<sub>113</sub></i>	0.372	-0.1072						
<i>IV<sub>114</sub></i>	0.837	0.02976						
<i>IV<sub>115</sub></i>	<b>0.046</b>	<b>-0.2154</b>						
<i>IV<sub>116</sub></i>	0.802	-0.0222						
<i>IV<sub>117</sub></i>	0.074	-0.1226						
<i>IV<sub>118</sub></i>	0.905	0.01500						
<i>IV<sub>119</sub></i>	0.728	0.02868						
<i>IV<sub>1110</sub></i>	0.606	0.04543						
<i>IV<sub>1111</sub></i>	0.341	0.08667						
<i>IV<sub>1112</sub></i>	0.156	-0.1740						
<i>IV<sub>121</sub></i>			0.574	-0.0815				
<i>IV<sub>122</sub></i>			0.517	-0.1100				
<i>IV<sub>123</sub></i>			0.549	-0.0935				
<i>IV<sub>124</sub></i>			0.954	0.0091				
<i>IV<sub>125</sub></i>			0.184	-0.1864				
<i>IV<sub>126</sub></i>			0.688	0.0281				
<i>IV<sub>127</sub></i>			0.133	-0.1236				
<i>IV<sub>128</sub></i>			0.154	-0.1771				
<i>IV<sub>129</sub></i>			0.108	0.1225				
<i>IV<sub>1210</sub></i>			<b>0.045</b>	<b>0.2234</b>				
<i>IV<sub>1211</sub></i>			0.345	-0.0738				
<i>IV<sub>1212</sub></i>			<b>0.002</b>	<b>-0.3553</b>				
<i>IV<sub>211</sub></i>					0.302	0.1764		
<i>IV<sub>212</sub></i>					0.909	-0.0186		
<i>IV<sub>213</sub></i>					0.074	-0.4110		
<i>IV<sub>214</sub></i>					0.361	-0.1304		
<i>IV<sub>215</sub></i>					<b>0.039</b>	<b>-0.3289</b>		
<i>IV<sub>216</sub></i>					0.390	0.0758		
<i>IV<sub>217</sub></i>					0.109	-0.1439		
<i>IV<sub>218</sub></i>					0.755	0.0440		
<i>IV<sub>219</sub></i>					0.889	0.0184		
<i>IV<sub>2110</sub></i>					0.366	0.0912		
<i>IV<sub>2111</sub></i>					0.358	-0.1013		
<i>IV<sub>2112</sub></i>					0.869	-0.0211		
<i>IV<sub>221</sub></i>							0.220	-0.2026
<i>IV<sub>222</sub></i>							0.889	0.02144
<i>IV<sub>223</sub></i>							0.360	-0.1987
<i>IV<sub>224</sub></i>							0.960	0.0093
<i>IV<sub>225</sub></i>							0.089	-0.2327
<i>IV<sub>226</sub></i>							0.256	-0.1509
<i>IV<sub>227</sub></i>							0.871	0.0195
<i>IV<sub>228</sub></i>							0.586	-0.0895
<i>IV<sub>229</sub></i>							0.535	0.0955
<i>IV<sub>2210</sub></i>							0.853	-0.0175
<i>IV<sub>2211</sub></i>							0.449	-0.0743
<i>IV<sub>2212</sub></i>							0.667	-0.0724

The independent variable coefficients having *p*-values less than 0.05, making them statistically significant at the 95% significance level, are marked in bold.

*P*-values lower than 0.05 demonstrate the refutation of the respective zero hypotheses and confirmation (in case of the independent variable coefficient negative sign) or refutation (in case of its positive sign) of the alternative hypotheses; *p*-values higher than 0.05 demonstrate the confirmation of the zero hypotheses and refutation of the alternative ones. The alternative hypotheses refutation in the primer case, showing the

statistically significant linkage between the dependent and independent variables, is more informative, than in the latter case; thus, we will be focused on interpreting the coefficients with  $p$ -values lower than 0.05.

The most prominent result is the highest coefficient significance frequency of the independent variables based on the **“insufficient clarity of instructions”** construct, significant in one knowledge requester (Model 11, variable  $IV_{115}$ ) and one knowledge holder model (Model 21, variable  $IV_{215}$ ).

In the Model 11 the coefficient of the independent variable  $IV_{111}$  based on the **“low compatibility of document management systems used by a respondent and colleagues”** construct is also significant. In the Model 12 the variables with the significant coefficients are  $IV_{1212}$  (based on the **“time deficit to share knowledge”** construct) and  $IV_{1210}$  (based on the **“requested knowledge importance for its holder”** construct). The sign of the last one, in contrast to the other statistically significant coefficients, is positive.

The Model 22 has no statistically significant independent variable coefficients.

## 5. Discussion

As noticed above, the most prominent result is that of the **“insufficient clarity of instructions”** variable coefficients significance in two of the four models (Model 11 and Model 21). The coefficients have negative signs, thus proving the hypotheses  $H_{1,11,5}$  and  $H_{1,21,5}$ . This result, although supporting the findings of (Blagov, et al., 2017), may look to an extent counterintuitive, as organisational culture and procedures in the higher educational institutions' administrative subdivisions usually tend to have high formalization and centralization levels resulting in highly detailed job instructions (Haas and Collen, 1963; Billing, 1998; Zhukova, et al., 2016). However, the coefficients' negative signs may show that job instructions in the researched institutions lack adequate descriptions of a significant share of situations faced by the administrative personnel, including, among all, knowledge sharing. An explanation to this could be that the formalization and centralization levels in the researched organisations are too high for such a situation-specific activity as knowledge sharing. Indeed, if due to high centralization and formalization levels most communications between the respective subdivisions' employees are directly governed by the senior management, and some actions, e.g., knowledge sharing, are not described in the employees' job duties, the employees could be reluctant to perform such actions in fear of being punished for performing unsanctioned activities (Chow, 2012).

Both models in which the **“insufficient clarity of instructions”** is significant are having knowledge sharing speed as dependent variable, not knowledge sharing quality. A possible explanation to that could be that requesting necessary knowledge, the requester understands considerably well what exactly she wants to obtain and through what channels can she obtain it. Thus, however insufficient the clarity of the senior management or direct authority's instructions would be, the requester would obtain what she wants according to her own reasoning, that could be more precise and adequate to the necessary knowledge than the seniors' instructions, thus increasing the perceived quality of the shared knowledge, both from the requester and holder perspectives (Ramayah, Yeap and Ignatius, 2013).

This logic can also explain the absence of statistically significant coefficients in the Model 22 (KSBs' influence on the quality of knowledge shared by the respondents by request). In addition to that, lesser quantity of statistically significant coefficients in the **“knowledge holder”** models (Model 21 and Model 22) can be a sign of the respondents' overall tendency to overestimate their knowledge sharing friendliness in comparison with the perceived knowledge sharing friendliness of their colleagues (Afshar-Jalili and Ghaleh, 2018; Fuchs, et al., 2019). Such suggested bias can be a rather interesting object of further research, probably in comparison with the objective knowledge sharing characteristics.

Considering the significant coefficients in the Model 12, an interesting result is the significance of the **“requested knowledge importance for its holder”** variable with the positive sign, refuting the hypothesis  $H_{1,12,10}$ .

Suggestions for possible explanations of this result could be the following.

Firstly it can be suggested that the knowledge holder, being aware that the importance of a certain knowledge resource for her is familiar to the senior management and to the actual or potential knowledge requesters, may fear that her reluctance to share important knowledge may be interpreted by them as a sign of lack of loyalty to

the organisation as a whole or to a particular intraorganisational group (Javernick-Will, 2012). Thus, if the employee holds knowledge that the authority and the colleagues perceive as important for her, this employee could demonstrate a loyal behavior, including sharing the knowledge elements perceived as important (Aslam, Shahzad and Syed, 2013). Such behavior could not obligatory lead to erosion of this knowledge, as the holder could develop methods of sharing some elements of this knowledge that are necessary to the requesters albeit being peripheral in the holder's knowledge resources structure (Adam, Effah and Boateng, 2017).

Secondly, it can be suggested, that if the respective knowledge resource has a specific importance for the knowledge holder, than this resource should have a comparatively high quality that could by itself be adequately perceived by the requester, thus providing the respective result (Ramayah, Yeap and Ignatius, 2013). Moreover, if the knowledge is important for its holder but the holder nevertheless decides to share it more or less completely, a reason for this could be really important for the organisation as a whole or the specific organisational subdivision, causing the knowledge holder to endeavor establishing a high quality of the shared knowledge. Conversely, if the knowledge is not as important and the knowledge sharing transaction is a recurrent operation, the knowledge holder would pay less attention to the shared knowledge quality, probably paying greater attention to the knowledge sharing speed (Hung, Lai and Chang, 2011).

The  $IV_{12}$  variable significance and negative sign in the Model 12, proving the hypothesis  $H_{1-12-12}$  (i.e., the **time deficit** as a significant negative influence on the quality of knowledge obtained by the respondents' request) is rather logical on its own, as well as the insignificance of time deficit in the models 21 and 22, that can be a sign of the abovementioned suggested knowledge holders' bias of overestimation their knowledge sharing friendliness in comparison with the knowledge requesters. However, the time deficit variable insignificance in the Model 11 (KSBs' influence on the speed of knowledge obtaining by the respondents' request), is considerably counterintuitive, as it is logical to suggest that the time related variable would more significantly influence the knowledge sharing speed than quality (Soares, Novaski and Anholon, 2017; Veer Ramjeawon and Rowley, 2017).

This result could have an explanation close to that of the insignificance of the insufficient instructions clarity variable ( $IV_{125}$ ) in the Model 12 compared to the  $IV_{115}$  significance in the Model 11. Indeed, the instructions could specify the necessary timing of knowledge sharing operations more than the specific knowledge sharing channels (Schwaer, Biemann and Voelpel, 2012). In such situation, trying to follow the time regulations while being insufficiently aware of the most efficient and effective knowledge sharing channels, the knowledge holder can use channels of suboptimal quality, thus sharing the requested knowledge in time but with less accuracy or detalization, favouring the knowledge requester's perception of insufficient knowledge sharing quality (Hou and Pai, 2009).

According to such studies of KSBs as a whole as (Riege, 2005; Cleveland and Ellis, 2015) and in higher education organisations in particular as (Vashisth, Kumar and Chandra, 2010; Blagov, et al., 2017), the organisational nature of barriers is primary to the technical nature, i.e., usually organisational nature barriers are more significantly influencing the knowledge sharing speed and quality, and the technical nature ones are often significant only together with the organisational nature ones.

A similar result is demonstrated in the current study, where in the only technical nature barrier significance case ( $IV_{111}$  with a negative sign, proving the  $H_{1-11-1}$  hypothesis) this barrier is accompanied in the respective model significant coefficient list by the abovementioned organisational barrier of insufficient clarity of instructions.

An explanation of this could be that the insufficient clarity of instructions regarding the implementation of any IT system or regarding activities or situations requiring its usage can be a sign of senior management's insufficient understanding of the strategy and tactics of this system or activity implementation (Venkitachalam and Willmott, 2015). Considering the IT support of such activities, such insufficient understanding can lead to, e.g., various systems implementation for the same objectives, that can be perceived as **"low compatibility between such systems used by a respondent and her colleagues"**.

Another interesting thing regarding the "technical" KSBs, i.e., the first three constructs underlying the independent variables, is that the only significant one of these variables ( $IV_{111}$ ) is significant in one of the models with the dependent variable of perceived knowledge sharing speed, while none of these variables is significant in the models with the dependent variable of perceived knowledge sharing quality. This demonstrated higher technical KSBs influence on knowledge sharing speed than quality is rather logical. Indeed, if the knowledge

sharing speed is less important than quality, various channels can be used for sharing this knowledge (or there could be enough time to choose between various channels, choosing that or these with technical parameters most adequate to the objective). If speed is more important, however, technical characteristics of specific sharing channels could be more crucial (Lee, 2018; Dhamdhere, 2015).

## **6. Conclusion**

In conclusion of the article, its methodology and findings are briefly summarized along with description of their scientific novelty and research implications. After that, the implications for practice are suggested. Finally, the limitations of the current research are described and several further research directions are proposed.

### **6.1 Methodology and findings summary and implications for research**

The article describes an inquiry into influence of a set of knowledge sharing barriers (KSB) on knowledge sharing speed and quality perceived by the respondents as knowledge requesters and holders within a sample of employees of administrative subdivisions of 6 Russian universities. The respondents have been given a questionnaire divided into blocks considering the respondent's position as a knowledge requester and holder, each block containing questions regarding both perceived knowledge sharing speed and quality, as well as the influence of the KSBs on these parameters. The answers to the questionnaire have been tested as linear regression equations via the IBM SPSS Statistics 22 package.

The results of the inquiry show the following statistically significant KSB influences in the researched sample:

1. The knowledge sharing speed perceived from the knowledge requester position is negatively influenced by:
  - Low compatibility of document management systems used by a respondent and her colleagues;
  - Insufficient clarity of instructions given by the senior management to the respondent and colleagues.
2. The knowledge sharing quality perceived from the knowledge requester position is:
  - Positively influenced by the requested knowledge importance for its holder;
  - Negatively influenced by the time deficit to share knowledge due to work overload.
3. The knowledge sharing speed perceived from the knowledge holder position is negatively influenced by insufficient clarity of instructions given by the senior management to the respondent and colleagues.
4. The knowledge sharing quality perceived from the knowledge holder position does not have statistically significant KSB influences.

These results (especially a counterintuitive result of the requested knowledge importance positively influencing the knowledge sharing quality) are a contribution to the body of knowledge sharing barriers research, because the research object of the study is rather specific. Indeed, as has been described above, administrative subdivisions of the higher educational institutions are considerably rare research objects in knowledge sharing barriers literature, albeit being different from the research and teaching subdivisions in terms of organizational culture. Thus, the findings demonstrate a scientific novelty and may form the basis of future research.

Methodological contribution of the study to the KSB literature is the division of the questionnaire given to the same respondents into the knowledge holder and requester parts, thus making it possible to compare the same barriers influence on both main sides of the knowledge sharing process without creating specific samples for each of the sides.

### **6.2 Implications for practice**

The educed results allow developing several practical recommendations for the higher educational institutions' administrative subdivisions, regarding improvement of both knowledge sharing speed and quality.

Regarding the **knowledge sharing speed**, the recommendations can be rather straightforward, as the statistically significant independent variable coefficients in the respective models have negative signs, showing the related barriers' negative influence on the knowledge sharing speed perceived by the respondents.

Firstly, such recommendations comprise improving the document management systems involved into knowledge sharing in the institution in the directions of integrity and mutual compatibility between various organisational subdivisions.

Considering the insufficient instructions clarity, the recommendations comprise increasing the detalization and logical consistency of the instructions regarding knowledge sharing in particular and all the job duties that can possibly require knowledge sharing as a whole, thus decreasing the time losses of the knowledge requesters' and holders' mutual reconciliation of what exactly should be shared, as well as of the choice of optimal knowledge sharing channels (Millar, Chen and Waller, 2017).

Recommendations regarding the **knowledge sharing quality** are less straightforward, as one of the statistically significant independent variables (namely, requested knowledge importance for its holder) exerts positive influence on the dependent variable in one of the respective models. Thus, recommendations could suggest measures of increasing this importance as perceived by the knowledge holder, although most theoretical models and practical evidence on the topic rather point that the perceived resource importance can make its holder reluctant to share it due to fear of its jeopardizing (Barney, 1991; Husted and Michailova, 2002). Thus, suggested measures could be oriented at the same time in two different directions. Firstly, to stimulate the knowledge holder's sharing of requested important knowledge (with specific accent on increasing the shared knowledge quality), the holder could be publicly appraised in the organisation as an expert, thus encouraging her to share knowledge on the basis of her professional self-esteem and loyalty to the organisation (Cabrera and Cabrera, 2005). At the same time, to minimize the holder's fear of knowledge jeopardizing, special accent should be made on developing measures of protecting the knowledge holder's intellectual property (Olaisen and Revang, 2017).

Finally, drawing on the educed time deficit influence on the knowledge sharing quality, the time management of the administrative subdivisions' employee job duties should be oriented on leaving a time slack for the knowledge requesters and holders to mutually reconcile the exact requests content as well as knowledge sharing channels (Nohria and Gulati, 1996; Puech and Durand, 2017).

### **6.3 Limitations and further research**

Following the logic of further research suggestions in (Blagov, et al., 2017), further directions of the current research development can be divided into two categories that can be called "extensive" and "intensive" ones. Namely, the "extensive" directions come from the sample size and composition limitations, and thus include various ways of sample widening without changing the research methodology. The "intensive" directions, in their turn, imply modifying the research design for deeper inquiry into some of the educed dependencies or some variables' nature.

Main limitations of the current research are the rather small sample size (97 fully completed questionnaires) and its uniformity (sample of only administrative subdivisions of universities within one country).

Thus, various sample extension ideas can be worked out. Except for the obvious idea of the sample size increase (e.g., including more universities into the sample), first of the **extensive** directions can include a comparison of the administrative subdivisions of the higher educational institutions with the research and teaching ones. Thus, direction and intensity of various KSBs influence on the knowledge sharing speed and quality can be compared between subdivisions with different knowledge sharing tolerance.

Secondly, higher education can be compared with other industries, e.g., linked to material production with various degrees of technological complexity and innovativeness, thus allowing comparing barriers to sharing different knowledge types (Knudsen and Srikanth, 2014; Wiewiora and Murphy, 2015).

Finally, the research sample can be extended to the international level, thus creating the possibility to check the cross-cultural factors influence on the KSBs and their impact on the knowledge sharing speed and quality (Niedergassel, et al., 2011; Caligiuri, 2014).

Speaking about the **intensive** research development directions, the independent variable formulations could be further expanded in relation to the knowledge requester or holder position of the respondent and her colleagues. Namely, when a question is asked about the independent variable's influence on the knowledge sharing speed or quality, separate questions could be asked regarding whether it does impede the holder's ability to transfer knowledge, or the requester's ability to receive and absorb it. Consequently, each of the four models used in the current research could be split in two respective models, thus translating into not four, but eight question sets.

Specific further in-depth research could also contain deeper inquiry into some of the current study variables.

The first of these could be the “requested knowledge importance for its holder” independent variable. Usage of this parameter as an independent variable is based on the “VRIN” concept of the resource-based view of the firm, consisting of the value, rarity, inimitability and non-substitutability components (Barney, 1991). These components, albeit being able to be combined in a unified indicator, are to an extent different from each other in nature and mechanism of action. Thus, it is interesting to perform an in-depth analysis of these parameters’ comparative influence on knowledge sharing in various contexts (continuing the abovedescribed sample diversification ideas, this analysis can be performed in a comparative way between various industry and/or nation samples).

Another candidate for further in-depth inquiry is the knowledge sharing quality dependent variable. It can be decomposed into several components, e.g., completeness, validity or adequacy to the request, analogously to the data quality decomposition in data management literature (Wand and Wang, 1996; Pipino, Lee and Wang, 2002)). Thus, a research (again, probably based on inter-industry or international comparisons) can be performed regarding various factors influence on these knowledge sharing quality components.

Finally, the research of subjective perceptions of knowledge sharing speed, quality and barriers, presented in the current article, can be complemented by looking on objective measures, e.g., documents harmonization speed or administrative subdivisions employee turnover. For instance, the respondents’ bias toward overestimating their knowledge sharing friendliness in comparison with the knowledge sharing friendliness of their colleagues is obviously requiring a comparison with the objective measures analysis.

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