

DIFFERENCES IN UNDERSTANDING THE IMPORTANCE OF FACTORS INFLUENCING COLLABORATION IN SUPPLY CHAINS IN VIEW OF EDUCATIONAL BACKGROUND AND WORK EXPERIENCES

RAZLIKE U RAZUMIJEVANJU VAŽNOSTI FAKTORA KOJI UTJEČU NA SURADNJU U OPSKRBNIM LANCIMA S OBZIROM NA RAZINU OBRAZOVANJA I RADNO ISKUSTVO

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Abstract

In the article we theoretically discuss collaboration in inter-organizational relationships and present research results. Our basis is social exchange theory and relationship commitment-trust theory. We point out the importance of the antecedents of collaborative behavior between partners in supply chains. We present the results of our research. The research was made in 2013, in the primary, secondary and tertiary sector of Slovene economy. We included companies of all sizes, both local and foreign ones with a presence in Slovenia. The results show the differences in understanding the importance of collaboration in supply chains and factors that influence collaborative behavior in view of education and work experience of employees working in supply chains.

INTRODUCTION

In this paper we present differences in understanding the importance of factors that have influence on collaboration in supply chains according to the different education background and work experiences of employees in this research filed in Slovenia. Organizations are in their everyday activities embedded in different kind of relationships with their partners /1/. An important part of partners repre-

Sažetak

U članku se teorijski razmatra suradnja u inter-organizacijskim odnosima te prikazuju rezultati istraživanja. Baza istraživanja je teorija društvene razmjene i teorija do predanosti odnosa i povjerenju. Ističe se važnost prethodnih obrazaca suradnje među partnerima u opskrbnom lancu. Istraživanje je provedeno 2013. u primarnom, sekundarnom i tercijarnom sektoru slovenskog gospodarstva. Obuhvaćene su tvrtke svih veličina, i domaće i inozemne zastupljene u Sloveniji. Rezultati pokazuju razlike u razumijevanju važnosti suradnje u opskrbnim lancima i faktore koji utječu na suradnju u kontekstu obrazovanja i radnog iskustva zaposlenih u opskrbnim lancima.

sents partners in supply chains. The social exchange theory /2/ and the relationship commitment-trust theory /3/ are the main background theories, included in our research. We combine these two theories with supply chains /4/. The study also tested which factors affect the inter-organizational cooperation between partners in the supply chain. From the marketing relationship commitment – trust theory /5/ point of view trust relationship commitment, communication, shared values

and opportunistic behavior should have a significant direct or indirect impact on cooperation. Furthermore, we find that there are significant differences in the perception of the importance of collaboration and factors that influence this trend, according to the level of finished education and work experiences of individuals who are engaged in the partnerships of supply chains.

COLLABORATION IN SUPPLY CHAINS

Different authors /6/, /7/ define working together in inter-organizational relationships (and also in supply chains) in cooperative way, but we think it is better to define it in collaborative sense /8/, /9/. Collaboration in supply chains could be internal or external /10/. We focused on external collaboration between partners in supply chains. Furthermore, external collaborative behaviour could be vertical (collaboration between suppliers and buyers) or horizontal (partnerships with other stakeholders) /11/, /12/. We included all kinds of external partnerships in our research. We define collaboration between partners in supply chains as collaboration between two or more organizations, with complementary characteristics, which work together to achieve shared meanings and goals, which could not be achieved individually. All partners have benefits from these kinds of partnerships in supply chains.

FACTORS INFLUENCING THE COLLABORATION BETWEEN PARTNERS IN SUPPLY CHAINS

As already mentioned, our research basis is relationship commitment- trust theory /13/, which sets relationship commitment and trust in the main focus of inter-organizational collaboration research. Trust could be defined from several different perspectives: sociological, psychological, economical and organizational etc. point of view /14/, /15/, /16/, /17/, /18/, /19/, /20/. Our focus is on sociological definitions, which define trust as "a willingness to rely on an exchange partner in whom one has confidence" /21/, /22/. According to before mentioned definition, we measured

trust expectations and experiences that employees which work in field of logistics have with partners in supply chains. Furthermore we define relationship commitment (to partners in supply chain) as "an exchange partner believing that an on-going relationship with another is as important as to warrant maximum efforts at maintaining it" /23/, /24/. Communication, shared values and opportunistic behaviour /25/ are also very important factors for our research. Communication between partners in supply chains could be defined as formal and informal sharing of meaningful and timely information /26/ between partners in supply chains with purpose of achieving shared goals in collaborative relationships. Collaboration between organizations in supply chains could be developed only in conditions when you share the same values, meanings and goals /27/ with partners in supply chains. In general we can say that shared values are one of the fundamental factors that have the direct impact on trust and indirect on collaboration /28/. For supply chain and our research shared values could be defined as "the extent to which partners have beliefs in common about what behaviour, goals and policies are important or unimportant, appropriate or inappropriate, right or wrong" /29/. Furthermore, the collaboration between partners in supply chain is affected by opportunistic behaviour. The model of relational exchange stresses the opportunistic behaviour as one of factors that influences trust /30/. Opportunistic behaviour is in relational exchange model defined as factor with negative influence in relational exchange. And these exchanges have furthermore positive influence on strategic partnerships in supply chains /31/. For our research the opinion of authors who set the relationship commitment-trust theory /32/ and model is appropriate. They /33/ claim that "when a party believes that a partner engages in opportunistic behaviour, such perceptions will lead to decreased trust". "Such behaviour results in decreased relationship commitment because partners believe they can no longer trust their partners." /34/

THE INFLUENCE OF EDUCATION LEVEL AND WORK EXPERIENCES

In this study we are interested in differences in assessing the importance of previously discussed concepts according to the finished education level and work experiences.

For education, we can say that it is about "gaining the necessary knowledge" /35/. It is about those "individual capabilities that enable to solve various problems" /36/. The aims of education can also result from the development needs of organizations and individuals /37/ and as such will be discussed in our research. However, employees are constantly learning, and companies should seek to the best usage and updating of knowledge /38/. So, a lot of additional knowledge and especially experiences affect the performance of individuals in the organization.

We believe that it is important for individuals' development and good work effectiveness to have appropriate education and work experiences. Thus, we believe that it is possible to detect some differences in the area of operation with partners with whom individuals in logistics work in supply chains.

RESEARCH GOALS

Based on the studied theories and existing research in our research field, we observed correlations between main concepts: trust, relationship commitment, communication, shared values and non-opportunistic behavior on one hand and cooperation on the other hand. Furthermore, we wanted to show that the work experiences and level of finished educational affect the difference in the perception of the importance of these factors on the cooperation between partners in the supply chain.

HYPOTHESIS

We set the following hypothesis:

H1: Workers in logistics with more working experiences and higher education mark the

importance of collaboration in supply chain higher than others.

H2: Workers in logistics with more working experiences and higher education mark the importance of trust in supply chain higher than others.

H3: Workers in logistics with more working experiences and higher education mark the importance of relationship commitment in supply chain higher than others.

H4: Workers in logistics with more working experiences and higher education mark the importance of good communication in supply chain higher than others.

H5: Workers in logistics with more working experiences and higher education mark the importance of shared values in supply chain higher than others.

H6: Workers in logistics with more working experiences and higher education mark the importance of non-opportunistic behavior in supply chain higher than others.

METHODOLOGICAL FRAMEWORK

A questionnaire was used for the research. The survey included leaders of logistics, purchasing and sales assistants in the field of logistics and the heads of processes and projects that are dealing with logistics. The study included companies of all sizes and both Slovenian and foreign companies, which have units in Slovenia. The study included primary, secondary and tertiary sector, quaternary sector was not included, since the study of supply chain in this sector is less attractive. 118 respondents were involved in the study.

Acquired data were analyzed with SPSS. First, we conducted a factor analysis which created six factors: cooperation, trust, relationship commitment, communication, shared values and non-opportunistic behavior. Interval scale of 1 to 5 (with a minimum 1, which means no agreement with the statement and the maximum 5 which means the strongest agreement with statement) was used in our research.

Cronbach's alpha coefficient which verified the reliability of measurement was measured for every factor included in our research. Due to the fact that the questionnaire consists of

several sets of questions, we measured Cronbach's alpha coefficient of every set of variables that were related to each of six designed factors.

Table 1: Cronbach's alfa coefficient

Factor	Cronbach's alfa coefficient
collaboration	0,846
trust	0,877
relationship commitment	0,748
communication	0,779
shared values	0,832
non-opportunistic behavior	0,627

Table 1 shows that all the measured values of Cronbach's coefficient showed very good or good reliability in the measurement.

RESEARCH RESULTS

Research results in table 2 show that the factors that we have formed with the help of factor analysis, correlated with the cooperation between the partners in supply chains. So, by using the Pearson correlation coefficient we found that there is a correlation between all formed factors.

Table 2: Pearson's correlation coefficient

	trust	relationship commitment	collaboration	communication	Non-opportunistic behavior	Shared values
trust	1					
relationship commitment	0,693**	1				
collaboration	0,732**	0,837**	1			
communication	0,604**	0,730**	0,780**	1		
Non-opportunistic behavior	0,594**	0,536**	0,634**	0,821**	1	

Shared values	0,603**	0,756**	0,806**	0,987**	0,806**	1
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** p≤0,01

As shown in Table 2 the correlations between all the concepts are proved. Correlations are semi strong or strong.

By analyzing Oneway ANOVA we furthermore observed statistically significant differences according to **finished educational level**. It turns out that there are **no statistically significant differences**. Furthermore, we were interested in how average age of **working experiences** affects the perception of the factors included in study. Once again, it turns out that there are **no statically significant differences**.

Furthermore, we formed groups, where respondents were divided into groups:

- in the first group younger employees who have little working experiences and a high level of education were included,
- the second group includes those who have already fairly high level of education, and a few years of working experiences,
- the third group includes senior employees, who have the lowest level of formal education and are the most experienced.

Formed groups are presented in detail in Table 3 below.

Table 3: The formation of groups

Name of group	Percentage in the sample	Average age	Finished level of education	Avarage years of working experiences
Group 1	29,1 %	28,3 years	Grammar school or less: 2,9 % High school: 2,9 % Higher education: 11,8 % Bachelor degree or more: 82,4 %	2,9 years
Group 2	49,6 %	37,5 years	Grammar school or less: 10,3 % High school: 8,6 % Higher education: 25,9 % Bachelor degree or more: 55,2 %	11,8 years
group 3	21,4 %	52,6 years	Grammar school or less: 4 % High school: 24 % Higher education: 16 % Bachelor degree or more: 56 %	28,0 years

Furthermore, the perceptions of the importance of factors that have been previously described and developed were compared according to the newly formed groups.

One-way ANOVA analyses of all factors and newly formed groups have been conducted. The results are presented in Table 4.

Table 4: Statistical significant differences according to formed groups

factors	F	p	Mean	
			average	Groups

trust	4,003	0,021	3,48	Group 1	3,22
				Group 2	3,62
				Group 3	3,50
Relationship commitment	9,251	0,000	3,81	Group 1	3,46
				Group 2	4,04
				Group 3	3,74
collaboration	5,473	0,005	3,70	Group 1	3,50
				Group 2	3,87
				Group 3	3,56
communication	13,987	0,000	3,67	Group 1	3,32
				Group 2	3,97
				Group 3	3,44
Non-opportunistic behaviour	8,923	0,000	3,52	Group 1	3,25
				Group 2	3,78
				Group 3	3,31
Shared values	12,040	0,000	3,63	Group 1	3,33
				Group 2	3,92
				Group 3	3,35

Analysis of the results that are presented in Table 4 shows that there are in relation to formed groups statistically significant differences between groups in measuring the factors trust, relationship commitment, cooperation, communication, non-opportunistic behavior and shared values. A detailed examination shows that trust to partners in supply chains ($F = 4.003$, $p = 0.021$, mean value = 3.48) was in average graded 3.48. Trust was marked above average by those in group 2 (mean 3.62) and those in group 3 (mean 3.50) and below average by those respondents in group 1 (mean 3.22). Relationship commitment ($F = 9.251$, $p = 0.000$, mean value = 3.81) was estimated with an average grade of 3.81. It was marked highly above average by those respondents who are classified in group 2 (mean of 4.04) and below average by those in group 3 (mean 3.74) and those in group 1 (mean 3.46).

Collaboration ($F = 5.473$, $p = 0.005$, mean value = 3.70) was marked superior by those in group 2 (mean 3.87) and below average by those in group 3 (mean 3.56) and those in the group 1 (mean 3.50). The average grade of communication ($F = 13.987$, $p = 0.000$, mean value = 3.67) was 3.67. The communication was marked above average by those in group 2 (mean 3.97) and below average by those in group 3 (mean

3.32) and those in group 1 (mean 3.44). Non-opportunistic behavior ($F = 8.923$, $p = 0.000$, mean value = 3.52) was in the average graded 3.52. Above-average non-opportunistic behavior was marked by those in group 2 (mean 3.78), below average by those in group 3 (mean 3.31) and those in group 1 (mean 3.25).

Shared values ($F = 12.040$, $p = 0.000$, the mean value = 3.63) were in the average graded 3.63. Above average shared values were graded by those in group 2 (mean 3.92), below average by those in group 3 (mean 3.35) and those in group 1 (mean 3.33). All differences are statistically significant ($p \leq 0,05$) and the results are valid for the whole population.

According to our analysis and results shown in table 4 we have tested our research hypothesis.

Based on this, we can see that the highest mean has group 2 (mean 3,62), which means the first hypothesis entitled: " H1: Workers in logistics with more working experiences and higher education mark the importance of collaboration in supply chain higher than others." can be **confirmed**.

The importance of relationship commitment in supply chains is marked the highest in group 2

(mean 4,04), so the second hypothesis "H2: Workers in logistics with more working experiences and higher education mark the importance of trust in supply chain higher than others." can be **confirmed**.

The importance of collaboration in supply chains is marked the highest in group 2 (mean 3,87), so the third hypothesis "H3: Workers in logistics with more working experiences and higher education mark the importance of relationship commitment in supply chain higher than others." can be **confirmed**.

The importance of good communication in supply chains is marked the highest in group 2 (mean 3,97), so the fourth hypothesis "H4: Workers in logistics with more working experiences and higher education mark the importance of good communication in supply chain higher than others." can be **confirmed**.

The importance of shared values in supply chains is marked the highest in group 2 (mean 3,92), so the fifth hypothesis "H5: Workers in logistics with more working experiences and higher education mark the importance of shared values in supply chain higher than others." can be **confirmed**.

The importance of non-opportunistic behavior in supply chains is marked the highest in group 2 (mean 3,78), so the sixth hypothesis H6: "Workers in logistics with more working experiences and higher education mark the importance of non-opportunistic behavior in supply chain higher than others." can be **confirmed**.

4 INTERPRETATION AND SUGGESTIONS FOR PRACTICAL USE

Our results show the important and clear differences in understanding some relation factors in supply chain in connection to work experiences and level of education.

So, trust and collaboration between partners in supply chains, relationship commitment to partners in supply chains, communication between them, shared values that they have and how opportunistically do they behave is

the most important for those workers in supply chains in Slovenia that are good educated, have quite a lot of working experiences and in average about 37 years old. It is clear to see that both work experiences and level of formal education together are the combination for the highest importance of understanding these for supply chain very important factors. Our research shows, that neither educational level alone neither working experiences alone are not connected to the mark of importance of relational factors in supply chains included in our research. Once again we have to stress that these factors are key factors for sustainable, long time oriented and successful supply chain.

Our case shows that the appropriate combination of working experiences and educational level can lead to better work in organization in field of supply chains. Companies should when planning they recruitment and educational activities take these into consideration.

5 CONCLUSIONS

In our article we present trust, relationship commitment, communication, shared values and non-opportunistic behaviour as concepts with high importance for collaboration between partners in supply chains. The correlation between these concepts is analysed and the correlation between all concepts is marked as semi strong or strong. But more importantly the connection between combination of educational level and work experiences on one hand and the importance of relational factors for supply chains is clearly confirmed. The research results show that all relational factors which are according to the relationship commitment trust theory key elements for successful supply chain seen and understand as more important by those employees in logistics that have appropriate educational level and work experiences. So, we can sum up that the educational level and work experiences have significant correlation to supply chain management quality which can be achieved through understanding the importance of relational factors.

Notes

- /1/ Morgan, R. M. & Hunt, S. D. (1994). The Commitment- Trust Theory of Relationship Marketing. *Journal of Marketing* 58, 20-38.
- /2/ Blau, P.M. (1968). Interaction: Social Exchange. V Sills D. L. (ur.), *International Encyclopedia of the Social Sciences* (str. 452-458). New York: Gale Learning.
- /3/ Morgan, R. M. & Hunt, S. D. (1994). The Commitment- Trust Theory of Relationship Marketing. *Journal of Marketing* 58, 20-38.
- /4/ Christopher, M. (2004). Supply Chain: A Marketing Perspective. V S. New & R. Westbrook (ur.), *Understanding Supply Chains* (str. 23-42). Oxford: University Press.
- /5/ Morgan, R. M. & Hunt, S. D. (1994). The Commitment- Trust Theory of Relationship Marketing. *Journal of Marketing* 58, 20-38.
- /6/ Deepen, J. M. (2007). *Logistics Outsourcing Relationships: Measurement, Antecedents, and Effects of Logistics Outsourcing Performance*. Heidelberg: Physica Verlag.
- /7/ Christopher, M. (2004). Supply Chain: A Marketing Perspective. V S. New & R. Westbrook (ur.), *Understanding Supply Chains* (str. 23-42). Oxford: University Press.
- /8/ Ballou, R.H. (2007) The evolution and future of logistics and supply chain management. *European Business Review*, 19(4), 221-348.
- /9/ Cao, M. & Zhang, Q. (2013). *Supply Chain Collaboration: Rules of Interorganizational Systems, Trust and Collaborative Culture*. London: Springer Verlag.
- /10/ Barratt, M. (2004). Understanding the meaning of collaboration in the supply chain. *Supply Chain Management: An International Journal*, 9 (1), 30-42.
- /11/ Ibidem
- /12/ Sandberg, E. (2007). Logistics collaboration in supply chains: practice vs. theory. *The International Journal of Logistics Management*, 18 (2), 274-293.
- /13/ Morgan, R. M. & Hunt, S. D. (1994). The Commitment- Trust Theory of Relationship Marketing. *Journal of Marketing* 58, 20-38.
- /14/ McKnight, D. H. & Chervany, N.L. (1996). *The Meanings of Trust*. Najdeno 10. julija 2012 na spletnem naslovu: <http://misrc.umn.edu/wpaper/WorkingPapers/9604.pdf>
- /15/ Lane, C. (1998). Introduction: Theories and Issues in the Study of Trust. V Lane, C. & Bachmann, R. (ur.), *Trust Within and Between Organizations: Conceptual Issues and Empirical Applications* (str. 1-30). Oxford: Oxford University Press.
- /16/ Castaldo, S. (2007). *Trust in market relationships*. Cheltenham: Edward Elgar.
- /17/ Svensson, G. (2005). Mutual and interactive trust in business dyad: condition and process. *European Business Review*, 17 (5), 411-427.
- /18/ Kenning, P. (2008). The influence of general trust and specific trust on buying behaviour. *International Journal of Retail & Distribution Management*, 36 (6), 461-476.
- /19/ Križman, A. (2009). Vpliv predhodnikov zupanja na sodelovanje med podjetji v zunanji logistični oskrbi: primer slovenskih oskrbovalcev. *Management*, 4 (4), 329- 350.
- /20/ Delbufalo, E. (2012). Outcomes of inter-organizational trust in supply chain relationships: a systematic literature review and a meta-analysis of the empirical evidence. *Supply Chain Management: An International Journal*, 17 (4), 377-402.
- /21/ Moore, K. R. (1998). Trust and Relationship Commitment in Logistics Alliances: A Buyer Perspective. *International Journal of Purchasing and Materials Management*, 34 (1), 24-37.
- /22/ Moorman C., Zaltman G. & Deshpande, R. (1992). Relationships Between Providers and Users of Market Research: The Dynamics of Trust Within and Between Organizations. *Journal of Marketing Research*, 29, 314-329.
- /23/ Moore, K. R. (1998). Trust and Relationship Commitment in Logistics Alliances: A Buyer Perspective. *International Journal of Purchasing and Materials Management*, 34 (1), 24-37.
- /24/ Moorman C., Zaltman G. & Deshpande, R. (1992). Relationships Between Providers and Users of Market Research: The Dynamics of Trust Within and Between Organizations. *Journal of Marketing Research*, 29, 314-329.
- /25/ Morgan, R. M. & Hunt, S. D. (1994). The Commitment- Trust Theory of Relationship Marketing. *Journal of Marketing* 58, 20-38.
- /26/ Anderson, J. C. & Narus, J. A. (1990). A Model of Distributor and Manufacturer Firm Working Partnership. *Journal of Marketing*, 54 (1), 42-58.
- /27/ Daugherty, P. J. (2011). Review of Logistics and Supply Chain Relationship Literature and Suggested Research Agenda. *International Journal of Physical Distribution & Logistics Management*, 41 (1), 16 -31.
- /28/ Dwyer, F. R., Schurr, P. H. in Oh, S. (1987). Developing buyer- seller relationships. *Journal of Marketing*, 51 (2), 11-27.
- /29/ Morgan, R. M. & Hunt, S. D. (1994). The Commitment- Trust Theory of Relationship Marketing. *Journal of Marketing* 58, 20-38.

- /30/ Dwyer, F. R., Schurr, P. H. in Oh, S. (1987). Developing buyer- seller relationships. *Journal of Marketing*, 51 (2), 11-27.
- /31/ Lee, D. (1998). Developing international strategic alliance between exports and imports: the case of Australian exporters. *International Journal of Research in Marketing*, 15 (4), 335-348.
- /32/ Morgan, R. M. & Hunt, S. D. (1994). The Commitment- Trust Theory of Relationship Marketing. *Journal of Marketing* 58, 20-38.
- /33/ Moorman C., Zaltman G. & Deshpande, R. (1992). Relationships Between Providers and Users of Market Research: The Dynamics of Trust Within and Between Organizations. *Journal of Marketing Research*, 29, 314-329.
- /34/ Morgan, R. M. & Hunt, S. D. (1994). The Commitment- Trust Theory of Relationship Marketing. *Journal of Marketing* 58, 20-38.
- /35/ Možina, S. (2009). Učenje, izobraževanje, usposabljanje in razvoj kadrov. V S. Možina, (ur.), *Menedžment človeških virov* (str. 467-520). Ljubljana: Fakulteta za družbene vede.
- /36/ Ibidem
- /37/ Ibidem
- /38/ Ibidem