

Lenka Veselovská

ACHIEVING FLEXIBILITY: A NEW TREND IN SUPPLY CHAIN MANAGEMENT



CONTENT

LIST OF TABLES AND ILLUSTRATIONS	7
LIST OF ACRONYMS	
INTRODUCTION	
1. THEORETICAL BASIS OF FLEXIBILITY IN	
SUPPLY CHAIN MANAGEMENT RESEARCH	
1.1. Supply chain management definition	
1.2. Flexibility in supply chains as an object of research.	
Summary	. 30
2. ANALYSIS OF FLEXIBILITY IN SUPPLY CHAIN	
MANAGEMENT	. 32
2.1. Research methodology	. 33
2.2. Analysis of selected methods and their applications	
to increase flexibility of supply chain	
2.3. Analysis of secondary outcomes of increased supply	
chain flexibility	50
2.4. Analysis of selected aspects of flexibility	
and partnerships in supply chain	
Summary	55
3. POSSIBILITIES FOR FLEXIBILITY	
IMPROVEMENT IN SUPPLY CHAIN	
MANAGEMENT	57
3.1. Framework for modelling metrics of supply	
chain flexibility	. 60
3.2. Possibilities for improvement through	
the application of unused methods	.62
3.3. Supply chain flexibility assessment	
from enterprise's perspective	. 65
3.4. Possibilities for further research in supply chain	70
flexibility	
Summary	- 80

CONCLUSION	82
SUMMARY (v SJ)	85
BIBLIOGRAPHY	88

OBSAH

ZOZNAM TABULIEK A ILUSTRÁCIÍ	7
ZOZNAM SKRATIEK	
ÚVOD	
1. TEORETICKÉ VÝCHODISKÁ SKÚMANIA	
FLEXIBILITY DODÁVATEĽSKO-ODBERATEĽSKÝC	Ή
REŤAZCOV	
1.1. Charakteristika manažmentu dodávateľsko-	
odberateľských reťazcov	13
1.2. Flexibilita v dodávateľsko-odberateľských reťazcoch	
ako objekt výskumu	17
Resumé	. 30
2. ANALÝZA OF FLEXIBILITY V DODÁVATEĽSKO-	
ODBERATEĽSKÝCH REŤAZCOCH	32
2.1. Metodológia výskumu	33
2.2. Analýza vybraných metód a ich aplikácií na zvýšenie	
flexibility dodávateľsko-odberateľských reťazcov	38
2.3. Analýza sekundárnych dôsledkov zvyšovania flexibilit	
dodávateľsko-odberateľských reťazcov	
2.4. Analýza vybraných aspektov flexibility a partnerstiev	
v dodávateľsko-odberateľských reťazcoch	54
Resumé.	55
3. MOŽNOSTI PRE VYLEPŠOVANIE VO FLEXIBILIT	E
V MANAŽMENTE DODÁVATEĽSKO-ODBERATEĽ-	
SKÝCH REŤAZCOCH	57
3.1. Rámec pre modelovanie metrík pružnosti	
dodávateľského reťazca	60
3.2. Možnosti zlepšenia prostredníctvom nevyužívaných	
metód	62
3.3. Hodnotenie flexibility dodávateľsko-odberateľského	
reťazca z pohľadu podniku	65

3.4. Možnosti pre ďalší výskum flexibility dodávateľsk	KO-
odberateľských reťazcoch	78
Resumé	
ZÁVER	82
ZÁVER (v SJ)ZOZNAM LITERATÚRY	85
ZOZNAM LÍTERATÚRY	88

LIST OF TABLES AND ILLUSTRATIONS

Figure 1 Theoretical framework of supply chain flexibility	
	29
Table 1 Base file structure based on the company size in	
	35
Table 2 Structure of sample file based	
on the company's position in supply chain	37
Table 3 Structure of supply chains in Slovak	
manufacturing industry	39
Table 4 Levels of supply chain flexibility structured	
by company's position in supply chain	39
Table 5 Levels of supply chain flexibility structured	
by company's supply chain structure	40
Table 6 Levels of supply chain flexibility structured	
	41
Table 7 The most commonly used methods structured	
	42
Table 8 Levels of supply chain flexibility structured	
by company's number of suppliers	42
Table 9 The most commonly used methods structured	
by the number of customers	43
Table 10 Levels of supply chain flexibility structured	
by company's number of customers	44
Table 11 Levels of methods utilization	
Table 12 Dependences between measures applications	
and various factors	47
Table 13 Dependences between flexibility types	
and applied measures.	48
Table 14 Levels of supply chain agility	
Table 15 Levels of supply chain adaptability	
Table 16 Levels of supply chain alignment.	
Table 17 Dependences between flexibility types and levels	
of supply chain agility, adaptability and alignment	52

Table 18 Dependences between levels of supply chain	
agility, adaptability, alignment and various factors	53
Table 19 Dependences among significant partnership	
issues and flexibility types	54
Figure 2 Framework for modelling metrics of supply	
chain flexibility	61
Table 20 Supply chain flexibility assessment – 1 st	
year	66
Table 21 Supply chain flexibility assessment – following	
years	69

LIST OF ACRONYMS

CFL	contract flexibility
VFL	volume flexibility
PFL	product mix flexibility
DFL	delivery flexibility
MFL	manufacturing flexibility
FXP	flexible promotion
FXT	multiple modes and types of transport of raw materials
	and products
PRT	pressure to reduce production time of product or service
SFP	creation of stocks of finished products for special orders
INR	insurance against the risk of adverse events
FPI	frequent product innovations
PFC	penalizations for failures to comply with the terms of
	supply of raw materials
GTM	application of game theory methods in parameters
	settings of production factors
ELO	external logistics organization
FSC	flexible supply contracts
BUP	preparation of back-up plans and crisis management
	teams
MPU	mathematical programming utilization in supply chain
	management
RDP	creating possibilities for rapid redeployment of human
	and material resources between process and / or
	facilities
RLU	reverse logistics utilization
LCP	long-term capacity planning
CEF	expectations forecasts
SSC	selection of suppliers based on predefined criteria
CCC	corporate culture focused on change
IRD	investments in research and development
IRA	implementation of risk analyses

ROQ raising order amounts for raw materials reserves **FPS** utilization of flexible planning systems MPL periodical analysis of market conditions and product life cycle CPS creating partnerships COC customer orientation as a main strategic concept of enterprise CLO continuous improvement, learning organization ESI economic supply incentives product standardization and postponement PSP CPC creating plants closer to key customers ISP effective flow of information in whole supply chain and sharing of information with partners frequent adjustments in pricing policies APP implementation of quality systems such as ISO, TQM, IQS

etc.

INTRODUCTION

Nowadays companies face severe competition which puts significantly increased pressure not only on their quality requirements, but also on effectiveness of their production processes. It is the goal of company's operations management to ensure the best possible outcome and gain the competitive advantage which enables company to establish a desirable market position. However, it is not a single set of managerial decisions which makes it possible. A strive for excellence is a continuous process which does not only involve establishing a good market position, but it also focuses on implementing measures necessary to maintain it. Cost minimization is one of the original goals of all companies, which is nowadays viewed more as an essential part of companies' financial management. One of the newer ways companies can achieve excellence is through implementing specific measures in order to achieve flexibility of their processes.

The main objective of this monograph is to explore the extent of utilization of various measures to increase supply chain flexibility in Slovak enterprises operating in manufacturing industry and to create a framework for modelling metrics of supply chain flexibility. This publication is divided into three main parts. Firstly, we provide the motivation for this study which also includes a brief literature review of researched topics supply chain definition. various flexibility characterizations and we also briefly focus on methods designed to increase supply chain flexibility. Secondly, we provide findings of empirical research conducted on a sample file of Slovak manufacturing enterprises. Research methodology is also explained in detail since this empirical study was conducted on a representative sample of Slovak enterprises. The last section of this publication describes the proposed models and frameworks created on the grounds of both literature research and findings from the empirical research. We also include model assessment in terms of its practical applications and the discussion including possibilities for further research.

Lenka Veselovská Poprad, 10th March 2019