Supplier Performance Criteria

The Case of SME's in Former Yugoslavian Republic of Macedonia (FYROM)

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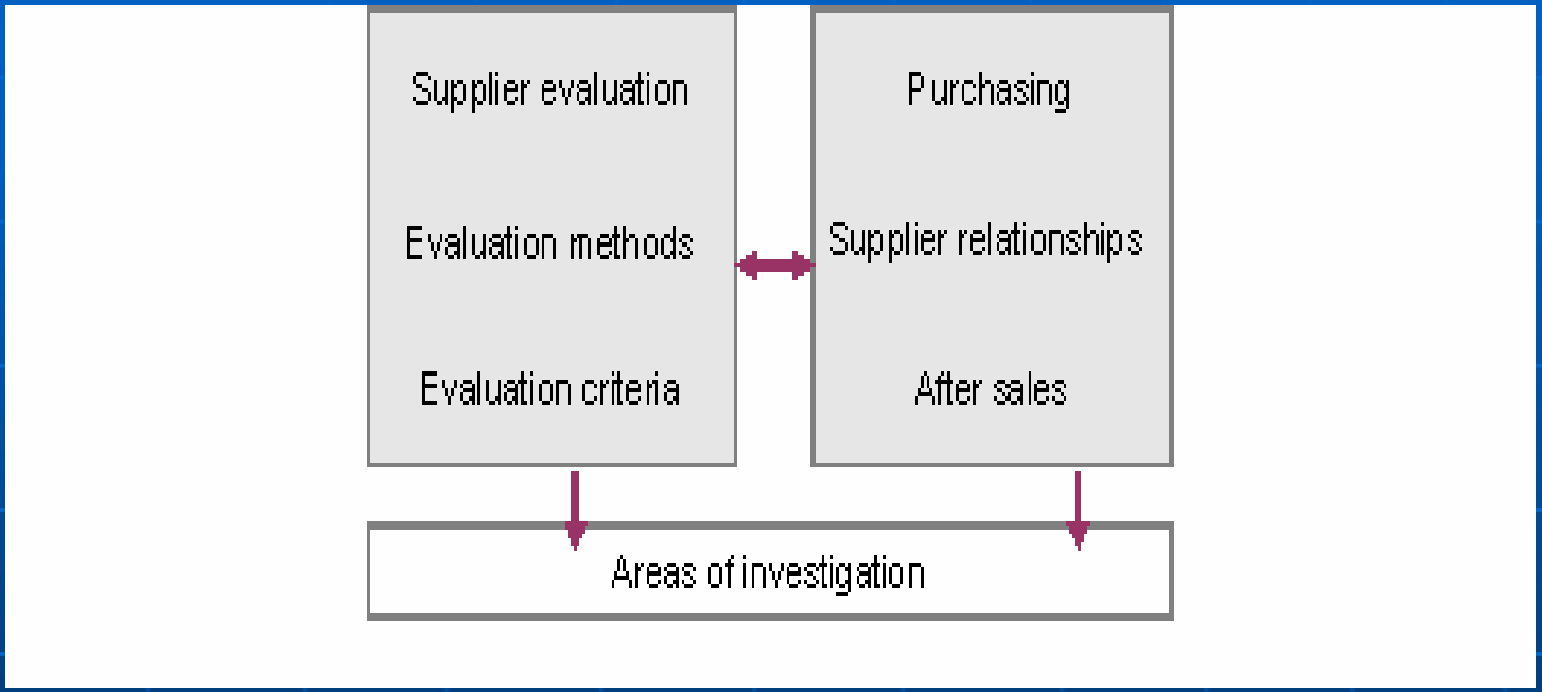
International Conference for Entrepreneurship, Innovation and Regional Development, 2009

Overview

- Suppliers' Evaluation Methods
- Key Performance Indicators
- Approaches to Evaluate Suppliers
- Methodology
- Findings
- Conclusion

Areas of Investigation



1.Suppliers' Evaluation Methods

- According to the Institute of Supply Management team and Weber's study, there are three fundamental models to identify and evaluate suppliers.

1. *Categorical Model*
2. *Weighted-Point Model*
3. *Cost-Ratio Model*

1.1 Suppliers' Evaluation Methods Categorical Model

Advantages	***Disadvantages***	***Users***
▪ Easy to implement ▪ Requires Minimal data ▪ Different personnel contribution ▪ Good for firms with limited resources ▪ Low-cost system	▪ Least reliable ▪ Less frequent generation of evaluation ▪ Most subjective ▪ Usually manual	▪Small firms ▪Firms in the process of developing an evaluation system

1.2 Suppliers' Evaluation Methods Weighted-Point Model

Advantages	***Disadvantages***	***Users***
▪ Flexible system ▪ Allows supplier ranking ▪ Moderate implantation costs ▪ Combines qualitative & quantitative factors into a single system	▪ Tends to focus on unit price ▪ Requires some computer skills	▪ Most firms can use it

1.3 Suppliers' Evaluation Methods Cost-Ratio Model

Advantages	***Disadvantages***	***Users***
▪ Provides a total cost approach ▪ Identifies specific areas of supplier nonperformance ▪ Allows objective supplier ranking ▪ Greatest potential for long- range improvement	▪ Cost – accounting required ▪ Most complex implementations ▪ High costs ▪ Computer resource required	▪ Large firms ▪ Firms with a large supply base

1.4 Suppliers' Evaluation Methods (Selection of the suitable method)

- As different models have different pros and cons but still there is a trade-off between the method's simplicity and accuracy.
- It is important to know which criteria will be used in order to chose the best approach that fits best company's strategy

2.Key Performance Indicators

- Dickson’s Supplier evaluation criteria
- Weber’s Supplier evaluation criteria

2.1 Key Performance Criteria
Dickson's Supplier evaluation criteria

Rank	Criteria	Evaluation
1.	**Quality**	Extreme importance
2.	**Delivery**	
3.	**Performance History**	
4.	**Warranties and claim policies**	
5.	Production facilities	Considerable importance
6.	Net Price	
7.	Technical capability	
8.	Financial position	
9.	Procedural compliance	
10.	Communication system	
11.	Reputation and position in the industry	
12.	Desire to do business	
13.	Management and organization	
14.	Operating controls	
15.	Repair services	Average importance
16.	Attitude	
17.	Impression	
18.	Packaging ability	
19.	Labor relations record	
20.	Geographical location	
21.	Amount of past business	
22.	Training aid	
23.	Reciprocal arrangements	Slight importance

2.2 Key Performance Criteria
Weber's supplier evaluation criteria

Rank	Criteria	Evaluation
1.	Net Price	Extreme Importance
2.	Delivery	
3.	Quality	
4.	Production facilities&cap.	
5.	Geographical location	
6.	Technical capabilities	
7.	Management & organization	
8.	Reputation & industry position	
9.	Financial Position	
10.	Performance History	

3. Approaches to Evaluate Suppliers

- Methodologies for evaluating are also known as quantitative approaches and are used as a tool for the final phase.

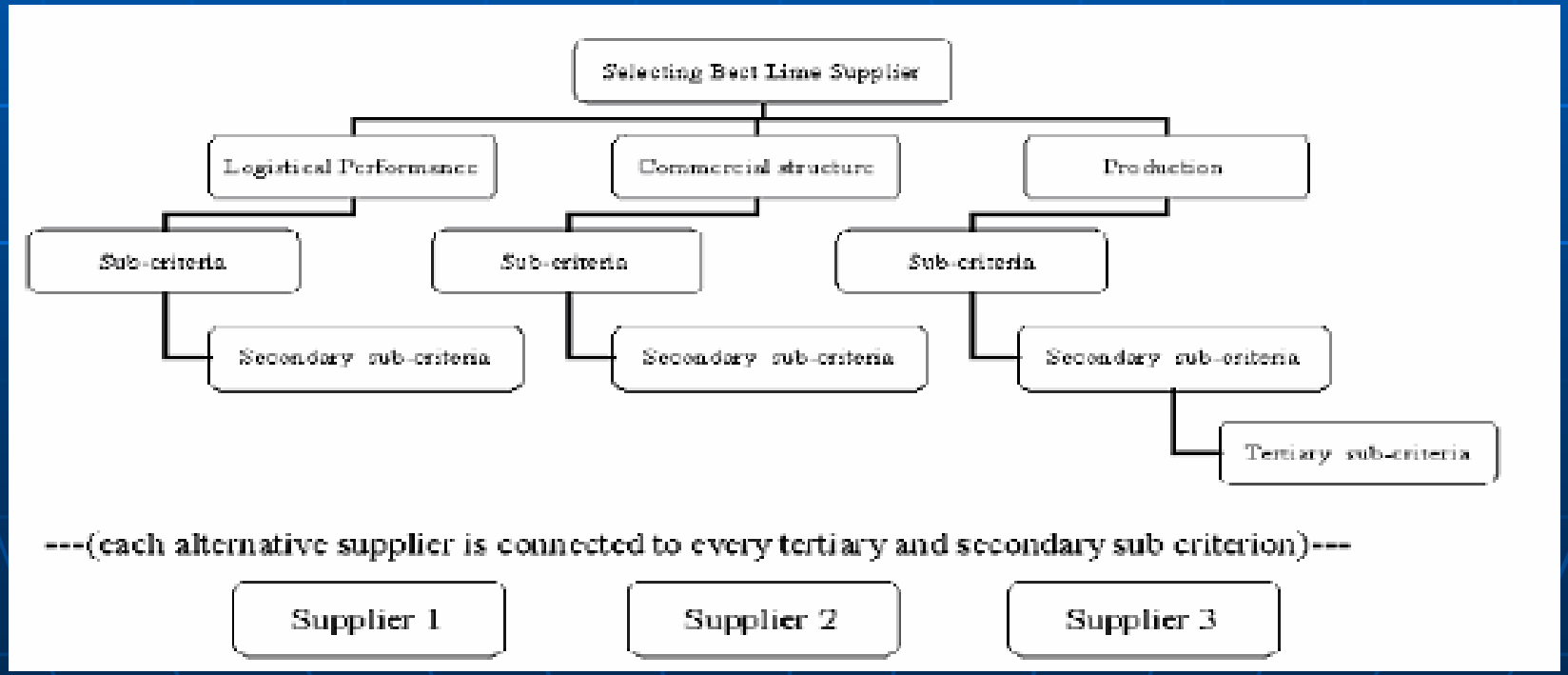
- The most popular approaches that are used by innovative companies are:

  - *Linear Weighting Models*
  - *Total cost of ownership (TCO) Model*
  - *Mathematical Programming Models*
  - *Statistical Models*
  - *Artificial Intelligence (AI) based Models*

3.1Approaches to Evaluate Suppliers

Linear Weighting Models

- It weights each given criterion by indicating the highest and least importance.
- Analytical Hierarchy Process (AHP) is the most used method because it manipulates multi-criteria.



3.2 Approaches to Evaluate Suppliers

Total Cost of Ownership (TCO) Models

- Very complicated approach
- Requires from the buyer to indicate which are the imperative costs
- It entail more than price in a purchasing situation
- Focuses on the costs related to the chain and created by the suppliers
- The approach can be practiced in every kind of purchase, depending on the type of product or service

3.3 Approaches to Evaluate Suppliers

Mathematical programming Models

- Select a variety of suppliers by analyzing mostly multi criteria.
- Utilizes a mixed program integer that can reduce the number of items not received, delivery and unit price
- Hyper LINDO is an integer linear program solve
- Data envelop analysis is also known mathematical programming method

3.4 Approaches to Evaluate Suppliers
Statistical Models

- The least used model for suppliers' evaluation
- Emphasizes on uncertainty and its time consuming
- It of great importance to employ it as assessment of buyer-supplier relationship to dictate their performance

3.5 Approaches to Evaluate Suppliers
Artificial Intelligence (AI) based Models

- It's a computer system that provides data information from historical data
- Employs Neural Network method
- Can cope with difficult and uncertain situations
- AI models are difficult to use

4. Methodology

- Aims and objectives of this research:

  - Identify if the available theory is applicable and relevant for this marketplace
  - Compare between the main performance criteria from the literature with those obtained from SME's in FYROM
  - Clarify the advantages that SME's could gain when implementing a structured model for selecting and evaluating suppliers

4. Methodology cont.

- Grounded theory is used as methodology in order to obtain both primary and secondary data
- The primary data was collected through structured questionnaire and interviews
- Companies were selected according to their size, market share and industry sector.
- The questionnaire incorporates both qualitative and quantitative data in order to answer the research questions of the study

5.Findings

- Industry Sector
- Position of respondents
- Size of companies
- Companies holding quality certification
- Evaluation process
- Key Performance Criteria in FYROM's SME's
- Importance of other factors

5.1 Findings
Industry Sector

Industry	Frequency	Percent
Manufacturing	23	71.9
Commercial	6	18.8
Services	1	3.1
Other	2	6.3
Total	32	100

5.2 Findings
Position of respondents

Position	Frequency	Percent
Owner	9	28.1
General Manager	10	31.3
Purchasing Manager	5	15.6
Employee	8	25.0
Total	32	100

4.3 Findings
Size of Companies

Number of Employees	Frequency	Percent
<50	13	40.6
51-100	13	40.6
101-150	4	12.5
>150	2	6.3
Total	32	100

4.4 Findings
Companies holding quality certification

Certification	Frequency	Percent
Yes	*19*	*59.4*
No	*13*	*40.6*
Total	*32*	*100*

5.5 Findings
Evaluation process

Certification	Frequency	Percent
Yes	27	84.4
No	5	15.6
Total	32	100

5.6 Findings
Key Performance Criteria of SME's in FYROM

1. Net Price
2. Operational Control
3. Close Relationships
4. Desire for Business
5. Production Facilities and capacity
6. Quality
7. Technological capabilities and innovation
8. Geographical location
9. Delivery
10. Technical Capability
11. Vendor's industry position
12. Repair Service
13. Flexibility in changes
14. Management commitment
15. Clear communication paths
16. Warranties and claim policies
17. Procedural compliance
18. Impression by vendors
19. Attitude
20. Packaging

5.6 Findings
Importance of other factors

Statistics

		company activity	lead time	at the right delivery location	in the right quantity	in terms of destroyed
N	Valid	32	32	32	32	32
	Missing	0	0	0	0	0
Mean		1.44	65.31	67.97	65.94	31.56
Std. Deviation		.84	10.85	11.06	12.01	13.35
Minimum		1	40	40	40	15
Maximum		4	80	90	80	70

6. Conclusion

- The current research provides knowledge for improvement performance
- Addresses the need of SME's in FYROM to collaborate with suppliers
- Provides a solid ground for further research in the area and can serve as to develop a suppliers evaluation model that will assist in the selection process

Questions and Answers

Thank You !

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