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MANAGEMENT FOR COMPANIES WITH MULTIPLE LOCATIONS ACCORDING TO EXCEPTIONS

Petar Kefer[1], Dragan D. Milanovic[2], Mirjana Misita[2], Dragan Lj. Milanovic[2]
[1]Omni Surfaces, Toronto, Canada
[2]Faculty of Mechanical Engineering, University of Belgrade, Serbia

Abstract: *In this work, the importance was given to suppliers and customers according to exceptions, based on established criteria, related to business performance for company Omni Surfaces. It was applied multicriteria ABC method, based on interviewing and collecting information from workers and managers of business units. Obtained results, differentiate some suppliers and customers, which are the key players for company business performance.*
Key words: *ABC Method, multicriteria, suppliers, customers.*

1. INTRODUCTION

Increased production complexity and business problems, brings beside all other consequences, significant increase of elements which represent structure of subsystems for one company. One of the key aspects that is facing new business environment is increased number of suppliers and customers. It is a fact that each supplier and customer doesn't have same impact when we take in consideration earlier established criteria. Because the focus is on the most important criteria which are in same way of importance different than others. This is the base concept and setting for management and coordination based on exception.

The scale of research problem is taking in consideration complexity, multiple location that company has, organizational units, sub models and quality control of the processes inside of them. Experimental part of research will be performed in the company Omni Surfaces, located in the North America, more accurate in 3 cities: Toronto (Ontario, Canada), Edmonton (Alberta, Canada), Houston (Texas USA). The sales volume of the business on annual level is close 200 containers and capacity utilization is close to 50%. Company generates profit each year what brings confidence for investors and company owners. After sales volume on annual basis of 200 containers, company is facing dealing with complexity that exceeds level of control for business owners. After detail analysis of all the problems which we established by strategy is coming to conclusion that is necessity to create formal structure, recognize best practices, processes, procedures and standards which needs to be documented in order to control business performance indicators, and that needs to be reviewed on regular basis.

Research started with collecting information, analyzing them and interpretation in order to find answers on questions and solve established problem. Defined problem was identifying model of integrated management for company with multiple locations in order to increase capacity, profit, control, competitive advantage, and decrease complexity and cost.

In order to develop model to manage company with multiple locations research was done first with theoreticalsettings of this problem. Based on theoretical settings, empirical experience of person who does research and experimental research in three company locations under the roof of Omni Surfaces will be designed integrated model. As part of Omni Surfaces there are three sub companies that we can see as profit centers:

-Organizational unit Omni Surfaces Edmonton
-Organizational unit Omni Surfaces Houston
-Organizational unit Omni Surfaces Toronto.

ABC method plays important role in this research more precisely in the process of classification and grouping elements that differentiate the most important things from base group of elements. Concept of ABC method is relatively simple. There is important probability betweenincreased number of elements, that just small number of elements will have important impact on certain criteria for example, price, weight,sq. footage and similar... That group of elements is most of the time in small

number around 20% - 30%from the total number and participation in entire value for example with 70%-80%. Second and third group of elements will be created with analogy of the first group.

Also it is important that included elements in business we can look with multiple criteria. Importance some of criteria independently we can differentiate, so we can select them as primary, secondary and tertiary. In that case, application of ABCmethod we need to implement independently for each of established criteria.. The most frequency of elements in the group, obviously placing apart based element of importance in the frame of sample based on established criteria.

2. APPLICATION FOR MULTICRITERIA ABC METHOD IN RESEARCH

In this area of experimental research, information was collected and analyzed from management of subcompanies from multiple locations in relation with exception or ABC method. In order to see the problem for multiple standpoints, it was applied method of interviewing employees and managers for organizational units and business owners. This was important part, which was used to test established hypothesis. Results obtained with empirical research were statistically processed and in line with established research goals.

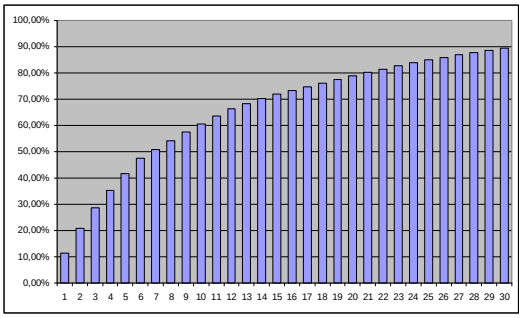
For each organizational unit that is Sub Company, the data was collected in 2012, for time between 03.01.2012. - 09.11.2012 about all suppliers, customers, revenue, expenses and obtained profit.

During the time that we looked in sub company Omni Surfaces Edmonton, it was processed 1,380 purchase orders between 56 different suppliers. In the table 1 there are suppliers sorted according to the number of deliveries in the time we looked, with that it is percentage and cumulative impact in total number of completed deliveries.

Table 1. Sorting suppliers according to number of deliveries

	Supplier	No. Deliveries	Percentage	Cumulative
1	Mineracao Guidoni LTDA	156	11,30%	11,30%
2	Apoena Logistica S/A - USD	130	9,42%	20,72%
3	Initial Inventory	108	7,83%	28,55%
4	Vickers Industrial Co.,LTD	93	6,74%	35,29%
5	Thor granitos e marmores ltda	89	6,45%	41,74%
6	World rocks - USD	81	5,87%	47,61%
7	Brasigran Brasileira De Granitos Ltda	46	3,33%	50,94%
8	Granos-Granitos S/A	45	3,26%	54,20%
9	BVL Granites	44	3,19%	57,39%
10	Fortuna Granitos Do Brasil LTDA	42	3,04%	60,43%
11	Omni Surfaces Corp. - Cad(Toronto)	42	3,04%	63,48%
12	GS Granite Limited	39	2,83%	66,30%
13	Antolini Luigi	29	2,10%	68,41%
14	Aro Granite International Inc	27	1,96%	70,36%
15	Bonotti-Stone-Trading - International	22	1,59%	71,96%
16	Levantina - The Natural Stone Company	20	1,45%	73,41%
17	Sincrest International PTE LTD	20	1,45%	74,86%
18	ItapoamaMineracao	19	1,38%	76,23%
19	Toledo MineracaoLtda - USD	19	1,38%	77,61%
20	FranchiumbertoMarmiSrl	18	1,30%	78,91%
21	JaciguaGranitos	18	1,30%	80,22%
22	Global Stone Source, INC	17	1,23%	81,45%
23	GramicGranitos E Marmores Ltda. - USD	17	1,23%	82,68%
24	Benicantilmarmoless.a (bemarsa) - Euro	16	1,16%	83,84%
25	Testi Do Brasil	15	1,09%	84,93%
26	International Product Supply Inc	14	1,01%	85,94%
27	Red Sea Mining Co. - USD	13	0,94%	86,88%
28	Bruno Lucchetti	12	0,87%	87,75%
29	Alliance Minerals North America LLC	11	0,80%	88,55%
30	Exotic granite & marble	11	0,80%	89,35%
...	...			
56	Nicola FontaniliS.r.l.	1	0,07%	100%

Information that are in the table #1, giving us opportunity to apply ABC method for selected suppliers. From information we can see that only 7 suppliers are involved in 50% of all purchase orders, 21 supplier we can see as A class in accordance with ABC method in which is necessary to pull away 80% all processed purchase orders, picture 1.



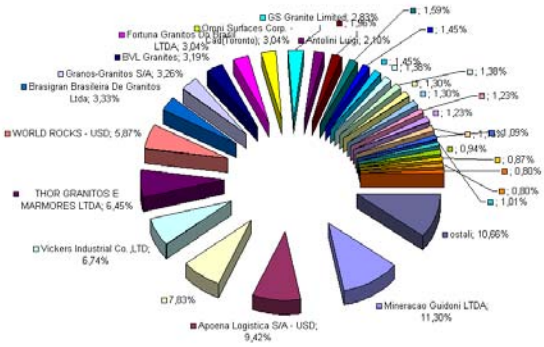
Picture 1. Histogram of supplier classification

With similar procedure for sub company Omni Surfaces Edmonton can be analyzed supplier structure for the time in period of 3.1.-9.11.2012 in which was processed 1.380 purchase orders. According to information related to complete deliveries there are 57 different customers who were placing orders and 20 customers contain 80% of all the orders what is important to take in consideration for future analysis in accordance with ABC Method for classification, table 2.

Table 2. Structure of customers

	Customer	No. Orders	Percentage	Cumulative
1	Universal Stone Fabricators Inc.	110	7,97%	7,97%
2	Gio Industries	91	6,59%	14,57%
3	World Stone Inc	90	6,52%	21,09%
4	Prairie Granite	69	5,00%	26,09%
5	CEI	68	4,93%	31,01%
6	Modern Granite	67	4,86%	35,87%
7	K&Js Custom	63	4,57%	40,43%
8	CNG Stone Products	62	4,49%	44,93%
9	Stoneworks Granite & Marble	51	3,70%	48,62%
10	Venato Stone	47	3,41%	52,03%
11	MGS Company	46	3,33%	55,36%
12	MichelAngelo	45	3,26%	58,62%
13	Atlas Granite Inc	44	3,19%	61,81%
14	Urban Granite Ltd	44	3,19%	65,00%
15	Fine Lines Tile And Stone	41	2,97%	67,97%
16	Classic Granite Works	39	2,83%	70,80%
17	Imperial Stone Inc	35	2,54%	73,33%
18	Aspen Granite	34	2,46%	75,80%
19	Reliable Granite	33	2,39%	78,19%
20	AllstoneInc	30	2,17%	80,36%
...	...	...	...	...
57	Universal Slate Inc	1	0,07%	100,00%

On picture 2, there is customer involvement presented in percentage as part of total number processed orders. Analyzing customers and suppliers in sub company Omni Surfaces Edmonton in comparison with total number of processed orders in deliveries, present frequency of customers and suppliers in total revenue for time we took in consideration. According to that in the coming text for application of multicriteria ABC analyze this criteria will be marked as frequency of showing.



Picture 2. Percentage of supplier participation

In summary all classified suppliers in comparison for three criteria connected for classification of suppliers based on multicrireia ABC method, are showed in table 3. Information in table 3 is in relation with three criteria connected with supplier classification in accordance with multicriteria ABC method and for criteria:

- Showing frequency
- Total revenue
- Profit

Table 3. All suppliers sorted based on three criteria

	Suppliers sorted by criteria:		
Rank	Frequency of occurrence	Revenue	Suppliers
1	MineracaoGuidoni LTDA	MineracaoGuidoni LTDA	MineracaoGuidoni LTDA
2	ApoenaLogistica S/A - USD	ApoenaLogistica S/A - USD	ApoenaLogistica S/A – USD
3	Initial Inventory	Thor Granitos E Marmores Ltda	Vickers Industrial Co., Ltd
4	Vickers Industrial Co., Ltd	Vickers Industrial Co., Ltd	Initial Inventory
5	Thor Granitos E Marmores Ltda	Initial Inventory	Thor Granitos E Marmores Ltda
6	World Rocks - Usd	Granos-Granitos S/A	Granos-Granitos S/A
7	BrasigranBrasileira De GranitosLtda	World Rocks - Usd	World Rocks – Usd
8	Granos-Granitos S/A	Fortuna Granitos Do Brasil LTDA	Fortuna Granitos Do Brasil LTDA
9	BVL Granites	BrasigranBrasileira De Granitos Ltda	BrasigranBrasileira De Granitos Ltda
10	Fortuna Granitos Do Brasil LTDA	Antolini Luigi	BVL Granites
11	Omni Surfaces Corp. – Cad (Toronto)	Omni Surfaces Corp. – Cad (Toronto)	Antolini Luigi
12	GS Granite Limited	BVL Granites	Levantina – The Natural Stone Company
13	Antolini Luigi	Levantina - The Natural Stone Company	Omni Surfaces Corp. – Cad (Toronto)
14	Aro Granite International Inc	GS Granite Limited	Testi Do Brasil
15	Bonotti Stone Trading International	Bonotti Stone Trading International	Global Stone Source, INC
16	Levantina - The Natural Stone Company	Testi Do Brasil	Franchiumberto MarmiSrl
17	Sincrest International PTE LTD	Global Stone Source, INC	Bonotti Stone Trading International
18	Itapoama Mineracao	Aro Granite International Inc	Nova Aurora Marmores E Granitos

			LTDA.
19	Toledo Mineracao Ltda - USD	Toledo Mineracao Ltda - USD	Fuji Marmores E Granitos S.A
20	Franchiumberto MarmiSrl	EXOTIC GRANITE & MARBLE	Aro Granite International Inc
21	Jacigua Granitos	Mineracao Guidoni LTDA	Granfuji Marmores E Granitos
...	...	...	...

Taking in consideration ranked suppliers that have majority impact on business performance we can conclude that they are suppliers who have higher frequency rank and impact on revenue. In a case when we have higher frequency showing in the scale of rank than in scale of total revenue, that means that for those suppliers we need to dedicate more time, open more purchase orders, mange more information, have more people to work and transportation. Suppliers who have higher frequency rank that is showing in comparison to participation in total revenue are:

- Initial Inventory,
- World Rocks – USD,
- BrasigranBrasileira De GranitosLtda,
- BVL Granites,
- Aro Granite International Inc, itd.

There are suppliers that have rank of participation in total revenue higher of rank that participate in total gross margin. In that case for this suppliers cost are higher because gross margin is smaller in comparison with other suppliers. Suppliers where is the rank of participation in total revenue higher from rank of participation in total gross margin are:

- Thor Granitos E Marmores LTDA,
- Antolini Luigi,
- Omni Surfaces Corp. - Cad(Toronto),
- Bonotti-Stone-Trading –International,
- Aro Granite International Inc.

There are also the cases where there is a rank of frequency where appearance of suppliers lower than participation in total revenue. Those suppliers need to be favorite, because they bring higher profitability for company in rationalization production and organizational activities. Suppliers where the frequency rank of appearance is lower from participation rank in gross revenue are:

- Thor Granitos E Marmores LTDA,
- Granos-Granitos S/A
- Antolini Luigi,
- Levantina - The Natural Stone Company, itd.

Suppliers where there is participation rank in total revenue lower thank participation rank in gross profit are:

- Vickers Industrial Co.,LTD ,
- Initial Inventory,
- BVL Granites,
- Levantina - The Natural Stone Company
- Testi Do Brasil,
- Global Stone Source, INC.

In these suppliers cost of transportation are minimal and company from this contracts have the highest productivity and profitability.

In summary all ranked suppliers in multicriterial optimization in comparison with frequency of appearance, participation in total revenue, participation in gross margin, there are presented in table 4.

Table 4. Summary of supplier rank based on three criteria

	Customer are ranked based on criteria:		
Rank	Frequency of appearance	Revenue	Gross Margin
1	Universal Stone Fabricators Inc	Gio Industries	Gio Industries
2	Gio Industries	Universal Stone Fabricators Inc	Universal Stone Fabricators Inc
3	World Stone Inc	World Stone Inc	World Stone Inc
4	Prairie Granite	Modern Granite	Modern Granite
5	CEI	K&Js Custom	MichelAngelo
6	Modern Granite	MichelAngelo	CNG Stone Products
7	K&Js Custom	CNG Stone Products	K&Js Custom
8	CNG Stone Products	Prairie Granite	Prairie Granite
9	Stoneworks Granite & Marble	MGS Company	CEI
10	Venato Stone	CEI	Classic Granite Works
11	MGS Company	Classic Granite Works	J&C Stone Cutters
12	MichelAngelo	Atlas Granite Inc	Atlas Granite Inc
13	Atlas Granite Inc	J&C Stone Cutters	Stoneworks Granite & Marble
14	Urban Granite Ltd	Stoneworks Granite & Marble	Venato Stone
15	Fine Lines Tile And Stone	Venato Stone	MGS Company
16	Classic Granite Works	Urban Granite Ltd	Urban Granite Ltd
17	Imperial Stone Inc	Aspen Granite	Aspen Granite
18	Aspen Granite	Ideal Tile	Ideal Tile
19	Reliable Granite	Fine Lines Tile And Stone	
20	AllstoneInc	AllstoneInc	
...			

The detail analysis of ranked customers who are part of majority participation in number of transactions and activities, they also have higher rank of participation in total revenue and those are:

- Prairie,
- CEI,
- Venato Stone,

- Stoneworks Granite & Marble

Customers where participation rank is higher is higher than participation rank in gross margin are:

- K&Js Custom,
- MGS Company.

Customers who have lower participation rank in total revenue from the participation rank in gross profit are:

- MichelAngelo,
- CNG Stone Products
- J&C Stone Cutters
- Stoneworks Granite & Marble
- Venato Stone.

3. CONCLUSION

With conducted research we obtained important results for the company management for Omni Surfaces, which can help to be more successful. The advantage of this classification, taking in consideration the most important elements based on samecriteria or the group of criteria is what will provide focus of attention for providing those elements in the right time. In that case we solve higher number of problems, and disregard the part of elements that doesn't have right relation on the impact.

The results of ABC method provide management, coordination based on exceptions, but it is important to say that looking on the big picture how to manage company is the most important. Ranking suppliers, customers, focus is on the most important, those who were based on some special importance are on the front of all the other.

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