ACTIVITY BASED COSTING AS A TOOL FOR EFFECTIVE USE OF OUTSOURCING IN SUPPLY CHAIN MANAGEMENT – CASE STUDY

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Abstract

The article presented herewith analyses Activity Base Costing usability to determine effective area and mode of outsourcing in supply chain based on a selected case. It is well established that ABC is a right method for establishing a comparable cost base for both typically considered generic scenarios: in-house and outsourced. Such comparison is to address a problem usually named as "make or buy". However such analyses are often made on general level and results are automatically applied to all activities. Moreover often a possibility to improve in-house operations in overlooked. In the case presented the appropriate calculating model was created and based on it, authors show potential of ABC method in creation of various scenarios leading to enhance efficiency of a supply chain. It is demonstrated with use of real case (however altered for academic purposes) study in Central Europe in an FMCG industry. The article contributes to the existing body of knowledge on the application of ABC method to measure efficiency of managerial decisions regarding use of outsourcing in supply chains. With the model presented companies may define scope and price level of outsourced services.

Key words: Activity Based Costing, make or buy analyses, outsourcing, supply-chain management

1. INTRODUCTION

Activity Base Costing (ABC) is one of the most commonly used cost allocation methods. Credit for its scientific presentation is usually given to Cooper and Kaplan (1993), however attempts to use such approach had been earlier. ABC has several advantages over so called conventional allocation (Atrill & Laney, 2015). ABC is considered as a very useful method to evaluate outsourcing options as it directly identifies costs of internal processes allowing for their effective comparison to offers of external suppliers willing to take them over.

As logistic processes are relatively often outsourced (Dos Santos Gonçalves Leite, 2016), (Christopher, 2016) applying ABC to allocate costs and evaluating effectiveness in this area is quite common (Sliwczynski & Kolinski, 2012). A comprehensive overview of important scientific papers regarding application of ABC

costing in Supply Chain Management was presented by Hald and Thrane (2016). They indicated several particular application of the ABC in Supply Chain Management context (Pawlyszyn, 2017). Amongst others the following refer to outsourcing related decisions.

Primary they identified outsourcing as an important field since ABC provides a method that can calculate cost to the firm of using different suppliers as such accounting information proves useful for price negotiations. It has to be added in addition final decision about outsourcing vs. internal solution has to be based on an adequate cost comparison.

Secondly allocation of costs to customers has to be considered useful not only on sales side but also shall influence strongly an outsourcing decision as, even if external option proves to be in overall more efficient margins on certain groups of customers might be negatively affected.

Thirdly applying ABC based recommendations often leads to re-allocation of resources across entities. In order for such decision to bring positive effects an adequate cost/profit re-distribution mechanism must be developed to eliminate the involved parties' concerns for opportunistic behaviour (Hald & Thrane, 2016, p 10).

This article presents a case study illustrating how ABC can be used in order to capture the widest spectrum of parameters underlying an outsourcing decision and what mistakes can be made if an oversimplified approach is used. It is based on a real study made by authors for a commercial and still active Client which originally encompassed various confidential information. For the purpose of an article they had to be alternated. However a methodical ground and business context in the area of discussion is maintained.

2. A BUSINESS CONTEXT

2.1. Market and characteristics

An internationally recognized toys producer, named "Super Toys" had a Polish branch with activities in Poland limited to logistics, sales & marketing. Products ranged from small, plastic figures to electronic devices and teddy bears exceeding in size a basket-ball player. The total number of active SKUs reached 500 but the ERP system in use carried several times more indices due to changes in packaging and suppliers. Customers represented three dominating segments: big retail chains, specialized shops (small shops with broader than toys product range were also included) and petrol stations (chains of).

Toys themselves were actually produced in China and Portugal and sent directly to a warehouse near Warsaw (in case of Asian direction with reloading in one of Baltic ports). Similar system functioned in all European countries. It was deemed inefficient as nearly 30 warehouses had to be operated with adequate inventory and wide assortment anyway caused troubles with meeting orders in full.

"Super Toys" was operating on very competitive market with low entrance barriers and shifting demand patterns. It's value in Poland is estimated between 0.5 and 1 billion USD. Although truly big global corporations were not directly active,

opting for licensing mode of operations (like Walt Disney), five local producers took the lead (Cobi, Granna, Wader, Canpol and Trefl). They operated through different distribution channels however always utilizing the following ones: big retailers, specialized shops, general small retailers and petrol stations.

2.2. The outsourcing decision – targets and real results

Giving challenges outlined above and following general trend to centralize and standardize operations, create volume in order to streamline auxiliary processes Super Toys initiated a pan-European project aimed at centralization of all logistics operations from ex-works manufacturing up to deliveries to retail outlets. It ended with a recommendation of outsourcing of almost all activities. The one central warehouse was to be created near the barry point and supplied from both: own plant in Portugal and from China. From there deliveries were to be made directly to customers (exception were made for several very distant countries where cross-docking was to be applied).

Consequently, as of 1st of Jan. 2015, all logistics operations got outsourced to a renowned supply chain operator. As a result of a complex tendering offer a global operator: Swift Logistics was awarded the contract for 2 years with intention to expand it to an infinite time should both sides are satisfied with its performance. The contractor was made responsible for all warehousing activities (inbound, stocking, outbound) as well as for carrying deliveries from the European warehouse (from Frankfurt as near this city facility was located), directly to customers. Polish operations were be to charged only for the deliveries from Frankfurt. Consequently a cost structure became very simplistic. To the Cost of Goods Sold (COGS) defined as ex works Frankfurt a relevant delivery fee was added, which in turn was defined in two categories: per palette and parcel. Amongst other minor condition the Contractor warrantied 3 days delivery time to each place in Poland and 99% accuracy ratio.

Potential savings, in Poland only, consisted of the following:

1) an internally operated warehouse was shut down, eliminating roughly 2 million of annual costs;
2) upstream (deliveries to warehouse) and downstream (transport to customers) costs were substituted with one, easy to control, cost line;
3) controlling and administration function were to be reduced.

Unfortunately results were far below the expectations. Not only qualitative parameters failed to catch up with a contract's provisions but Polish branch discovered that instead of cost reduction it recorded an increase eating into margins. Costs in fact skyrocketed, however not exactly in logistic areas. The total bill (sum of all invoices) from Swift Logistics for 2015 amounted to 3,6M PLN, but only 2,9M PLN referred to deliveries. The latter sum, compared to roughly 2M PLN of annual warehouse operating costs plus upstream and downstream did not look especially bad. The real cost problem seemed to laid in VAS which apparently costed an exorbitant amount of 0,7M PLN. These value was especially difficult to challenge in negotiations with the Contractor albeit non-homogenous nature of these activities. In addition a comparison to the previous scenario was complicated by the fact of using regular employees to perform them if other duties allowed for such solution.

2.3. Problem identification

Primary review reviled several additional facts. It turned out that CoGS of all products was incremented by 12% to compensate for costs of the Frankfurt warehouse. This represented, in case of Poland, an increase of 0,8M annually, still below 2M incurred in own unit previously but hardly to be neglected in calculations.

Both Management Board in Poland and HQ agreed that the situation required thorough analyses and issue of costs was absolutely essential. It was clear that a puristic approaches: full centralization combined with outsourcing and return to the previous arrangement with own warehouse represented only part of the options at hand. The challenge was to properly identify value created in each activity in relation to their costs in several scenarios in order to find the optimal combination. The only feasible approach was the one based on ABC. Each of the supply chain components had to be analysed in two dimensions:

1) as a separate activity;
2) in conjunction with other, related processes.

In addition qualitative and quantitative factors had to be considered as not all parameters could be meaningfully translated into monetary units.

3. ABC analyses

3.1. Assumptions

At first the calculation model had to address a set of predefined alternative scenarios. Two of them came natural:

1) the **current** one – based on full outsourcing to Swift Logistics;
2) the **previous** one – in house warehouse combined with external transportation.

Other ones had to be generated based on solutions available on the market. These encompass, among other the one based on a combination of outsourced warehousing, but in Poland, & outsourced transportation. It was labelled as "**local**" for convenience.

An appropriate calculation model had to reflect a defined set of activities in each scenario in consideration. It was easy to establish that the following ones had to be included:

1) deliveries to final customers (downstream);
2) outbound;
3) stocking;
4) inbound;
5) deliveries to warehouse (upstream).

But in course of discussion it quickly become clear that the process of utmost importance was the one hardly linked to logistics at first glance: so called value added services (VAS). Under these capture an array of activities related to conversion of selected articles, which came actually as components, into final goods fell. For example for various reasons wizards flying on brushes came in two parts: wizards themselves from China while brushes from Portugal and had to be assembled in

warehouse. But a constant flow of such operations was a minor part. The bulk of orders was coming from marketing and sales as a result of various promotional efforts: bounded sales, Christmas actions etc. Near all of the included crea ting complete sets of toys in various configurations and in specially designed, colourful and otherwise attractive packaging. These were hardly managed activities as they appear quite incidentally as an outcome of successful negotiations with big retailers or specialized chains. Consequently VAS got included as an additional activity.

The relevant model had to consider an array of important parameters shaping effectivity of logistics operations from point of view of Super Toys in Poland. The leading one was certainly a total, annual cost of above defined activities. It had to consider not only OPEX but, as scenarios varied in a necessary inventory also a NWC capital has to be considered.

Application of the ABC method requires development of cost drivers for each activity. This task was complicated by use of various packaging modes both for upstream and downstream. Toy are not bulk commodity and vary significantly in shape and weight. Completion of deliveries in this business is still more an art than solving optimizing equitation. In upstream sometimes it was difficult to complete a full container for delivery so individual pallets got used. In downstream many deliveries were made in packages (parcels) with different standards. Finally it was agreed to use, for calculation purposes, a standardized conversion table presented Table 1.

Table 1. Packaging conversion units

Unit one	Unit two	Unit three
1 container =	10 pallets =	60 parcels

Source: Own assumptions based on http://www.euro-shipping.com.pl/?page_id=16 (access: 113.04.2017) but modified

Then it was decided to use a parcel as a cost driver for each activity except for VAS, in which case labour hours was the only option (see Table 2).

Table 2. Cost drivers

Activity	Cost driver	Remarks
Upstream	Parcel delivered to a warehouse	It is relatively easy to negotiate one rate for each of two routes used.
Inbound	Parcel delivered to a warehouse	
Storage	Parcel stored	It would be more appropriate to use pallets however applying a consistent packaging unit across almost all activities was very convenient.
Outbound	Parcel delivered from a warehouse	It was assumed that the volumes of incoming outgoing parcels were equal. In practice some differences always appear but they rarely can and are planned.
VAS	Labour hours	
Downstream	Parcel delivered from a warehouse	In case of a regular flow of deliveries to a stable pattern of points negotiating a single rate saves administration costs.

Source: Own assumptions based on discussions with "Super Toys" management

Data were obtained from the following sources:

1) For the current scenario the Swift Logistic price list was used.
2) For the previous scenario existing records of then incurred costs were used but key items were updated via appropriate research.
3) For the local scenario some data derived from other ones could be used but it was necessary to run a tendering procedure to identify proper costs.

3.2. Calculating model

The calculating model based on the above outlined assumptions had to reflect not only ABC method but also different nature of costs in various scenarios. In scenarios I and III suppliers offers were a predominant source of information. 2015 results served as a base (see Table 3). They also served as Scenario I description. For the sake of comparability other two Scenario considered the same external parameters and key logistic volumes, for example number of deliveries, packaging structure, etc.

Table 3. 2015 Super Toys financial results in Poland – Scenario I

2015 results		Big retailers H	Specialized shops S	Petrol stations B	Total
Deliveries					
Pallets	units	350,0	5,0	50,0	405,0
Parcels	units	2 000,0	3 500,0	1 000,0	6 500,0
Revenues					
Pallets	('000 PLN)	3 500,0	75,0	500,0	4 075,0
Parcels	('000 PLN)	2 000,0	5 600,0	1 000,0	8 600,0
Total	***('000 PLN)***	***5 500,0***	***5 675,0***	***1 500,0***	***12 675,0***
CoGS		0,7	0,5	0,6	
Pallets	('000 PLN)	2 450,0	37,5	300,0	2 787,50
Parcels	('000 PLN)	1 400,0	2 800,0	600,0	4 800,0
Total	***('000 PLN)***	***3 850,0***	***2 837,5***	***900,0***	***7 587,5***
I level Margin					
Pallets	('000 PLN)	1 050,0	37,5	200,0	1 287,5
Parcels	('000 PLN)	600,0	2 800,0	400,0	3 800,0
Total	***('000 PLN)***	***1 650,0***	***2 837,5***	***600,0***	***5 087,5***
Total relative to sales	*%*	*30,0%*	*50,0%*	*40,0%*	40,1%
Logistic costs					
Pallets	('000 PLN)	147,0	2,1	21,0	170,1
Parcels	('000 PLN)	840,0	1 470,0	420,0	2 730,0
VAS	('000 PLN)	420,0	-	252,0	672,0
Total	***('000 PLN)***	***1 407,0***	***1 472,1***	***693,0***	***3 572,1***
VAS workload	hrs	5 000,0		3 000,0	8 000,0
1 EUR =	4,2	PLN			
II level Margin					
Pallets	('000 PLN)	903,0	35,4	179,0	1 117,4
Parcels	('000 PLN)	- 240,0	1 330,0	- 20,0	1 070,0
VAS	('000 PLN)	- 420,0	-	- 252,0	- 672,0
Penalties (revenue)	('000 PLN)		14,8		14,8
Total	***('000 PLN)***	***243,0***	***1 380,2***	***- 93,0***	***1 530,2***
Total relative to sales	*%*	*4,4%*	*24,3%*	*-6,2%*	12,1%
Penalty calculations					
Number of parcels			565,2		
Indicator			0,25		
SMGA costs					**2 000,0**
Gross result					**- 469,8**

Source: "Super Toys" managerial accounts modified

After a discussion a difference in NWC (in practice in inventory) was neglected. It was hard to estimate as it became clear that comparison of 2014 inventory in all European warehouses to the total in Frankfurt of 2015 showed only minor improvement (10% on average). At 10% WACC the corresponding increase in Poland would not exceed 20k PLN of costs.

On top of the data given above it was identified that Cost of Good solved included 813k PLN of central warehousing costs (12% mark-up).

3.3. Results

As indicated in p. 3.1 three scenarios got analysed: current, previous and local. Although they were meant as fully alternative for being based on different process setups certain differences had to be recognized and considered appropriately. As a starting point the current scenario was chosen and, since all calculations were based on 2015 flows actual 2015 results could be adopted as valid for this option.
As far as previous scenario was concerned the previously unified warehousing costs had to be broken amongst inbound, storage, outbound and VAS turning results shown below (Table 4). The most significant finding was that storage costs reflected idle capacity. Area of building surpassed by far what was really needed.
In case of the local scenario calculations were straightforward since bidders provided input data according to the ABC methodology.

Table 4. Total annual logistic costs in k PLN – the previous scenario

2016 simulation		Big retailers H	Specialized shops S	Petrol stations B	Total
Inbound transport	('000 PLN)	203,7	175,4	64,6	***443,7***
Inbound	('000 PLN)	58,9	50,7	18,7	***128,3***
Storage	('000 PLN)	633,7	545,6	200,9	***1 380,3***
Outbound	('000 PLN)	88,9	76,5	28,2	***193,6***
VAS	('000 PLN)	107,2	-	64,3	***171,6***
Outbound transport	('000 PLN)	150,0	141,0	50,0	***341,0***
Total	***('000 PLN)***	***1 242,5***	***989,3***	***426,7***	***2 658,6***
Margins & profit		**H**	**S**	**B**	**0**
I level Margin	('000 PLN)	1 650,0	2 837,5	600,0	***5 087,5***
Logistic costs - own w	('000 PLN)	1 242,5	989,3	426,7	***2 658,6***
Logistic costs - operat	('000 PLN)	1 407,0	1 472,1	693,0	***3 572,1***
II level Margin:					
scenario with own warehouse	('000 PLN)	407,5	1 848,2	173,3	***2 429,0***
scenario with an external operator	('000 PLN)	243,0	1 365,4	- 93,0	***1 515,4***
scenario with own warehouse	%	7,4%	32,6%	11,6%	***19,2%***
scenario with an external operator	%	4,4%	24,3%	-6,2%	***12,1%***
SMGA costs					**2000**
Gross result					
scenario with own warehouse	***('000 PLN)***				***429,0***
scenario with an external operator	***('000 PLN)***				***- 484,6***

Source: Own calculations based on Clients' data, modified

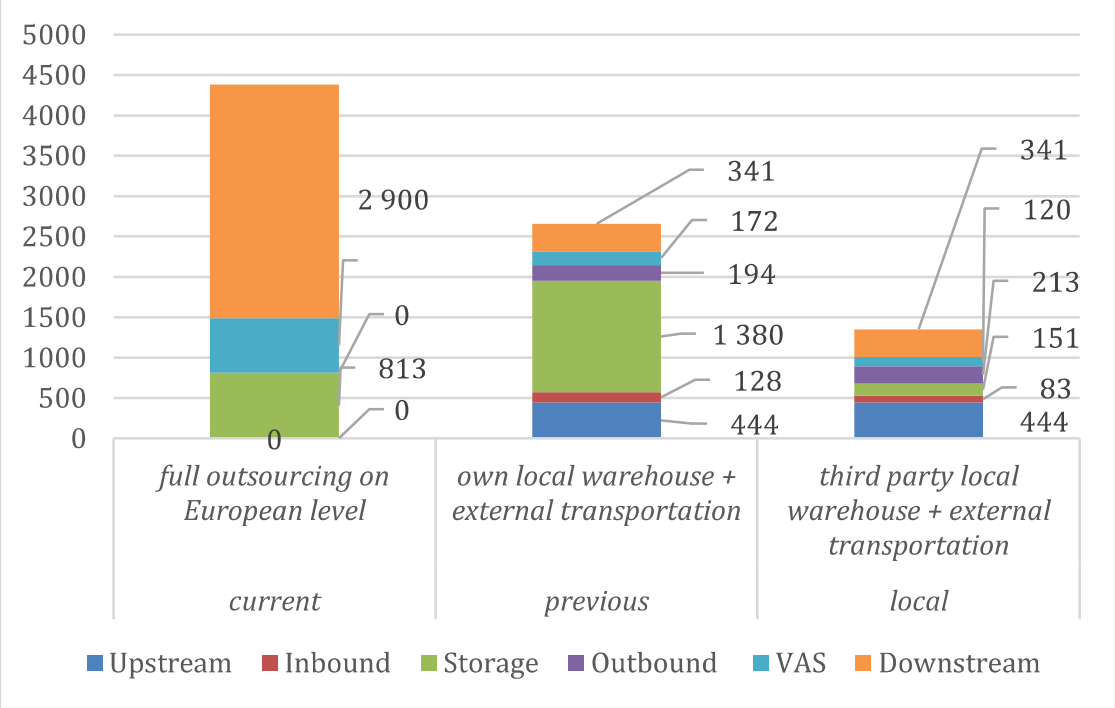
Final results of annual logistic costs for each of three scenarios in consideration are demonstrated below (Table 5, Figure 1).

Table 5. Comparison of total annual logistic costs in k PLN

Scenario		**I**	**II**	**III**
Activity	Cost driver	Current	Previous	Local
		full outsourcing on European level	*own local warehouse + external transportation*	*third party local warehouse + external transportation*
Upstream	parcels	*included in storage*	444	444
Inbound	parcels	*included in storage*	128	83
Storage	parcel places/month	813	1 380	151
Outbound	parcels	*included in storage*	194	213
VAS	hrs	672	172	120
Downstream	parcels	2 900	341	341
Total		**4 385**	**2 659**	**1 352**

Source: Own calculations resulting from previous tables except for the local scenario.

Figure 1. Logistic costs in k PLN per year according to each scenario



Source: Own calculations

Results obtained allowed for a profound analyses of all activities in consideration, margining influence of prejudices and particular interests of various corporate units. The following became obvious:

1) Transferring labour intensive VAS operations to a country with very high salaries was a clear mistake. It was caused by underestimating their value and volatility. Moreover it was determined in discussion that these activities require direct supervision from marketing staff to control quality.
2) Previous local warehouse so too big given the size of operations. The reason was that several years earlier HQ had a plan to use it for backing operations in FSU countries and requested Polish unit to assure additional space. The plan was abandoned but the rental agreement for a building stayed. This strongly impacted the storage cost level.
3) After adjusting storage for real needs (Scenario III) and using an outsourced capacity rather than own warehouse it turned out that local solution was only 10% more expensive on total of upstream, inbound, storage and outbound – a difference savings on downstream and VAS would with no doubts compensate.

4. A COMPLEMENTING QUALITATIVE ANALYSES

In parallel to the above outlined ABC costing qualitative factors had to be considered. The diagnosis part of virus analysis of the logistics system was used. The logistics system virus analysis is a method to identify and analyse the reasons for various problems. The final result of this method is to elaborate a logistics system problem virus. To illustrate the problems one applied the medicine-based logic. The virus, which affects healthy tissues (system elements), make them die or be transformed into hybrids. In turn, the hybrids do not achieve the system aims. “Sick” tissues cause disturbances in the system functioning. The key to eliminate the system virus (including the reasons for source problems) is its unambiguous identification. The elimination process is performed by dedicated improvement actions or at least by limiting the virus action range. This results in an improvement of the system functioning method. The methodology of the diagnosis part of distribution logistics system virus analysis provides the following 6 stages (Cyplik & Hadas 2011):

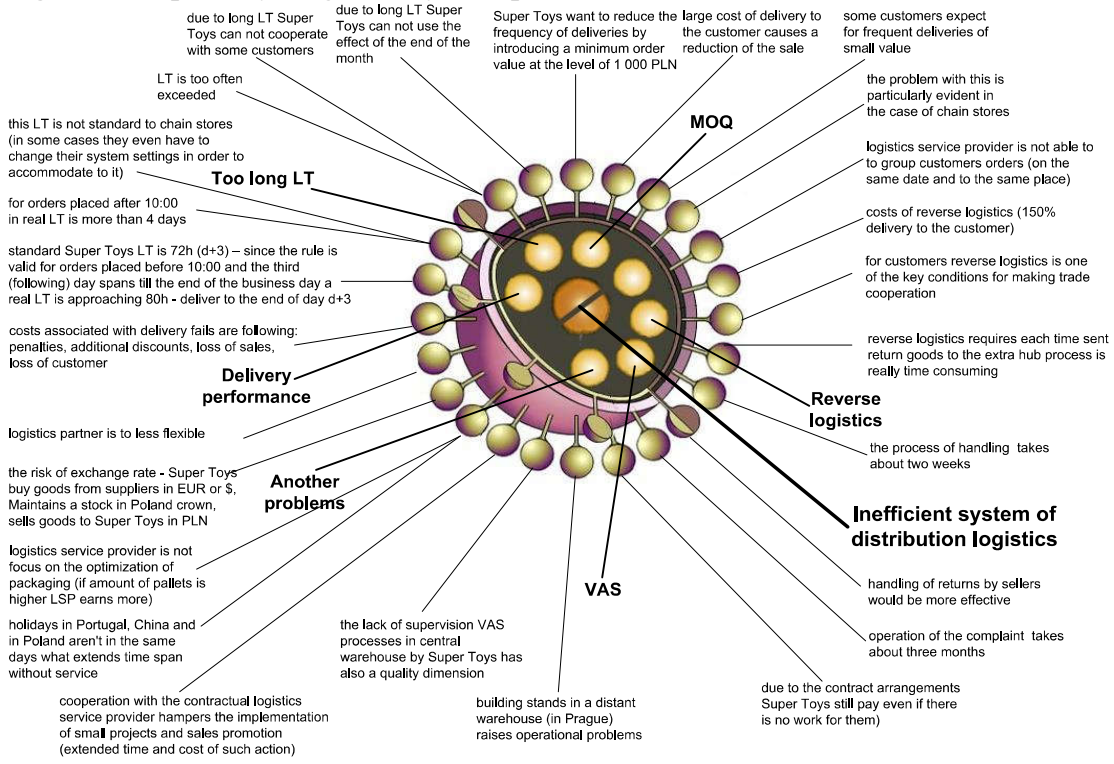
1) Determining the system objective.
2) Designating an expert group.
3) Problem identification.
4) Statistical analysis of the identified problem.
5) Present state analysis (AS-IS).
6) Elaborating the production-logistic system virus

Based on an analysis of the current condition, the team of experts compared to the existing state to the current trends in the market. One of the impor tant aspects of functioning of logistics in the area of customer service is ensuring completeness and timeliness of deliveries. The research performed by the Institute of Logistics and

Warehousing (ILiM) indicated that completeness and timeliness of deliveries is one of the key indicators of evaluation of the logistical customer service. Competitive advantage can nowadays be gained by companies that maintain global standards in this area (aggregated OTIF index on the level of at least 95% or 98% in the FMCG sector). Another important logistics parameter in consideration was the lead time of deliveries, which in the recent years has definitely been reduced (according to the ILiM's research, in the case of European suppliers, the average time of order fulfilment is approx. 3.5 days, while in the FMCG sector a much shorter time is expected, i.e. not more than 48 hours. The delivery lead time proposed by Super Toys. (calculated as the time from the moment an order is places until the delivery is received) was equal to the average (nominally 96 h, in reality 80 h); however, sometimes it is exceeded. The order fulfilment times expected by customers depend on the individual agreements between the suppliers and the customers. However, an observation of the market leads to the conclusion that this time tends to be shorter and that the customers' expectations are changing to 48 hours; this is the challenge that Super Toys. will have to meet. Companies have different concepts of complaints handling. According to one concept, the customer should contact a designated representative of the company who has provided service to the customer (most often a representative of the sales department); in the complaints-handling process, such a representative forwards the complaint to be considered by appropriate persons responsible for that process. In another concept, the complaints-handling process is fully (start to end) performed by the complaints department (person). In the case in question it is thus less important who is responsible for the process itself. What is more important is the fact that the limitations in the logistics process of Super Toys. lead to additional costs associated with additional discounts and penalties for failure to meet the logistics conditions. Such costs should be charged to the owner of the process, i.e. the logistics operator. For this purpose, the level of untimely and incomplete deliveries must be monitored. Contemporary businesses perform their logistics processes more dynamically than in the past. A general contemporary trend in the market is the effort to increase the frequency of deliveries, with simultaneous reduction of the size of individual deliveries. This trend is created by, e.g. large distribution networks that expect logistics services that conform to their specified parameters. Customers, too, highly value provision of additional services by the suppliers, e.g. packaging of products in conformance to strict requirements specified by the customers. Such operations are becoming more and more important and constitute an important source of companies' revenues.

A comparison of the problems identified by the Project Team of Super Toys (Expert Group). with the above opinions of experts makes it possible to draw an image of the virus of ineffective distribution logistics system of Super Toys., as shown in Figure 2.

Figure 2. Super Toys logistics system problems virus



Source: (com. Cyplik & Hadas, 2015, p.315)

In conclusion, the main problems in the ineffective distribution logistics system of Super Toys include:

- in the "delivery performance" area:
  - flexibility of the logistics partner;
  - costs related to incomplete deliveries, which reduce the profit margins;
  - frequent delays in deliveries;
- in the "lead time" area:
  - potential loss of customers if the average lead time level is maintained;
  - lack of possibility to take advantage of the end of month effect (compared to the competitors);
- in the "MOQ" area:
  - the need to revise the size and frequency of deliveries in order to determine the new values of applicable standards that match the needs of the market;
  - estimation of the share of the distribution logistics cost (downstream of the chain of delivery) with smaller customer orders;
- in the "reverse logistics" area:
  - the customer complaint response time;
  - the responsibility of Super Toys for the complaint process;
  - the length of the complaint-handling process;
- in the "VAS" area:
  - lack of control over the process of performance of additional services;
  - limited manageable of the VAS in the Central Warehouse;

- lack of possibility to optimize the design of the stands in the context of reduction of their assembly time to a minimum.

5. CONCLUSION

The above presented case and calculation model offer several insights in applicability of ABC costing to evaluate outsourcing decisions.

Firstly ABC costing must be based on an adequate definition of scope of analyses followed by process identification. It is beyond discussion that there are no two the same organizations save industries. Certain patterns and terminology, however useful shall be used only as frameworks to start a discussion (Coopers & Kaplan, 2000, pp. 141-144). Set of activities called VAS may be defined as belonging to manufacturing, marketing, sales, etc. depending on approach and goal of analyses. But in the case discussed it was obvious that they had to be treated as a part of logistic operation.

The second issue refers to cost drivers. They play a double role. Primary they make pivots via which costs are allocated to different objects (activities, customers, etc.) (Miller, 2000, p. 44). Secondly they often are deemed to reflect cost determinants. Some authors differentiate cost drivers from activity drivers (Miller, 2000, pp. 44-48) but such differentiation is rare (Cooper & Kaplan, 2000, p. 127-133). Scientists typically stress a need for careful identification of cost drivers with special attention to information value versus measurement cost balance. But the practical experience, among others exemplified by the case in discussion, proves that a proper interpretation of their meaning and appropriate use for given decision making is much more important. Here comes the issue of idle capacity & orphaned costs. Sometimes it's ineffective to utilize resources in full. One can imagine allocating storage capacity on daily basis. However it would require an existence of ideally elastic warehouse with all costs equally elastic (or existence of another user with precisely mirroring needs). But in case of underutilization, orphaned costs have to be spread over active targets.

In many cases this two dimensional approach is right. Actually current management trends aim, maybe unintentionally, at unification of the two roles in consideration. Structuring contracts in the simplest and easy manageable way often leads to enhance this link. What adds to this trend is a desire to convert the biggest possible part of the cost into variable ones. On a theoretical level having easy to manage variable cost instead of complicated, dominantly fixed cost base is advantageous. But in many cases one has to be careful. Costs do not disappear as from a value chain albeit contracts signed. They just change an owner. It's always worth to run a comparable analyses of outsourcers' and own cost base in order to verify whether the former has really an advantage or is just taking the same risk aboard and charging fee for that. This typically does not require nor in depth knowledge neither access to restricted data. A common sense was enough to identify that VAS cannot be less expensive near Frankfurt than near Lodz (Poland). If any accounting system says the opposite the system itself requires analyses. Also a common sense supplemented by general knowledge would be enough to identify that the Polish unit would have to

be charged, directly or indirectly, for the central warehouse services. This omission must have been significant.

Thirdly one shall be careful in interpretation of ABC costing results. The nature of this methods require breaking company performance into separate activities. However useful such detailed view might appear one cannot forget that a company represents certain complex set of interrelations of which only a part can be quantified directly. Therefore, once making an outsourcing decision, unquantified factors have to be considered and somehow weighted.

Fourthly ABC costing is a fully quantitative method. Thus factors which cannot be meaningfully expressed in numbers must be considered outside the model and final decision shall always be based on managerial judgement. The process of it's development shall be organized around an applicable intellectual model – the virus presented in p. 4 being very good example of.

Decision makers, if aware of the above indicated deficiencies, shall apply ABC costing in various stages of outsourcing decisions: starting the process, selecting partner(s) and evaluating results. Only ABC can deliver on one side such detailed but on the another easy comparable information, creating unrivalled platform for efficient decision.

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