Diagnosing the product portfolio in the furniture industry

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Abstract: The most successful organizations are going to be the ones that find ways to differentiate themselves. Organizations are increasingly recognizing that portfolio management can help them make the decisions that will set them apart from their competitors. The viewpoint presented in this article, brings some information about portfolio management in the furniture industry and lets on initial evaluation of product portfolios in the chosen furniture factories by means of ABC analysis. In the second half 2011 the case study was conducted in three selected, large case-goods companies. The results indicate that high variety of furniture collections in A-category does not favour manufactures of more technically and technologically advanced products. Greater collections number in A-category (about 30-35%) may be connected with lower number of production series. That class of products is also very time- and labour-consuming. That is the reason why manufacturers of middle- and high-class furniture should carry on the new product development process more carefully and focus on increasing in furniture collections lives.

Keywords: portfolio management, product range, furniture industry, ABC analysis, furniture collection,

INTRODUCTION
A product portfolio is comprised of all the products which an organization has. The most successful organizations are going to be the ones that find ways to differentiate themselves. So portfolio management and the prioritization of new product projects is a critical management task for them. Portfolio management is defined as a dynamic decision process, whereby a business’s list of active new product (and R&D) projects is constantly updated and revised. In this process, new projects are evaluated, selected and prioritized [Cooper et al. 1997a]. Organizations are increasingly recognizing that portfolio management can help them make the decisions that will set them apart from their competitors. Report prepared by Project Management Institute found that 62 percent of projects at organizations that described themselves as highly effective in portfolio management met or exceeded expected ROI\(^1\). Yet despite the quantifiable benefits of portfolio management, relatively few organizations have perfected the practice. The report outlines a three-pronged approach for improvement [PMI Report 2012]:

- Elevate portfolio management to a strategic level,
- Create a portfolio-minded culture,
- Implement appropriate tools and practices.

The viewpoint presented in this article, brings some information about portfolio management in the furniture industry and lets on initial evaluation of product portfolios in the chosen furniture factories by means of ABC analysis, which is well known and easy in application. Due to the nature of the furniture industry, in this article the product is defined as a furniture collection, i.e. a set of products related by the style of design and bearing the same name. Whereas a new product is called the collection of furniture which perform the criterion of novelty for 24 months, while the sale was booked by the manufacturer. The newness of the furniture collection can be expressed in a modified, improved design, construction, use of a

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\(^1\) ROI – Return On Investment - a performance measure used to evaluate the efficiency of an investment or to compare the efficiency of a number of different investments. To calculate ROI, the benefit (return) of an investment is divided by the cost of the investment. The result is expressed as a percentage or a ratio.
new material, a new process, a new method of customer service, satisfying new customer needs or in a better way meeting current needs [Olkowicz and Szymanowski 2012].

PARETO ANALYSIS

Good management requires selection of information which company’s areas or products can determine it success or failure. ABC analysis is, for example, an inventory categorization method which consists in dividing items into three categories, A, B and C: A being the most valuable items, C being the least valuable ones. This method aims to draw managers’ attention on the critical few (A-items) and not on the trivial many (C-items). The ABC classification process is an analysis of a range of items, such as finished products or customers into three categories: A – outstandingly important; B – of average importance; C – relatively unimportant as a basis for a control scheme [Jamshidi and Jain 2008]. Sold products also can be classified with use this method. Prioritizing product from firm’s portfolio is very important. Then, determine which of them have the highest return on investment and therefore should be the initial focus of improvement programs. Pareto analysis enables it. That is a simple technique for prioritizing problem-solving work. It's based on the Pareto Principle (also known as the 80/20 Rule) – the idea that 80% of problems may be caused by as few as 20% of causes [Leavengood and Reeb 2002]. On the basis of that rule:

- **A-items** are goods which the top 70-80% of the annual sales value of the company typically accounts for only 10-20% of total sold products,
- **B-items** are the interclass items, those 15-25% of annual sales value typically accounts for 30% of total sold products,
- **C-items** are, on the contrary, items with the lowest sales value, 5% of the annual sales value typically accounts for 50% of total sold products.

THE CASE STUDY

The research was carried on in the second half 2011 in selected, large furniture (case goods) companies. The case study was adopted for the research method. Data were collected using the following techniques: a survey, an observation, an in-depth interview and examination of documents. From the companies, which after the survey have offered participation in the next stage of the research, were selected only three (each one employs about 500 people). The factories were chosen in that way to have their market segments differentiated with respect to price and quality. Therefore the Plant I manufactures quite cheap furniture from chipboards or MDF-boards (the low-price market segment). The portfolio of the Plant II presents the mid-priced products, i.e. the furniture with more complicated constructions, higher quality (application of solid wood elements) and which requires using higher technologies than first manufacturer applies. The last, third chosen factory - the Plant III - delivers on the Polish and foreign market the highest class furniture. Usually they are in whole wooden.

All plants made available qualitative data from the period 2003-2011. However, quantitative data come from different time periods. The Plants I and II provided the data from the 96 consecutive months, and only the Plant III from the 48 consecutive months (with reference to data of the Plants I and II, the data of Plant III came from the period from the 49-th to the 96-th month). The reason of thereof lay on the difficulty in the access of the Plant III to the earlier data. It was caused by the modernization of databases having a place exactly in the middle of the assumed studied period. The detailed scope of the obtained, quantitative data is presented in Table 1.

The data of the furniture collections sales in a month was classified into groups: A, B and C, in accordance with Pareto Principle. ABC analysis in each plant was conducted for every month separately. Then sales data coming from researched plants, including the ABC
classification, was compiled to one table and analyzed in the next step.

**Table 1. Range of quantitative data in the studied plants**

<table>
<thead>
<tr>
<th>The Plant</th>
<th>Range of quantitative data*</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>01.IV.2003 – 31.III.2011 (the 96 consecutive months)</td>
</tr>
<tr>
<td>II</td>
<td>01.IV.2003 – 31.III.2011 (the 96 consecutive months)</td>
</tr>
<tr>
<td>III</td>
<td>01.IV.2007 – 31.III.2011 (the 48 consecutive months)</td>
</tr>
</tbody>
</table>

* The financial year at each researched plant spans from 01.IV to 31.III of the following year

Source: own studies

**RESULTS AND ANALYSIS**

The analysis of the sale data revealed, that researched furniture plants not always have sustainable product portfolios. Table 2 includes the example on the basis of average monthly number of furniture collections in A-, B-, C-category. As can be noticed, the Plant I has the widest product offer in month, because average 103 furniture collections (but there is no information about how many pieces form the one set of furniture), and the Plant III – narrower (average 29). But these plants have a joint feature. C-items category accounts for more than 50%, however 51% in the Plant I it is an appropriate level, whereas 61% in the Plant III is too high. Nevertheless in the Plant III the total number of sold items including in C-category accounts for 7%, like in the Plant I (7%) and the Plant II (6%), so C-group of third plant's portfolio could be constituted for example by not numerous furniture collections or sales from the stock (Table 3). In the portfolio of the Plant II there is lack of noticeable assortment diversity within ABC categorization.

**Table 2. Average monthly number of furniture collections in A-, B-, C-category**

<table>
<thead>
<tr>
<th>ABC classification</th>
<th>Average monthly number of furniture collections [%]</th>
<th>Average monthly number of furniture collections [%]</th>
<th>Average monthly number of furniture collections [%]</th>
<th>Average [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>27</td>
<td>17</td>
<td>4</td>
<td>25</td>
</tr>
<tr>
<td>B</td>
<td>23</td>
<td>14</td>
<td>7</td>
<td>25</td>
</tr>
<tr>
<td>C</td>
<td>52</td>
<td>19</td>
<td>17</td>
<td>50</td>
</tr>
<tr>
<td>Total</td>
<td>103</td>
<td>49</td>
<td>29</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: own studies

The research encompassed also an analysis of sold products value and they number taking A-, B-, C-category under consideration. The results (Table 3) show that the price shelves (cheap, middle, expensive) of market segments were determined properly (average price per sold item: the Plant I – about 340 zł, the Plant II – 570 zł, the Plant III – 710 zł). The other thing is the price per unit in B-category of the Plant III, which is higher than in A-category. That situation may be unprofitable for the company.

Total number of furniture collections within A-, B-, C-category in the researched period is presented in Table 4. It means that every month, when the furniture collection was sold, was assigned to groups A, B, C according to ABC analysis rules. Moreover, in the space of its life cycle the furniture collection could appear in each category (and also even several times) so that is the reason of high values in total number of furniture collections. In A category assortment of the Plant III was found the lowest percentage of collections – 21%, whereas in the Plant I and II it accounts for about 27-28%. That fact probably results from the price and quality shelf of products. The most expensive furniture, which is manufactured at the Plant III, has classic and traditional design. According to the assumption, in this case 80% of sales
value comes from only 21% of total furniture collections. So its life cycles and sales periods are longer and the total number of collections is lower in comparison to the cheaper products. As far as that relationship is reasonable for the Plants I and III, in the Plant II it should be rather on a middle level, especially that the unit price of item in the Plant II is nearer to that in the Plant III (Table 3). However it was not happened, so it could suggest that the manufacturer has got too much heterogenous portfolio.

Table 3. Sales data from the researched plants with A, B and C classification

<table>
<thead>
<tr>
<th>ABC classification</th>
<th>The Plant I</th>
<th>The Plant II</th>
<th>The Plant III</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Value of sold items* [mln zł]</td>
<td>Number of sold items*</td>
<td>Price per unit [zł/unit]</td>
</tr>
<tr>
<td>A</td>
<td>878,9</td>
<td>2 508 087</td>
<td>350,4</td>
</tr>
<tr>
<td>B</td>
<td>153,5</td>
<td>485 206</td>
<td>316,4</td>
</tr>
<tr>
<td>C</td>
<td>54,0</td>
<td>220 143</td>
<td>245,2</td>
</tr>
<tr>
<td>Total</td>
<td>1 086,4</td>
<td>3 213 436</td>
<td>338,1</td>
</tr>
</tbody>
</table>


Source: own studies

Table 4. Total number of furniture collections within A-, B-, C-category in the researched period*

<table>
<thead>
<tr>
<th>ABC classification</th>
<th>The Plant I</th>
<th>The Plant II</th>
<th>The Plant III</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total number of furniture collections [%]</td>
<td>Total number of furniture collections [%]</td>
<td>Total number of furniture collections [%]</td>
<td>[%]</td>
</tr>
<tr>
<td>A</td>
<td>278</td>
<td>27</td>
<td>96</td>
<td>28</td>
</tr>
<tr>
<td>B</td>
<td>332</td>
<td>34</td>
<td>119</td>
<td>35</td>
</tr>
<tr>
<td>C</td>
<td>382</td>
<td>39</td>
<td>124</td>
<td>37</td>
</tr>
<tr>
<td>Total</td>
<td>992</td>
<td>100</td>
<td>339</td>
<td>100</td>
</tr>
</tbody>
</table>


Source: own studies

Figure 1. Pareto curve for the product portfolios in the furniture plants

Source: own studies

Summing ABC analysis up, the quantitative ranges of the A-, B- and C-category in the
furniture companies was defined. Therefore in the researched period: *A-items*, i.e. 80% of the total sales value of the company come from the furniture collections which accounted for 25% of total sold products, *B-items* were the furniture collections which 15% of total sales value accounts for 35% of total sold products, and *C-items* were the furniture collections with the lower 5% share in the total sales value and accounts for 45% of total sold products. Pareto curve for the studied product portfolios is illustrated in Figure 1.

CONCLUSIONS

The product portfolios of furniture companies are differentiated with regard to the total number of furniture collections. The higher furniture class, the narrower product portfolio is. Moreover taking into account especially A-category, it could be noticed that high variety of furniture collections does not favour manufactures of more technically and technologically advanced products (mainly because of using solid wood for production). Greater collections number in A-category (about 21-27%) (Table 4) may be connected with lower number of production series. That is inconvenient situation for the manufacturer because usually that class of products is very time- and labour-consuming. That is also the reason why manufacturers of middle- and high-class furniture should carry on the new product development process more carefully and focus on increasing in furniture collections lives.

REFERENCES


Streszczenie: *Diagnoza portfolio produktowego w przemyśle meblarskim* W związku z brakiem danych i informacji o strukturze portfolio produktowego dużego producenta mebli, podjęty został temat diagnozy oferty handlowej trzech przedsiębiorstw z branży meblarskiej. Celem niniejszej publikacji jest ocena asortymentu badanych zakładów oraz zarządzania przeprowadzona z wykorzystaniem analizy ABC. Wyniki wskazują, że w branży meblarskiej o 80% wartości sprzedaży stanowi 25% wszystkich kolekcji mebli, o 35% – 15% wszystkich kolekcji mebli, a o 5% – 40% wszystkich kolekcji mebli.

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