Potential savings in product groups - How to set the right priorities

Robert M. Münch, CEO, Saphirion AG

April 3, 2018

This article is a translation of the German article "Einsparpotenziale in Warengruppen schnell erkennen - Die richtigen Priorita en setzen" which was published February 2016 in the "INDUSTRIEBEDARF" magazine. The "INDUSTRIEBEDARF" magazine is the official organ of the "Fachverbandes des Maschinen- und Werkzeug-Gro handels e.V." (Association of Machine and Tool Wholesale).

Purchasing aims to procure required parts not only in a timely manner but also cost-effectively. If you want to minimize costs, however, you need to regularly check the different product groups for potential savings. In view of the continual increase in item numbers and the dynamics of day-to-day business, this is an almost impossible task, because a thorough analysis requires a lot of time and focus. The methods previously used for this purpose, such as ABC analyses based on purchasing volume or cost analyses, are of little help, since they are either too rudimentary or too time-consuming. Furthermore, there is often a lack of defined processes and tools to facilitate a structured analysis of product groups.

Performance pricing (PP) now provides a method that elegantly solves all these problems. Thanks to software-based PP analysis applications that are tailored exactly to the needs of purchasing, a cost-driven review of product groups can be easily integrated into day-to-day work routines.

Practical mathematics

Performance pricing is based on a mathematical process that evaluates the price-performance ratio of parts within a product group: multidimensional regression analysis. Here, part properties such as weight or lifetime are evaluated in relation to the price, and calculations are performed to determine the effect of these properties on the price. This results in a price forecast formula, which is then used to calculate a target price for each part. The result shows immediately which parts are price outliers and where the greatest savings potential lies. In addition, benchmark lines are calculated and presented for orientation, along with worst and best-practice benchmarks.

If the purchaser compares the current prices of the analyzed parts with these calculated benchmarks, a clear picture of the potential savings immediately emerges. Different categories of candidates can be distinguished here:

- Price outliers are the parts with the largest interval to a benchmark line.
- Savers are the parts where the product of "potential savings per part x qty." is the largest.
- Alternative parts are those parts that have the same or very similar specifications but are considerably cheaper.
- Mixed calculation refers to any parts purchased from the same supplier at the same price, although the parts' prices should differ.

With a powerful performance pricing application, such as Saphirion AG's NLPP, every buyer can identify and evaluate the various categories in just a few minutes. Parts in the "alternative parts" category, in particular, can be identified very quickly, which is very cumbersome or even impossible with other tools.

Due to the speed and objectivity of the process, even very large product groups with thousands of

item numbers can be evaluated extremely quickly. The results are graphically presented and are therefore well suited as a basis for discussions and meetings.

Using the results to optimize product groups

The following four graphs show the current price on the vertical axis and the calculated target price on the horizontal axis. In addition, three benchmark lines each are displayed, allowing an immediate visual assessment of the four different categories. All data points above a line are more expensive than the corresponding benchmark.

The benchmark lines shown signify the following:

- Worst practice (red): This line represents the upper price limit for a part and should by no means be exceeded. It is based on the fact that 75% of the analyzed parts are cheaper than the benchmark.
- Benchmark (blue): This line represents the most likely price of a part. 50% of the analyzed parts are above and 50% below this line.
- Best-practice (green): This line represents the expected lower price limit. It is based on the fact that 75% of the analyzed parts are more expensive than the benchmark.

"Price outliers" category Price outliers are very easy to identify because they are the data points that are the most distant from a benchmark. These dots stand out immediately in the graph (Fig. 1).

As all results can also be evaluated numerically, the biggest price outliers are those parts that have the largest potential savings percentage-wise.

It is advisable to review price outliers, both those at the top and at the bottom, and investigate why these points deviate so much from the benchmark.

If there is no logical explanation, these are definitely part numbers that should be renegotiated if they are too expensive. If there is an explanation, it must be assessed whether the parts that are too expensive can be avoided or replaced with other, cheaper ones.

For parts that are "too cheap" it should be checked whether the current pricing is sustainable to avoid unwanted surprises such as a risk of poor quality, price increases, or discontinuation of the part. It is also useful to have a back-up plan in place in case the prices of the parts that are "too cheap" start to go up.

"Savers" category When looking at savers, the focus is on the total amount of savings. It is not necessarily about part numbers that are furthest from a benchmark because this analysis takes into account the procurement volume. Example: A part that is slightly above the benchmark and of which 100,000 pieces are purchased delivers higher savings than a part that is far above a benchmark but of which only 10 pieces are purchased.

With a modern NLPP application, it is easy to sort parts by absolute savings and have them displayed in a scatter plot. Fig. 2 shows the top 5 parts, which account for 33% of the total identified savings potential.

"Alternative parts" category A part group often consists of many different parts, although these differ only marginally, e.g., in the case of screws or packaging material. Coming to grips with this issue from an organizational point of view, let alone resolving it, is difficult. Here, too, an NLPP application can provide good service by detecting parts with the same specifications and offering cheaper alternative parts.

For example, the software calculates the following price forecast formula for packaging material:

$$\begin{aligned}&\text{targetprice}\\&\quad = \exp\big(-1.162\\&\quad -0.241 \cdot \text{demand 2015 [pc.]}\\&\quad +0.414 \cdot \text{area [m2]}\\&\quad +0.002 \cdot \text{outer liner [g/m2]}\\&\quad +0.077 \cdot \text{thickness [mm]}\big)\end{aligned}$$

Parts only have the same target price if all the parameters in the formula have the same value. If the parameters deviate slightly, the target price also changes only slightly. The purchaser can thus use the target price to identify parts with the same specifications but different actual prices.

In Fig. 3, two parts are highlighted and connected by a vertical line. Both parts have the same specifications and therefore the same target price but different actual prices. The dot at the top currently costs about 770 euros to purchase, the one at the bottom costs 475 euros. This part comparison can be performed not only graphically but also numerically by sorting the analysis results by target price in a table.

Armed with this information, the buyer can quickly consult with the specialist department to find out whether the expensive part can be replaced by the cheaper one, thus reducing both the number of item numbers and the costs.

In this case, the target price is only used to identify parts with the same or very similar specifications. It would be very tedious "if not impossible" to perform such a significant search for similarities, which takes into account several part properties, manually.

"Mixed calculation" category To simplify the operational handling of a large number of item numbers, unit prices or mixed prices are often used. The buyer agrees on the same price for a number of different item numbers?assuming that the total costs are optimized by using an average price. However, this approach has many disadvantages that are rarely really analyzed:

- By using average prices, price discipline and transparency are lost. It is simply not known what the parts should actually cost. Any use of averages results in loss of information because the data used to compute the average cannot be reconstructed.
- Since the unit prices are not known or not used, simulations of the effects of quantity changes between the item numbers are not possible. A mixed price could prove to be a boomerang.
- Due to the lack of transparency, mixed prices often persist for a very long time, even though the price level has long since ceased to be competitive.

A performance pricing solution can quickly identify candidates for mixed pricing: as these item numbers all have the same price, the data points must be on a horizontal line. This striking pattern is very easy to recognize, as shown in Fig. 4: The three red dots currently cost the same. However, the performance pricing analysis shows that all three item numbers should differ in price, taking into account the individual specifications.

The key question is, would it be cheaper to keep the mixed calculation or switch to unit prices? NLPP offers several functions to answer such questions, making it possible to instantly calculate the effect in euros.

Conclusion The performance pricing (PP) method is ideally suited to setting the right priorities when identifying and subsequently implementing potential savings. Compared to other analysis methods, PP offers two major advantages: The analysis takes into account multiple pieces of information for each part number at the same time (determining the price-performance ratio) and looks at all part numbers simultaneously. This gives purchasers a more comprehensive information base for detecting discrepancies as opposed to looking only at the simplest factors such as purchasing volume distribution, average prices or "time since last negotiation" as priority criteria.

In order to integrate PP into everyday working life, software-based PP solutions that are tailored to the specific questions of buyers, and which thus facilitate very fast evaluations, are most suitable.

With the NLPP method, you have a universal tool at hand, which covers many daily use cases and provides you with profound new insights. Take advantage of such a great information advantage for yourself.

For more information about NLPP or a NLPP test analysis of your data please visit our web site or get in contact with us at info@saphirion.com

Saphirion AG
An der Lorze 9
6300 Zug
Switzerland

www.saphirion.com
www.nlpp.ch

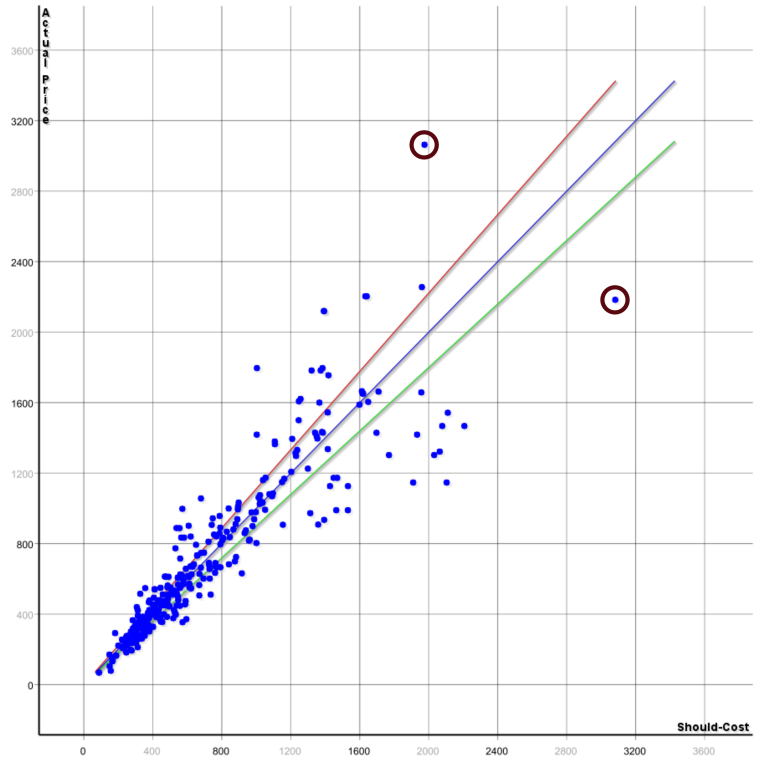

Figure 1: (NLPP screenshot): Result of a software-based product group analysis. The price outliers - circled by hand here - stand out immediately. Price outliers "at the top" should absolutely be renegotiated if there is no logical explanation for the above-average price.

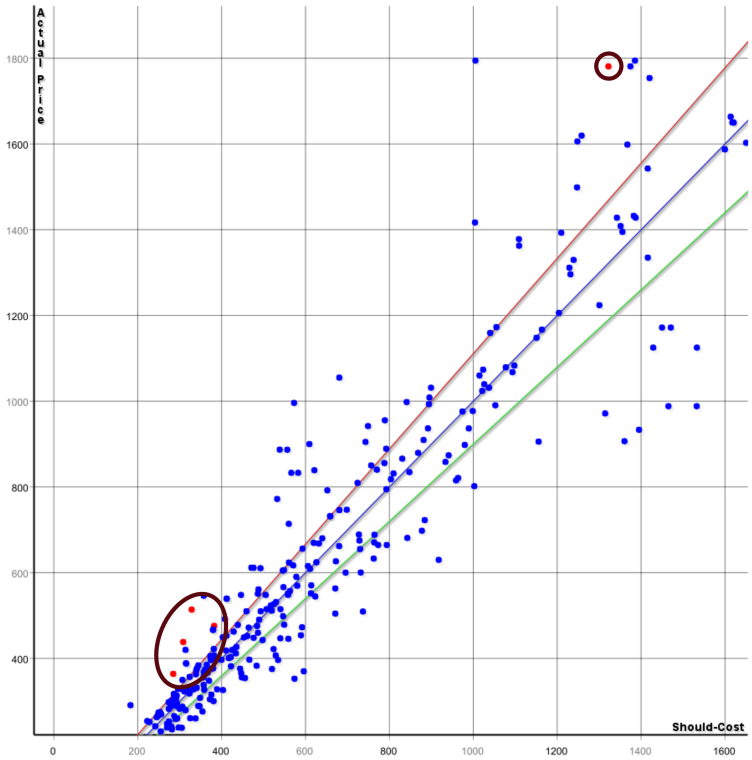

Figure 2: (NLPP screenshot): The savers are particularly interesting for buyers. Due to the large quantities required, they have particularly high savings potentials. The NLPP software highlights these parts in red in the scatter plot and calculates the potential savings in euros.

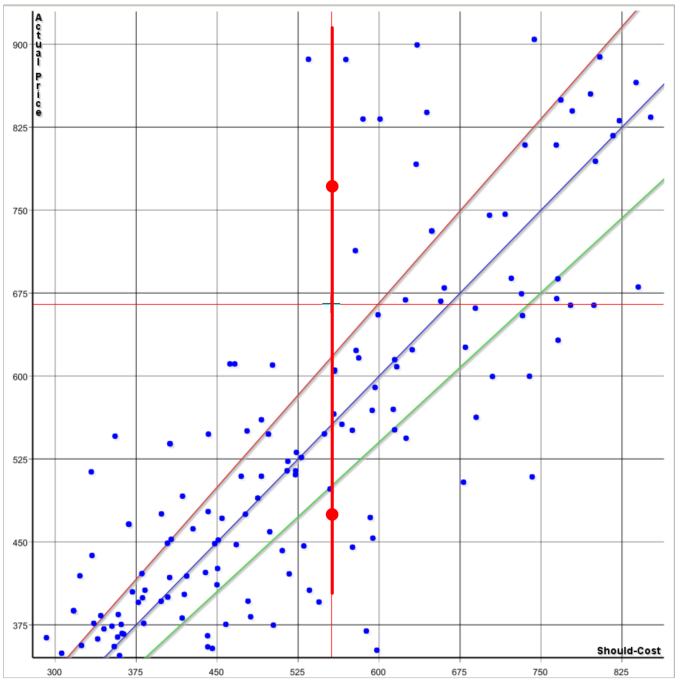

Figure 3: (NLPP screenshot): Two part numbers have the same specifications, but differ significantly in price. The software detects these non-variable parts and allows the purchaser to replace expensive item numbers with cheaper ones.

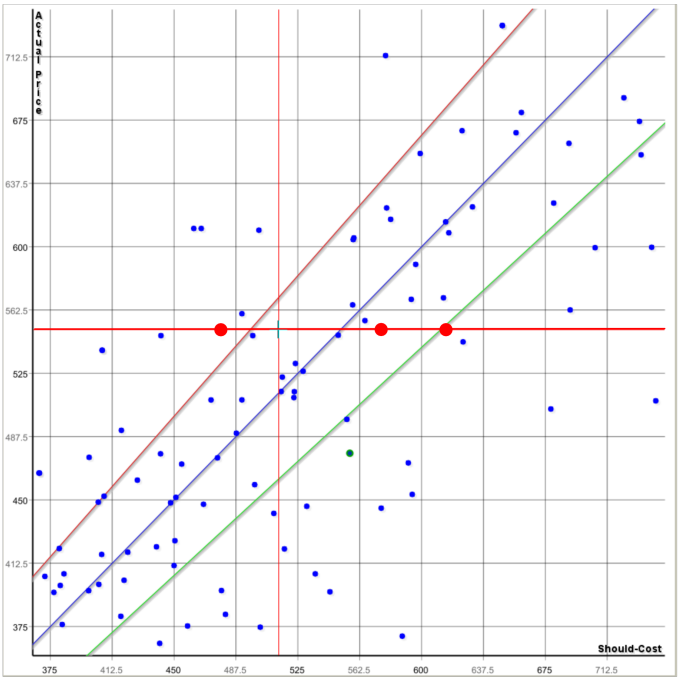

Figure 4: (NLPP screenshot): Three part numbers on a horizontal line are indicative of mixed calculation. The three parts currently cost the same (actual price agrees), but according to the software calculation their prices should differ (target price).