How to Price Spare Parts More Profitably:

Although spare parts often factor into a company’s profits, few companies take full advantage of the opportunity spare part pricing offers. In fact, they deal with the complexity of pricing thousands of parts by resorting to standardized and undifferentiated “rule of thumb” methods. The result? Significant untapped profit potential. With a systematic approach, companies can see profits increase with no customer complaints. This article was written by Richard Zinoecker, who is a Director at Simon-Kucher & Partners. He can be reached by e-mail at richard.zinoecker@simon-kucher.com.

The importance of after-sales business has increased steadily over the last few years. Market leaders such as Caterpillar have built a crucial competitive advantage for their business with new machinery. Additionally, they have demonstrated that it is possible to create a successful business model in the after-sales business. While the German premium carmakers Mercedes and BMW have faced harsh competition selling cars and are no longer immune to granting substantial discounts and incentives in their primary business, they have so far managed to cling to their competitive advantage in the after-sales business, an area that is much harder for new challengers to emulate.

Spare parts make up the backbone of the after-sales business. Roughly two-thirds of the after-sales revenues of European engineering companies is generated with spare parts. In comparison to labor-intensive parts of the service portfolio, such as service contracts, training or refitting, spare parts have lower fixed costs because the workload is stable. Spare parts have the potential to generate considerably higher margins than the rest of the service portfolio. Therefore, the significance of the spare parts business in the bottom line of machinery and engineering companies is typically even higher than implied by its percentage in revenues.

Although the parts business typically provides a significant lever to increase overall profitability, many companies do not optimize their spare part pricing. They price thousands of parts by resorting to standardized and undifferentiated “rule-of-thumb” pricing methods. Many companies also maintain that prices for spare parts are already lofty and that the priority of tackling that issue is moderate at best. It is our firm belief and our experience that this assumption is erroneous. The untapped profit potential in the spare part business is, as a rule, substantial. In one project, a German world leader in manufacturing machinery equipment with annual spare part revenues of 300 million euros was able to increase its profit by more than 10 million euros annually without any customer complaints. Based on the example of a car manufacturer, Figure 1 illustrates how pricing for accessories on a simple cost-plus calculation would yield very suboptimal results (prices that are either too high or too low). The customers’ willingness to pay is independent of the production costs of the accessories (see figure 1).

In this article, different pricing methods for spare parts will be presented. There is a common thread in all these methods: The aim of each of these methods is to increase profitability by pragmatically taking into account customer value. At the same time, customer complaints should be minimized and overall customer satisfaction increased.

Several possible methods are necessary as a single method cannot meet all the requirements to spare part pricing. Depending on the primary goals of a company in its after-sales business, the number of spare parts in its portfolio, the nature of the business (e.g., B-2-B or B-2-C business) or the existence of market players imitating spare parts, these requirements may differ considerably. Also, companies start from different levels of sophistication.

Figure 1: Customers’ Willingness to Pay Versus Car Accessory Production Costs
in pricing their spare parts. The idea of the methodology box in this article is that each company should be able to select the best approach(es). On the basis of this multi-method approach, every company should be able to generate additional profits in a short period of time.

Due to logistical reasons and customer value considerations, automotive and engineering companies increasingly are opting to offer a limited number of spare part kits or spare part bundles rather than single parts. The methodologies introduced here are especially suitable for pricing such spare part kits.

**Problems with Common Pricing Methodology and Specific Challenges of Spare Parts Pricing**

As we have pointed out, most companies, despite the high profit potential, rely on relatively undifferentiated rules of thumb when pricing spare parts. Typically, an undifferentiated cost-based mark-up is determined in order to achieve a predefined target margin. In order to keep up with updated target margins, these mark-up factors are frequently adjusted across the board to establish the new list prices for spare parts.

Companies that rely on such uniform and undifferentiated cost-plus pricing are prone to the following negative consequences:

1. **Standard parts can be obtained through channels other than the original machinery or plant manufacturer.** Using a conventional uniform mark-up on standard spare parts results in much higher prices than the regular catalog prices in this channel. While the revenues generated with these parts are usually low, such a discrepancy between the companies’ prices and the transparent “market prices” can damage the companies’ price image and cause a significant number of customer complaints.

2. **An average, undifferentiated mark-up factor does not capture the customer value for proprietary parts.** The customers’ willingness to pay is not fully utilized.

3. **A mechanical pricing method does not reflect the fact that the competitive situation is not the same for all spare parts.** Competition for spare parts should be defined more broadly than only the competitors in the primary business. Competition also includes spare part imitators and the possibility of self-manufacturing. Spare parts with a high turnover are sometimes imitated on an industrial scale by so-called spare part “pirates.”

4. **The conventional pricing method does not reflect the fact that a large portion of revenues and profits are realized with only a limited number of key spare parts.**

5. **Often, price lists for spare parts are negotiated “lump-sum” in annual price negotiations with business customers.** Undifferentiated price appreciation creates a high transparency for customers and consequently may result in higher demands for discounts.

In a nutshell, conventional pricing for spare parts does not allow a company to realize the full profit potential of spare parts. Processing matters typically override customer value considerations. Therefore, paradoxically, despite the not-so-high overall price level, customers are disgruntled.

The framework for spare part pricing is rather specific. The following play an important role in that framework:

1. **Complexity:** Compared to the machinery/primary product business, the spare parts business involves a much higher variety and complexity. Price lists with tens of thousands of parts make it impossible to identify optimal prices for each individual part.

2. **Heterogeneity of parts:** The range of spare parts comprises original equipment manufacturer (OEM) parts, but also parts that are bought from other companies. For the parts manufactured in-house, the batch size in production may vary considerably. A low batch size has a tremendous effect on the cost base for specific parts.

3. **Limited customer focus:** The price sensitivity for spare parts is lower than in the machinery business. This is due to the high variety of parts, the limited comparability and the lower level of involvement of customers in the purchasing process.

4. **Exclusivity:** Once a customer has bought new machinery, the machine manufacturer is usually not in direct competition with other suppliers for these parts. Therefore, for a limited time, the manufacturer is in an exclusive position. For very valuable parts, buying new machinery may represent an alternative for repairs using spare parts.

5. **Interdependency with machinery business:** While price sensitivity is rather low over the exclusive period, too high after-sales prices can have a backlash effect regarding the buying decision for the next generation of machinery. Increasingly, the
operating costs also are factored into the calculation for buying machinery.

The approaches in the methodology box presented in this article attempt to reflect the specific characteristics of spare part pricing while avoiding the typical associated problems.

**Recommended Approaches to Pricing Spare Parts**

**Preparatory Step 1: Selection of Reference Parts**

In order to keep manageable the work involved in pricing thousands of spare parts and still apply more sophisticated approaches than a uniform mark-up factor, it is advisable not to individually price every spare part. Rather, it is advisable to determine reference models or representatives for groups of homogeneous parts that can be treated similarly. The remaining parts can then be priced by transferring the prices of the reference parts or the pricing method applied to them.

**Preparatory Step 2: Prioritization of Parts for Pricing Purposes**

As was pointed out, the fact that prices for thousands of parts have to be determined may result in all parts being treated identically. However, the 80/20 rule also applies to spare parts: A limited number of short-lived “wear and tear” parts accounts for a very large proportion (typically more than 80%) of the total spare parts turnover. This breakdown of revenues is usually rather stable over time. Therefore, historical invoice data are appropriate to determine the importance of individual spare parts or spare part categories. Based on their relative turnover or revenue share, the spare parts are then classified into A, B, and C parts.

The level of complexity of a pricing method should vary according to the priority of the parts. “A” parts justify a high pricing effort. For the absolute top-priority parts, even a precise determination of the customers’ willingness to pay using sophisticated market research-based pricing methods such as conjoint measurement, as depicted in Figure 1, may be justified. As a rule, determining optimal or near-optimal prices by taking into account the customer value of the three or four most important group of parts realizes a large percentage of the overall profit potential. For the remaining parts, it is sufficient to rely on more pragmatic “standard” pricing methods.

**Pricing Methodology Box for Value-based Spare Part Pricing**

The following methodology box contains five methods for pricing spare parts. The first two are universal pricing methods that can be applied to determine value-based prices for all spare parts. The next three approaches can be used to complement these methods for special or more important parts. (See figure 2.)

1. **Differentiated Cost-Plus Pricing Based on Differentiated Mark-Ups for Spare Part Categories**

Due to the variety of parts that have to be priced and the frequency of price adaptations over time, pricing of parts based on mark-up factors related to the manufacturing or procurement costs is a viable and pragmatic method for the whole range of spare parts.

However, even when using a cost-plus approach, it is essential that the customer value is taken into consideration. As the example given in Figure 1 shows, the value of the parts could be approximated in a cost-plus approach if an algorithm to correctly classify the parts existed. So the primary task in making a mark-up approach more customer-driven is to correctly classify parts into “value groups.”

Several factors can have an influence on the customers’ willingness to pay. The most important factors may differ across industries. For example, the stage of the product lifecycle of the machinery can have a high impact on the value perception. A customer segment that has grown used to using the machinery and is unwilling to switch to another generation typically has a high price tolerance. Differing absolute price levels may warrant a differentiation in mark-up factors, as very cheap parts are unlikely to lead to negative price perception even if based on a rather high mark-up factor. This effect can be observed in the example of automobile accessory parts shown in Figure 1.

The two most important influencing factors for spare parts for industrial goods are arguably the complexity of spare parts or sets of parts and the (potential) competitive intensity. Both factors, complexity and competitive intensity, can be split into different

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**Figure 2: Methodology Box for Pricing Spare Parts**

<table>
<thead>
<tr>
<th>General methodologies</th>
<th>Special methodologies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Differentiated cost-plus pricing</td>
<td>3. Substitution with new machinery</td>
</tr>
<tr>
<td>2. Consistency pricing based on product families</td>
<td>4. Spare part prices of competition</td>
</tr>
<tr>
<td>5. Expert estimate of customers’ willingness to pay</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 3: Relevant Characteristics of Complexity and (Potential) Intensity of Competition**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Characteristic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complexity</td>
<td>Necessary product knowledge, possibility to imitate, importance of quality</td>
</tr>
<tr>
<td>Potential intensity of competition</td>
<td>1. Norm part catalog part</td>
</tr>
<tr>
<td></td>
<td>2. Median complexity, quality of differentiation critical, innovation or alternative sourcing possible</td>
</tr>
<tr>
<td></td>
<td>3. Median complexity, quality important, innovation or alternative sourcing viable with great effort</td>
</tr>
<tr>
<td></td>
<td>4. Complex part with Niche production, quality standards critical, “Niche monopoly” part</td>
</tr>
</tbody>
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categories. Figure 3 shows a possible classification based on the two criteria.

Highly complex parts are normally self-manufactured and require several steps in manufacturing. The quality of high value parts must be excellent to maintain the functionality of the machine. The likelihood that these parts can be copied or imitated by spare part imitators or by the customers themselves is very low. On the other side of the spectrum are standard-parts that can be purchased easily elsewhere without a detrimental effect on the function of the machine.

The criterion “competitive intensity” categorizes spare parts according to existing or at least potential competition. A price comparison can either be possible directly in a 1:1 comparison or indirectly with parts fulfilling a similar function.

Combining the four characteristics of the two criteria yields a total of eleven distinct categories with a uniform mark-up factor within the category. The more complex the parts are and the lower the (potential) competitive intensity, the more the higher mark-up factors for a spare parts group are justified. Figure 4 shows the connection between the two criteria and level of target mark-ups. The arrows within the categories indicate the level of mark-up factors derived by the value-oriented approach compared to a uniform mark-up factor in following a standard cost-plus approach (see figure 4).

For parts with low comparability and high complexity (categories 9-11), a uniform mark-up factor does not tap the full customer value. For these parts, considerably higher mark-up factors can be realized. Uniform mark-up prices for simple standard parts (categories 1-3), by contrast, may be too high and “disrupt” the customers’ overall price perception.

This is not to say that a company cannot influence the classification of spare parts. For externally sourced standard OEM parts, which can be purchased from sellers other than the original machine supplier, there is normally little scope for value pricing. Such parts would fall into the category with the highest competitive intensity and the lowest complexity and therefore the lowest mark-ups would be applied. One approach to overcoming this limitation is by reducing the comparability of these parts and positioning them in a higher mark-up category by “labeling.” This is done by removing the original manufacturers’ labels and substituting them with the company’s own labels. Even without putting the company’s own labels on parts, the removal of original labels only is a powerful way to make parts less comparable. Yet the feasibility of this approach depends on the buying or bargaining power of the company with the original parts manufacturer.

One of the most critical and most difficult tasks is to determine the optimal mark-up factors for each spare part value category. An advisable method is to determine the price of selected “A” parts based on market research or expert estimates of customers’ willingness to pay and then calibrate the mark-ups accordingly.

Alternatively, benchmark values from comparable industries can be a pragmatic solution for determining the level of the mark-up factors.

The method set out in this section eliminates the main problem associated with the standard mark-up pricing of spare parts, namely the lack of customer-value orientation. This is not to say that all potential problems associated with cost-plus pricing are eliminated. The cost base can differ between parts sourced externally and parts manufactured internally. In addition, the quality of the cost information can differ considerably depending on the batch size. If such distortions occur, normalized or standardized cost information should be the base for cost-plus pricing. Alternatively, inconsistencies in the production costs need to be corrected.

A differentiated mark-up method is especially suitable when a company faces the task of having to deal with a large variety of spare parts and/or when the spare parts portfolio is subject to frequent price changes. When using this method, classification of parts can be assisted or even “automated” with the help of an appropriate IT infrastructure. An automated computer-aided procedure would then classify parts automatically according to predefined criteria.

2. Consistency-Oriented Pricing for Spare Part “Product Families”

The method outlined in the next section also is based on a detailed consideration of the customer’s willingness to pay. It can be used in addition to or as an alternative to the previous method.

The basis of this method is the clustering of parts into spare part product families. Spare part families contain parts that are perceived as comparable in terms of price by customers due to their similar product qualities. For instance, screws in different sizes and made of different materials could belong to one product family (see figure 5).

The main objective of spare part pricing based on product families is to achieve a high degree of consistency in the prices of spare parts. By maintaining such a high level of consistency, the possibility of spare parts whose prices are perceived to be inflated would be ruled out and customer complaints should be minimized. At the same time, profits realized with spare parts can be increased by basing the prices of parts within a family group closely on their related customer value. By applying a stringent definition of product families, the complexity of spare part pricing can also be reduced considerably.
First, the prices for reference parts within a product family need to be determined. In doing this, the same consideration (for the calibration of mark-up factors) in differentiated cost-plus methods apply. Parts in the same product family are then priced (depending on their similarity) relative to the reference part. (See figure 6.) This is done from key criteria which, from a customers’ point of view, drive the value perception. For the product family “Screws,” the materials used, the number of windings or the size could be suitable criteria.

Superior or inferior value in the key dimension results in a corresponding price premium or lower price for the part compared to the reference part in the product family. In applying this method, the price setting is completely detached from the cost of producing the parts. Any inconsistencies in the manufacturing or purchasing costs are zeroed out. When applied consistently, this method also can reveal inefficiencies in sourcing and manufacturing.

3. Value Pricing Considering Substitution with New Products

In some cases, a single spare part or a set of spare parts constitutes a significant percentage of the machinery. Due to the higher mark-ups for spare parts in comparison with new products, it is possible that the repair costs including spare parts and invested working hours even exceeds the price of a comparable new product. In such a case, the customer must decide whether he wants to stick to the existing machinery and repair it or whether he should invest in a new machine. Therefore, the upper price limit for large valuable ‘A’ spare parts needs to take into account the price of new machinery. Ideally, the relevant set is made up of both the price of one’s own product as well as that of alternatives of competitors. A similar logic should be applied in the pricing of predefined spare part maintenance kits.

As a first approximation, research has shown that the maximum tolerable price for a repair of machinery (including spare parts and invested working hours) is typically in the range of 50-70% of the price of a new product. A few situational factors should be considered to fine-tune this rough guideline. The most relevant factors are illustrated in figure 7.

The willingness to pay for smaller repairs with lower total costs tends to be higher. Furthermore, the vital function of the machine influences the willingness to pay for a repair: if the machine operates in an important production step, the spare part upper price limit may be higher since an immediate repair is a clear priority as negative opportunity costs occur if production is negatively affected. A similar rule can be applied if several machines need to be replaced in order to ensure smooth production processes or if damage is caused by improper handling by the customer.

4. Competitive Prices for Spare Parts

In contrast to the machinery business, the direct comparison with specific spare part prices of competitors is of lesser importance. Yet, for important ‘A’ parts, a one-to-one competitive comparison may make sense. It is essential that the concept of competition is not defined too narrowly for spare parts. Where imitations by spare part “pirates” exist, competition should include these competitors. The same goes for used spare parts traded in secondary markets.

For the remaining spare parts, the overall spare part price image is a crucial element for customer satisfaction. Since customers are not able to compare prices for all component parts, individual easily comparable standard parts perceived to be over-priced or inconsistently priced can have a strong negative image effect. This issue is addressed by applying the methods outlined. While an unfavorable price image does not always adversely affect after-sales
business in the long term, it can, however, put the company at a competitive disadvantage and indirectly have a negative effect on the spare parts business.

It is strongly recommended that the price image in after-sales business be closely tracked and monitored. Many companies still know little about how their customers perceive their spare part price levels.

5. Customer’s Willingness to Pay Determined by Expert Judgment

Except for the absolute top priority parts, it usually does not make sense to determine customers’ willingness to pay for spare parts in the same complex way as for new products. A pragmatic way to determine the customer value for A and maybe B parts is to use estimates of in-house experts. If the pool of experts is set up in a representative way that reflects the full market knowledge of the company, this method can yield valid results. To achieve this, the pool of experts should involve all relevant divisions. Besides sales experts (front-office and back-office), staff from the after-sales service department should be included. The challenge with such an expert estimate is to answer the question: How much is the customer willing to pay for this spare part without referring to the current price of the spare part? Moderation tools structuring the price discussion can provide a valuable contribution and considerably enhance the validity of the price estimates.

The spare parts business provides a means to compensate for the shrinking margins in the new machinery business.

Conclusion

- The spare parts business provides a means to compensate for the shrinking margins in the new machinery business. Despite the high possible profit potential in spare parts business, many machinery and plant manufacturers determine the prices of parts on the basis of undifferentiated rules of thumb.
- More sophisticated methods focus on value-based pricing while taking into account the specific characteristics of spare part pricing. Untapped potential for higher prices is identified and factors negatively influencing the customers’ price perception are eliminated.
- A value-based cost-plus pricing approach for spare parts should differentiate the mark-up factors of spare parts according to value drivers such as the complexity of parts and the (potential) competitive intensity.
- Clustering spare parts into homogeneous “product families” and establishing a consistent pricing pattern within the product families help minimize customer dissatisfaction.
- A methodology tool box offers the opportunity to select the appropriate method according to the specifications of a company and to vary the pricing approach according to the importance of the spare parts.