

Supplier Development in the Procurement Process at MTU Aero Engines

(Focus on Suppliers of Services)

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1 Tasks and Objectives of Procurement

In general, the procurement function of a company includes all activities of providing means for achieving its objectives. Traditionally the purchasing function has not played an important role, but recently the procurement has become more important, because the vertical range of manufacture has decreased and resulted in an increasing volume of purchased goods. Furthermore, the importance of procurement will further increase in the future!

The procurement can have following objectives:

Cost Targets: That means getting favourable cost prices and terms of payment. As it is generally known, profit results from revenues minus expenditures. The influence of procurement on the company's profit is constantly increasing and even the smallest percentage reduction of costs affects the profit.

Quality Targets: For example, delivery service as required, high quality of purchased goods (products, services). For creating the ability to respond to market changes and to minimize risk of dependency on suppliers; to be able to develop its own company and suppliers and to have the possibility of changing suppliers.

Flexibility Targets: The main target can be defined as the flexible supply of the company with required materials and services to sustain competitive. The perpetuation of competitiveness becomes more and more dependent on the optimization of the supply chain. „The purchasing function should obtain the proper equipment, material, supplies, and services in the right quality, in the right quantity, at the right price and from the right source“¹ and in time.

Long/Medium/Short Term Objectives

The procurement aims at effective and efficient definition of the supplier relations with affected internal value-added processes as well as creation of an adequate structure of workflow. For reaching these objectives, a strategic and operational distinction is indispensable, which is proceeded in almost all companies nowadays.

While marketing, top-, and product management have been responsible for operational and strategic tasks for the last few decades, the procurement management took over strategic tasks no more than a few years ago. Within traditional structures, the procurement could only be seen as support of the remaining internal functions. The procurement has changed from a mere executively oriented function to a co-managing function by developing strategies and conducting an active SRM.

By developing strategies, the operational work can be considerably more efficiently organised and hence the costs can be reduced.

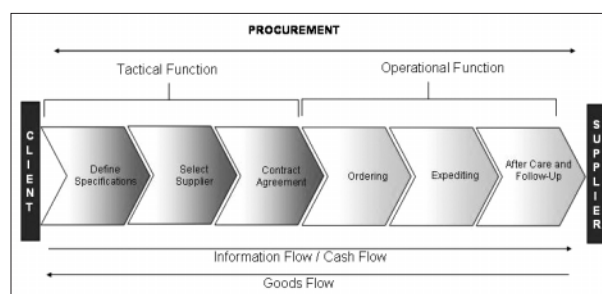


Diagram 1: Purchasing Process Model [1]

Furthermore, a organisational distinction between general procurement and production procurement has to be made, whereas the general procurement is responsible for the purchase of supporting goods like office supplies, machines, equipment, tools, operating materials, and services, to name only a few. The production procurement is responsible for buying materials for the core business – as far as MTU is concerned is buying of parts for the production of airfoils, blades and vanes.

2 Supplier Relationship Management (SRM)

Reasons are to strengthen the competitiveness and to use potentials by optimizing the supplier relationship. Benefits for a company can be reduced purchasing and process costs, reduced complexity, and improved process performance.

The goal is not to minimize suppliers' margins; the goal is to minimize costs, to improve efficiency/performance and to create a win-win situation between the supplier and MTU.

SRM includes determining, stipulating and implementing common synergies and improving potentials with most important suppliers. Main tasks of SRM are active forming, controlling, and development of supplier relationships and supplier portfolios. Supplier relationships can be defined as all planning, decision and negotiation processes for goods and information flow. Furthermore, SRM includes initiation, setting up, development and ending of business relations with suppliers. A supplier portfolio is the result of a combination of the classified purchased materials and classified suppliers. Supplier strategies lay down the orientation on purchasing and supplier policy for the longer term and give a decisive base for conducting SRM.

According to WILDEMANN [2] three main processes can be distinguished:

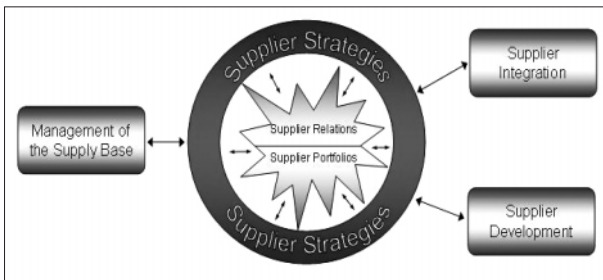


Diagram 2: Main Processes of SRM

Management of the Supply Base

Management of the supply base is conducted by active forming, segmentation (by creating supplier classifications), and evaluation of supplier portfolios. The goal is the selection the most appropriate suppliers.

Important fields of activity are supplier selection, qualification, audit, evaluation, and training of suppliers. Doing investigations about the supply base leads to an appropriate relation of costs and benefits. The systematic controlling of costs and performance gives comprehensive transparency of quality, strengths and weaknesses (of the own company and of suppliers) and offers new development possibilities.

Supplier Integration

The goal of integrating suppliers is to build up a common basis for an efficient business strategy as early as possible. Mutual trust concerning dealing with information/know how should be created by support, trainings, and obligations on both sides. By implementing a cross-functional supplier development considerable quality improvements and cost savings can be reached. To explain the correlation between quality and costs – improving the quality of the products and processes (which could mean reduction of rejects and rework, increasing of on-time delivery ratio etc.) leads in medium and long term to a reduction of costs!

Supplier Development

The supplier development aims at the optimization of the supplier's abilities according to own requirements. The supply risk should be reduced and a stable supply base should be realized. The increase of cooperation with selected suppliers and simultaneously reduction of suppliers leads to a bundling effect, that means saving of costs. The active development of the right suppliers in the right way means determination of the position of suppliers in the supplier classification portfolio and subsequently forming of suitable strategies according to the position in the classification portfolio. Building up supplier relationships in partnerships should lead to win-win situations!

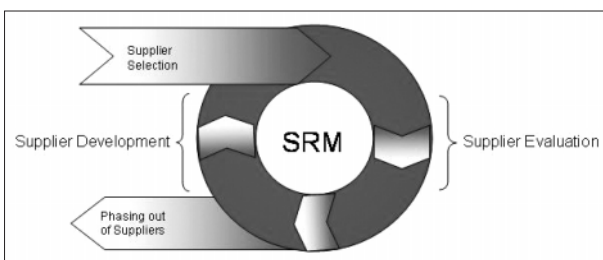


Diagram 3: Supplier Development Loop [3]

After the steps of supplier selection/qualifications, a periodical evaluation of the existing suppliers has to be done. Regarding the supplier's fulfilment of the company's requirements (evaluation results) and the position in the portfolio the supplier is either going to be developed or phased out. The choice of the strategy is shown in 3. This loop guarantees the focus on the best suppliers, on the activation of supplier potentials and the reduction of total costs by continuous optimization of the supply base.

3 Supplier Development Process

The development process is based on a portfolio analysis in order to classify the existing suppliers according to their strategic importance and on supplier evaluations. The portfolio analysis is prepared within longer periods, for example every other year, because the strategic importance does not change suddenly completely. From the result of the portfolio, one can read which suppliers should be evaluated. In contrast to the portfolio analysis, the chosen suppliers have to be evaluated within shorter periods, for example every six, 12, or 24 months. With the results of the portfolio analysis and the supplier evaluation three different development strategies can be derived.

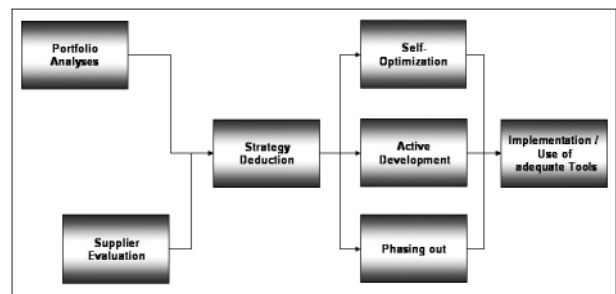


Diagram 4: Structure of the Development Process [4]

3.1 Portfolio Analysis

The portfolio analysis according to Wildemann is a useful method to classify purchased goods, the suppliers involved, and to determine the need of action concerning the purchasing strategy and concerning the targets within the supplier development.

In general, purchasing portfolio models aim at developing differentiated purchasing and supplier strategies. Kraljic introduced the first comprehensive portfolio approach for purchasing and supply management. Kraljic's approach [5] includes the construction of a portfolio matrix that classifies products on basis of two dimensions: profit impact and supply risk ('low' and 'high'). Each of the four categories requires a distinctive approach towards suppliers. The general idea of Kraljic's model is to minimize supply risk and make the most of buying power. The first part is the development of a classification of purchased products (influencing variables are volume of purchase and the supply risk) for definition of standard-, leverage-, bottleneck, and strategic items.

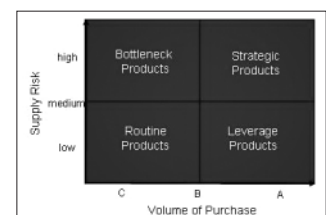


Diagram 5: Classification of Purchased Products (compare Wildemann [6])

The second part is the development of a classification of suppliers (variables are potential for development and power position of suppliers) per strategic commodity for definition of standard-, leverage-, bottleneck, and strategic suppliers.

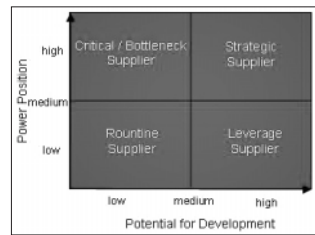


Diagram 6: Classification of Suppliers (compare Wildemann)

By combining these two classifications in a 16-field matrix all variables can be seen within one portfolio, the suppliers can be allocated per segment and purchasing/action strategies can be derived. The result of a portfolio analysis is similar to a map that shows which suppliers are lucrative to develop.

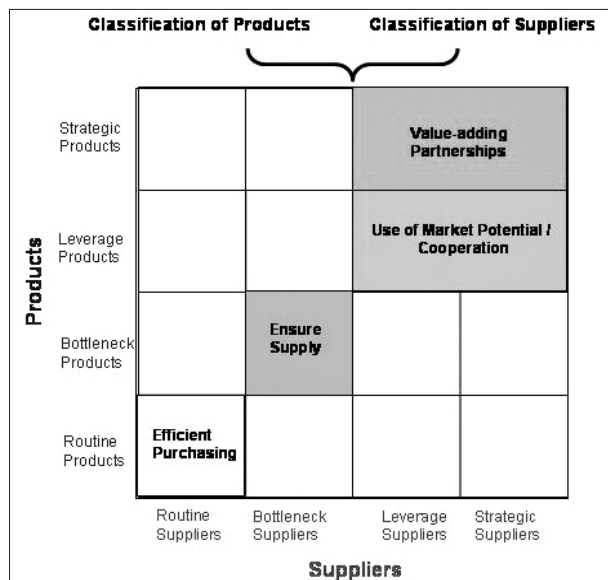


Diagram 7: Portfolio of classified Products and Suppliers

The results show how the limited resources should be used in which field (which supply strategies can be used). Furthermore, Wildemann's approach gives recommendations what measures should be taken to move from "white" sections to "coloured" ones, which provide certain strategies. As manufacturers outsource more parts and services to focus on their core competencies, they expect suppliers to deliver innovative and quality products on time at a competitive cost.

When a supplier is not able to meet these needs, the buyer can produce the item internally, or change the supplier, or help to improve the existing supplier's capabilities (compare MONCZKA [7]) and its performance. To answer the question which supplier the company wants to develop and how this should look like, it is helpful to position the supplier in a portfolio to see the strategic importance and to evaluate the supplier regularly. Based on these results an appropriate development strategy can be chosen.

4 Situation Analysis

The result of the portfolio analysis is one precondition for starting the actual supplier development because suppliers should only be developed concerning their strategic posi-

on. For example, it makes no sense to develop a standard supplier with weak power position and low potential for development by costly proactive measures to become a strategic partner. Vice versa, it is not recommendable to neglect the consolidation of a strategic partner because of its strong power position.

Generally, the investigations are done for A-suppliers. However, what is about the B- and C-suppliers? It is not efficient to invest a lot of capacity for investigating C-suppliers because of their relatively small volume of purchase. Only if a supplier with small volume of purchase has particularly strategic importance it should be included.

Another precondition is the evaluation of selected suppliers. Afterwards it can be decided if the supplier has to improve itself, if MTU supports the improvement or if the supplier will be phased out.

5 Redesign of the Supplier Evaluation Tool (SET)

To include suppliers of services into the supplier development process a complete revision of the existing SET for the production procurement was necessary, because most of the questions were material related and therefore not applicable. To give examples, questions like "How many rejects per million in the current year?", "Type of production?" or "Are there inspections for handling with hazardous material?" etc. do not make sense for evaluating services.

For adjusting, the SET following steps were done and agreed on with purchasers of the department TLBD (purchasing of services):

Firstly, the existing questions concerning relevance were reviewed; not relevant questions were deleted. Secondly, the remaining questions were checked if the wording exactly fits.

Thirdly, the new points (on basis of own ideas, ideas of purchasers, ideas from benchmarking) were created and formulated within questions.

It is important to mention that only those points a supplier can influence by itself are allowed. As it is very difficult to standardize services the new questionnaire consists of objective questions (e.g., price reduction, on-time delivery) and subjective questions (How do you evaluate the cooperation of your contact person?)

Afterwards this collection of all relevant questions were introduced to TLC (supplier quality and supplier development) and TLBA (production procurement), and their suggestions added. Further steps were the adjustment of the rating and the fixing of different weighting per question. Finally, all these questions led to the new questionnaire for evaluating services (based on Microsoft Excel), which is similar to the structure of the old one because applicants should not be confused with very different templates.

Structure of the SET

- Quality
- On-time Delivery/Run Time
- Price Reduction
- Quality Management

- Technology/Know How
- Service/Flexibility
- Prices/Costs
- Scorecard (as the summarizing evaluation)
- Target Agreement


Supplier Evaluation Tool				
Service/Flexibilität		Lieferanten-Nr./Name:	Firmenname	
		Bewerter / Algem. Einkauf:	Mustermann - TLx	
		Bewerter / Fachabteilung:	Mustermann - TLcx	
		Bewertungsfrequenz:	24 Monate	
		Datum:	03. Jun 04	
Kapazität		Punkte		Bemerkungen
		erzielt	max.	
6.1	Überwacht der Zulieferer grundsätzlich seine Kapazitäten und berücksichtigt dies bei Auftragsannahmen? 1	ja 10 bedingt 5 nein 0 2		3 4 5
6.2	Ist die Möglichkeit zur Annahme von kurzfristigen Sonderbedarfen gegeben?	möglich 10 problematisch 5 nicht möglich 0	erzielt max. TLEO FA.	
Erreichbarkeit / Zusammenarbeit		Punkte		Bemerkungen
		erzielt	max.	
6.3	Wie bewerten Sie die Zusammenarbeit mit Ihrem Ansprechpartner in der Angebotsphase?	sehr gut 10 durchschnittlich 5 problematisch 0	erzielt max. TLEO FA.	
6.4	Beurteilung der Erreichbarkeit: (auch außerhalb der normalen Arbeitszeiten)	sehr gut 7-10 durchschnittlich 4-6 schlecht 0-3	erzielt max. TLEO FA.	
Erreichte Punktzahl: 0 0 40 = Maximalpunktzahl				
Entwicklung des Lieferanten im Vergleich zur letzten Bewertung:		<input type="checkbox"/> Tendenz zum Besseren <input type="checkbox"/> etwa gleich geblieben <input type="checkbox"/> Tendenz zum Schlechteren 6		

Diagram 8: Abridgement of the SET-Questionnaire

This page shows an abridgement of the questionnaire: Each chapter has an own page. The questions **1** stand on the left-hand side (sometimes with helpful comments) and the ratings are explained in the middle **2**. Sometimes the ratings are certain figures or otherwise a range of figures. Furthermore, there are fields for the evaluation **3**, the points that can maximally be achieved **4**, and for additional remarks **5**. The section at the bottom **6** cannot be filled in until the second time of evaluation – it shows the trend. The results are processes and weighted as fixed by formulas within Excel, and visualized in a scorecard. Now one can see the actual state of the evaluated supplier.

Target Agreement

The target agreement is a part of the SET. Step-by-step the results of the questionnaire can be examined concerning weak points and potentials for improvement, and the possible points are filled in within a copied file. The system calculates the target percentages and can be taken over to the target agreement of the first evaluation. It is useful to analyse the questionnaire within a cross-functional team (purchasing, quality controlling, forward sourcing)

The actual results **1** and the filled-in target results **2** are shown in the target agreement below. There is space for the exact measures **3** to reach the target.

The supplier's position in the respective portfolio plays an important role for creating target agreements, because it should be considered in which direction and to which extent the supplier development should and can go. For example, it is not efficient to want a supplier with low purchasing power because of its relatively small volume to implement an EDI system for improving the processes. To give another example, it would not be commendable to place long-term contracts and promise

sale with bottleneck suppliers (feature: high purchasing power and low potential for development) to strengthen its purchasing power. In section **4** additional remarks can be written down; both, the supplier and MTU show with its signature their agreement **5**, and the figures in column on the right-hand side **6** show the trend of development.

Target Agreement between:		Company Name and MTU Aero Engines für 200x		1. Review	2. Review	3. Review	4. Review
Quality Management	50%	Target					
Technology / Know-How	40%	Target					
Service / Flexibility	50%	Target					
Prices / Costs	50%	Target					
On-Time Delivery	50%	Target					
Price Reduction	50%	Target					
Additional Agreements							
Actual Condition	0.0%	Target Agreement	0.0%				
Signature Supplier 5		Signature MTU					

Diagram 9: Template of the Target Agreement

Scorecard

The scorecard includes the results of the actual state (red line) and the fixed target results (green line) that are visualized in the diagram. Additionally one can see the reached percentages **1** of each chapter, the weighting per chapter **2**, the total score **3**, the reached scores within the last periods **4**, who did the evaluation, when the next evaluation has to be done and the rating frequency **5**.

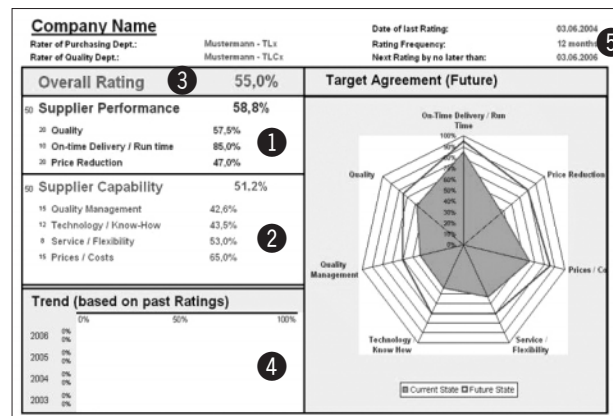


Diagram 10: Scorecard as the Result of the Evaluation

To make sure the new evaluation tool is applicable in practice it was tested on three different suppliers.

6 Supplier Development Process

Wherever possible, the entire purchasing volume should be taken from preferred suppliers; "problem cases" should be eliminated. Supplier development provides the basis to get these preferred/accepted suppliers. Generally, it is desirable to shift purchasing volume from suppliers with poor evaluation results to suppliers with good results, if possible!

According to the combined portfolio, shown in 3.1, following approach was developed:

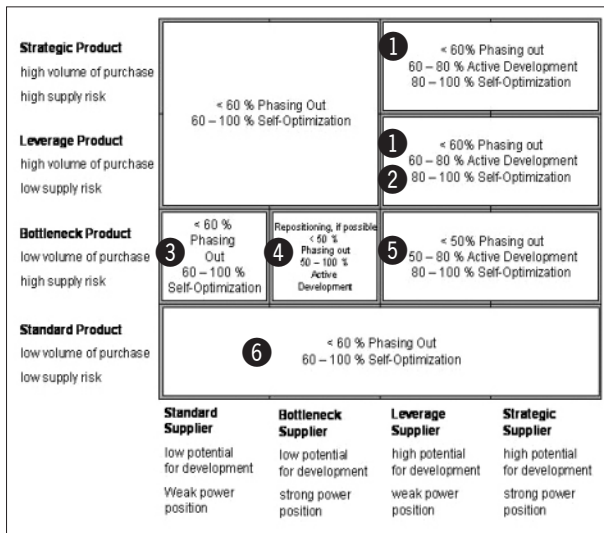


Diagram 11: SET-Scores linked to the Development Strategy within the Portfolio

- 1 Above diagram shows, that MTU develops actively such suppliers that have higher strategic importance, high potential for development, high volume of purchase and a SET score between 60 and 80 percent. In these cases MTU wants to support the supplier to improve itself and consequently have a chance to climb from the status “accepted” or “restricted” to “preferred”.
- 2 These combinations have a lower potential for development, but high volume of purchase. For this reason an improvement of the SET score is desirable, and the suppliers of these products should improve themselves by own optimizing measures.
- 3 These standard suppliers with a low volume of purchase and high supply risk should improve themselves, because of low potential for development by MTU.
- 4 MTU should try to reposition these suppliers: either to change the purchased product or to weaken the power position of these suppliers, or to develop, if the purchased product or the supplier itself is strategically important (or will be), in order to ensure the supply.
- 5 These suppliers are strategically important. For this reason, MTU can actively develop suppliers with a SET score between even 50 to 80 percent.
- 6 For standard products, active development would be inefficiently because of the low volume of purchase and low supply risk.

MTU should aim at systematically building up an information base – which includes at least a SIS for all suppliers. According to MTU’s capacity, MTU should position as many as possible suppliers within the portfolio and to evaluate them (at least A-suppliers) by filling in a SET.

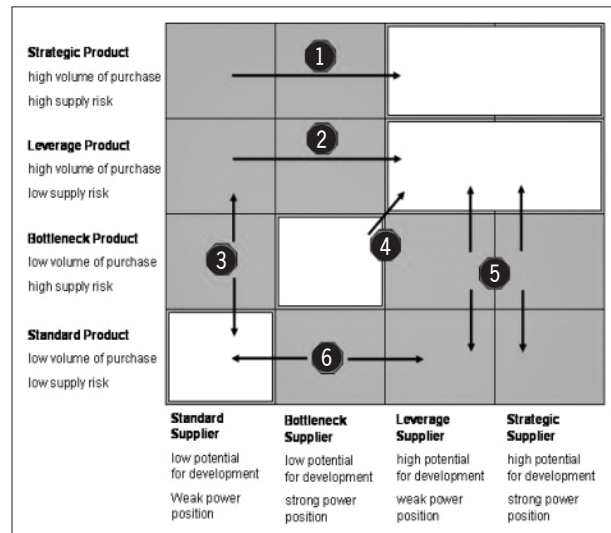


Diagram 12: Directions of Development

Further development strategies are to “move” the supplier to another position within the portfolio. Reasons could be different – mainly to reduce the supply risk and/or to weaken the supplier’s power position.

- 1 2 Shift of strategic products to existing suppliers (leverage or strategic supplier with higher potential for development) or try to develop the current suppliers of these products (give an incentive for creation of a partnership)
- 3 MTU should think about alternatives, because of high supply risk
- 4 For ensuring the availability and reduction of supply risk MTU should build up cooperations
- 5 Either development upwardly ⇒ pooling of volume of purchase to strengthen MTU’s influence on supplier (and supplier can better plan which should result in lower supply risk) or downwards ⇒ to lower the supply risk by standardization.
- 6 In this case, the supplier’s power position should be reduced: either to shift the purchased products to standard suppliers (purchase efficiently) or to check if the supplier can provide further services

7 Rollout

Generally, the supplier development process should not be started with all suppliers – it is recommendable to include important suppliers (A-suppliers) successively. As the conducting of the activities is no routine yet and the activities linked with this process (preparation of the portfolio analysis, the SET, target agreements etc.) require some expenditure of time the responsible employees should have the chance to get used to the tools, to the responsibilities and to get a feeling for the time necessary. In the course of some weeks they will become more efficient resulting from a learning curve, and probably new suggestions and adaptations can be implemented by the next review.

8 Summary

Organizations generally spend a substantial portion of their revenues purchasing goods and services. Reducing this spend will directly have an effect on the profit; even little savings have an immense effect. One possibility to achieve savings can be improvements on suppliers' side (suppliers' performance, capability, and product itself) and improvements within the supply chain between supplier and customer. Improving these factors should lead to an increased quality of products and processes which results in long-term in savings again. The opportunity for a company to concentrate on its core business enabled by high performing suppliers, saving costs and achieve quality improvements provide competitive advantages on the market.

This graduation assignment should show the systematic route map for identifying and developing high performing suppliers, especially suppliers of services as these ones have been disregarded so far. MTU, as most other companies, conduct supplier development for suppliers of production materials, it wants to include suppliers of general materials and services as well. Firstly, the active suppliers were analysed and positioned within a portfolio per commodity to give an overview of the existing supply base. The suppliers' positions themselves are not meaningful enough to decide how and if they should be developed. For this reason, a tool for evaluating suppliers of services was created.

Footnotes

- 1 ALJIAN, G.W.: Purchasing Management Handbook, McGraw Hill, New York, NY w.d., p.11

Literature

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- [2] WILDEMANN, H.: Strategien für Zulieferunternehmen, Munich 1997
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