

Supply Strategies and the Supply Strategy Portfolio

CASE STUDY

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TEACHING NOTE

Synopsis

This case study deals with supply strategies and their implementation using a supply strategy portfolio at the Schott AG. It gives a good example of what the respective challenges are when aligning procurement with a firm's strategic management as a key lever in supply management. The case provides extensive information about a practical example and the supply strategy portfolio tool.

Immediate Issue

The firm described in the case, Schott AG, was a company that had a well-functioning supply management but was missing a strong integration of the purchasing department within the company on the organizational side and with the corporate strategy on the strategic side. Two main problems resulted:

- 1) Communication of the purchasing department with other functions was suboptimal
- 2) The supply strategy was not linked to the corporate strategy

Basic Issue

The basic issue behind this case is an overall understanding of the interdependencies that exist when implementing strategies. Obviously, a strategy may only become successful when it is implemented into every level within an organization. Drilling down this strategy and aligning a firm's business units, departments and employees to it, is a major task of management. The

lack of strategy integration is an issue that can be applied to many companies and different departments.

In the context of purchasing decisions, the basic idea behind this case is that a corporate function such as the purchasing department also needs to be aligned with the corporate strategy. Especially the recognition of a strategy is important, so that students may understand that supply management is more than just buying a product with a specific quality for the lowest price possible.

Employing the view of a comprehensive management with the use of cross-functional teams is yet another issue touched in this case study. Lack of internal communication and the benefits of far-sighted thinking (e.g. the early involvement of the purchasing department in the decision-making process) are further topics in this study.

In addition, a specific tool is presented which allows for a solution of a problem that exists on the strategic level. Generally, the mere selection of a suitable tool with which a problem could be solved is already an important task. In this case study, however, students are already presented the tool they are to use (a supply portfolio). Consequently, adapting such a tool to company-specific needs is the challenging part of the case.

Teaching Objectives

The objective for students working with the case study at hand is to evaluate the supply management of a specific company.

Given detailed information about the company and its purchasing situation, students shall identify the problems described in the text.

This includes the application of analytical skills and at times common sense in order to identify the issues that existed in the supply management of the discussed firm. Furthermore, students are asked to apply a specific supply management tool (i.e. a supply strategy portfolio) to the purchasing organization of the firm described and to further tailor it to a more specific situation. Over the course of the case study, students will be presented with this tool, and without prior knowledge, they are asked to apply it to a real problem. Therefore, the case combines analytical and practical tasks to achieve a well-balanced learning experience in the field of supply management. Explicitly, there does not exist one correct solution.

Potential Audience

The Schott case was written for advanced undergraduate students and graduate students of business administration. Students should have prior knowledge of strategic management, portfolio techniques, organizational theory and a typical value chain in an industrial firm.

With the use of a specific state-of-the-art tool in the field of supply management, further users of this case are non-degree participants such as practitioners in courses, workshops or seminars.

Suggested Student Assignment

Question 1: What are the problems Schott's purchasing department is facing?
How can these problems be improved?

Question 2: Develop a supply strategy portfolio for Schott.

Question 3: Using the model developed in question two, place the two largest material groups of photovoltaics (Purchase Wafers, Purchase Material for Wafer Production) in the Supply Strategy Portfolio and explain your results. Develop possible measures to improve the supply performance of the two material groups. According to your proposed measures, which strategic directions would you suggest for each material group within the supply portfolio and why? (no quantitative determination necessary).

Case Analysis

Question 1:

This is an analytical question. Students need to analyze the information given in the case to identify the main problems of Schott's purchasing department. They need to identify two major points:

1. The purchasing department was not integrated in the company well enough.
2. There was no coherent strategy for the purchasing department.

1. The purchasing department was a stand alone entity. It waited for the orders to arrive and then just procured the material. The orders came from the production department with strict specifications that had to be fulfilled by the purchasing department. The purchasers then simply tried to buy the material for the lowest price possible. They had no understanding of the internal customer's needs or the manufacturing process. This lack of knowledge created a gap in the communication process. Furthermore, the definition of internal customer was limited as it only referred to the production department.

Ideally, a purchasing department is well integrated into the company and involved in every step from product development to product distribution. If decisions are made, the purchasing department should always be involved to give input concerning the situation and prices on purchasing markets and to be able to adapt to future developments well in advance. Making decisions without thinking about the supply of respective materials or preliminary products is not wise, since changes in the supply situation influence the cost structure and therefore profitability easily. As a worst case, even availability might be affected. So the purchasing department always has to be taken into account because it may state high price, quality and timing risks. This means that the purchasing department has to communicate actively with the research and development department, the production department, and the sales and marketing department. To define the internal customer as the production department is by far too short-sighted. Instead, the definition of the internal customers should include everybody who is at some point involved with the material to be procured or its further use as a finished product. This also means that the purchasing department needs to have more expertise in order to be able to communicate with the internal customers. It is not enough to simply fulfil the required specifications. The purchasing department should be actively involved in the design of the products and the production process. Therefore, it needs to understand the processes to make a meaningful communication possible and improve the processes

concerning their supply needs. At times, training might be necessary for employees in purchasing in order to achieve a situation closer to the idealized management as described above.

2. The purchasing department at Schott lacked a coherent strategy. It was only concerned with fulfilling the required specifications and negotiating for a low price. In the past, this led to problems in the production process due to low quality of the material employed. Furthermore, a strict cost leadership strategy on the supply side often interfered with the niche strategy of the business unit. The purchasing department was “stuck in the middle” between a niche and a cost leadership strategy. It seemed that they were pursuing a cost leadership strategy because lower prices were their most important objective. Nevertheless, it has to be taken into account that certain quality requirements set by the internal customer always had to be met. As a result, they often tried to purchase high quality material for a niche strategy at a low price or fulfilled high quality requirements for a cost leadership strategy. Furthermore, the purchasing department was lacking a supply strategy and a connection to the corporate and business unit strategy. This problem is closely linked to the lack of communication between the purchasing department and its internal customers.

The supply strategy has to be oriented at the corporate and business unit strategy. That means that decision makers have to differentiate between a niche and cost leadership strategy. Since not all business units have the same strategy, the orientation of the business unit is decisive. A cost leadership strategy implies that large quantities of low quality material have to be purchased, while a niche player needs small quantities of high quality material. This has to be taken into account and a supply strategy has to be developed accordingly. After defining a supply strategy for every business unit, the strategy should be broken down for the various material groups. There may be large differences between the different material groups concerning the needs of the internal customer. A niche strategy does not mean that everything has to be high quality and a cost leadership strategy does not imply that everything must be the lowest quality. The purchasing department must define a strategy for every material group together with its internal customers. This is another reason why the communication between the different departments is so important. Criteria for every material group have to be identified in order to come up with a coherent supply strategy. This is where the supply strategy portfolio may be used as an effective tool. It is described extensively in the case, so that students should be able to solve this part of the case without difficulty or further research. They should be able to draw the connection between the strategic problems in the purchasing

department and the improvements induced by the supply strategy portfolio. The tool tries to position every material group according to market attractiveness and supply position and to then define a strategy and concrete actions to improve the procurement of the material group.

These two are the main problems that have to be identified. Furthermore, students may argue that Schott needs a supply controlling department which includes supply performance measurement and supply risk management. This is a valid criticism, but not the most urgent problem Schott faced. Establishing those institutions is a long term task and not the solution to the problems depicted. First, the purchasing department has to solve the described problems itself to improve its contribution to the value creation at Schott. Building up a supply controlling department may be the second step but is not suitable to improve the communication and internal customer orientation of the purchasing department quickly.

The purchasing department understood its role as a simple purchaser rather than an important part of the value chain that has to serve its internal customers. Therefore, Schott defined strategy statements for the purchasing department:

“We understand ourselves as managers of the external value creation by

- understanding the strategy of our internal customers and connecting it to our supply strategy.
- identifying and analyzing the main cost drivers of our internal customers and helping to optimize them.
- building up strategic suppliers that help us meet the needs of our internal customers.
- permanently analyzing the supply market and identifying cost reduction potentials.
- consecutively optimizing the supply process.
- improving the competence of our internal customers concerning supply management.
- establishing transparency about the supply market and the suppliers and measuring our external value creation.”

Students are not required to come up with supply strategy statements. They serve to illustrate how Schott tried to change the purchasing department. This aspect could be handed out to the students for further discussion about a possible supply strategy.

Question 2:

The students are asked to develop a supply strategy portfolio for Schott. The portfolio is a tool to analyze material groups and find strategic measures to improve the supply management for every material group. It connects an overall supply strategy to concrete actions for the material groups. The tool is described extensively in the case so that students have to apply it to a specific situation at Schott. There is no need for further research about how the tool works.

It is important to keep in mind that the supply strategy portfolio has to be developed for the whole company, and thus the criteria have to be rather general in order to fit for every material group which is being used within the company. A list of possible criteria is given in the case, so the main challenge for the students is to identify three or four criteria that suit Schott's purpose best. There are certain remarks included in the text that shall intentionally lead students to the correct choice of the criteria.

In the next step, students have to assign weights to every criterion. This is rather difficult and this is the reason why equally weighted criteria are acceptable as a solution as well. The third step is to identify qualitative or quantitative indicators to measure the criteria. A three-step valuation system is sufficient, but it can also be extended. The criteria actually employed by the consultants are the following:

Generic Scoring Model for Axis: Market Attractiveness

| Criteria for market attractiveness | Threat (2) | Neutral (5) | Chance (8) | Weight |
|---|--------------------------------|-----------------------------|----------------------------|---------------|
| Supplier / Market Structure | Monopoly (dependance) | Oligopoly (agreements) | Polypoly (transparency) | 40% |
| Switching Costs | amortization > 3 years | amortization within 2 years | amortization within 1 year | 10% |
| Price Elasticity | Price effect < 10% or negative | No price effect | Price effect > 10% | 25% |
| Share of Supplier Turnover | C-customer | B-customer | A-customer | 25% |

Generic Scoring Model for Axis: Supply Position

| Criteria for supply position | Threat (2) | Neutral (5) | Chance (8) | Weight |
|--|--------------------|---|--------------------------------------|---------------|
| Integration in the Supply Process | Only taking orders | Partly integrated in processes and projects | Early integration in decision making | 40% |
| Product Competence | Low | middle | high | 20% |
| Degree of use of Common Supply Potential | Price effect < 10% | Price effect 10% - 20% | Price effect > 20% | 40% |

The consultants used a valuation framework with one to nine points, defining three specific measures as orientation points for threat, neutral, and chance. This allows a differentiated positioning of the material groups in the portfolio. They also indicate how specific measures

need to change to improve the positioning of the material group within the portfolio and furthermore, what strategy seems to be feasible. The consultants used a rather pragmatic approach to define the criteria. They first eliminated the criteria that were not very useful and then picked the ones that matched Schott's purposes best out of the remaining criteria. This process can be repeated by the students. The list intentionally includes many criteria that are rather unimportant to Schott and which can be easily eliminated. Taking the information in the case and the analysis performed in question two into account, the proper criteria should be identifiable by the students.

The criteria for market attractiveness are very general. They can serve to describe basically any supply market and therefore fit for every material group within Schott. The first three criteria are the broadest in the list provided and include most of the relevant information about the supply market attractiveness. The criterion "Supplier / Market Structure" refers to the number of suppliers available in the market which are capable of supplying Schott with the desired material. "Switching Costs" are to be evaluated as well. These refer to the costs which arise if Schott switched from one supplier to another, e.g. the net cost of such a change. "Price Elasticity" refers to the development of the price in case Schott or its competitors increased their demand on the market.

The fourth criterion, Schott's "Share of Supplier Turnover", is a simple piece of information that every purchasing department should be aware of. It was included in the portfolio at the request of the company, but it is not really necessary and the students do not need to include it in their solution.

The criteria for the supply position result from the problems of the purchasing department that have been identified in question two. The criterion "Integration in the Supply Process" measures if the communication with other departments has been improved. It also addresses if the purchasing department is included in intra-company teams and decision making. "Product Competence" is addressed because the purchasing department has difficulties in communicating with its internal customers and its suppliers. The 'degree of use of common supply potential' is also closely linked to the same issues. Also it seems that there is some redundancy between the first and the third measure, they are both included in the portfolio because of their great importance for Schott and an improvement in its supply management. "Integration in the Supply Process" measures the functioning of the internal communication, while "Degree of use of Common Supply Potential" quantifies the actually realized potential generated by better integration of the purchasing department. Both are interesting for every

material group to guarantee that improvements are not limited to a few materials. Of course, the volume of some materials or the potential is too low to justify the effort for a lot of internal communication. This can also be shown with the two criteria, enabling the purchasing department to define an adapted strategy.

Question 3:

This question is structured into three parts. The first part comprises the application of the previously developed scoring model to determine the placement of the material groups in the strategy portfolio. The task is of analytical nature and it requires the students to find out, logically structure and further develop arguments which are hidden in the case study. Depending on which criteria have been selected in question two, the argumentations of the students might differ quite significantly. The following scoring models show the actual solutions to the case. The scores are ranked on a scale between 1 (threat) and 9 (chance). The comment columns provide brief explanations for the given scores.

Scoring Model for the Material Group “Purchase Wafers” – Axis: Market Attractiveness

| Criterion | Score | Weight | Comment |
|------------------------------|--------------|---------------|--|
| Supplier- / Market Structure | 5 | 40% | + Broad supplier base. - Only few suppliers with good quality. - Specific product specifications reduce supplier base. |
| Switching Costs | 2 | 10% | + Short-term commitments with current suppliers facilitate switching. - Specific product specifications hamper rapid switching and increase costs of renegotiations. - Due to the complexity of the product, there are high risks with respect to quality if the supplier changes. |
| Price Elasticity | 5 | 25% | + Moderate price reductions are given if large volumes are purchased. |
| Share of Supplier Turnover | 2 | 25% | - Due to short-term contracts, the bargaining power is reduced. - Extensive supplier base mitigates bargaining power which could be realized due to large purchase volumes by Schott. |
| Score | | 4.0 | |

Scoring Model for the Material Group “Purchase Wafers” – Axis: Supply Position

| Criterion | Score | Weight | Comment |
|--|--------------|---------------|--|
| Integration into the Supply Process | 2 | 40% | <ul style="list-style-type: none"> - Suppliers get integrated at the latest time possible and when all specifications are fixed. - No potential for common configuration. There is no possibility for mutual support to reduce overall costs. - Suppliers have high bargaining power as Schott’s supplier base gets reduced once the specifications are made. |
| Product Competence | 5 | 20% | <ul style="list-style-type: none"> + As the product is also produced internally, engineers can qualify the products precisely - However, due to the lack of communication between the supply department and engineers, the knowledge is not used to improve the procurement performance. |
| Degree of use of Common Supply Potential | 2 | 40% | <ul style="list-style-type: none"> - No interdisciplinary teams in place which could realize unit spanning measures to improve the supply performance. |
| Score | | 2.6 | |

Scoring Model for the Material Group “Purchase Material for Wafer Production” – Axis: Market Attractiveness

| Criterion | Score | Weight | Comment |
|------------------------------|--------------|---------------|--|
| Supplier- / Market Structure | 2 | 40% | <ul style="list-style-type: none"> - Very limited number of suppliers which are capable to deliver the required quality standards. |
| Switching Costs | 2 | 10% | <ul style="list-style-type: none"> - There are currently no other suppliers for silicon which could be used as a substitute. - The development of other (new) suppliers to satisfy the required quality standards would be extremely costly. |
| Price Elasticity | 2 | 25% | <ul style="list-style-type: none"> - As silicon is a scarce product, suppliers do not grant quantity discounts. |
| Share of Supplier Turnover | 8 | 25% | <ul style="list-style-type: none"> + Schott is the largest customer of silicon for each of the two suppliers. Hence, suppliers depend on Schott. |
| Score | | 3.5 | |

Scoring Model for the Material Group “Purchase Materials for Wafer Production” – Axis: Supply Position

| Criterion | Score | Weight | Comment |
|--|--------------|---------------|---|
| Integration into the Supply Process | 2 | 40% | - Suppliers do not get integrated at all - It was a major fault of Schott to not take into account the silicon supply when the decision about insourcing was made. |
| Product Competence | 5 | 20% | + Engineers have knowledge about product specifications. + As silicon is a raw material, the product complexity is reduced which facilitates the understanding of the product. - However, due to the lack of communication between the supply department and engineers, the knowledge is not used to improve the procurement performance. |
| Degree of use of Common Supply Potential | 5 | 40% | + Necessity for interdisciplinary teams in silicon production is low as the “Purchase Materials for Wafer Production” is the only group that needs silicon. |
| Score | | 3.8 | |

However, it should be taken into account that these results only represent one possible solution. Also, other outcomes might be equally correct if different criteria are used, as long as the argumentation is stringent with the content of the case study.

Once the scoring models have been determined, the results are to be drawn in the strategic supply portfolio. In the second part of the question, the students have to determine specific measures to improve the supply management of the two material groups. The task challenges students to design creative solutions for certain problems. Additionally, it provides a chance to apply their previously gained theoretical knowledge to a practical example. The main measures for the “Purchase Wafers” material group are the following:

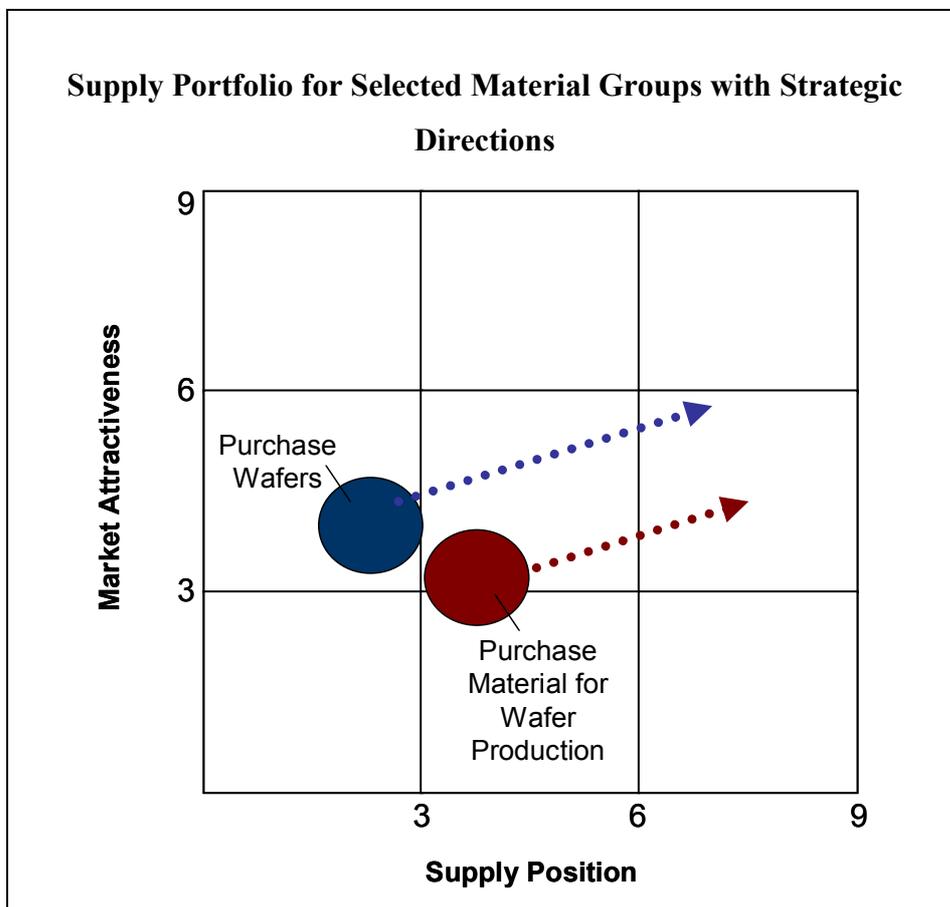
- Reduce supplier base
- Develop a few selected suppliers
- Extend volumes with remaining suppliers
- Standardize wafers to exploit bundling potentials
- Work over current contracts
- Integrate suppliers into product development process
- Foster relationships between engineers and supply organisation to make use of product knowledge and increase bargaining power

- Introduce cross-functional teams (TCO, Design to Cost etc.)
- Source globally (expansion to Japan, Russia, China)

For the “Purchase Materials for Wafer Production” material group, the most important measures to be realized to improve the supply performance can be summarized as follows:

- Reduce quality standards of silicon to extend supplier base
- Qualify other suppliers
- Hedge silicon price risk
- Implement a cross-functional team between engineers and purchase department to make use of product competence and to develop integrated solutions
- Centrally source silicon for the whole organization

In the third part of the question, the previously gained results are summarized and illustrated in a strategic supply portfolio. It is hereby the task to determine a strategic direction for each of the two material groups which is derived from the previously elaborated restructuring measures. The following portfolio illustrates the solution:



With the proposed measures, it will not only be possible to foster the supply position of both units, but also the market attractiveness will be affected. For the “Purchase Wafers” material group, this will be especially the case with respect to the criteria “Switching Costs” and “Share of Supplier Turnover”. If the product specifications are standardized and if the knowledge of engineers is used appropriately to make purchasing decisions, the impact of switching costs can be mitigated. Anyway, problems of product complexity and the probable development of long-term contracts will not enable the complete elimination of switching costs. The share of supplier turnover will increase strongly once the supplier base is reduced and once the development of strategic supply partners is initiated. The criteria “Supplier-/ Market Structure” and “price elasticity” are almost not affected by the measures as they are completely exogenous. A renegotiation of quantity discounts might be possible; however, due to the fact that the quantity discounts are already at a rather high level, the impact is expected to be rather low. Also the “Supplier-/ Market Structure” is fixed at least on a medium term basis. Although new competitors might enter the market on the long run, the effects are vague and cannot be taken into account at this point in time.

From an internal perspective, the “Purchase Wafers” material group performance will be enhanced significantly if the proposed measures are realized. All three criteria of the axis “supply position” are affected strongly. Integration into the supply process as well as product competence will rise and also the degree of use of common supply potential is exploited.

With respect to the market attractiveness of the material group “Purchase Materials for Wafer Production”, the potentials are slightly lower. The price elasticity is not very likely to become more attractive in the future. Additionally, Schott’s share of supplier turnover even decreases if the supplier base gets extended. Even the bundling of the group’s purchasing requirements will not outweigh this factor. Anyway, if the reduction in silicon quality requirements can be accomplished, the market structure becomes more attractive as more suppliers are available to deliver the desired raw material. Moreover, switching costs are supposed to be slightly reduced.

The internal potentials to foster the supplier position are, however, extensive. Especially the product competence and the degree of use of common supply potential will be elevated considerably. Also, the early integration of suppliers into the supply process has some potential, which is, however, far less than in the case of complete wafer purchase. This is mainly due to the fact that silicon is a raw material with a limited amount of product specifications.

Suggested Time Plan

Due to the detailed description of firm-specific criteria, this case study is a good opportunity to have students work analytically. For any group of the potential audience described, we recommend at least a full six hour lecture. It might also be given out as a take-home case.

Suggested Session Plan for in-class preparation (6h = 360 minutes, incl. 40 minutes break):

- | | |
|-----------------------------------|-----------------|
| 1.) Introduction | 10 minutes |
| 2.) Readings and First Discussion | 10-30 minutes |
| 3.) Case Question 1 | 30-75 minutes |
| 4.) Case Question 2 | 75-150 minutes |
| 5.) Case Question 3 | 150-225 minutes |
| 6.) Wrap-up and conclusion | 225-320 minutes |

Suggested Teaching Approach

As already mentioned, the level of detail of the firm-specific information is rather high. From prior experience, we advise you to be knowledgeable about the case beforehand in order to be able to give sufficient assistance if students get bogged down.

Since several subtasks of this case may involve discussions, it would be helpful to assign a group of three to four students to one case. Solutions may be presented either in written form, in a short presentation or both.

Explicitly, information provided in this case is complete and at some points deliberately irrelevant. Thus, no additional research is required for an optimal solution for the case.

Suggested Additional Reading

- Supply Strategies

Jahns, Christopher (2005): Supply Management. Neue Perspektiven eines Managementansatzes für Einkauf und Supply, St. Gallen.
Relevant pages: pp. 164-171. [German language literature]

Russill, Richard (1997): Purchasing Power – Your suppliers, your profits, New York.
Relevant pages: pp. 106-117

Pooler, Victor / Pooler, David (1997): Purchasing and Supply Management – Creating the vision, London.
Relevant pages: pp.56-75

- Integrating Supply Strategies into Corporate Strategies

Van Weele, Arjan (2005): Purchasing & Supply Chain Management - Analysis, strategy, planning and practice, 4th edition, London,
Relevant pages: pp. 137-156.

Saunders, Malcolm (1997): Strategic Purchasing & Supply Chain Management, 2nd edition, London.
Relevant pages: pp.114-146

- Portfolio approaches for the development of supply strategies

Carter, Joseph (2000): Development of Supply Strategies, in: Cavinato, Joseph / Kauffmann, Ralph: The Purchasing Handbook: A guide for the purchasing and supply professional, 6th edition, New York.
Relevant pages: pp. 81- 98.

- Benefits and challenges of cross-functional teams in supply management

Burt, David / Dobler, Donald / Starling, Stephan (2003): World Class Supply Management, 7th edition, New York.
Relevant pages: pp. 103-118.

- Advantages through internal and external integration of purchasing

Monczka, Robert / Trent, Robert / Handfield, Robert: Purchasing and Supply Chain Management, 3rd edition, Mason.
Relevant pages: pp. 96-133.

- Related Case Studies

‘Power Tools Manufacturer ETM’ (pp. 317-319) and ‘General Motors’ (pp. 330-332)
in:
Saunders, Malcolm (1997): Strategic Purchasing & Supply Chain Management, 2nd edition, London.

Possible Teaching Aids

- Guest speaker from a purchasing department
- Distribution of additional readings in class

Optional Discussion Questions

Case related:

1. Where would you place the other material groups?
2. What would be a sound supply strategy for Schott?

General discussion:

3. Analyse the potential advantages and disadvantages of operating one central purchasing and supply unit and closing down separate supply divisions.
4. Suggest how management can ensure that a strategy is being drilled down well enough so that every department and every employee acts in full accordance with a firm's strategy.
5. How should the purchasing department be integrated within an organization in order to facilitate its involvement in an early step of the value chain?