



Research Papers

of the Department of Industrial Management

Forschungsberichte

des Lehrstuhls für BWL und Industriebetriebs-
lehre

A portfolio-based approach for supporting strategic and organisational design decisions in purchasing

Ronald W. Bogaschewsky



Wirtschaftswissenschaftliche Fakultät der
Bayerischen Julius-Maximilians-Universität
Würzburg

Contents

ABSTRACT 1

1. INTRODUCTION 1

2. TWO-DIMENSIONAL PURCHASING PORTFOLIO MODELS 3

3. ORGANISATIONAL DESIGN IN PURCHASING 4

4. THE PURCHASING PORTFOLIO CUBE 7

4.1. Company View 8

4.2. Market View 10

4.3. Process View 12

4.4. Integration of views: the purchasing cube 13

4.5. Generic material classes 16

5. Organisational design features 20

6. LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH 22

7. CONCLUSIONS 23

REFERENCES 24

A portfolio-based approach for supporting strategic and organisational design decisions in purchasing

ABSTRACT

We develop a purchasing portfolio method by integrating a company view, a market-based view and a process view, aggregated in a 3-dimensional portfolio cube. Top management typically takes another view on purchasing issues than purchasing itself. Furthermore, it seems crucial to include the process view, since strategies have to be executed and organisational design features to support these strategies have to be compatible with purchasing processes. This integrated approach seems more complete compared to single, 2-dimensional portfolio methods.

Keywords: purchasing portfolio matrices, purchasing strategies, organisational design

1. INTRODUCTION

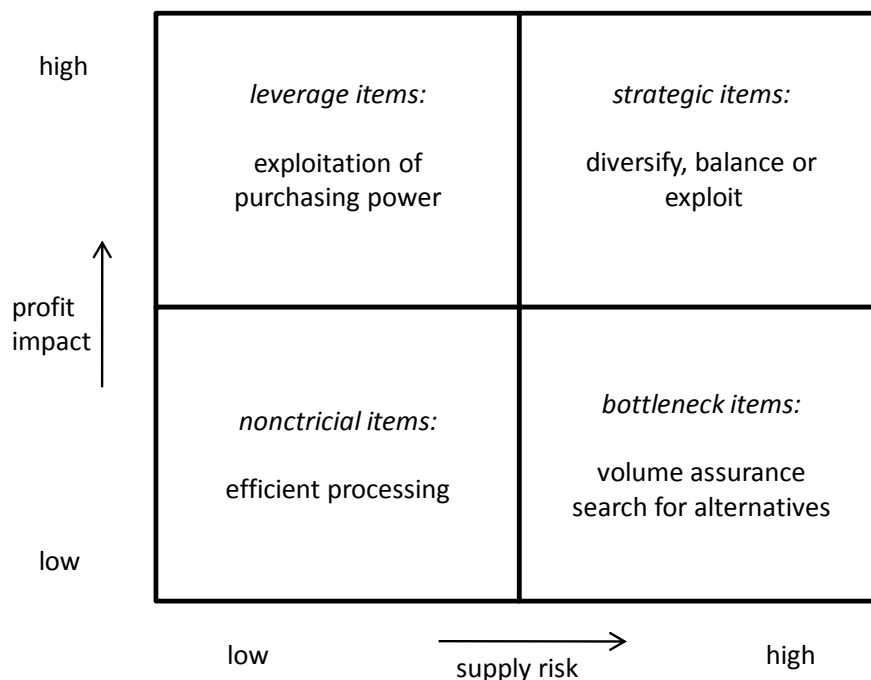
Companies use portfolios for a wide range of applications (see Turnbull 1990). In the domain of purchasing they are used to assess purchasing strategies for items organisations source from the global marketplace. Although portfolio methods are not free from being criticized (see Dubois and Pedersen, 2002; Ritter, 2000; Wagner and Johnson, 2004) Gelderman and Van Weele showed that the greater use of purchasing portfolio models is often associated with higher levels of professionalism as well as a better organisational position of the purchasing function within the firm (Gelderman and Van Weele, 2005). Cox (1997) states that the purchasing profession regards the usage of purchasing portfolio methods as “operational professionalism”. Breaking down complex problems into their most critical dimensions is a key feature of portfolio methods. This is why they have been labelled as a powerful management tool (Turnbull, 1990) and as being one of the most important tools for purchasing (Syson, 1992).

Nearly all purchasing portfolios are based on Kraljic's approach who proposed to group the items to be purchased based on their profit impact as well as the supply risk involved. The resulting matrix is used to denominate four categories for which specific purchasing strategies can be derived (Kraljic, 1983). The general purpose of this approach is obviously in supporting purchasing strategy decisions, while the underlying purchasing organisation is not part of the analysis. However, when deciding for instance for the exploitation of purchasing power or for looking for alternative suppliers, it might be necessary to implement organisational measures such as setting up an International Purchasing Office in a country abroad and link it to the overall purchasing organisation.

When deriving purchasing strategies, resource allocation must be laid out implicitly, since they will be pursued by members of the purchasing organisation themselves. Therefore, it might be worthwhile not only to group the items to be purchased regarding their (potential) profit impact and their supply risk, but also taking into account the internal efforts and requirements when executing both the strategic and the administrative purchasing processes. We develop a portfolio-based approach that helps to group supply items in a way that takes into account a company-oriented as well as a market-oriented and a process-oriented view. Each view (or sub portfolio) is based on two associated dimensions that span a matrix in which – according to individual needs – four, nine, sixteen, etc. categories can be defined that prescribe different fields of action. We then combine the three views into a portfolio cube that groups the items to be purchased in a 3-dimensional way. For demonstration purposes and ease of use, we assume four categories for each view so that eight categories can be distinguished in the purchasing cube. Each of these eight categories constitutes a generic material class for which fields of action regarding purchasing strategies as well as organisational design features and process designs can be derived.

2. TWO-DIMENSIONAL PURCHASING PORTFOLIO MODELS

Kraljic (1983) introduced a purchasing portfolio approach with three phases. The supply items are classified according to the dimensions profit impact and supply risk. Purchased items are grouped into the categories ‘strategic’, ‘bottleneck’, ‘leverage’, and ‘non-critical’ by assigning high or low values regarding their profit impact and their supply risk (see figure 1). For each of these four categories a distinctive purchasing approach should be derived.



Source: Geldermann an Van Weele (2005); Modified from Kraljic (1983).

Figure 1: Kraljic’s Portfolio

Even though similar approaches have been developed by Elliot-Shircore and Steele (1985); Olsen and Ellram (1997a); Lilliecreutz and Ydreskog (1999); Van Weele (2002) (see Gelderman and Van Weele, 2005), the Kraljic model has become the standard in this domain of application (Gelderman, 2003; Lamming and Harrison, 2001). As a transparent and easy to use strategic tool the method has to have shortcomings that can be criticized. However,

Gelderman and Van Weele (2003, p. 20) concluded in an explorative study that “experienced portfolio users reflect on the results of portfolio analysis and consider in-depth discussions with cross-functional teams as the most important benefit of any purchasing portfolio analysis.” Furthermore, these users derive different strategies for each single quadrant according to the specific items and the situation of the company (Gelderman and Van Weele, 2002), whereas purchasing power as well as dependence (Caniëls and Gelderman, 2005) play a significant role on the chosen strategies.

Recently, Trautman et al. (2009) presented a portfolio-based model for global sourcing issues dedicated to develop category selection criteria for exploiting economies of scale, economies of information and learning as well as economies of process. They use three sub portfolios for the three types of economies to be gained and focus on global sourcing issues and on ‘information and learning’, an important issue already addressed by other authors (Arnold, 1997; Faes et al., 2000; Gelderman and Demeijn, 2006; Rozemeijer, 2000). Other portfolio approaches such as for analysing suppliers used by companies (Cunningham, 1982), for managing supplier relationships (Olsen and Ellram, 1997b), for electronic ordering and related tasks (Bartezzaghi and Ronchi, 2004), for supplier involvement in new product development (Wynstra and Pierick, 2000), or focusing sustainability issues (Pagell, Wu and Wasserman, 2010) are further valuable contributions in the domain.

3. ORGANISATIONAL DESIGN IN PURCHASING

While we are not aiming at developing a comprehensive method on organisational design decisions in purchasing, the organisational dimension in our view is part of the problem when developing and executing purchasing strategies. Since our approach takes into consideration the process view and can be used to derive basic organisational decisions, a short overview regarding this field of research should be given.

A large amount of literature exists, focusing on organisational design questions that are relevant to achieve the organisation's goals. This includes decisions regarding the division of labour and clustering organisational units into larger formal structures such as departments. Other aspects are developing and implementing systems of both communication and coordination inside and between organisational units, designing adequate control mechanisms, and decisions regarding authority and responsibility (Hamel and Prahalad 1994). Obviously, organisational design is much more complex than boxes and connecting lines in organisational charts (Champoux, 2000). According to Trent (2004), three major streams of research can be differentiated from literature. The first stream discusses two aspects: the interdependence of strategy and structure accentuated by the well known "structure follows strategy" hypothesis by Chandler (1962) and the question of mechanistic versus organic designs. Which factors influence the organisation's design and how and what causes design changes are the primary research questions of the second stream. A third stream focuses on the types of organisational designs.

The rather limited research dedicated to organisational issues in purchasing, and related functions, concentrates mostly on organisational designs, thus focusing either more on internal or more on external interfaces. For instance, purchasing's involvement in product design and other activities regarding the product development process asks for (internal) team-based approaches with R&D, manufacturing, or quality assurance (Lakemond, Van Echtelt and Wynstra, 2001; Stuart, 1991). In contrast, e.g. gaining knowledge about supply markets focuses on markets and potential suppliers. Integrating and coordinating procurement requirements are challenging and difficult to master regarding both interfaces (Rozemeijer, Van Weele and Weggeman, 2003).

Consequently, a variety of different design alternatives for the purchasing function have been discussed in the literature, thus analysing the structural dimensions of centralized, decentralized and hybrid designs (Corey, 1978; Dobler and Burt, 1996; Faes et al., 2000; Leenders and Johnson, 2000; Leenders and Fearon, 1997; Lysons, 1996; Monczka et al., 2005; Pooler et al., 2004; Quintens et al., 2006; Rozemeijer, 2000; Van Weele, 2002; 2005). Specific organisational features such as International Purchasing Offices (IPOs) (Goh and Lau, 2002; Carduck, 2000), cross-functional sourcing teams (Van Weele, 2005; Leenders and Fearon, 1997; Trent and Monczka, 1994), and commodity management (Van Weele, 2005; Leenders and Fearon, 1997; Dobler and Burt, 1996; Carduck, 2000) are further discussed. Glock and Bogaschewsky (2009) developed a theory-based framework that helps to assess organisational costs of basic design alternatives applying transaction cost theory as well as principal agent theory.

Various empirical studies have been conducted analysing the practical relevance of organisational features in purchasing (Johnson and Leenders, 2006; Trent, 2004; Johnson et al., 1998; Fearon and Leenders, 1995; Giunipero and Monczka, 1990; 1997; Fearon, 1988). Furthermore, a number of case studies are available, illustrating real life implementations of organisational arrangements, thus exemplifying the way companies organise their purchasing function in a given competitive environment (Atkinson, 2006; 2005; Monczka, Trent and Handfield, 2005; Wolf, 2005; Seigel, 2004; Johnson and Leenders, 2001).

One of the key issues in organising purchasing is the question: Which categories should be integrated across sites and which should be managed by local purchasing (Faes et al., 2000; Mathysens and Faes, 1997) ? Integration in our view does not necessarily mean centralizing responsibilities. Instead different forms of coordination of local purchasing activities might be

preferable. This is one core aspect of the 3-dimensional portfolio approach as discussed below.

4. THE PURCHASING PORTFOLIO CUBE

2-dimensional purchasing portfolios mainly focus on the strategic influence of the supply situation on the company. Therefore, only profit impact and supply risk are considered as dimensions of analysis. Consequently, strategies derived from this kind of portfolio are based on general guidelines such as 'exploit', 'balance', and 'diversify'. When taking the view of a local purchasing department, getting good prices and securing supply is paramount, no matter, if the purchasing volume at question is of high importance for the entire company or not. The major driver here is the importance for reaching the targets defined as key performance indicators for this department. Exploiting the market is therefore a strategy that is not necessarily strongly connected to overall profit impact. Moreover, it very often holds true that high volume goods are sourced from suppliers in rather long-term oriented relationships. This requires an effective and efficient management of a whole portfolio of relationships (Bensaou, 1999; Frohlich and Westbrook, 2001). Therefore, putting pressure onto suppliers in order to get better prices, qualities, etc. is often rather applied for goods of medium purchasing volume. If central purchasing or top management sets targets, regarding savings to be accomplished by the local purchasing departments for example, it has to be taken into account that the overall figure of savings often can only be maximized by exploiting supply markets for items with medium volume. Furthermore, it is rather likely, that focusing only on items that have a high profit impact for the company might in many cases result in substantial losses of opportunities to cut costs, to get better qualities, delivery schedules, etc. for a larger number of materials. Thus, for portfolio approaches based on the Kraljic matrix, it can be suggested that one should at least differentiate into high, medium and low profit impact.

But still, this approach would fall short on embracing the issue of the “technical” importance of specific items for the company. It is well known, that simple parts that are not available when needed may result in a total production disruption, possibly causing extremely high financial losses. The same may hold true for other core processes in the company. Assuring the availability of these items is not necessarily connected to a market-based supply risk. We therefore propose to take different views for the (potential) effects of certain purchasing situations on the company on the one hand and for analysing the supply markets on the other. Furthermore, an internal view, regarding purchasing-related processes, must be made in order to give support for organisational decisions of processes either covering the market-oriented (strategic) purchasing process or the operational order processes and related information flows. By doing so, we develop a portfolio method that considers different views of the problem and that is more able to improve the allocation of scarce resources (Olsen and Ellram, 1997a; Turnbull, 1990) than 2-dimensional approaches. For demonstration purposes we concentrate on four quadrants in each matrix. Note, that more quadrants might be advisable regarding the specific situation.

4.1. Company View

The company view considers the relevance of a given item or item class (covering a set of similar items) driving company success. It is differentiated into one dimension that focuses the purchasing volume impacting profit on the one hand and risk of non-availability of items on the other (see figure 2). Since the field of analysis is the company and its profit situation, the absolute figures of the purchasing volumes and the figures relative to the overall cost situation of the company are of concern. However, top management might not be ready to invest in additional human resources in purchasing compared to other options, e.g. in marketing or manufacturing, if the respective figures in these functions are higher.

The second dimension focuses on the “technical” relevance of a certain item or item class and its potential impact should these items not be available when needed or if they are not according to technical specifications. A high impact would ask for adequate measures in order to ensure availability and thus for assigning resources to this task. From a purchasing-oriented point of view this could mean keeping safety stock, having several suppliers for the same items as backup, contracting reliable, high-quality suppliers and logistic service providers. All these measures typically result in higher costs. This way basic supply strategies are pre-defined by the needs of the company. As long as profit impact is rather low, top management once again would not be ready to assign too many resources to the associated tasks in purchasing. The company view ensures that the supply-related needs of purchasing’s internal customers as well as the company’s profit objective are taken into account, at least in an aggregated sense.

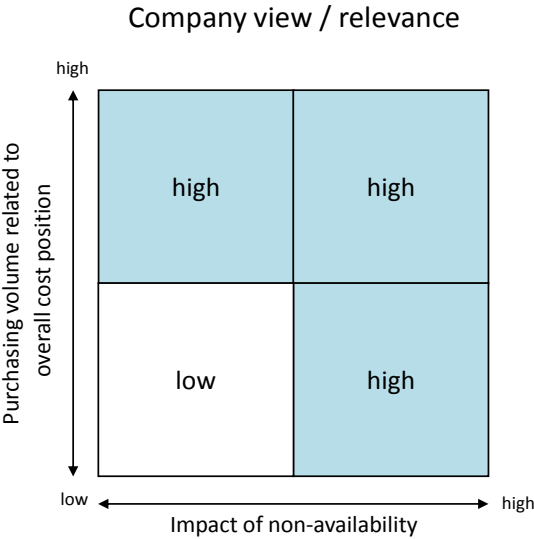


Figure 2: Company View Sub-Portfolio

A first and rough analysis results in examining the basic policies whether items are of ‘high’ or ‘low’ concern and should therefore be treated as being of more or less significance in

purchasing. Adequate resources have to be assigned to the necessary tasks related to these items. In order to derive generic item classes, assessing exact lines of demarcation of the quadrants is less important.

4.2. Market View

The market view is of major concern for strategic purchasing and considers the relevance of the market for reaching the objectives of the strategic purchasing function. This matrix combines the dimensions 'supply risk' and 'cost risk' (see figure 3). Supply risk is high when there is only one supplier available or when the available suppliers aren't reliable in terms of quality, delivery, etc. Securing supply is a core objective in purchasing and related tasks. However, it does not necessarily mean, that the impact of non-availability is always high on the company level. Consequently, we addressed this issue in the company view.

The cost risk includes the risk of not exploiting market opportunities in the sense of using purchasing power in order to reduce prices or to ward off price increases. Since these risks finally all translate into negative financial impacts, the same holds true for not reaching better contract terms and conditions, higher qualities, more timely deliveries, etc. A cost risk may occur simply because certain markets have to be followed closely in order not to miss a low price phase as it might happen in certain spot markets. These kinds of activities are not correlated to purchasing power. We therefore prefer the term cost risk instead of the often used term market leverage therefore opposing the idea that only exploiting economies of scale by pooling purchasing power (Matthyssens and Faes, 1997; Smart and Dudas, 2007) is a feasible purchasing strategy to reduce costs considerably.

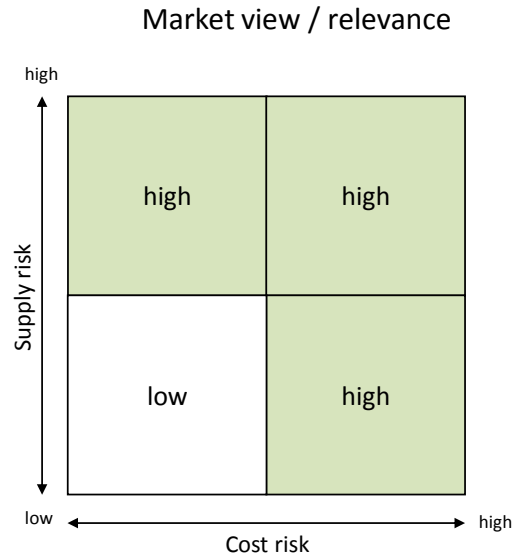


Figure 3: Market View Sub-Portfolio

Besides the specifics of our dimensions, the matrix can basically be used in a similar way as the portfolio approach proposed by Kraljic. A high cost risk, as well as a high supply risk, are asking for well defined supply strategies. Since the concrete strategic actions to be taken can only be derived according to the specific situation, there is not only a single “best” strategy assigned to the quadrants. Risk avoidance in both dimensions can result in actions that might be totally opposed to each other. Furthermore, the constitutional correlation between opportunity and risk is represented. For example, reducing the risk of losing money, when not applying purchasing power consequently is mirrored by raising the supply risk when focusing on only a few or just a single supplier. The positive and negative effects of bundling demand on a single supplier might outweigh each other. As a result the risk position regarding this item class can remain the same. Implementing single sourcing after bundling demand could even raise the overall market-related risk position.

4.3. Process View

The process view takes into account the specific requirements of the individual activities connected with the strategic as well as the administrative purchasing processes. This matrix combines the dimensions 'frequency of changes' and 'complexity' (see figure 4). We chose these dimensions due to the fact that frequent changes in demand specifications as well as complexity in the specifications itself typically ask for more intense communication between purchasing and the internal customer (Nellore and Söderquist, 2000). The more complex and more frequent this communication gets, the less easy it would be to implement lean processes or to use design features such as lead buyers. Complex communication often asks for personal contacts, so that local purchasing people have to be assigned that act as an interface to strategic purchasing.

It takes this process view in order to opt for organisational solutions such as implementing Desktop Procurement Systems (DPS). DPS semi-automate the entire workflow of selecting and ordering needed items by using electronic catalogues (Croom, 2000). Opposite to that, it cannot be concluded from a low supply risk and a low profit impact alone that implementing this kind of electronic procurement solution is a favourable strategy as some authors suggest from applying 2-dimensional portfolios (Bartezzaghi and Ronchi, 2004; Croom, 2000).

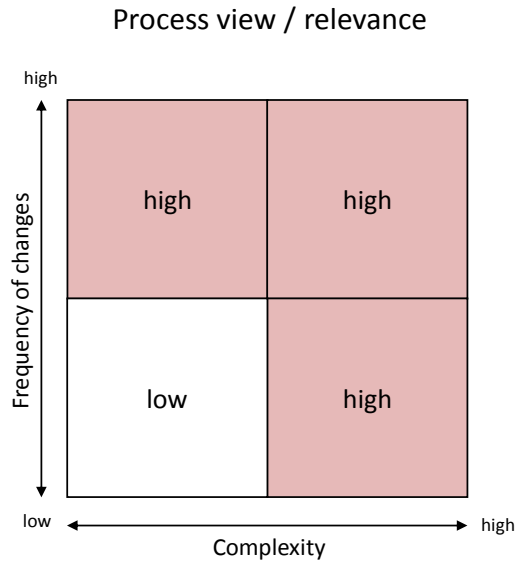


Figure 4: Process View Sub-Portfolio

Especially project-based, purchasing processes as they are common in infrastructure projects can be extremely complex, requiring diverse loops during the specification and market analysis as well as supplier selection phases. Even after contracting a supplier, changes may occur when putting the sourced items into use, or when implementing supply parts into a machine or into other systems. Complexity, as well as frequent changes of specifications, also occurs quite often regarding marketing and sales requirements, especially in the consumer products sector. In order to serve these changing requirements in an adequate way, substantial resources might have to be assigned to purchasing since the processes are rather time consuming. The optimal organisational setup is strongly influenced by these factors.

4.4. Integration of views: the purchasing cube

Taking a detailed look at the purchasing situation is helpful in order to derive purchasing strategies on the one hand and to assign adequate organisational design features on the other. Each of the three sub portfolios shown above should be used for creating a specific view of the purchasing situation. Supply items can therefore be categorized with a company view that

is based on the financial impact as well as on the importance of the item for the company's core processes (availability). Top management should be concerned about these two dimensions and should therefore - with the help of the Chief Procurement Officer - assess basic priorities for the respective items regarding availability and cost cutting initiatives. This includes make-or-buy decisions, the definition of minimum quality and service levels for suppliers, the general acceptance of certain logistic strategies (e.g. just-in-time deliveries), and the like.

Analysing the supply markets and assessing the risks and opportunities in these markets is the major strategic task of the purchasing function. It can be questioned that top management is always willing and able to get into the diverse details of supply market analysis. Purchasing as a strategic function has the obligation to maximize profits for the company while keeping the supply risk at an acceptable level. After the general strategic settings have been defined by top management according to the company view, purchasing should be able to act as a self dependent strategic function regarding the supply markets and deciding on how to tackle the markets by applying market-oriented purchasing strategies.

The process view finally helps in assessing task complexity of executing both strategic as well as administrative procurement processes. This view is in our opinion indispensable, since strategies to reduce costs by bundling demand cannot be easily applied for items that need frequent and intensive communication with internal customers because of their technical complexity or frequent changes of specifications. Another example is when the market view might call for a global sourcing strategy, which includes entering and developing foreign supply markets. This strategy cannot be pursued without setting up an adequate global sourcing organisation. Deciding on how and if to set up decentralized purchasing departments around the globe and how to link these to central purchasing, and to the possibly globally

distributed facilities, asks for analysing the need for communication with international customers, thus the process-related view is of relevance.

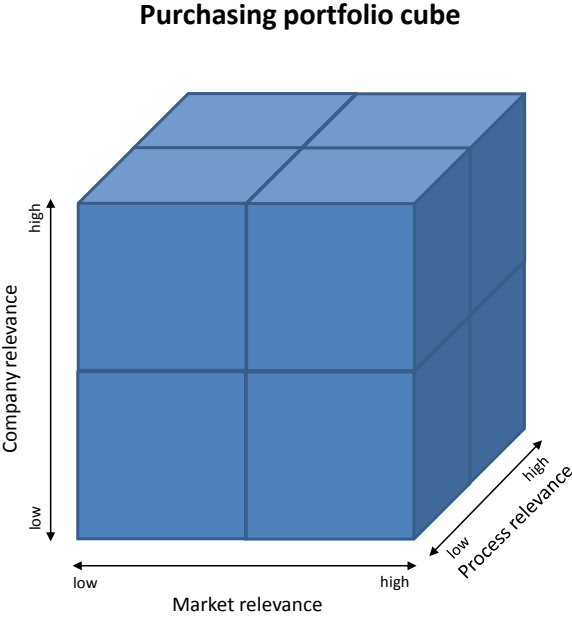


Figure 5: The Purchasing Portfolio Cube

The three views are interrelated and should be applied in a coordinated way when developing purchasing strategies and deriving compatible organisational structures. This integrated view results in the purchasing portfolio cube as shown in figure 5. The three dimensions of the cube focus on the relevance the items to be categorized with regards to the company view, the market view, and the process view. Again, we restrict ourselves to two values, 'high' and 'low' each for demonstration purposes, thus the cube shows eight sections. Each section can be interpreted as a generic material class with properties of a high or low relevance based on the three different views.

4.5. Generic material classes

It might be helpful to add a 2-dimensional view of the purchasing portfolio cube thus taking a closer look at the resulting eight categories (see figure 6).

MC I to MC VIII denote eight distinctive generic material classes. For supply items that are assigned to these generic classes, specific purchasing strategies and respective processes and resource allocations have to be derived. The real items and materials in the different generic material classes might ask for individually tuned purchasing strategies, so that we do not necessarily vote for a normative approach for each class. However, the basic strategies are likely to follow the same general objectives, so that the generic material classes define different general domains of strategic activity.

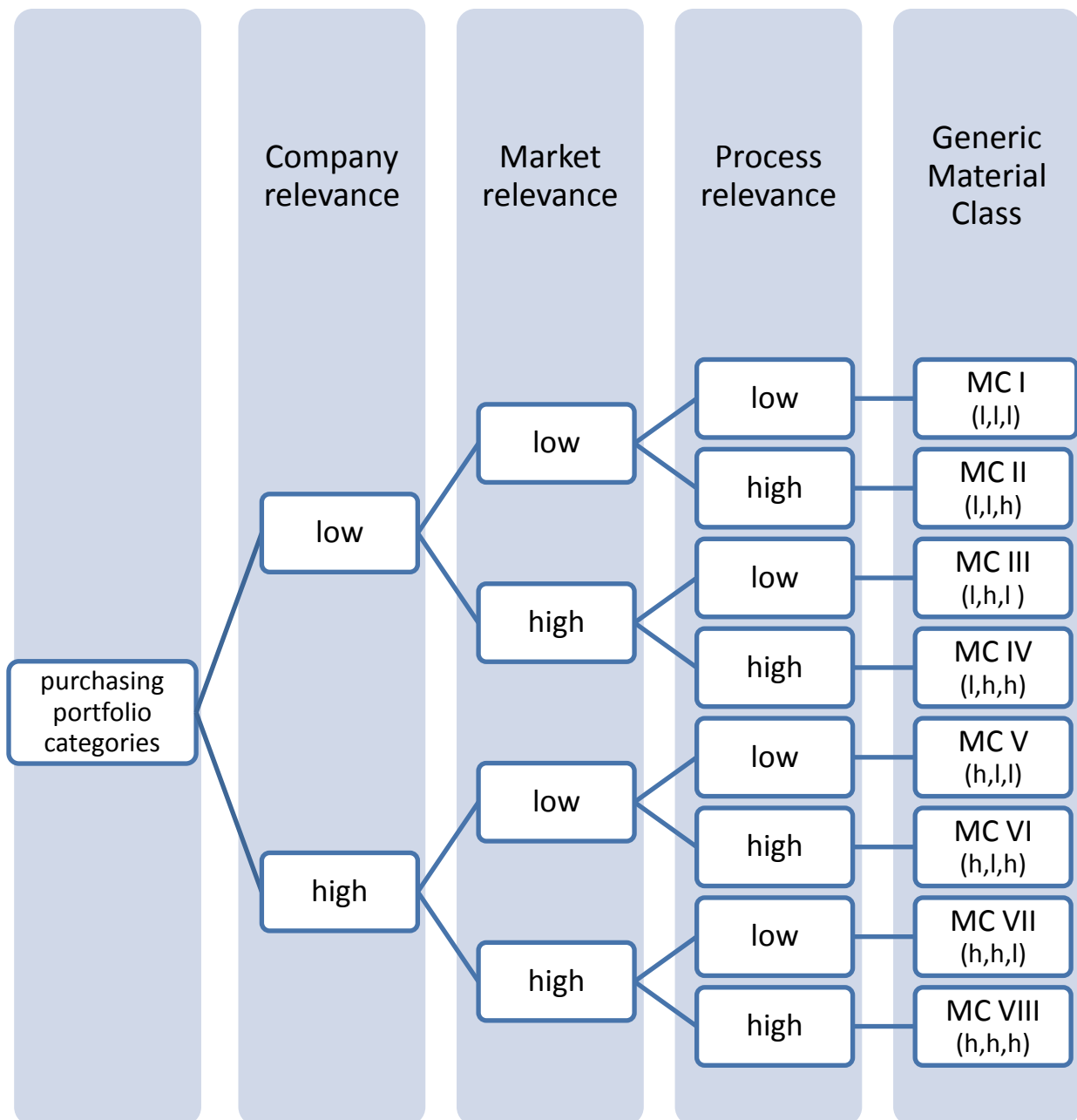


Figure 6: Generic material classes

The company has great interest in having MC V to MC VIII carefully managed, since the relevance for the company is high, either due to the profit impact of the respective items or because they are crucial for its core processes. MC VII and VIII face a relatively high risk regarding the supply markets, either due to opportunities that can be missed or because of dependencies on suppliers, supply shortages and the like. Here it becomes obvious that

purchasing strategies should not just be derived due to the position of items in the market-view portfolio. The position in a section of the cube only gives hints if special attention has to be paid to these items regarding a specific view. Using the sub portfolio of the specific view once again only specifies the kind of risk that has to be tackled. The purchasing strategy itself has to be developed afterwards, taking into account a broad range of both internal and external factors and by teaming up with other departments, depending on needs.

Another crucial point is the inclusion of the process view in order to decide on how to pursue the strategies in terms of responsibilities, coordination and other organisational features. Since strategy and structure are closely interrelated, no strategies should be implemented without defining possible organisational changes. Furthermore, no strategies should be pursued where the organisational demands negate the possibility to execute these strategies, even if organisational changes would be put into place. It should be clear that only when process relevance is low, strategies such as bundling demand over different sites might be an easy task. If bundling should be the chosen strategy despite complex processes, adequate resources have to be assigned in order to facilitate the execution of the strategy. As an alternative activities to shift items to other material classes can be started, such as product and process standardization.

Accordingly, other material classes can be discussed. MC V and VI are of high importance for the company, but there is neither risk nor opportunity regarding the supply markets. In this case, securing availability would be the right strategic direction, while the detailed strategy could differ a lot between items in these classes due to the specific internal and external situation. Again, low process relevance (MC V) opens opportunities for implementing – possibly lean - standard processes, while high process relevance would be more demanding.

MC III and IV both have high market-oriented relevance that can be again translated into the market risk dimensions “cost” and “supply”. While top management, by taking a ‘company view’, would typically not take a deep look into these material classes, purchasing would still be strongly interested in controlling the risk regarding the items in both material classes. Quite often significant savings can be gained on these items by implementing market-oriented strategies, especially because many of the items (from other MCs) that have a high profit impact are often sourced via strategic partnerships where exploiting leverage effects are often limited.

Last, but not least MC I and II both ask for lean processes and securing availability, since neither market risks nor larger opportunities or risks for the company can be detected as long as items aren’t shifted to other material classes. When complexity is low, these items are typically suitable for general agreements with suppliers that have acceptable prices but guarantee in-time availability and support the implementation of lean processes, especially catalogue-based, e-procurement systems. However, not all items in MC I might be according to industrial product standards so that suppliers possibly do not offer them via electronic catalogues. While market activity again should focus on securing availability, the items in MC II have to be standardized in order to be shifted to MC I, or a process as lean as possible has to be defined and implemented.

According to the empirical study by Johnson and Leenders (2001), major organisational design changes in purchasing functions of large, multi-unit firms are most often triggered by changes in the overall corporate structure. Thus connecting purchasing’s market-based view to the company view seems indispensable. While minor organisational changes and the use of certain design features might be in the hand of the CPO alone, major structural design changes would have to be discussed on the executive level even in smaller firms.

It should be noted, that adaptation strategies that involve shifting items from a certain MC to another, thus reducing complexity, market-driven risks, or the risk of non-availability can be derived.

5. Organisational design features

Due to the firm's dynamic environment, both general company strategies as well as purchasing strategies are prone to change. Accordingly, organisational features might have to change when implementing strategies and in order to ensure both effectiveness and efficiency. Therefore, assigning organisational design features to the eight material classes can, to a certain extent, only be tentative. However, some general determinations can be made.

Although not all items in MC I might be eligible to be ordered via e-procurement processes, due to the fact that suppliers are simply not willing to offer these products via electronic catalogues and could not be convinced to do so, this is the primary material class for catalogue-based, e-procurement systems. Screening the market for adequate suppliers that offer the respective products could be assigned to a single lead buyer. We therefore look at a centralized strategic buying process and decentralized direct ordering.

Items in MC III, V, and VII are best suited to be handled strategically by lead buyers or commodity managers, since process relevance is low for all three classes and demands can be rather easily grouped and assigned to a single responsibility regarding sourcing the respective goods from the supply market. However, priorities differ between these MCs regarding the market view as well as the company view. Purchasing will be especially interested in MC III and VII due to their high market relevance and would therefore assign adequate resources in order to manage the related tasks. Global sourcing strategies would be possibly more promising for these classes than for MC V. However, the 'low' status of items in this class might be due to the fact that global sourcing has not been considered so far, so that adapting

this strategy might lead to shifting the items into MC III due to cost saving opportunities when involving suppliers from abroad. MC V instead is a typical “step child” candidate of purchasing. Usually, contracts are fixed with suppliers without tough negotiations, while putting special attention on service level agreements. Furthermore, multiple sourcing strategies might be applied.

For items in MC II, IV, VI, and VIII (high process relevance) it seems quite difficult to implement centralizing organisational features. Many of these items typically change frequently regarding their specification or are technically complex, so that close and frequent communication with internal customers is needed. Often internal customers and the assigned purchasing professional are building partnerships during a long-term relationship, thus reducing internal transaction costs. Both parties often know about the issues and whereabouts of certain requirements and associated procurement processes so that they communicate on a rather high knowledge level, thus being more efficient. Local purchasing should therefore be at least the interface to internal customers. This is in line with empirical findings by Trent (2004) that show that physical collocation is needed for high complexity. If strategic purchasing might be then done by e.g. a lead buyer depends on several factors such as technical affinity of the products to be purchased, market structures as well as suppliers, respectively. Due to their high market relevance, items in MC IV and VIII are requiring more coordinated strategies than materials in MC II and VI. If it is likely that designated ‘commodity’ managers would be more able to get the best out of the markets and suppliers regarding these items, this might be the organisational feature to be preferred for items in MC IV and VIII, respectively. Otherwise, efficient and effective coordination between the local purchasing sites would have to be ensured regarding these items. This is certainly a question,

where the factors of individual versus collective knowledge and learning as well as coordination have to be considered as well.

Finally, special attention might have to be paid to some items or item classes in MC VIII, showing a high level of relevance for the company as well as when looking at the supply market. For items in MC VIII, the fact that process relevance is high alone should not lead to strategies where the potentials to generate positive profit impact are not exploited. Therefore, specific organisational features such as purchasing strategy teams set together of the responsible local purchasers might be established. Innovative IT support could facilitate effective and efficient communication between team members.

Finally, it should be stated, that special market conditions as well as certain institutional company structures, for instance in holdings, might ask for further differentiated purchasing strategies as well as specific organisational features. As we could learn when applying the purchasing portfolio cube approach in a case study, high market relevance could also mean that the supply market has to be tackled by different purchasers from different sites more or less simultaneously. These local purchasers must coordinate their market strategies in order to tailor their annual demands into lots and get into individual negotiations with selected suppliers at the right time. This once again supports our view that normative suggestions for both strategy as well as organisational features cannot be assigned to certain categories derived from portfolio approaches.

6. LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

Our approach basically has the same limitations as other portfolio-based methods, except for the fact that we broaden the analysis with different views. As mentioned above and in the literature (Gelderman and Van Weele, 2003; 2005), the ease of use of portfolio methods to strategic problems goes with many weaknesses such as fuzziness of many variables and

parameters, questionable assumptions and unclear ways how to differentiate diverse aspects. However, portfolio approaches are very popular in practice and are applied rather successfully by means of discussing issues and deriving decisions in teams that consist of the right experts. Further case studies are necessary to verify our method. It might be interesting to integrate our approach with methods that focus the ‘learning and knowledge’ perspective as shown by Trautmann et al. (2009). Sustainability aspects as outlined in Pagell et al. (2010) might have to be incorporated when deriving purchasing strategies.

7. CONCLUSIONS

We introduced a three-dimensional purchasing portfolio method that facilitates an integrated analysis regarding the company view, the market-based view, and the process view. The approach stipulates a differentiation and clear delineation of these views regarding the domains of analysis, the responsibilities, the objectives and strategies to be derived. However, it is able to show the interdependencies of these views and therefore helps deriving more integrated purchasing strategies as well as organisational design decisions. Since the process view helps in analysing the organisational dimension of the problem, in our view this approach is more complete than two-dimensional portfolio methods.

We applied our approach in a company from the brewing industry and showed its fitness for use. However, different settings in other companies of other industries might ask for variations in how to develop purchasing strategies and related organisational design decisions.

REFERENCES

- Arnold, U., 1997. Purchasing consortia as a strategic weapon for highly decentralized multidivisional companies. Conference proceedings 6th IPSERA Conference, Naples (IT), 1-16
- Atkinson, W., 2006. Centralized purchasing: Success breeds success. *Purchasing* 135 (9), 26-28.
- Atkinson, W., 2005. The challenges of creating a global sourcing organization. *Purchasing* 134 (20), 17-18.
- Bartezzaghi, E., Ronchi, S., 2004. A portfolio approach in the e-purchasing of materials. *Journal of Purchasing and Supply Management* 10 (4/5), 117-126.
- Bensaou, M., 1999. Portfolios of Buyer-Supplier Relationships. *Sloan Management Review* 40 (4), 35-44.
- Caniëls, M.C.J., Gelderman, C.J., 2005. Purchasing strategies in the Kraljic matrix – a power and dependence perspective. *Journal of Purchasing and Supply Management* 11 (2/3), 241-255.
- Carduck, C., 2000. *International Purchasing Offices: Internal Service Providers in Purchasing Organizations of Multinational Corporations*. Peter Lang, Frankfurt (DE).
- Champoux, J.E., 2000. *Organization Behavior – Essential Tenets for a New Millennium*. South-Western College Publishing, Cincinnati, OH.
- Chandler, A.D., 1962. *Strategy and Structure*. Cambridge/London (UK).
- Corey, R.E., 1978. Should companies centralize purchasing ? *Harvard Business Review* 56 (6), 102-110
- Cox, A., 1997. *Business Success: A Way of Thinking about Strategic, Critical Supply Chain Assets and Operational Best Practice*. Earlsgate Press, Stratford-upon-Avon (UK).
- Croom, S.R., 2000. The Impact of Web-Based Procurement on the Management of Operations Resources Supply. *The Journal of Supply Chain Management* 36 (1), Winter, 4-13.
- Cunningham, M.T., 1982. An Interaction Approach to Purchasing Strategy. In: Hakansson, H. (Ed.), *International Marketing and Purchasing of Industrial Goods: An Interaction Approach*. Wiley, Chichester (UK).
- Dobler, D. W., Burt, D. N., 1996. *Purchasing and Supply Management*. 6th ed., McGraw-Hill, New York, NY.
- Dubois, A., Pedersen, A.-C., 2002. ‘Why Relationships Do Not Fit into Purchasing Portfolio Models—A Comparison Between the Portfolio and Industrial Network Approaches. *European Journal of Purchasing & Supply Management* 8 (1), March, 35-42.
- Elliott-Shircore, T.I., Steele, P.T., 1985. Procurement Positioning Overview. *Purchasing and Supply Management*, December, 23-26.
- Faes, W., Matthyssens, P. Vandenbempt, K., 2000. The pursuit of global purchasing synergy. *Industrial Marketing Management* 29 (6), 539-553.

- Fearon, H. E., 1988. Organizational Relationships in Purchasing. *Journal of Purchasing and Materials Management* 24 (2), Winter, 2-12.
- Fearon, H.E., Leenders, E., 1995. Purchasing's Organizational Roles and Responsibilities. Center for Advanced Purchasing Studies, Tempe, AZ.
- Frohlich, M.T., Westbrook, R., 2001. Arcs of integration: an international study of supply chains strategies. *Journal of Operations Management* 19 (2), 185-200.
- Gelderman, C.J., 2003. 'A Portfolio Approach to the Development of Differentiated Purchasing Strategies. Doctoral dissertation, Eindhoven University of Technology (NL).
- Gelderman, C.J., Demeijn, J., 2006. Managing the global supply base through purchasing portfolio management. *Journal of Purchasing and Supply Management* 12, 209-217.
- Gelderman, C.J., Van Weele, A.J., 2002. Strategic Direction through Purchasing Portfolio Management: A Case Study. *The Journal of Supply Chain Management* 39 (1), Spring, 30-37.
- Gelderman, C.J., Van Weele, A.J., 2003. Handling measurement issues and strategic directions in Kraljic's purchasing portfolio model. *Journal of Purchasing and Supply Management* 9 (5/6), 207-216.
- Gelderman, C.J., Van Weele, A.J., 2005. Purchasing Portfolio Models: A Critique and Update. *The Journal of Supply Chain Management* 39 (1), Summer, 19-28.
- Giunipero, L.C., Monczka, R.M., 1990. Organizational Approaches to Managing International Sourcing. *International Journal of Physical Distribution & Logistics Management* 20 (4), 3-12; reprint in the same Journal, 1997, 27 (5/6), 321-336.
- Glock, Ch., Bogaschewsky, R.W., 2009. An efficiency-based framework for determining organizational costs in purchasing. Proceedings of the 11th International IPSERA Conference, Wiesbaden (DE), 287-309.
- Goh, M., Lau, G.-T., 2002. International Purchasing Offices in Asia. In: Hahn, D. (Ed.), *Handbuch industrielles Beschaffungsmanagement*, 2nd ed., Gabler, Wiesbaden (DE), 221-237.
- Hamel, G., Prahalad, C.K., 1994. *Competing for the Future*. Harvard Business School Press, Cambridge, MA.
- Johnson, P.F., Leenders, M.R., 2001. The Supply Organizational Structure Dilemma. *The Journal of Supply Chain Management* 37 (3), Summer, 4-11.
- Johnson, P.F., Leenders, M.R., Fearon, H.E., 1998. Evolving Roles and Responsibilities of Purchasing Organizations. *International Journal of Purchasing and Materials Management* 34 (1), 2-11.
- Johnson, P.F., Leenders, M.R., 2006. A longitudinal study of supply organizational change. *Journal of Purchasing and Supply Management* 12 (6), 332-342.
- Kraljic, P., 1983. Purchasing Must Become Supply Management. *Harvard Business Review* 61, September/October, 109-117.

- Lakemond, N., Van Echtelt, F., Wynstra, F., 2001. A Configuration Typology for Involving Purchasing Specialists in Product Development. *The Journal of Supply Chain Management* 37 (4), 11-20.
- Lamming, R.C., Harrison, D., 2001. Smaller customers and larger suppliers: the potential for strategic purchasing approach: a case study. *Proceedings of the 10th International IPSERA Conference, Jönköping (SE)*, 595–610.
- Leenders, M.R., Fearon, H.E., 1997. *Purchasing and Supply Management*. 11th ed., Irwin, Chicago, IL.
- Leenders, M.R., Johnson, P.F., 2000. *Major Structural Changes in Supply Organizations*. Center for Advanced Purchasing Studies, Tempe, AZ.
- Lilliecreutz, J., Ydreskog, L., 1999. Supplier Classification as an Enabler for a Differentiated Purchasing Strategy. *Global Purchasing & Supply Chain Management*, November, 66-74.
- Lysons, K., 1996. *Purchasing*, Pitman Publishing, London (UK).
- Matthyssens, P., Faes, W., 1997. Coordinating purchasing: strategic and organizational issues. In: Ritter, T., Gemünden, H.G., Walter, A. (Eds.), *Relationships and Networks in Industrial Markets*. Elsevier, Oxford (UK), 323-342.
- Mol, M.J., Pauwels, P., Matthyssens, P., Quintens, L., 2004. A technological contingency perspective on the depth and scope of international outsourcing. *Journal of International Management* 10 (2), 287-305.
- Monczka, R., Trent, R., Handfield, R., 2005. *Purchasing and Supply Chain Management*. 3rd ed., Thomson/South-Western, Ohio, OH.
- Nellore, R., Söderquist, K., 2000. Portfolio Approaches to Procurement — Analysing the Missing Link to Specifications. *Long Range Planning* 33 (2), 245-267.
- Olsen, R.F., Ellram, L.M., 1997a. A Portfolio Approach to Supplier Relationships. *Industrial Marketing Management* 26, 101-113.
- Olsen, R.F., Ellram, L.M., 1997b. Buyer-Supplier Relationships: Alternative Research Approaches. *European Journal of Purchasing & Supply Management* 3 (4), 221-231.
- Pagell, M., Wu, Z., Wasserman, M.E., 2010. Thinking differently about purchasing portfolios: an assessment of sustainable sourcing. *Journal of Supply Chain Management* 46 (1), January, 57-73.
- Pooler, V.H., Pooler, D.J., Farney, S.D., 2004. *Global Purchasing and Supply Management*. 2nd ed., Chapman & Hall, New York, NY.
- Quintens, L., Pauwels, P., Matthyssens, P., 2006. Global purchasing strategy: conceptualization and measurement. *Industrial Marketing Management* 35 (7), 881-891.
- Ritter, Th., 2000. ‘A Framework for Analyzing Interconnectedness of Relationships. *Industrial Marketing Management* 29 (4), July, 317-326.
- Rozemeijer, F.A., 2000. ‘Creating Corporate Advantage in Purchasing. Doctoral dissertation, Eindhoven University of Technology (NL).

- Rozemeijer, F.A., Van Weele, A.J., Weggeman, M., 2003. 'Creating Corporate Advantage Through Purchasing: Towards a Contingency Model. *The Journal of Supply Chain Management* 39 (1), Winter, 4-13.
- Seigel, J. T., 2004. How Federal Signal buys. *Purchasing* 133 (15), 50-54.
- Smart, A., Dudas, A., 2007. Developing a decision-making framework for implementing purchasing synergy: a case study. *International Journal of Physical Distribution and Logistics Management* 27 (1), 64-89.
- Stuart, F. I., 1991. Purchasing in an R&D Environment: Effective Teamwork in Business. *International Journal of Purchasing and Materials Management* 27 (4), 29-34.
- Syson, R., 1992. *Improve Purchase Performance*. Pitman Publishing, London (UK).
- Trautman, G., Bals, L. Hartmann, E., 2009. Global sourcing in integrated network structures: The case of hybrid purchasing organization. *Journal of International Management* 15, 194-208.
- Trent, R. J., 2004. The Use of Organizational Design Features in Purchasing and Supply Management. *The Journal of Supply Chain Management* 40 (3), 4-18.
- Trent, R.J., Monczka, R.M., 1994. Effective Cross-Functional Sourcing Teams: Critical Success Factors. *International Journal of Purchasing and Materials Management* 30 (4), Fall, 3-11.
- Turnbull, P.W., 1990. A Review of Portfolio Planning Models for Industrial Marketing and Purchasing Management. *European Journal of Marketing* 24 (3), March, 7-22.
- Van Weele, A.J., 2002. *Purchasing Management: Analysis, Planning and Practice*. 3rd ed., Chapman & Hall, London (UK).
- Van Weele, A.J., 2005. *Purchasing and Supply Chain Management*. 4th ed., Thomson Learning, London (UK).
- Wagner, S.M., Johnson, J.L., 2004. Configuring and Managing Strategic Supplier Portfolios. *Industrial Marketing Management* 33 (8), November, 717-730.
- Wolf, H.-H., 2005. Making the Transition to Strategic Purchasing. *MIT Sloan Management Review* 46 (4), 17-20.
- Wynstra, J.Y.F., Ten Pierick, E., 2000. Managing supplier involvement in new product development: a portfolio approach. *European Journal of Purchasing & Supply Management* 6 (1), 49-57.

Impressum:

Herausgeber:

Bayerische Julius-Maximilians-Universität Würzburg
Wirtschaftswissenschaftliche Fakultät
Lehrstuhl für BWL und Industriebetriebslehre
Sanderring 2
97070 Würzburg

V.i.S.d.P.: Ronald W. Bogaschewsky

Erscheinungsjahr: 2010
Erscheinungsort: Würzburg