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Influencing Purchasing Positioning – Deriving a Model Based on Internal Factors

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Abstract

A purchasing organization is often questioned, when performance is not provided at the expected level. On the other hand a connectivity between performance level and so called positioning of a purchasing organization seems to be obvious. Technically spoken performance level is a result of an equation with input factors. The interesting question is how the performance level (output) is generated and which aspects influence the effectiveness (input) of a purchasing organization to optimize a as weak perceived purchasing division, rather than focusing on the output itself. Purchasing performance thus can be defined as the extent to which the purchasing function is able to realize its predetermined goals at the sacrifice of a minimum of the company's resources. The aim of this paper is to examine, which factors drive the individual set up of a purchasing organization to manage its performance level. The methodical approach is an executed internet and literature research of typical factors and review of a selected consultancy analysis approach. Based on the research and subsequently logical reasoning, partly supported by empirically executed programs 5 internal factors are deduced to establish a 5-axis model. Findings are that purchasing can manage internal factors to improve its performance level to a certain extent. These factors influence each other in a way, that a significant performance level improvement consists of all factors under consideration of definite requirements. The outcome of this paper will help decision makers in a structured way to draw attention to influencing input factors.

Key Words: Effectiveness, Efficiency, Internal Factor, Positioning Purchasing Performance Level,

JEL Classification: L22, L62

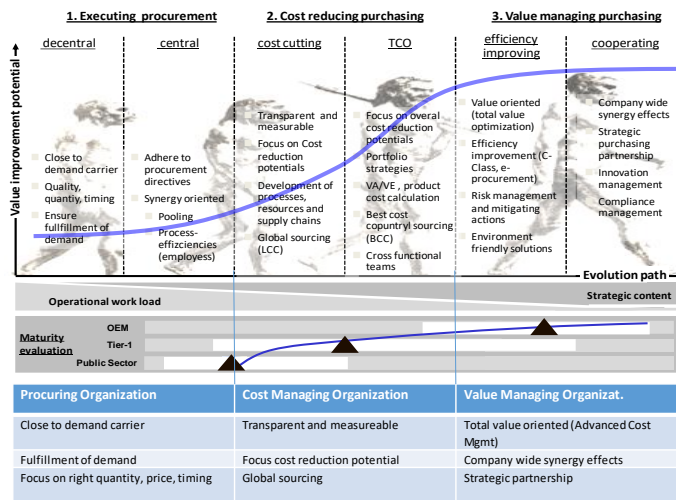
1. Introduction

Aim of the paper and hypothesis

In modern organisations corporate objectives are broken down to each division following a balanced scorecard principle. To that effect purchasing has to transfer and reach its derived goals (e.g. savings, risk management, quality improvement, innovation management, etc.). Goals depend on corporate's market and positioning along value stream and thus vary in details between organisations. According to H. Andrae (2012) objectives of a metal manufacturing organisation for instance may differ from those of a service company.

In general Schifferer (2001) points out purchasing activities can be distinguished in two fields of action: operative and strategic. Operative work mainly covers day to day business in terms of purchase order handling, whereas strategic work is long term and value contributing orientated like installation and development of a supplier structure or material cost effect planning. Though the best developed organizations have marched along a recognizable evolution path, not all have reached the final status of a value managing organization.

Figure 1: Typical evolution steps of Purchasing and corresponding competencies, source: Author



Achievement of evolution status differs between industries and automotive companies at OEM level are the most progressed. Even at this highest developed level there is still operational work but strategic work content dominates. According to Barlow R.D. (2016) modern purchasing organizations should aim for value managing approach. Value managing stands for a cooperating and an efficiency improving culture and requires clear internal (within corporation) and external (to supply base) communication and an entrepreneurial thinking about corporate business model. Thus management ability for innovation, risk, compliance and of course holistic value improvement rather than particular cost optimization is required to reach respective performance level.

In order to measure and evaluate fulfilment of performance requirements level of modern aspects of performance should be identified, which describe purchasing set up holistically and allow an evaluation.

According to Hofmann et al (2014) generally quantifiable measures e. g. savings, improved quality, reduced transportation costs or number of orders issued per period are often recommended to valuate performance level, "... as there are a number of performance measurements that businesses can use when they measure purchasing performance.", mentioned by Murray (2016).

These measures describe the performance output, the effectiveness of a purchasing organization. Technically spoken these measures represent a performance level as a result of an equation with input factors, whereas the above mentioned quantitative measures are output factors.

The interesting question is how the output is generated and which aspects determine the effectiveness level, in order to optimize a for example as weak measured output factor by corrective actions, instead of focusing on the output factor itself and manipulate performance from the output side.

Most commonly purchasing as a whole and especially internal factors face external factors which summarize environmental parameters of the entire enterprise (e.g. market, corporate organization, economy embedding) which, following a top down approach, have an impact on purchasing positioning and orientation. Elaboration of external factors is subject of another publication of Barth (2018).

The aim of this paper is to work out a set of input factors accountable for effectiveness which are eligible to influence performance level of a purchasing organization.

2. Current state of the issue under examination

Main objective of a literature research was to identify current status of research on factors, which impact level of purchasing performance. Out of numerous publications, a selection with typical predictions will be introduced. Keough (1993) reveals 5 barriers (poor information, weak administration, missing skills, lack of performance measures, purchasing low status) blocking organizations to move to strategic purchasing which leads to Carter’s et al. (1996) question:” Is purchasing really strategic?”, where he carried out that strategic purchasing depends on competencies, tactics and strategy. Since purchasing organizations marched a long way and globalization

enforced revised strategic lay out of organizations, which is mostly acknowledged in industry. In a more up to date paper van Poucke (2016) verifies the direct performance implication of purchasing maturity growth for social and economic related sourcing outcomes by proofing the correlation between organizational development stage and performance level, Hughes et al. (2016) render that purchasing especially for intangible assets needs to drive values and thus has to reevaluate strategies of the past towards the needs of an increasingly innovative driven and service-oriented economy. Adams (2005) examines a connectivity of purchasing performance and company size and spend volume. Further publications e.g. De Waal et al. (2015) explore high performance partnerships related to high performing organization. Handfield et al (2015) link internal stakeholders need to supplier performance agreements, Lopez (2016), worked out a lack of department aligned strategies and Sharaaz (2016) considered inflation as profit influencing.

Supply chain management related publications link improvements to selected methods and tools. For example, Burroughs (2016) recommends alternative sourcing, Chia-Min examined transaction costs to achieve goals of cost minimization. Billington (2016), and Thompson (2016) reveal in their research the necessity of supplier relationship as a value managing strategy.

Consultancies offer their capabilities on homepages, where they publish recently successfully finalized cases. The information provided advertises the achieved objectives and provide facile information about the initial approach applied. This could be due to the fact, that consultancies do not wish to publish and share details of their unique selling approach. An integral view on approaches is also not provided.

Though it is not explicitly mentioned, the essence of the introduced publications is that purchasing performance correlates with certain internal (within the purchasing organization sphere) and external (outside purchasing sphere) impact factors. Despite the need for a holistic view, the authors focus only on one or the other specific factor which proof evidence in the respective research area. Instead a set of factors, which helps to describe the positioning of a purchasing organization entirely is required to enable to select a project specific feasible cost optimization approach and is elaborated in this paper.

3. Methodology and research design

During writing this paper multiple methods were applied. The examination is based on a qualitative research of necessary information by an executed internet and literature investigation of typical internal factors from available consultancy information, journals and expert literature. The findings were mirrored with the experience and knowledge of the author. Following a review of a selected consultancy analysis approach was conducted and discussed to deduce 5 internal factors to establish a so called 5 axis model, which serves to explain influencing parameters of effectiveness of a purchasing organization.

Logical reasoning is applied to derive a hierarchy among the individual exposed factors. Subsequently each factor is discussed based on a further literature research and expert knowledge partly supported by empirically executed programs.

Finally the synthesis of knowledge, analysis and deduction helped to carry out measures which are designed to overcome factor inherent challenges and formulate conclusions.

4. Internal Factors

Aspects, which influence the output factor of purchasing performance as input factors are point of interest of this paper. These input factors account for efficiency as enabler for effectiveness, whereas last named can be measured as output in quantifiable absolute or relative so called key performance indicators (e.g. savings amount, savings ratio [= savings vs. purchasing spend]). Purchasing performance thus can be defined as the extent to which the purchasing function is able to realize its predetermined goals at the sacrifice of a minimum of the company's resources (i.e. costs, manpower, time). In this sense ratio of efficiency and effectiveness define performance and are purchasing objectives. Initially aspects for efficiency shall be discussed to define purchasing specific input factors as they are the enabler for effectiveness

E.g. PA Consulting (2007) recommends a procedure as initial analysis in their introduced QuickScan SCM approach with a focus on the aspects of strategy, resources, processes, organization and technology. The

QuickScan serves to establish a qualitative organization profile for analysis of critical points. Regrettably this proposal omits the aspect of methods and tools applied or at least does not clearly differentiate these to processes. Methods and tools should therefore be considered. The aspect technology is used in the sense of system platforms and can be replaced by the notion “systems” and should be closely linked to processes, as processes are represented by systems. Term resources should be replaced by phrase employees by meaning of attitude and competencies (see chapter attitude and competencies).

Table 1: 5 aspects of purchasing performance

Employees	Tools & Methods	Organization	Strategy	Systems & Processes
Number, Attitude, Competencies	VA / VE, Global Sourcing, Cost Analysis, Supplier Marketing	Central / Decentral, Matrix / Line, Maturity level Cross functional, Ballanced Score Card	Commodity structure, Embedding in Corporation, Sustainability	ERP, KPIs, Benchmark, Processes

Source: Author

Table 1 displays these 5 aspects by complementing typical descriptive key elements as mentioned by Barth, J.A. (2016). Strategy, Employees, Organization, Processes & Systems, Tools & Methods are enabler for purchasing effectiveness of modern purchasing and can be seen as 5 axis to help determine the positioning of purchasing. They can be estimated as internal factors, which design appearance and perception of a purchasing organization within an enterprise and which are to a great extent modifiable by purchasing itself.

These factors should not be seen isolated. In fact they interact among each other and each of them influences purchasing performance level (see figure 4, page 14), which in general is measured in quantified indicators (KPIs) in saving contribution or EBIT improvement.

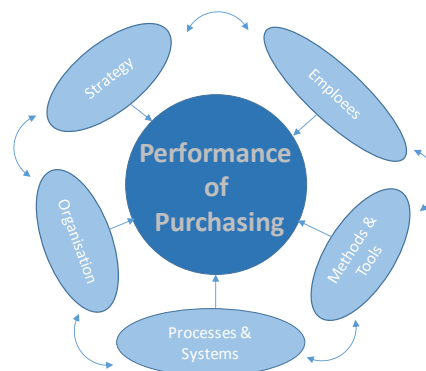


Figure 2: 5 Axis model on internal factors, source: Author

In the following chapters these factors will be introduced and further analyzed, starting with factor strategy.

4.1 Strategy

As we learned in the previous chapter, strategic work elements dominate working content at a high development stage. Thus we have to have a look into strategies.

According to Gabler Wirtschaftslexikon (2016) strategy is defined as: „... fundamental, long-term behavior (combination of measures) of the company and relevant sub-areas in relation to their environment to achieve the long-term goals.“ Wirtschaftslexikon24.com (2016) mentioned that in this respect besides long term short term

goals can be considered as well. The phrase derives from old Greek word art of war and meant to vanquish someone by cunning ruse.

In free market economy strategy is understood as thinking in competitive advantages. In terms of purchasing literature does not clearly assign a purchasing strategy definition, actually the notion is used in connection with sourcing and provision.

Wannenwetsch (2014) uses strategies of sourcing along supply chain pyramid (from OEM to Tier-x suppliers) which fit with the respective objectives of each pyramid level (e.g. partnership, quality, material cost). Heß (2016) uses the phrase supply strategy to stress cross functional approach of disciplines (e.g. logistic, marketing, quality, engineering) within an enterprise to ensure provision of goods and services and to manage the supply chain interface. Inverto Consultancy (2016) also does not entitle a clear definition, but describe the necessity to work out a sustainable strategy to improve enterprise value level by enhancing organization's performance. PWC (2015-2016) widen performance range by considering questions of ethics, ecology and social integrity from shareholders point of view.

In summary mainstream definition of purchasing strategy can be understood as provision with goods and services, at which characteristics of strategy refinement depends on leveling in value chain and embedding in corporate organization, which determines level of performance.

This leads to the conclusion, that strategy refinement depends on factors, which form the living of a strategy. Typical factors are the before already introduced aspects: employees, organization, processes and systems, methods and tools.



Figure 3: Model of purchasing performance aspects of modern purchasing, source: Author

All 5 aspects together determine performance level in the sense that a high developed purchasing organization requires high developed characteristics of each aspect. Moreover all aspects are linked together and influence each other. Central turning point is strategy refinement, where all other aspects need to align with. Especially in a developing purchasing community a close dovetailing of all aspects helps to evolve purchasing further.

A modern purchasing organization should live on clearly defined and communicated strategies, which are aligned with corporate objectives.

In order to provide value to corporation at the highest level, considering objectives and strategic and operative work elements, employees gain an important role and will be discussed in next chapter.

4.2 Employees

Dachrodt (2014) mentioned that success and performance highly depend besides others on personal engagement and involvement of purchasing individuals and underline the importance of productive factor “*human being*”. Thus buyer's skills and personal characteristics are attached to high importance in order to achieve performance and a modern purchasing organization requires individuals with certain attitude and competencies.

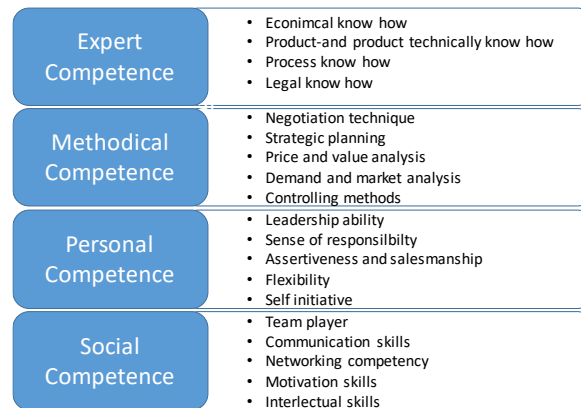


Figure 4: Purchasing employee 4 competence fields, source: Autor

There is no clear definition nor clear differentiation between attitude and competencies in literature. Hirschsteiner G. and di Pesaro S.G. (2011) describe based on an analysis of job advertisements competencies and key qualifications, whereas last named is in turn influenced by personal condition. Richard J. and Sultan D. (2012) distinguish 4 competence fields (social, personal, methodical, technically, see figure 3) of which personal and social competence could be construed as attitude. Other simply formulate profile of requirements in general. Gulp (2006) requests personal abilities and technical skills.

In further examination we will focus on soft and hard skills and represented by the use of phrases attitude and competencies.

Attitude means behavior and characteristics of individuals and is also sometimes defined as soft skill. Attitude represents educated preferences or certain personality traits, which form the personality of a human being with behavioral preferences.

Competencies stand for functional or technical acquired know how and knowledge an individual has gained through education and are so called hard skills.

Soft and hard skills do not entail each other. Open personalities are not necessarily good in moderation or even leadership. In fact some behavioral pattern and attitude towards life can be trained, but personality and preferences will in generally remain preset. Attitude and individual character determine behavior and affinity towards certain fields of interest. E. g. an introvert person will rather prefer reservation than eccentric outgoing and subsequently will look for an equivalent working environment. Attitude and competencies will be regarded in this sense.

The challenge is to identify the right set of attitude and competencies for a purchasing position. On the other hand especially in a society with a small fertility rate of 1.4, according to Bundeszentrum für politische Bildung (2016), like in Germany, Scholz R. (2016) forecasted a shrinking population with an aging, where in 2035 more than a third will be older than 60 years situation will become more difficult. Situation is attended by lowest unemployment rate since German reunion of 6,4% in 2015, meaning less than 3 million people listed at the employment agency. These circumstances will influence employment market: less talents will be available and candidates with long year experience will become rare on the market.

Consequently according Gastermann M. (2011) the requirement of purchasing divisions is to communicate and advert the attractiveness of a buyer position and to win in the fight for talents.

4.2.1 Attitude

As the industrial world becomes more and more global, an international orientation is mandatory. Foreign language English at minimum is a must. Emerging markets like BRIC-states, but also global players in Asia, the USA, South America and western European countries demand further language skills. Especially in a mainly

internationally exporting country like Germany with also international supply chains global language orientation is mandatory. Besides the language also cultural know how about international conventions and habits is appreciated. Thus interracial open minding, international interest and willingness to travel are further optimal prerequisites.

In larger corporations purchasing has a lot of interfaces and contacts. Individuals should have ability to understand thinking and objectives of diverse company disciplines like finance, engineering, marketing, quality. A clear view, entrepreneurial thinking and the ability to compromise purchasing objectives help too. More over a buyer will participate and most likely lead internal and external meetings, has to convince colleagues and suppliers for his ideas. An extrovert personality with a friendly character and leading ability will surely easier convince people and achieve targets.

As a purchaser has to coordinate between suppliers and corporation he normally has a lot on his shoulders. According to this one should be able to work under partially enormous pressure and still be able to focus and concentrate and to cope with resistance. Acceptance of frequent overtime hours is beneficial.

Also intellectual curiosity and ability to get rather quickly acquainted to new subjects help to explore new markets and technologies. The ability to question actual processes and established structures suit expectations. Last but not least travelling willingness is a major requirement to purchasing candidates.

4.2.2 Competencies

Nowadays an academic degree can be seen as mandatory. Staufenbiel, Schenkelberg E. (2012) see requested fields in business administration or as simultaneous study combination of business administration and engineering in the area of mechanical or electrical engineering. Alternatively an expert specific education is required. According to BME Income survey 2016 almost 30% of purchasing employees obtained a specific education whereas the ratio of academic grades (BSc., Master, German Fachhochschule, PhD) amounted to 60%. Positioning with well educated experts seems to be close to most possible extent. Professional experience in years is required.

Know how in IT-, ERP- and PPS- systems, and MS-Office and internet application skills are also requested.

Market insights, international economic and political grasp, know how in legal contracts and trade, overview about currencies and actual incoterms are main commercial proficiencies. Hirschsteiner G. Pisario M. (2011) emphasize business fluent English language skills are a must on an international platform, preferable is a second foreign language. Ability to get quickly familiar with foreign subjects, working in cross functional teams especially with technical departments is highly appreciated.

Further competencies are expected in leadership, moderation, presentation and negotiation. Also understanding of customer requirements and technical requirements and specifications gain importance as organizations tend to award purchasing with the creation of specifications. Know how in production and quality complement field of competencies.

Finally buyers should know and apply latest tools and methods in purchasing.

It is very important to understand, that purchasing employees have to manage various interfaces internally in corporation to affiliated departments and externally to supply base. Interface management of internal customers and external service providers and manufacturing companies composes a specific set of requirements, which depends on various parameters like:

- Market field of corporation
- Product (manufacturing or service)
- Size of corporation (T/O, number of employees)
- Positioning in value chain (OEM, Tier-x)
- Reporting line and organizational structure of purchasing organization
- Commodity
- Market power of supply base

The requirements for purchasing positions may vary depending on company and commodity and thus attitude and competencies will have different characteristics also within the same company. Regardless the characteristics above mentioned set of requirements of attitude and competencies are generally common sense in industry.

To recap the expectations against a purchaser in terms of character and skills are very high and are comparable to a managerial position. Personnel needs to identify potential candidates for purchasing which suit the global personal requirements and are eager to live a purchaser role.

In a recently executed project client's company suffered from as poor perceived purchasing organization. Especially affiliated departments claimed missing service ability and assessed purchasing organization with bad reputation.

Table 2: Sample assessment matrix of purchasing employees, source: Author

Evaluation criteria	Employee 1	Employee 2	Employee 3	Employee 4	Employee 5
Target orientation	2	3	3	1	2
Ability for implementation	2	3	2	1	2
Cleverness	3	2	2	2	2
Strategic Thinking	2	2	3	2	2
Ability to prioritize	3	2	2	2	2
Entrepreneurship	2	2	2	1	2
Ambition	2	3	3	2	3
Open mindness	2	3	2	1	2
Proactivity	2	3	3	1	2
Teamwork	2	2	2	2	2
Leadership	3	2	3	2	3
Commitment	2	3	3	1	2
Deal of effort	2	3	2	2	2
Average Attitude	2,23	2,54	2,46	1,54	2,15
Ability of communication	2	3	2	2	2
Selfcontained work out a solution	3	2	4	2	3
Know How (Tools and methods)	3	2	2	2	2
Know How (commercial, technical, processes)	2	2	2	2	2
Power of argumentation	3	2	2	2	2
Power of persuasion	3	3	3	2	3
Average Competencies	2,67	2,33	2,50	2,00	2,33
Potential of development	2,45	2,44	2,48	1,77	2,24

1 - 5, 1 = very good, 3 = satisfactory, 5 = bad

Legende
very good - high potential
satisfactory
bad

An assessment matrix for purchasing internal evaluation was established with criteria to measure attitude and competencies. Most important is, that criteria selected fit to the specific requirements of respective company in the area of public power supply. The purchased commodities of the respective buyers mainly cover services. Companies of different industries will require a different set. The table displays an extract of the entire assessment. Criteria were established in a team of external experts and were selected in dependence of area of weaknesses claimed. Attitude and competencies were equally weighed.

In the end 60% of purchasing staff showed satisfactory or bad assessment results. Purchasing management used the assessment table to initiate counter measures as training on the job, job rotation and training sessions for reputational and performance improvement.

4.3 Organization

According to Arnold U. (1997) historically purchasing organizations were committed to operatively supply goods and services for the manufacturing process, which could not be produced in house, whereas strategic elements gain more significance. The VDMA-committee for business administration (2011) deduces a similar

definition but expands by considering best price procurement. Besides Holtmann J. (2016) defines main task of Purchasing organization as to become more flexible and faster, to develop purchasing towards new requirements and competencies. The bibliography of SAP defines purchasing organization as part of logistic and distinguishes three corporate hierarchies: corporate, company, and plant.

All reviewed definitions inhere in aligning the organization with corporate processes and predict an increase of strategic working content to suit the overall objective of cost optimization. Furthermore the authors accord with the fact, that different industries or branches and commodities require different organizational set up and the need for inclusion of purchasing in overall corporate objectives. In order to fulfill these objectives, direct and indirect purchasing should be divided into strategic and operative units broken down according commodities, customers or suppliers. Additional arrangements are project related (new business) or serial related (current business) purchasing organization. Separation of purchasing units depend on corporation size. A bigger company should bring efforts in establishing an organizational format on a higher detailed level, e.g. SM function of SD and SQ should be separated from line activities.

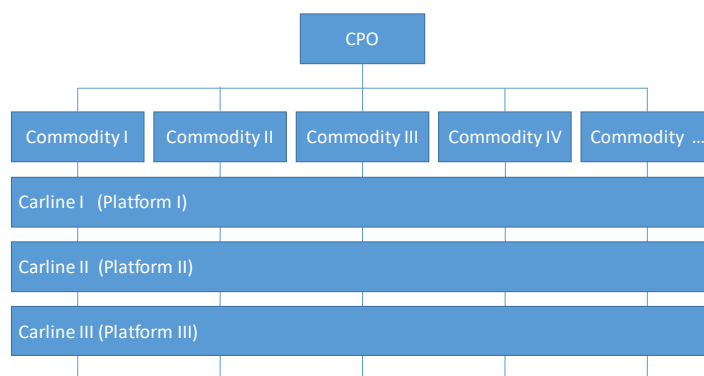
Meredith J. R., Mantel S. J. (2009) mention that in bigger purchasing organizations, most likely in an automotive environment, a matrix structure can be applied. The matrix often displays a net structure which in a vertical axis represents responsibility of commodity purchasing (e.g. components, parts) whereas the second axis structure represents cross components purchasing responsibility (e.g. carline, platform).

In automotive industry the notion commodity organization for vertical and platform organization for cross commodity responsibility have become common. Commodity managers need to focus on their commodity and typically handle commercials specifics, whereas in a matrix design a purchasing carline manager has to obtain a cross commodity holistic view.

He usually is less committed to specifics but ensures meeting of business objectives within carline and coordinates with commodity organization. In general the commercial purchasing power and typical purchasing activities are with the commodity managers.

Another organizational aspect is centralization vs. decentralization. Though advantages of purchasing power by centralization should compromise with flexibility of a decentralized organization. Especially in the automotive sector the lead buyer concept is an example of powerful centralization in serial production.

Figure 5: Typical matrix organization in automotive industry, source: Author



As organizational structure should represent processes, and processes are anchored cross departmental wise cross functional cooperation with affiliated departments gains major importance. Thus organizational set up should consider and enable cross functional team approach, e.g. interdepartmental projects or even in a project organization.

Next chapter will examine typical requirements of processes and systems of a purchasing organization.

4.4 Processes and Systems

In this thesis processes are estimated as procedures of provision of an industrial enterprise, whereas systems are electronic based auxiliaries to support processes.

4.4.1 Processes

According to Profirm professional, there are 4 general requirements, management processes have to fulfill: effective (cost reduction), efficient, controllable and rectifiable for people involved, adjustable to process environment.

Purchasing can be regarded from top corporation level as superordinate management process. According to the organizational requirements explained in the previous chapter, Höveler B. and Laakmann J. (2016) identified three typical core processes (strategic-, operative-, SM-processes), which shall be supported by dedicated methods.

A similar explanation is provided by University of applied sciences Darmstadt (2009), which reduces the definition to two streams in strategic and operative purchasing processes (see figure 9, page 26) and puts focus on single procuring activities along a typical value stream. Although meaning of processes in this thesis is to focus primarily on those selected procedures and requirements, which set a frame for activities and ensure achievability of the overall purchasing objective cost optimization.

Referring to the above in this chapter mentioned 4 requirements, it can be taken as self-explanatory that successful purchasing organizations achieve higher level of effectiveness by aligning their structure with processes according to BME (2015).

Internal and external procedures should be clearly defined. Documentation, transparency, communication enable for adherence of processes and are mandatory to ensure living and efficiency of processes. E.g. incidents of maverick buy stand for disregard of procurement procedures. Dietrich J. (2012) refers to an example in industry of more than 30% maverick buy ratio and caused by 3 types of maverick buying (no or late purchasing involvement, existing contracts not utilized) and the benefits of process adherence. Very often these incidents are not transparent in companies which modern organizations avoid.

Controlling processes are vital in modern purchasing organizations. In order to measure level of efficiency and effectiveness controlling instruments should be established as kind of steering cockpit. According to Decker H. (2013) indicators should cover KPI measures in two dimensions:

1. Internal performance measures (organization)
2. External measures (Supply chain)

If connected with an ERP-system a cockpit can pull and aggregate data to provide clear overview about documents, workflow and has ability to combine processes. Comparison of indicated with corporate history data or market benchmarks allow location decision and enable for corrective action(s), most preferable in team with cross functional partners.

Corporate organization should involve purchasing at the earliest possible stage to consider cost effects earliest possible in product development process and life cycle and live processes cross department borders.

4.4.2 Systems

Systems support enterprises to consistently live and maintain processes. Especially ERP-systems are business related software solutions to map controlling on corporate processes. They should provide functional access with clear access authorization. Systems should span across departments and allow smooth process flow on a cross functional basis.

Various systems are offered for SMEs whereas SAP is the biggest European Software producer and the largest provider of ERP-Software in the world with almost 300.000 users according to SAP homepage (2016).

Also Microsoft offers ERP-systems which covers main business processes which are tailored to SMEs. Major suppliers offer cloud solutions additionally.

Supplemental various specific systems are offered to fit additional functionalities in purchasing which are also supported by cloud solutions and focus on specific purchasing processes so called eProcurement platforms. Hochschule Darmstadt (2009) mentioned greater objective of eProcurement implementation as:

- Finance goals (reduce failure and process cost)
- Information goals (gain more transparency)
- Process goals (streamline processes)
- Market goals (achieve better prices)

Exemplary following functions shall be mentioned: Source to contract, eCommerce, eSourcing, Procure to pay, SRM, Spend and purchasing intelligence according to Synertrade which represent the majority of market available functionalities. In detail the systems contain among others purchasing processes, supplier marketing tools, auctions and inquiries, catalogue management and ordering and payment systems as mentioned by Lemme M. (2009). Stollenwerk (2012) adds electronic data exchange (EDI), market places and homepages.

According to Theisinger F. (2012) systems improve purchasing performance level once they are as well integrated in process and system landscape as accepted and consequently used by employees.

It appears extremely important to have systems in place which provide data transparency and enable analysis and strategic conclusions on an interdepartmental basis.

4.5 Methods and tools

Literature does not clearly distinguish between processes on the one side and methods on the other side nor does a clear formulation for methods and tools exist. E.g. Sarikay D. explains methods for cost reduction in a metal-working medium-sized enterprise using the phrase process. Höveler and Laakmann (2016) explain core processes based on methods and identified lack of methods leading to a poor living process culture and lower purchasing performance.

Hahn (2002) instead uses the phrase instruments and mentions various methods and tools for cost optimization as target costing, make or buy analysis, TCO, re-engineering of supply chain management. The VDMA committee of Purchasing and materials management (2011) explains the need for specific tools as so called satellite themes over the existing basic tools like commodity strategy, demand planning and supplier management, which ensure general task to procure goods in right quantity and quality, at the right time and at best price as so defined core themes. Supplier development, advanced sourcing, value engineering and price or cost driver analysis are nominated as sample satellite themes. A further important cost optimization tool is from the authors point of view early purchasing involvement. According to Stollenwerk (2012) an early involvement bears a very high potential of influencing material or engineering costs, which account for almost 90% of following spend. Lemme (2009) on the contrary speaks of concepts and activities of cost reduction. Exemplary be alluded to ABC- and XYZ-analysis, diverse cost calculation methods (prices, logistic costs, price-quantities, etc.) and sourcing techniques. At the third BME-Forum (2013) quite similar cost reduction topics were highlighted from a practical environment with the aim to develop purchasing towards value managing: Global sourcing, negotiation, process cost design.

Various consultancies specialized in purchasing optimization offer a range of proven tools and methods for cost optimization. For instance McKinsey & SMI (2004) expose best practice processes referring to tools for sourcing, total costs for all categories and negotiation. Schuh et al (2008) invented the purchasing chessboard recommending 64 levers for cost optimization based on a portfolio analysis, which are basically divided in 4 categories: Sourcing concepts, specification adaption, partnership approach and utilizing competition. Besides the above mentioned big strategic consultancy players smaller specialized in purchasing also offer quite similar

approaches and can meanwhile partly be estimated as standard. The difference is in utilization in varying industries and diverse sizes of enterprises. According to All about Sourcing (2015) most consultancies see their instruments as strategic element to reach sustainable savings and develop purchasing towards value managing department.

In the course of this thesis method and tools shall be understood as measures, which support superordinate processes and are primarily eligible or directly support cost reduction effects. In this context we will stick to the term method and tools whereas the notion tool is understood as subordinated specific activity to a certain method. In chapter 5 selected value levers will be evaluated for best cost reduction approaches whereas in this chapter methods and tools and respective expectations towards these are introduced.

Recommended methods applied should be in line with overall goal of enterprise and suit purchasing strategy. Methods are not categorized and selection and application of them depends on focal point of consultancy. As there is a plurality of methods available in the market the most recent shall be mentioned in a categorized order at this point:

Table 3: Typical cost reduction methods and tools

Method	Tools	Benefit
Cost analytic	Product costing, target costing, total cost of ownership, supplier workshop, material cost analysis, specification analysis, LPP, Regression analysis, VA/VE, standardization	Transparency in material, product and value chain costs, identification of cost drivers and saving potentials
Sourcing concept	Global sourcing, single/dual/multi sourcing, make or buy analysis, eTools (e.g. eAuctions), technical concept competition, volume bundeling, purchasing cooperation	Expanded supplier market, improved market prices
Negotiation	Contract, payment terms, duration of agreement, intellectual property, terms & conditions,	Improved market prices
Purchasing power	Early purchasing involvement, prevent Maverick buy	Cost reduction at early development stage, responsibility of spend
Working capital optimization	Inventory optimization, call off optimization, delivery time optimization,	Improved inventory cost
Supportive	ABC/XYZ-analysis, Pareto-analysis, portfolio analysis	Spend and cost transparency (suppliers, products, material, services)

Source: Author

The table divides the in forefront discussed tools and groups them according their methodical orientation. Six main methods cluster were identified and cover the typical purchasing activity range. The displayed methods focus primarily on savings contribution and, or, allow strategic planning of purchasing spend (e.g. suppliers, goods, services), if applied coherently. Especially the as supportive classified tools enable for prioritization and make a deductive conclusion even possible. Methods can be applied to goods, services and processes for improved cost efficiencies, competitive advantages or lean processes and should consider the effect of sustainability.

Methods and tools have an extraordinary importance as they stand for target oriented activities for cost reduction. Reverse if not applied properly or only to certain extent, enterprises may suffer from weak purchasing performance or even fail.

5. Result

This paper carried out 5 internal main and respective sub factors, which highly influence purchasing performance and drive the effectiveness of an organization by adjustable efficiency parameters. Based on the 5 factors a so defined 5 axis-model was composed which shows, that the introduced factors obtain an interactive effect in the sense that an isolated modification of one factor does not imply a significant performance lift. Quite the contrary a substantial performance lift is achieved by an improvement of all factors. Though all factors have an impact, the most important tends to be factor employees. Though factor strategy is the broad and other factors embracing performance factor, quality and ability of strategy execution and smart application highly depends on competence and attitude of employees (compare assessment results of empirical project). Therefore the factor employees should be of particular importance and be awarded with special attention. Factor organization should help, based on consideration of the size of the enterprise, to establish best fit set up (centralized vs. decentralized, matrix vs. project organization) to enable cross functional team approach at its best. Sub factor processes is the only by so called KPIs quantifiable actuating variable which offers corrective action if monitored and tracked for example within an ERP-system, whereas sub factor systems requires stringent application by users. Modern tools were clustered according their respective corresponding method and a table set composed, finally showing potential benefits per method and tool selected. Interestingly all internal factors can be altered and manipulated by purchasing to a certain extent, given the organization is empowered to manage their business division as possible independently of other department direction (e.g Purchasing reporting to Finance).

The carried out 5 internal factors have a significant impact to purchasing organization effectiveness and are eligible to improve performance level of purchasing. The derived recommendations per factor indicate fields of actions to help for a target oriented performance improvement.

6. Study limitation and conclusion

There are a lot of parameters which can impact a purchasing organization. The aim of this paper was to classify internal factors, which comprehensible impact the performance level (output) of a division and which seem to be eligible to help analyze purchasing positioning. Sources like consultancies generally do not provide detailed insights about approaches or do not publish in depth analysis information, due to the fact, that consultancies do not want to spread their knowledge. This attitude underlines the necessity of a sound and holistic positioning understanding. Nevertheless one approach available from author's network was analyzed, and based on comparison to the need of modern purchasing and knowledge a 5 axis model deduced. The factors carried out serve primarily in the automotive and machinery sector, where global market conditions apply. However industries with similar market approach could benefit as well from the findings. The introduced internal factor process usually is steered by quantifiable measures (so called KPIs = key performance indicators) and deviation from objectives allow counter measures. In order to enable for holistic target oriented counter actions, qualitative characters of features should also be transferred in a manner, that quantifiable measures can be derived.

A modern established purchasing department can contribute sound benefits, e.g. savings, market insights, new technologies to an enterprise and even more manage value efficient. For that purpose a set of certain requirements needs to be fulfilled with the introduced 5-axis model of performance:

- Corporate wise aligned purchasing strategy
- Well educated and globally oriented employees
- Netted organization and reporting line to C-Level
- Corporate wide integrated systems and living processes
- Knowledge and application of modern methods and tools

If all internal factors are managed well the need for improvement or external help by consultancy is rather low. Reality often shows differently. One missing element can cause potential risk to fail or underperform and to give up market position.

In order to improve the level of performance these internal factors need to be analyzed at an early stage. In a subsequent step the internal factors should be evaluated, which forms a picture of purchasing positioning based on internal factors. A three step process should be followed:

1. Analysis of 5 internal factors (Strategy, Employees, Organization, Method and Tools, Processes and Systems)
2. Deduction of challenges and counter measures
3. Design and implementation of target oriented counter measures

By adhering to the above introduced process, an efficient cost optimization program with a minimum sacrifice of resources will be ensured.

Besides the internal factors external factors should also be considered. The examination of external factors and their contribution to purchasing positioning will be carried out in a separate paper.

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