



INNOVATIVE PROCUREMENT IN A SMALL/MIDDLE SIZED COMPANY

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ABSTRACT

Purpose- This study benchmarks the procurement practice of a small/medium sized company in Turkey with the procurement practice of a world-class company. First it is analyzed from beginning to end how the small/medium sized company operates its procurement function. The figures and tables are all real and obtained from sources of the company.

Methodology- The results are analysed and compared with a world-class international company. The procurement functions of the company studied under the scope of supply chain management are Demand Planning, Inventory Challenge, Supplier Approval, Supplier Performance, Supplier Relationship Management (SRM), Negotiation, Payment, Cost, Market Follow-up, Process Analyses of the Purchasing Activity, E-Auction and Kraljic Analyses (risk analyses).

Findings- We have recommended some structural changes to the company especially with the procurement process analyses. Some concepts and practices are new for the company as E-auction and Kraljic analyses. A contemporary understanding of procurement and its practice is a crucial progress and strategic vision for a small/middle sized company to have competitive advantage in the market.

Conclusion- All the findings and recommendations for the company within this study which can be called as case study are related to concept of innovation as referring to changing processes or creating more effective processes, products and ideas.

Keywords: Innovation in procurement, supply chain management, demand planning, purchasing process, supplier relationship management.

JEL Codes: F14, F68, M31

1. INTRODUCTION

We analyzed, by this study, the structure and operation mechanism of Procurement Department of a small/middle sized company (called SME) in Turkey with the criterias of contemporary Supply Chain Management. The procurement function of the SME is benchmarked with procurement function of a big international company; from now on we will call this company as World-Class Company (WCC). If we define the concept of innovation as referring to changing processes or creating more effective processes, products and ideas all the proposals and the applications here in this study are all innovation for the SME in Turkey or for the companies which do not apply them to their bodies all over the world. Innovation can be a catalyst for the growth and success of a business, and help to adapt and grow in the marketplace.

Being innovative does not only mean inventing. Innovation can mean changing your business model and adapting to changes in your environment to deliver better products or services.

Dr. Makarand “Chips” Chipalkatti, Osram Sylvania defines innovation as “a process to bring new ideas, new methods or new products to an organization”. Jonathan Rowe, Gene Express Inc. defines it as “an innovation is an idea that has been

transformed into practical reality. For a business, this is a product, process, or business concept, or combinations that have been activated in the marketplace and produce new profits and growth for the organization. Therefore, something is an innovation not simply because it is new to that company, but because it is simply new.”

Main parts of the study consist of 3 important areas which are Demand Planning, Supplier Relations Management and Purchasing Process. Finally we finish the analysis with some strategic and holistic recommendations which are integral parts of World-Class Company (WCC) profiles.

To have an excellent performances of a Procurement Department aligned with the objectives of the Company, all the functions of the company (Finance, Research&Development, Planning, Logistics, Quality, Budget, Accounting, Production, Sales, Human Resources and Marketing) should be in permanent coordination with the Procurement Department. In other words the Procurement Department should be in strict coordination with other functional departments of the company. This study provides the framework for delivering a supply chain strategy based upon recognised best practice focusing especially on the functions of Procurement. The companies are aiming to produce their goods with the cheapest cost to be one step ahead of their rivals in the market. If the Sales department of a company is an earning body of the company, the Procurement department or Supply Chain Management (SCM) in broader terms is the spending/paying organ of the company. Basically to sell your products in the market with the best price for both the company and the consumers you must produce your products with the best cost. If the Procurement department or Supply Chain Management (SCM) is well organised and uses all the innovative applications when it is compared to its rivals then the best price with the best quality can be presented to the consumers and customers by the company.

You will see in this study some applications of the SME and World-Class Company (WCC) comparatively when they operate their Procurement functions.

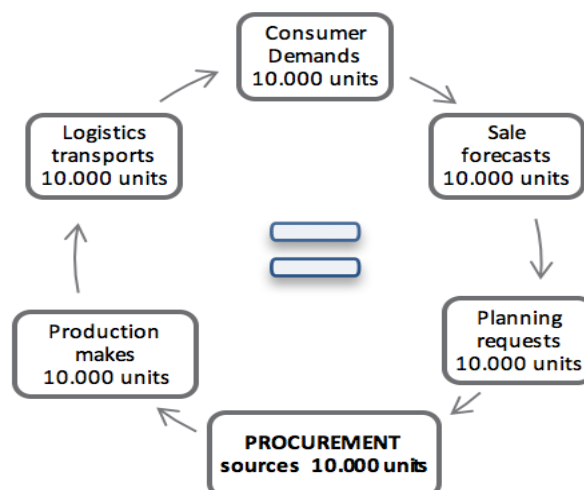
2. FIRST COMPONENT OF SUPPLY CHAIN MANAGEMENT AND/OR PROCUREMENT

2.1. Demand Planning

Demand Planning is critical: A company must forecast accurately to meet changing market conditions. The dilemma is that as the business grows, the reaction time available to adjust to changing market conditions diminishes dramatically. Your organization needs to get the product or service to its customers in the right time frame and at a competitive market price. Keeping pace with changing marketplace conditions is the only way that organizations can continue to maintain their competitive positions. If your organization is unable to fulfill your customers' needs, you can be assured that another organization will. Accordingly, procurement strategy, also dynamically linked to changes in the market, requires continual reassessment.

The first step is Demand Planning for a procurement process. It is the boss of Procurement and the Sale forecast is the source of Demand Planning. The information of “consumer” demand flows as below;

Figure 1: Flow of Consumer Demand



When it is looked at WCC you can see the above “absolute equilibrium”. There are some concepts which affects the key performance indicators of Procurement function and above equality:

2.1.1 Sales Projections, is it parallel to actual?

The reason of 25% of extra Planning demand is possibly wrong sales forecast or may be procurement limitations such as Economic Order Quantity (EOQ).

Table 1: An illustration for Sales Projections Forecast and Real Requirement Difference

| Material X (Units) | SME Facility A | SME Facility B | SME Facility C | SME Facility D | Total |
|---------------------------------|----------------|----------------|----------------|----------------|---------------|
| Planning Opens | 5.000 | 2.500 | 3.000 | 2.000 | 12.500 |
| Real Requirement/ Market Demand | 4.000 | 2.000 | 3.000 | 1.000 | 10.000 |
| Difference | +1.000 | +500 | 0 | +1.000 | +2.500 |

2.1.2. How is Economic Order Quantity (EOQ) determined?

SME decides EOQ with the limits of “minimum printing quantity for the packaging materials” and “minimum economic transportation quantity”. “Minimum printing quantity” for the packaging materials can decrease the unite price but increase the material stocks (slow stock cycle level) and also “minimum economic transportation quantity” can decrease the logistics price but again increase the material stocks (slow stock cycle level).

The solution:

The suppliers can print the economic and/or lot quantity in advance but not transport it to the SME by one print lot. On the other hand, if suppliers can be informed periodically about the monthly projections of possible order quantities then they can arrange themselves for “the most economic print quantity” and store them at their warehouses. The most important point here is that the gap between projections and actual production quantities should not be big.

Table 2: Stock Cycle Levels of SME

| Company SME | 2014 | 2015 | 2016 | 2014-2016 % Change |
|---|-----------|-----------|-----------|--------------------|
| Raw Materials Stock Cycle Level (day) | 11,08 | 12,61 | 12,31 | 11% |
| Packaging Materials Stock Cycle Level (day) | 41,54 | 39,55 | 42,05 | 1% |
| Total Stock Cycle Level (day) | 15,65 | 16,95 | 17,06 | 9% |
| Total Stock in Value for 12 Months (Mio TL) | 43,5 | 47,7 | 13 | |
| Mio TL/Month | 3.628.800 | 3.976.758 | 1.091.192 | |
| TL/Year Cost | 579.156 | 634.691 | 174.154 | |
| TL/Year Cost | 495.172 | 530.095 | 145.649 | |
| Saving TL/Year by Reducing %40 | 198.069 | 212.038 | 58.259 | |

2.1.3 What are the stock-cycle levels?

The stock cycle level is high in SME, nearly %70 when it is compared to WCC's. Procurement works closely with the Planning and Inventory Control groups to develop accurate forecasts to optimize inventory levels. The stock cycle levels should be calculated **daily** instead of **monthly** as it gives the exact results.

The big 2 questions: Who is responsible from "stock cycle levels" and how many days should the levels be?

The answer is that Planning Department is responsible for the minimum stock levels and they should be near to **zero**. "**Minimum stock-Maximum stock**" levels could be checked, determined and up-to-dated periodically by Planning and Procurement departments jointly. The concept of "Maximum stock level" is not used and applied in SME. The system should alert when minimum and maximum stock levels are passed.

Table 3: Stock Cycle Levels of Company WCC A, B and C

| Day | Company WCC "A" | 2015 | 2016 | Company WCC "B" | 2015 | 2016 | Company WCC "C" | 2015 | 2016 |
|---------------------|-----------------|------|------|-----------------|------|------|-----------------|------|------|
| Raw Materials | | 6 | 8 | | 11 | 10 | | 10 | 12 |
| Packaging Materials | | 14 | 12 | | 14 | 13 | | 8 | 6 |
| Average | | 10 | 10 | | 12 | 11 | | 9 | 8 |

2.1.4 What is the frequency of demand and patterns of demand (downward trend or upward trend, seasonalities)?

If the customer demand is forecasted well the frequency of demand is low (Daily, weekly, monthly production plan). The suppliers should be informed about the patterns of demand as they source their raw materials before upward or downward trends. SME should inform its projections to the suppliers monthly basis not quarterly.

2.1.5 Sales & Operations Planning (S&OP)

There should be "Sales & Operations Planning (S&OP)" meetings between Procurement, Sales, Marketing, Finance, Demand and Supply Planning departments (monthly-quarterly)

Aim is :

Step 1. From S&OP principles to improved forecast.

Step 2. From improved forecast to improved reconciliation of demand and supply.

Step 3. From improved reconciliation of demand and supply to improved customer service.

Figure 2: Different Planning Horizons



SME is not making this kind of meetings periodically and Procurement as a sourcing side should be an insperable part of these meetings.

In micro level:

- Sales Planning,
- Production Planning and
- Procurement

should make the meetings periodically to have **improved reconciliation of demand and supply.**

“Weekly Sales Planning Meeting” (SPM) and “Quarterly Business Rewiev Meeting” (QBR) is highly recommended.

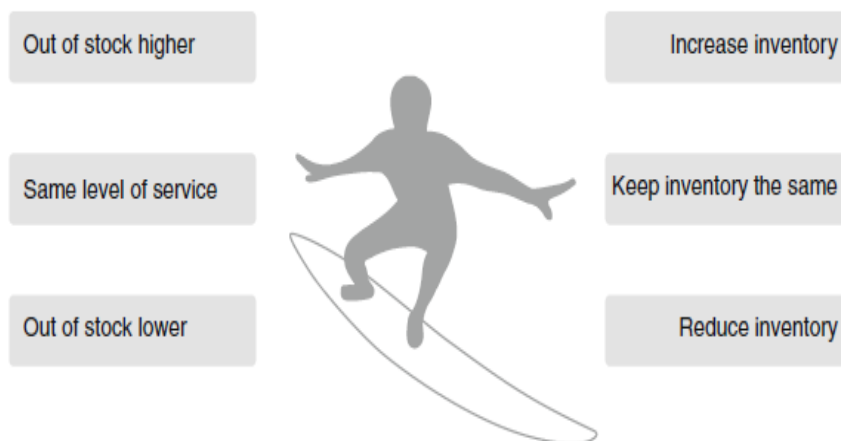
2.2. Inventory Challenge

2.2.1 Who is responsible from Inventory Management?

In SME case the responsible department is not certain as there is no regulation to follow. Inventory is high and out of stock is low.

Where is EQUILIBRIUM?

Figure 3: The Inventory Challenge



2.2.2. How can we reduce inventory?

- I. 1. Reduce lead-time, use VMI and CI, try to reach “zero stock”.
- II. 2. Reduce supplier uncertainty.
- III. 3. Reduce forecast error.
- IV. 4. Reduce delivery sequence.

Vendor Managed Inventory (VMI): It means of optimizing Supply Chain performance in which the supplier (manufacturer) is responsible for maintaining the buyer’s inventory levels. The supplier has access to the buyer’s inventory data and is responsible for generating purchase orders.

Consignment Inventory (CI): The supplier places inventory at a buyer’s location and retains ownership of the inventory. Invoicing is not made until the item is actually consumed.

A VMI relationship may or may not involve consignment inventory.

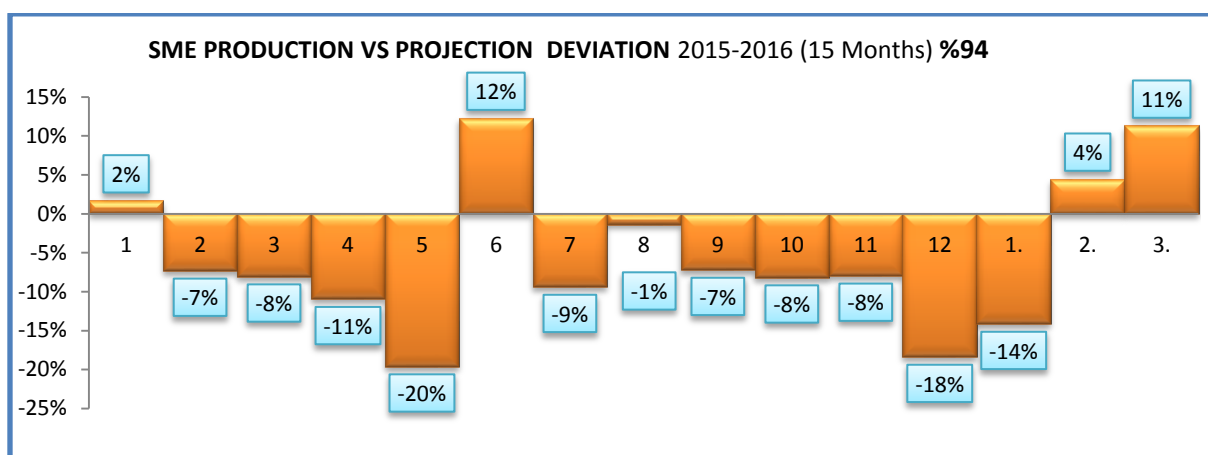
Big suppliers can be adapted to VMI & CI to reduce the stocks in SME case.

Inventory decisions include what cycle or safety stocks should be held, where and in what quantities.

SME Case: “Quarterly safety stock level revising meeting” is recommended held between Planning and Procurement Departments; Planning is responsible for the meeting.

Production vs projection deviation in SME is shown below.

Table 4: Demand/Projection Accuracy



Less production vs projections will increase the raw material stocks. Production and projection should be equal to real demand in ideal case.

2.2.3 Budget Control

All buyings (including investment and technical parts, promotions, marketing outsource) are budgeted before the calendar year in SME. **Question: does budget department follows the limits, what happens when a material is bought out of budget limits?** There is no limit control in SME and it should be controlled and not allowed to buy out of budget by the ERP system to minimise the extra stocks.

3. SUPPLIER APPROVAL AND PERFORMANCE

How does SME approve new suppliers? Is there any **formal process/system** of alternative suppliers approving, is it via paper or IT program? What are the functions of RD and Quality Departments in approving?

Current application in SME: Raw /Packaging Materials Trial Form (Hammadde/Ambalaj Deneme Formu) for **Sample Approving** and Supplier Introduction Form (Tedarikçi Tanıtım formu) for **Alternative Suppliers Approving** are in practise (paper based). **Supplier Portal** (Oracle based) and **Sample Approving System** which is Integrated approval system between Procurement, Quality, R&D can be implemented (EBA based).

The Benefits of web based system

- Both will be electronic based.
- There will be no paper, wet signature and physical archive.
- Save time.
- Accelerate the processes.
- Create institutional memory.
- easy to reach information.
- avoid duplication (no need to approve a new supplier or a product if it is already in the system).
- common platforms with the other departments, standardisation.

The 3 criteria for supplier performance in SME are Delivery On Time (OT), Delivery In Full (IF) and Quality. The points of Supplier Performance are scored as below:

Table 5: Suppliers Performance Points for SME (2011-2016)

| 100/100 | Total | Quality | Delivery In Full (IF) | Delivery On Time (OT) |
|----------------------------------|-------|---------|-----------------------|-----------------------|
| Suppliers of Packaging Materials | 76 | 97 | 89 | 29 |
| Suppliers of Raw Materials | 75 | 94 | 83 | 34 |

The shortcomings of Measuring Supplier Performance System in SME: **“Corrective and Preventive Activity” (CPA)** are not recorded in SAP by Quality Department. So the quality points are calculated higher than actual.

Table 6: Number of CPA in SME (2016)

| Name of Company | CPA 2016 |
|-----------------|----------|
| SME Facility A | 47 |
| SME Facility B | 21 |
| Total | 68 |

SAP is producing the report of Supplier Performance taking the data between 2011 and up-to-date (**for 5 years**) not for requested period of time. It should be taken monthly and yearly terms for evaluating the Suppliers' Performances to see the performance trends. This will enable SME to determine and follow some strategies for each suppliers.

Reduction is not applied in SME in case of Conditional Acceptance. According to quality unsuitabilities and deficiencies regarding the materials during the acceptance processes in warehouses, some ratio of discount (%1, 2,3 etc.) should be applied. This will prevent the possible abuses of some suppliers and more importantly increase the quality performances of suppliers. But the final goal is to abolish Conditional Acceptances Application and switch to **Zero Defect** system in quality acceptance. Zero Defect is actually the process that can be started within the scope of the main projects of establishment of quality chain from the supplier to the consumer. **Evaluating meetings** are not held periodically between Procurement and Quality Departments regarding the reports of Suppliers' Performances. **Supplier Performance Reports are not shared with related suppliers**. The feedback and action meetings should be organised with the suppliers to increase their performances and to maximise the service levels. Reports should be shared with suppliers each month. **Production cut and change of production planning** caused by Supplier Based Problems should also affect the performance points of suppliers.

Innovation Criteria in this section is measuring supplier's performance as providing *innovations or total cost improvement recommendations by the Suppliers*.

4. SUPPLIER RELATIONSHIP MANAGEMENT (SRM)

The Owners of a Company: There are four different stakeholders/partners who own a company.

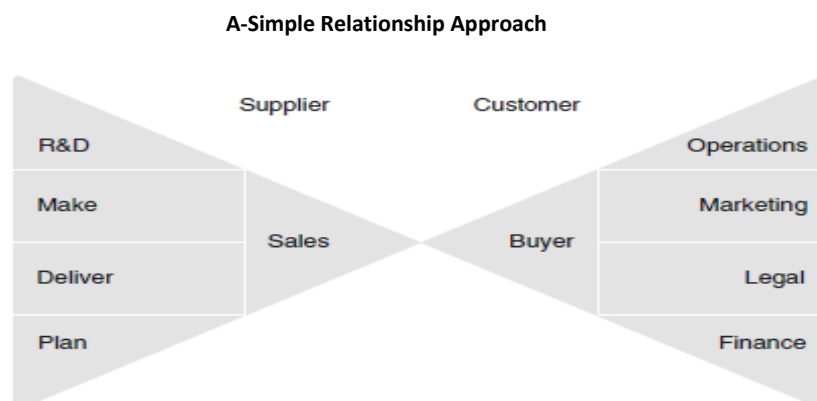
- 1-Shareholders
- 2-Consumers
- 3-Workers and Officers
- 4-Suppliers

So the suppliers are one of the owners of a company.

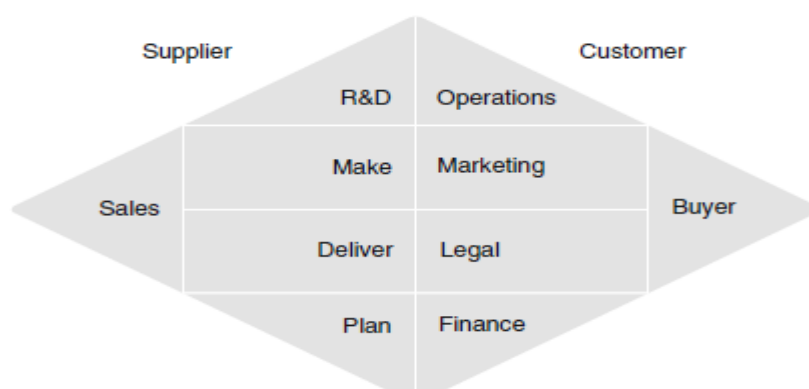
Some benefits of good supplier relations include:

- Breaking down functional **barriers** and functional mindsets.
- Promoting **innovation** and **joint thinking** for "doing things better".
- Improving supply chain **visibility** for buyer and supplier.
- Sharing assets across supply chain, removing **duplications**.

Relationship types between a supplier and a company are two and shown below:

Figure 4: Simple and Interdependent Relationship Approach to SRM

B- Interdependent Relationship Approach



SME is between the Basic Relationship Approach (BRA) and Interdependent Relationship Approach (IRA) but more nearer to IRA. IRA is recommended for the SME.

An example for Interdependent Relationship Approach (IRA): The supplier's Research and Development (R&D) team work with the SME Marketing Team. This way, the supplier R&D team know what the SME wants to do in terms of marketing strategy and SME Marketing Team know the timescales and constraints of the supplier's R&D.

A Supplier Summit should be organised to understand the demands of suppliers and ensuring coordination to reach the long term strategies of SME. Another recommendation is to make a Supplier Satisfaction Survey and become a "preferred" customer for key suppliers.

Payment in time to the suppliers is very crucial for SRM. The SME's payment performance to its suppliers is not in time. What are the payment terms to the suppliers?

There is no report showing the actual payment performance of the SME but in general payment terms are 90 days but actual payments are about 140 days for raw & packaging materials. What are the days of debtor and creditor and ratio between them? The ratio is 140/90 days. **Regular and in time payment** will affect the performances of suppliers both in service level and price in a positive way. The suppliers will surely decrease the unit prices when paid in time.

6. PROCUREMENT SKILLS

6.1. Negotiation Skills

This is both an analytical & psychological process. This analytical & psychological process is seen in the 3 requirements: The first 2 are analytical and the last one is psychological.

1.The Most Important Factor in Purchasing Negotiation is Preparation.

2.Who are the Suppliers you Must Negotiate with? Make ABC Analysis.

Approaches to Purchasing Negotiation with Suppliers: This is where the psychological process comes in that you need to use persuasion, communication, verbal & non verbal skills. Early involvement by the procurement group is one of the fundamental keys to employing successful negotiation strategies. The later the involvement of the Procurement Department in sourcing decisions, the less leverage will be available for negotiating. There are many bodies other than Procurement Department within the SME which makes purchasing for their needs. That means they are not performing their business. Purchasing is negotiation and all purchasing activities should be done by purchasing professionals within the SME.

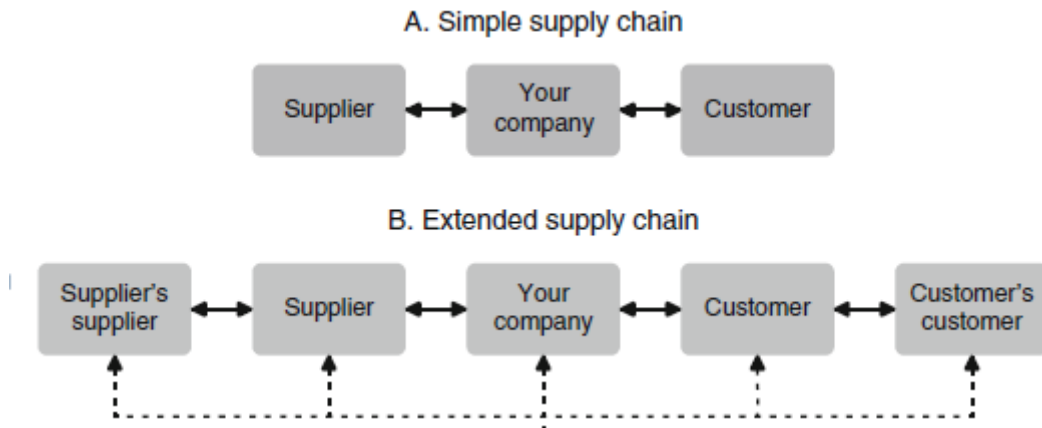
6.2. Cost Understanding

The concept called **Total Cost of Ownership (TCO)** is important for buyers as it considers selecting the lowest cost of supply, not the lowest price. For instance, when a packaging material is purchased the total cost has to include the wastage calculation as well. Cost of transportation undertaken by the buyer should also be checked by the Procurement Department in consolidation with Logistics Departments of SME. The SME sometimes buys its needs out of the rules of TCO principles.

6.3. Market Follow-up

Follow your suppliers' suppliers market, follow the raw material market of your suppliers. There is no systematic follow-up of commodity and material markets in SME Procurement Department. Market follow-up should be methodical and acted according to a fixed plan or system.

Figure 5: Simple and Extended Supply Chain



6.4. E-Auction

E-Auctions should be arranged for some technical, raw and packaging materials including investment, logistics and all other service buyings.

2015 e-auction figures of World Class Company (WCC) and SME:

Table 7: E-Auction in WCC and SME

| E-AUCTION NO ARRANGED | E-Auction Unit | The Best Qotation Total (Euro) | Saving Total (Euro) | Saving Ratio |
|-----------------------|----------------|--------------------------------|---------------------|--------------|
| WCC Real | 372 | 109.286.190 | 8.852.181 | 8,10% |
| SME Real | 1 | 728.000 | 53.144 | 7,30% |
| SME Potential | 100 | 50.000.000 | 4.000.000 | 8,10% |

The Benefits of E-Auction

- web-based negotiations enable buyers to have multiple revised offers for business.
- speeding up the negotiation process.
- promoting competitive behaviour amongst the suppliers.

6.5. Kraljic Analyses (Risk Analyses)

SME should make Kraljic analyses for the materials and services sourced for its functions. Kraljic classifies the needs of a company as below:

- I. Leverage materials
- II. Strategic materials
- III. Routin materials
- IV. Bottle neck materials

Table 8: Kraljic Analyses Policies for the SME

| | | |
|--------------------|--|---|
| High Profit Impact | <u>Leverage (Exploit Purchasing Power)</u> <u>Raw Material A, Raw Material D, Raw Material E etc.</u> -long term contracts if suitable (6-18 months) -Economy of scale and consolidation -Procurement timing as per seasonality -Pricing strategy -Procurement Manager | <u>Strategic (Ensure Supply, Diversify)</u> <u>Raw Material B, Raw Material C etc.</u> -Long term contracts (6-12 months) -Strategic partnership with suppliers -Forecast accuracy -Relationship management -Risk assesment and risk management -Creating alternative suppliers and material equivalents -General Manager |
| Low Profit Impact | <u>Routine (Efficient Processing)</u> <u>Ingredients, labels, Toppings etc.</u> -short term contracts (3-6 months rolling contracts) -Product standardisation -Optimum scale and inventory -Decision level: Manager -E-tender if suitable | <u>Bottleneck (Ensure Volume)</u> <u>Raw Material Z, Packagings etc.</u> -long term contracts (6-12 months rolling contracts) -Creating alternative suppliers -Long term demand forecast accuracy -Detailed market and suppliers information -Decision level: Director, Manager -E-tender if suitable |
| | Low Supply Risk | High Supply Risk |

Start by classifying all of the commodities, components, products, and services that you buy according to the supply risk and potential profit impact of each. This matrix helps SME to gain an insight into the working methods of the purchasing department and how they spend their time on various products.

7. PROCESS ANALYSES OF THE PURCHASING ACTIVITY

There is no formal Process Flowchart in SME when purchasing a material. Figure 6 is the comparison between “the flowcharts of Target (WCC) and SME” which have been produced for this study: SME should adjust its system to WCC’s. Appendix is added at the end of the study as “Figure 6 Process Analyses of the Purchasing Activity”.

8. ACTIVITY ANALYSES OF "RAW, PACKAGING AND TECHNICAL" MATERIALS BUYERS

17,3% of working hours of the procurement officials are recorded as **unnecessary work** which is wasted time and no added value to the function. These are coming from mainly following by the procurement staff the delayed payments to the suppliers which are not their responsibilities.

Table 9: Activity Dictionary in SME

| ACTIVITY ANALYSES OF "RAW, PACKAGING AND TECHNICAL" MATERIALS BUYERS | | | | | | |
|--|---------------------------|-------------------------------------|-------|--|---------------|------------|
| Employee | Total Working Hour / Year | Definition of Activity | Hour | Definition of "to be Corrected Activity" | % in Employee | % in Total |
| Employee A | 2.456 | Refusals of The Materials | 375 | More Than Needed Work | 15,27% | 3,95% |
| | | Payment Follow-up | 500 | Unnecessary Work | 20,36% | 5,26% |
| Employee B | 2.339 | Payment Follow-up | 200 | Unnecessary Work | 8,55% | 2,11% |
| Employee C | 2.249 | Payment Follow-up | 200 | Unnecessary Work | 0,00% | 2,10% |
| Employee D | 2.500 | Payment Follow-up | 350 | Unnecessary Work | 14,00% | 3,68% |
| Total | 9.544 | | 1.625 | | | 17,03% |
| Medium | 2.386 | Inefficient Hours Equal to Employee | 0,68 | | | |

9. KEY PERFORMANCE INDICATORS

Key Performance Indicators should be measured periodically and according to these KPI's new **achievable targets** should be given to the Procurement Department of SME to improve the related performances.

Table 10: No of KPI's measured and/or not measured by SME

| | |
|--|----|
| Within This Study: | No |
| No of KPI's asked | 69 |
| No of KPI's which are not measured | 33 |
| No of KPI's which are measured and reported periodically | 5 |
| No of KPI's which not measured but can be measured and reported periodically | 31 |

New KPI's for the SME:

- Saving amount targeted yearly.
- Reducing Production Stop hours which comes from supply problems.
- Creating new alternative suppliers.
- Reducing one supplier materials ratio.
- Spend ratio under the control of the Department of Procurement.

10. CONCLUSION

We recommend below strategic subjects to the company as a short list to do. Strategic understanding of procurement is a key element to be a first class company in the market.

The CME should should organise “Sales & Operations Planning (S&OP) Meetings” for demand accuracy. It can be understood as a concept of “Integrated Business Planning”. Procurement / Sales Planning and Production Planning Meetings and follow-ups will reduce the stocks.

The CME should create Long term and strategic Supplier Relationship Management (SRM). Increasing the performance of suppliers by focusing on the key suppliers and payment in time by the CME are the first and undisputable steps for SRM.

Purchasing equals to “Negotiation”. The CME should use E-auctions as a negotiation skill and use Procurement Professionals for all buying activities and follow the market in-deep.

The CME should follow the steps of SAP and use the systems (paperless workflow) to make process and work flow control.

A.T. Kearneys recent Assessment of Excellence in Procurement (AEP) study determined that among the companies identified as leaders, 73 % of their procurement activities were strategic in nature, the remainder tactical. In the follower organizations only 49 % of their procurement activities were described as strategic. In the AEP study, 83 % of leaders procurement organizations have medium to high involvement in company strategic planning, compared to only 50 % of the followers.

The SME should evolve its process of procurement from tactical to strategic as to switch its category from small/middle sized company to big sized company within its market. The findings within this study help the SME to sail into future world of first class companies.

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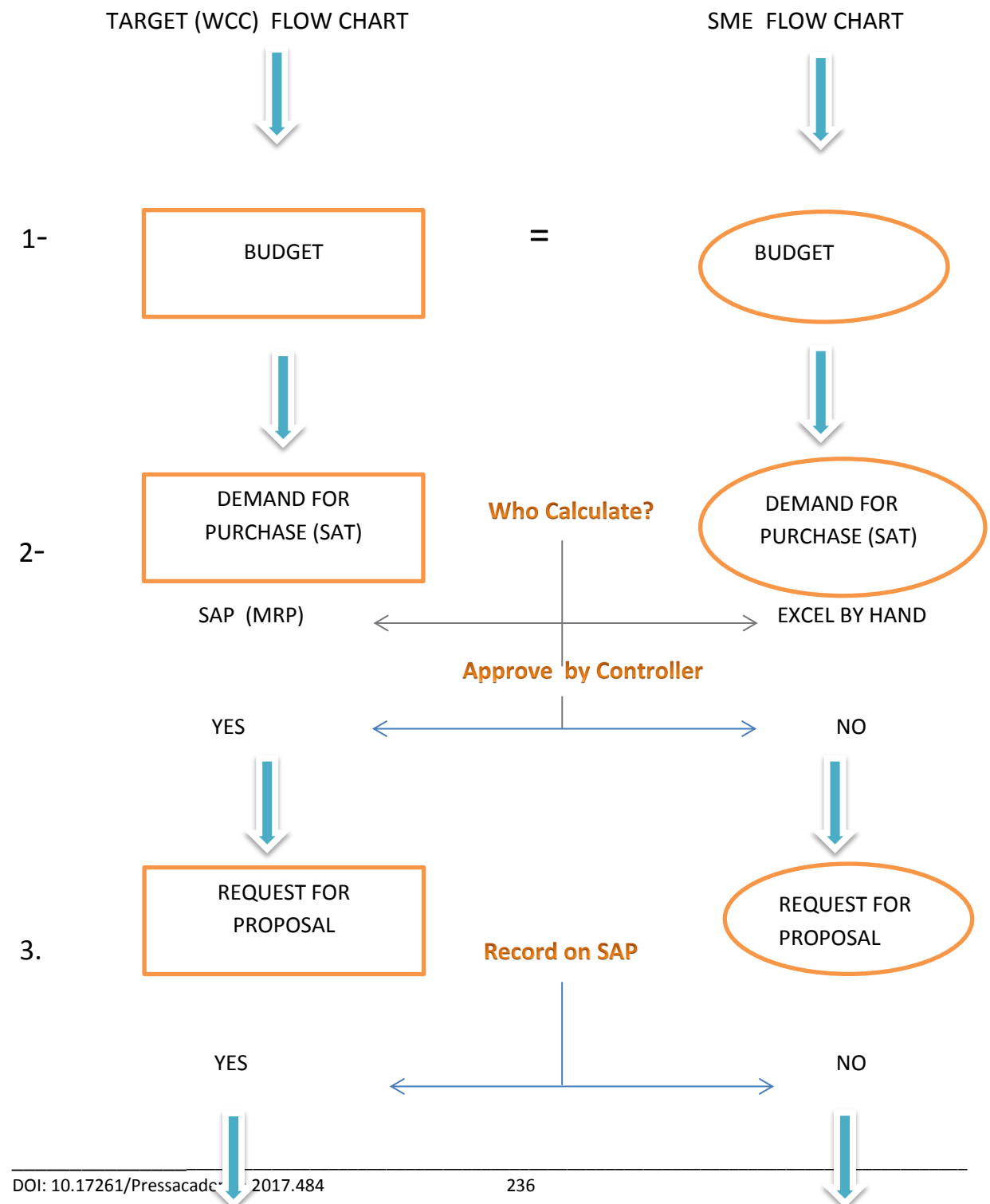
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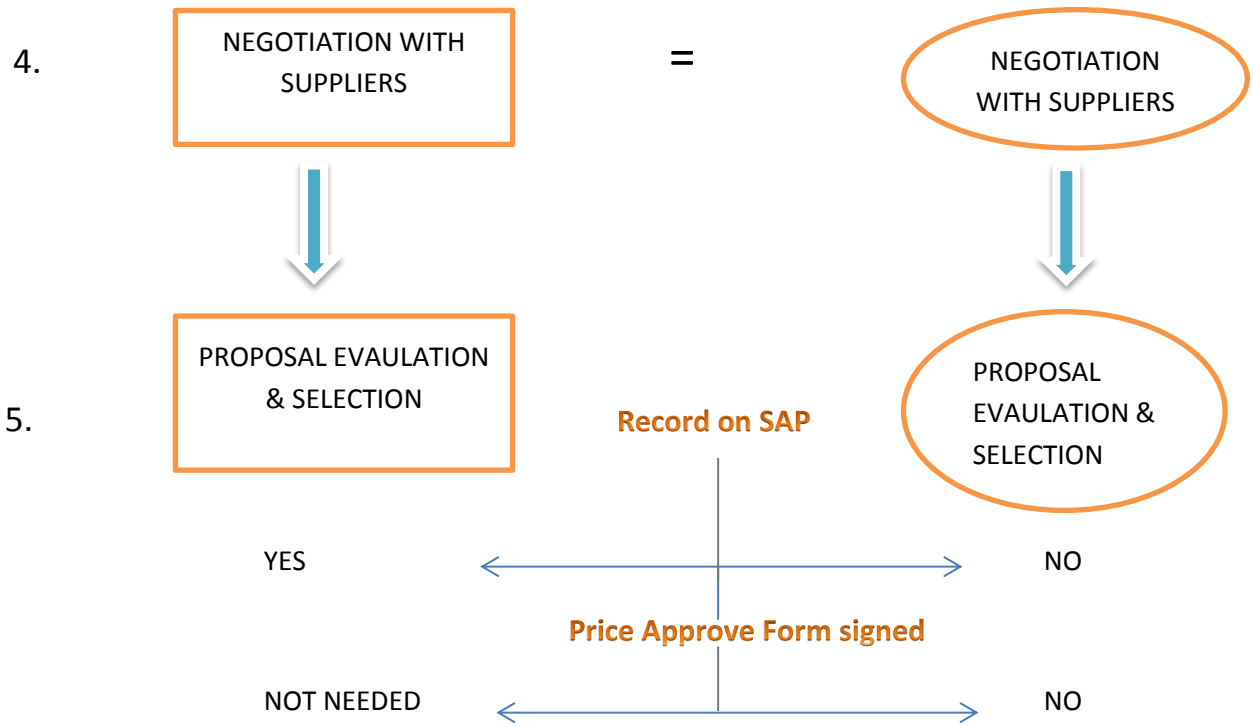
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APPENDIX

Fig.6 Process Analyses of the Purchasing Activity





OR

If No Request for Proposal

