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STRATEGIC PROCUREMENT OUTSOURCING ASSESSMENT OF DIRECT MATERIAL AT LUCENT EMEA EXECUTIVE SUMMARY

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In the last few years companies have begun outsourcing their indirect material procurement to an outside procurement service provider (PSP). Encouraged by the success of indirect material procurement outsourcing, many organizations are now beginning to explore the saving opportunities on the direct-material side. However, the value proposition of outsourced procurement may be significantly different for direct and indirect material. A careful analysis of the risks and returns from direct material procurement outsourcing is imperative for firms considering outsourcing this business activity. We address the question “ To what extent can a company outsource its direct material procurement and how?”

This research is done in collaboration with Lucent EMEA (Lucent). After telecom industry's collapse in 2000, Lucent turned itself from an in-house manufacturer to a highly outsourced Original Equipment Manufacturer (OEM). Although Lucent has “improves profit margins from the low teens to 24%, reduced inventory from \$7 billion to \$2.4 billion, and cut component costs 35-55%”, it continues to face pressures. The intense competition in the telecom industry mandates it to be more responsive and cost conscious. With this backdrop, Lucent is now turning to reap the potential savings from procurement outsourcing. Lucent wants to assess the practical feasibility of outsourcing direct material procurement. This thesis has the following objectives:

- **Driver detection for outsourced direct material procurement:** Identify the hypotheses for the success of the direct material procurement outsourcing. Compare and contrast it with indirect material.
- **Key attributes identification:** Identify component attributes that are important in the procurement outsourcing decision for direct material, and

tailor them for Lucent in specific and the telecom industry in general.

- **Decision framework building:** Build a decision framework to choose the candidate items/commodities for procurement outsourcing.
- **Consortium feasibility assessment:** Evaluating the practicability of a European consortium for direct material purchasing. List the suitability of each type of consortium model for specific component categories.

The gains from procurement outsourcing can be broadly classified into *process efficiency* gains and *competitive efficiency* gains. The process efficiency gains results from the streamlining and automation of purchasing processes when procurement is outsourced to a PSP. There are reductions in administrative and transactions costs and in some instances the time and quality of some of the steps involved also improves. The competitive efficiency gains result from leveraging volume to increase buying power and reduce purchasing costs. Increase in the buying power is also achieved by locating new sources of supply leading to greater competition in the market. The purchase cost as a fraction of the transaction cost is higher for direct materials as compared to indirect materials. The opportunities for savings for direct material are thus more from competitive efficiency gains than process efficiency gains as in the case indirect material.

Key Attributes

The following eight attributes are considered crucial to direct material procurement. They vary from strategic to operational, cover four types of costs: transaction, quality monitoring, switching, and interfacing. Some of them are well-known, like strategic importance; but some are novel, like interfacing cost. I will provide a brief explanation for the novel ones after their title.

- **Strategic Importance**
- **Quality Monitoring Costs**
This cost measures the ease of quality verification. The easier the monitoring process one item has, the better the candidate it is for outsourced procurement.
- **Purchasing Transaction Costs**
- **Demand Stability**
It costs a company more sourcing and bargaining cost to handle a demand

fluctuating item than a demand stable item. So, an item with variable demand may be a better candidate for procurement outsourcing because of demand pooling effects.

- **Supplier Switching Costs**

This attribute measures the switching cost of both the buyer side and the supplier side. A consortium is more fit more low switching cost items.

- **Interfacing Cost**

In the technology innovation oriented industry, like telecom, in certain cases coordinated R&D needs to be carried out by the suppliers of different parts which strongly interface with each other. It may be best to keep the procurement of such components in-house as the OEM facilitates coordination in the parallel design and development of interrelated components.

- **Production Process Maturity**

A more mature process product usually has a more competitive supply market. So there is greater potential for cost savings due to increased bargaining power.

- **Supply Market Status**

I begin by assuming that all attributes have the same weight. This is due to lack of information about the relative weighting of these attributes from Lucent. Additionally, I use the outsourced vs. in-house procurement recommendations on all categories from a Lucent manager to impute the weights for the attributes. By using discriminant analysis, I obtain the weights for each attribute and the cutoff value for the composite-score. If the final score of one category is higher than 18.5, it is suggested to keep the procurement in-house; otherwise, procurement outsourcing is recommended. Please note that this analysis is based on scores and recommendations from a single Lucent source. To be useful and applicable such analysis needs to be repeated based on scores and recommendations from various Lucent employees.

Decision Framework

The decision framework for identifying the target commodities for procurement outsourcing is presented in Figure 1. The dashed boxes show us the four steps to complete a procurement outsourcing decision.

The first step is to create hierarchical chart of the categories, sub categories and individual components under each of them. There may be various layers in this tree

chart (Figure1) depending upon how complex the category is. A formalized structure of hierarchical aggregation helps in choosing the procurement outsourcing decision either at a broad category level or a more operational individual component level.

Step two involves separating out the strategically important items, which will not be considered for procurement outsourcing. Using a balanced-score-card like approach, every component/commodity is assigned a score on various attributes. After step two, we have strategically important items and strategically unimportant items. Final procurement outsourcing items will be selected from the strategic unimportant items.

Step three is to further sort the candidate items, cluster them into two groups; procurement outsourcing recommended and not recommended. Since there are some bundling effects involved in the procurement outsourcing decision, the decision should be made at the broad category level and not for individual items. I call it category consolidation.

Step four is category consolidation. At this step, the annual purchasing volume of items recommended for procurement outsourcing and not recommended for procurement outsourcing for each category are compared. If the volume is greater for the not recommended for outsourcing group, all items in that category are moved to the not recommended group, and vice versa. We need to check the category's strategic importance to decide between a guided-turnkey or full-turnkey procurement outsourcing.

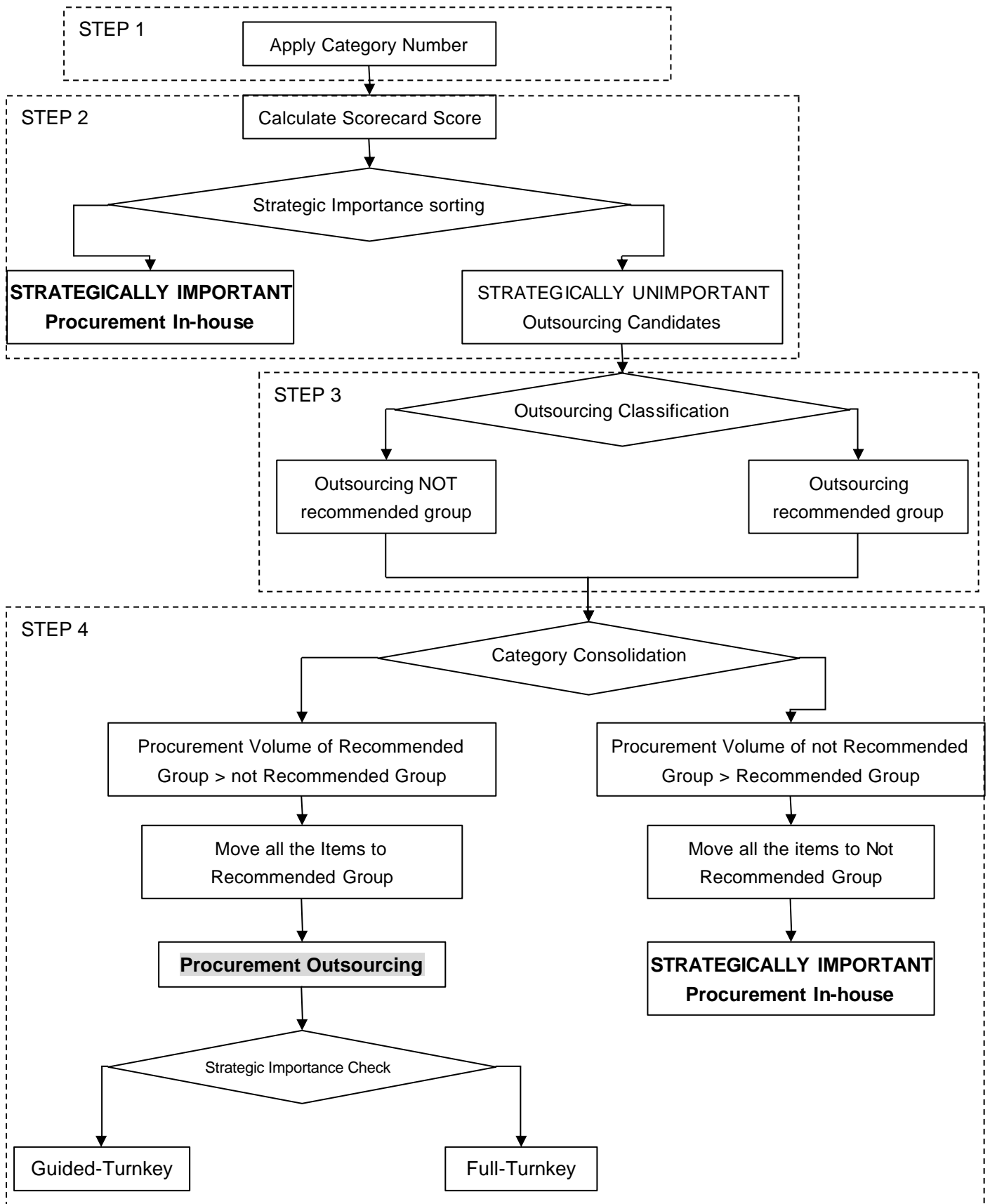


Figure 1: Decision Framework

In the place where we have more than two category layers like Figure 2, by iterating step three and four this framework can be utilized to make the procurement outsourcing decision.

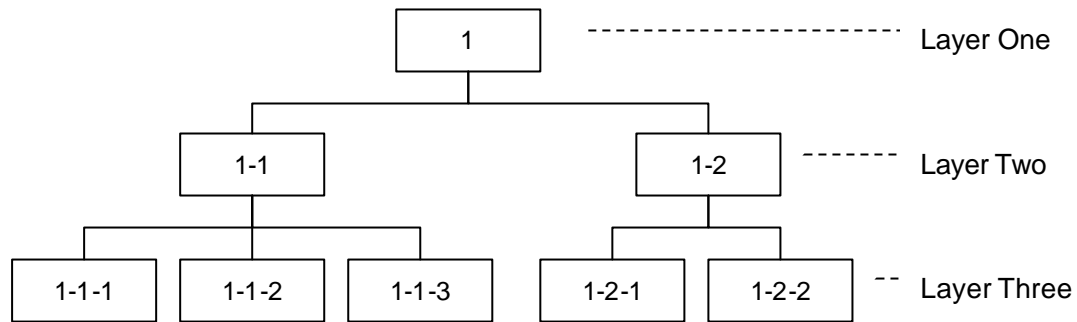


Figure 2: Multi-layer Category Sample Tree

Direct material procurement through a consortium

The feasibility of a direct material purchasing consortium will depend upon whether the cost savings driver is transaction cost, purchasing bargaining power or a combination of the two. Figure 3 shows us the suitability of each consortium type.

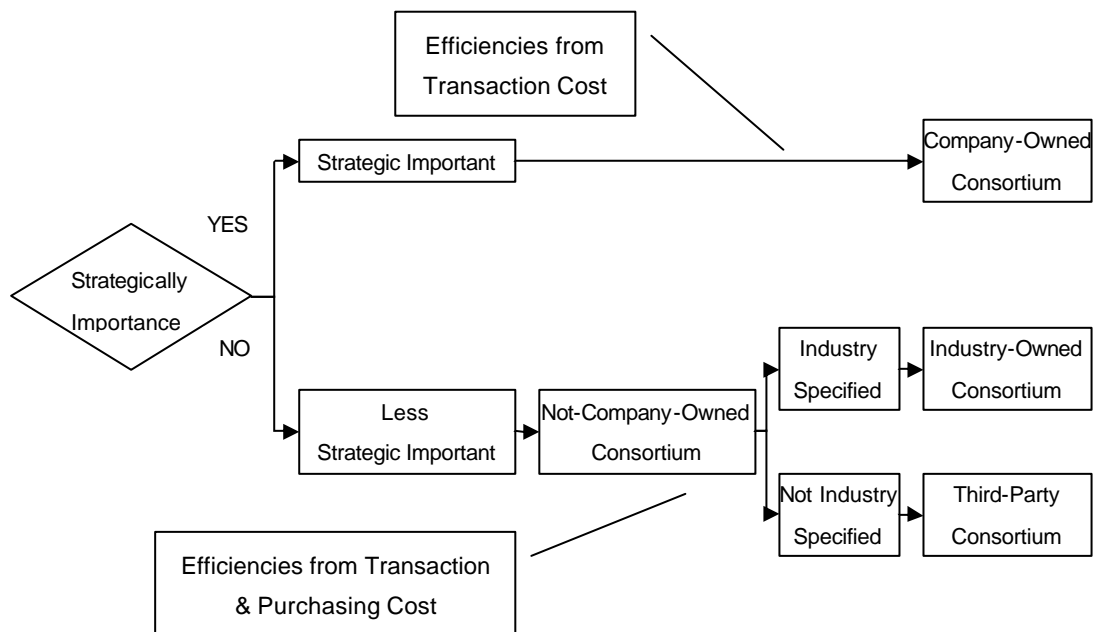


Figure 3: Consortium Selection Framework

Among all the procurement outsourcing recommended items, we suggest use a company-owned consortium for more strategic items. For the remaining items, it is better to use an industry-owned consortium for industry specific items, and a common third-party consortium for non industry specific items. The key to successful creation of a self owned, industry owned or a third party consortium is the ability for all partners to realize the value creation opportunities that it offers for each of them. Typically, consortiums are thought of as a zero sum game where the weaker party loses and the stronger party gains.

This study is only a first attempt at looking at the direct material procurement outsourcing at Lucent. The results and recommendations in this thesis are preliminary and should be supplemented with further investigation.