CHALMERS
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Understanding the Strategic Importance of Indirect Procurement

An investigation at a multi-function MedTech organisation

Master's thesis in Supply Chain Management

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CHALMERS UNIVERSITY OF TECHNOLOGY
Gothenburg, Sweden 2020
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Report No. E2020:019

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SUMMARY

Procurement has progressed in strategical importance, and plenty of resources and tools are used to generate effective sourcing of the required material. The area has received much attention from research, however, this research mainly focuses on the area of direct material, products and services directly contributing to creating the finished products or service. This leaves the area of indirect material and services as a less investigated topic, although it often totals to 40-50% of a company's total spend. These costs include services such as consultants, travel and facility management and products like office equipment and utilities that are required to carry out the company's operations and are very similar across different type of companies and industries.

This study, therefore, aims to investigate the management of indirect spend at the MedTech company Dentsply IH AB in Mölndal and its two business units Wellspect Healthcare and Dentsply Sirona Implants. Qualitative and quantitative measures were taken to provide an outlook on the current state of spend and present processes within the subject. The results show that the indirect procurement within DIH is immature in that departments are uncoordinated and few standardised processes exist, a lack of quality and accessible data complicates getting an overview and controlling the spend and a large number of suppliers are used as a result.

The final part of the study presents an analysis of the data to show potential improvement and synergies for and between the two business units. Suggestions on how to improve the procurement of indirect material and services within DIH and suggestions to capture identified synergies and a proposal on how to prioritise amongst projects is presented. The study's findings were also found to be more generally applicable than first was thought, much due to the nature of indirect categories that could be confirmed from the case studied.

Keywords: procurement, purchasing, indirect materials and services, IDM, spend analysis

Acknowledgements

This thesis in the master's program of Supply Chain Management was carried out in conjunction with Chalmers University of Technology and Dentsply IH AB during the spring semester of 2020. We, therefore, would like to express our gratitude towards these organisations for giving us the privilege to pursue our thesis and complete our academic education.

More specifically we would like to thank our supervisors at Dentsply IH, Tobias Mullins and Henrik Nordholm for allocating time and resources to help us progress even in stressful times following the pandemic circumstances. We would also like to thank our supervisor and examinator, Björn Lantz, at Chalmers University of Technology for guiding and assisting us in the approach and improving the academic contribution of the study.

A special thank you is also directed towards everyone involved during our course at Dentsply IH AB. We have enjoyed all interviews and appreciated everyone for taking their time to answer our questions and discuss IDM. It is a shame that we had to work from home during the better part of the study as we enjoyed our stay and felt welcome from day one. Also, a very special thank you to the two companies and interviewees that we got the chance to discuss with to benchmark our results and suggested solutions.

Thank you!

Axel Kamperin

Jacob Kanmert

Abbreviations

Company abbreviations

Implants	Dentsply Implants
DIH	Dentsply Implants Healthcare AB *(Wellspect & Implants at site Mölndal)*
DS Group	Dentsply Sirona Inc. *(Group name)*
Wellspect	Wellspect Healthcare

Other abbreviations

AP	Accounts Payable
CC	Cost Centre
COGS	Cost of Goods Sold
DP	Direct Procurement
ERP	Enterprise Resource Planning *(system)*
IDM	Indirect Materials and Services
MRO	Maintenance, Repair and Operations
R&D	Research & Development
PO	Purchase Order

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1 Introduction

Companies are always striving for progression and imporvements, business processes are continuously becoming more advanced and mature to create more efficient and competitive organisations. Purchasing was traditionally considered as a task of simple nature with the sole focus of reducing prices while it now has become a strategic function to many firms (Gadde & Håkansson, 1994). Numerous articles and studies have investigated the importance of purchasing as a strategic function and supplier management with the aim of improving purchasing performance and staying competitive (Cox et al., 2005). Improvements coming from concepts such as total cost of ownership, service levels and just-in-time planning are widespread within the industry (ibid.).

Purchasing as such has been the subject of much research, however, the majority of this research has been focusing on the procurement of direct and revenue-generating expenses, while little significance has alluded to indirect spend and the procurement of material and services not directly related to revenue generation (ibid.). Some examples of purchases within this category are computers, consultancy services, office supplies and facility management services. The indirect procurement is often more decentralised over different departments that foresee their own needs in terms of office supplies, computers etc. Responsibility for the expenses are given to the group that owns the budget such as HR or marketing. The problem is that these typically have little to no formal training or experience in procurement and sourcing (Dorn & Podolak, 2011). Spreading these purchases over different departments also complicates coordination and governance. Generally, the product variety within indirect procurement creates a very complex logistics structure resulting in major difficulties in getting an overview and managing the indirect spend (van Weele, 2009).

Compared to the direct procurement, the indirect procurement and its categories are much more similar for companies in different industries as it is not directly connected to the product or service. It is also typically much less mature and more decentralised by nature, which often leads to small purchased volumes and an excessive list of suppliers (van Weele, 2009). Indirect spend does, however, in many cases have a significant impact on the company's financial performance as it on average amounts to 40-50% of the total spend (Carter et al., 2003; Payne et al., 2011) which highlights the strategic importance that the indirect procurement carries. The combination of the low degree of maturity coupled with the significant spend makes the potential for savings within this area very attractive to many companies in different kind of industries.

Due to the large savings potential within the procurement of indirect materials and services, this study, therefore, sets out to examine a real-life business case to apply existing theory to realise potential savings. The nature of indirect categories, not being exclusive to any kind of company or industry, will also entail a general applicability of the findings that the study aims to generate.

1.1 Background

The focal business units of this study are Wellspect Healthcare (in the report referred to as *Wellspect*) and Denstply Sirona Implants (in the report referred to as *Implants*), which both operate under the same legal entity by the name of Dentsply IH AB in Mölndal, Sweden (in the report referred to as *DIH*) since 2011. The company is a part of the global MedTech company Dentsply Sirona Inc. with headquarters in the United States.

"Wellspect Healthcare, with headquarters in Mölndal, Sweden, is a leading global provider of innovative medical devices with a focus on helping people suffering from urinary retention or chronic constipation." (Wellspect, 2020). The organisation employs more than 1 100 people and are present in more than 30 countries. Dentsply Sirona Implants in Mölndal is manufacturing and distributing dental implant products (Dentsply Sirona, 2018). The site is also used to educate and train dental workers within different certifications and procedures.

The study is conducted on request of the Head of Procurement of Wellspect Healthcare and the Head of Global Procurement of Dentsply Implants, both placed in Mölndal, Sweden. The background to the project is that DIH soon will be challenged on reducing their indirect spend from a newly formed procurement organisation at a Denstply Sirona Group level (in the report referred to as *DS Group*). Knowing this, the two business units wish to build a better understanding of how large their current indirect spend is, how it is distributed through categories, and what functions are the big spenders.

In 2017, a spend analysis was conducted for Wellspects's indirect spend, indicating great savings potential for the company but no concrete actions were taken from this due to resource limitations. The potential savings are believed to lie in the opportunity to build a common spend analysis for the DIH site, and not for a single business unit. Today, there is little to no control over the indirect purchasing, where responsibility for these product and service categories is in the hands of each department at DIH. Synergies could potentially exist and be realised by establishing clearer policies and processes for increasing collaboration and control of the indirect spend.

1.2 Aim and research questions

The study aims to investigate the state of IDM within the case company and identify the underlying reasons for the lack of development as well as suggestions on how to progress. The subject of analysis is both based on a pure Wellspect and Implants focus as well as an aggregated view on how the two units can collaborate and what synergies can be gained from increased coordination. Presenting the results of the study will preferably generate knowledge of the potential savings and spur interest to continuously improve purchasing performance within IDM.

Even though the study is conducted in the specific industry environment of MedTech, the aim is also to study the focal company from a generally applicable perspective. Therefore, recommendations are aimed to not only be applicable for a MedTech organisation such as DIH but to present a generally viable way of working to manage indirect spend more

effectively. To specify how the aim of the study will be achieved, the following research questions have been formulated:

RQ 1: How can companies identify and prioritise potential savings opportunities within indirect procurement?

RQ 2: What initiatives are required to realise potential savings and capture synergies within indirect procurement?

1.3 Limitations

Dentsply Sirona is a global organisation with multiple office and production facility locations worldwide. In this study, however, only Wellspect Healthcare's and Dentsply Implants's functions at the site in Mölndal, Sweden will be used as the basis for the results of the thesis.

The data collection is based on a selection of interviewees, and the results are highly dependent on the person and their experiences. However, all potentially relevant employees will not be interviewed due to time constraints and the large number of persons that are somewhat involved in indirect purchasing.

Only Wellspect Healthcare's and Denstply Sirona Implants's Mölndal functions purchasing history for the fiscal year of 2019 will be considered and analysed.

The case study is limited in time to the period of January 2020 – May 2020 and equivalent to 30 ECTS.

2 Methodology

The approach selected to fulfil the purpose of this study and to answer the proposed questions is here described. The basic structure is based on a thorough literature review, collection of empirical and historical data followed by an analysis and discussion, finally summarised in a conclusion. Inspiration has also been taken from other research studies with similar purposes to further see potential success factors and pitfalls relating to the chosen methodology.

2.1 Research Design

Within this chapter, the chosen research strategy, approach and aim will be presented and motivated. The research design has been conformed in conjunction with supervisors from the company and Chalmers University of Technology to confirm its suitability to the chosen aim and research questions of the study.

2.1.1 Research strategy

When selecting the research strategy for a study, which Bryman and Bell (2015) describes as the general orientation of the study, the two clusters of strategies are often grouped into *quantitative* and *qualitative* methods.

Blomkvist and Hallin (2014) describes the family of quantitative methods being, as the name suggests, more reliant on quantifiable, measurable and precise data. Some examples of quantitative methods are closed-ended survey studies, experiments, and statistical methods to conclude already decided upon variables (Bryman & Bell, 2015). With this approach, the research can be carried out with an arms-length approach to maintain objectivity (Andersen, 1990).

Conversely, the qualitative methods are a more subjective approach to the study and the research process should be carried out with a two-way communication with the research object to ensure that a holistic view of the situation can be accomplished (Blomkvist & Hallin, 2014). Qualitative methods are primarily used in studies where the research object is not deemed quantifiable, and instead, methods such as interviews and observational studies are used to understand the object or situation.

This research will adopt a qualitative strategy, with some influence of quantitative methods. A mix of the methods can, according to Holme and Solvang (1997), be beneficial to complement the different qualities they have and yield respectable results. As the variables affecting the research questions are not known beforehand, qualitative methods are required to understand processes and behavioural aspects to build a holistic view of the examined case company. Quantitative data regarding the case company's purchasing spend, with focus on indirect spend, will be gathered and analysed, to understand the current state and to identify where to focus the research efforts within the scope of the limitations.

2.1.2 Research approach

The research approach describes how the study relates the connection between theory and empirical findings to each other, where Patel and Davidsson (2011) brings three approaches forward: inductive, deductive and abductive. The *inductive* approach aims at deriving theory from collected empirical data, using one or more research questions to limit the scope of the research. With a *deductive* approach, the theory is instead developed from the start, as well as hypotheses for the studied object (Bryman & Bell, 2015). Finally, the *abductive* approach is somewhat a mix of the inductive and deductive approach, being that it alternates between derivation of theory and application of theory to test hypotheses that are developed and revised throughout the research process.

The research approach chosen for this study is the inductive approach. The case study will be used to collect empirical data, followed by a thorough literature review suitable to the research topic. With this approach, the findings at the case company will be used to derive new theory related to the subject of indirect purchasing.

2.1.3 The Case Study

This study will be performed as a case study, which Bryman and Bell (2015) define as a detailed analysis of a specific situation. The idea of the case study is to examine how a real situation can be explained in relation to theory through a detailed analysis.

The case study could be of a single organisation, a single location, a person or a single event (Bryman & Bell, 2015). In this paper, the case study will predominantly focus on the case of one single location of a larger organisation with locations spread globally. However, in some respects, the case will include elements of an organisational case study as some directives are decided on a group level and can thereby not be affected at a single location.

2.2 Method of Data Collection

Different types of data were collected from multiple sources that are described here. Data can be divided into two categories, primary, and secondary data which will be defined in this section.

2.2.1 Primary Data

Primary data is defined by Hox and Boeije (2005) as “Original data collected for a specific research goal.” (2005, p. 593). Therefore, it relates to information gathered typically during different types of interviews, surveys and experiments generally conducted by the researcher (Hox & Boeije, 2005).

Qualitative data is gathered by a variety of methods. Interviews are popular for collecting primary data where the interviewee is allowed to talk from their perspective (Hox & Boeije, 2005). Turner (2010) describes three types of interviews: the informal conversational interview, the general interview guide approach, and standardised open-ended interviews.

The informal conversation is described by Gall, Gall and Borg (2003) as relying "…entirely on the spontaneous generation of questions in a natural interaction, typically one that occurs as part of ongoing participant observation fieldwork" (p. 239). This method is highly inconsistent making the coding of data difficult while it is very flexible (Turner, 2010).

The general guide interview approach is more structured than the previous style but still maintaining quite some flexibility in that the wording of the questions is much up to the interviewer (Gall et al., 2003). This will lead to some inconsistencies but will also allow for the interviewer to act upon the interviewee's answers and adapt and generate new questions if suitable.

The final method of standardised open-ended interviews is extremely structured when it comes to the wording of the question while the answers are open-ended (Gall et al., 2003). The interviewee can, therefore, answer the question with as much detail as they want but also allows the interviewer to ask penetrating follow-up questions (Turner, 2010). This type of interview is likely the most popular due to the open-ended questions giving the participants freedom to express their experiences and outlooks, although it is coupled with the effect of difficulties of coding the answers (ibid.).

Selecting the objects for an interview is also a very important part of qualitative data collection. One method that is often preferred for this kind of qualitative study is so-called snowball sampling (Bryman & Bell, 2011). Snowball sampling is a method where a small group of people relevant to the research are initially targeted an interviewed, from these interviews further suitable objects for interviewing can be suggested from the interviewees. The method is suitable for qualitative studies as it is better at pinpointing the most suitable interviewees to fulfil the purpose of the research than the more random selection methods used to fairly represent a population (Bryman & Bell, 2011).

The main primary data collection used for this study is based on the general guide interview approach. The structure and formality will increase with the data collection as the initial interviews will be conducted to get a good understanding of the organisation in general and therefore less structured. This method was chosen to draw more use of the interviewees' experience and opinions and not solely rely on the researchers' ability to generate exhaustive questions. As the study progresses, more specific areas will be of interest and the interviews will be more structured with specific questions. The selection will be based on the snowball sampling method starting from the supervisors from the company. From the supervisors at the focal company, contact could also be established with two external interviewees to benchmark the findings regarding indirect procurement at the focal company while also evaluating the general applicability of the study's findings.

2.2.2 Secondary Data

In contrast to primary data, secondary data relates to information not directly gathered for the specific research question (Hox & Boeije, 2005). This data can, therefore, relate to any previous research but also data collected by companies in their daily operations such as historical data regarding finance and output. One big advantage with the use of secondary data is that it is typically less costly and more time-efficient to retrieve in contrast to primary

data (Vartanian, 2010). However, the researcher must consider the quality of the data and the method used for its collection to know its applicability.

For secondary data, databases such as Google Scholar and Chalmers Library will be used to find relevant peer-reviewed research articles and literature. Data is also obtained from the case company's databases regarding instructions, control documents, purchasing history, financial data, etc.

2.3 Method of Data Analysis

Qualitative methods, as used predominantly in this study, gather data from sources such as interviews and observations, which are mainly non-quantifiable. The snowball sampling interviews that were conducted carried on until sufficient data was collected. Having gathered the often vast amounts of different data this results in, it calls for a structured way of then making sense of the data (Easterby-Smith et al., 2015).

To make the qualitative data from interviews more accessible and easier to survey, notes were taken from each interview and later summarised into a spreadsheet containing the predefined interview questions in separate rows, and the interviewees' answers in separate columns. In this way, all the answer for each specific interview question could be examined and analysed with ease when being used to answer the study's research questions. The on-site observations and internal documents from the case company were also compiled in the same manner as the interview questions so that they could be easily compared.

The quantitative data in the study is, as previously mentioned, mostly consisting of purchasing history and financial data. This data was analysed to mainly identify the size of the purchasing spend per indirect spend category. Additional data regarding, for example, the number of suppliers and the number of transactions were also taken into consideration.

The focus was on identifying savings potential for the different DS Group spend categories. To determine the potential of the categories the spend, characteristics of the category, and organisational structure was considered. Both the qualitative and quantitative data analysis laid the foundation for the identification of the indirect spend categories for which the study gave more focus. When identified, the analysis was focused on identifying and applying suitable theoretical frameworks and suggestions to the case study's situation.

2.4 Quality of Research Methodology

To redeem the quality of this study the empirical measurements of reliability and validity will be discussed.

2.4.1 Validity

Validity concerns the ability of the study to measure or answer the proposed questions and how truthful the results are (Joppe, 2000). In other words, validity is a measure of the study's

quality of measuring or investigating the actual intended measurement. Within validity, there is internal and external validity. Internal validity concerns the data collection and observations made during the study and the results that have developed throughout the process while external validity refers to the applicability of the results in general if the cause-effect relationship would be acquired at different times, participants and procedures (Campbell, 1957; Reis & Judd, 2014).

To strengthen the internal validity of this study, multiple tools and procedures will be used. Data triangulation will be performed by interviewing multiple people, reviewing corporate documents and analysing historical, organisational data. The supervisors at the company, with their knowledge, will aid in the selection of data and interviewees to answer the posed research questions. The academic tutor aids in continuously governing the research process and arranging peer reviews to critically assess the study. The external validity of qualitative studies is generally difficult to achieve due to the nature of data being dependent on the interviewee and therefore varies (Reis & Judd, 2014). The study will strengthen its external validity by clearly stating the subject of the research, the theoretical framework, and the chosen methodology. Additionally, the two external interviews will add to the external validity to see if the interviewees' responses at the focal company are aligned or recognised in the responses in the benchark interviews.

2.4.2 Reliability

Reliability is defined by Carmines and Zellar as "… reliability concerns the extent to which an experiment, test, or any measuring procedure yields the same results on repeated trials." (1979, p.11). As with the case of validity, it is possible to divide reliability in internal and external reliability. Internal reliability refers to the consensus between researchers and interviewees about the data and what has been said. Therefore, both authors attended all interviews, took notes and recorded them when possible. Meetings were continuously held with the supervisors to monitor the information gathered. If potential discrepancies between the collected data and data of the supervisors emerged the information was investigated.

External reliability refers to the extent to which a study can be replicated. As is the case with this study many qualitative studies are based in a special setting or environment and as the circumstances most likely change with time it is difficult to achieve external reliability (Bryman & Bell, 2015). However, the external reliability is increased by clearly describing the methodology and the theoretical framework. A holistic view of the methodology is presented in Figure 2.1.

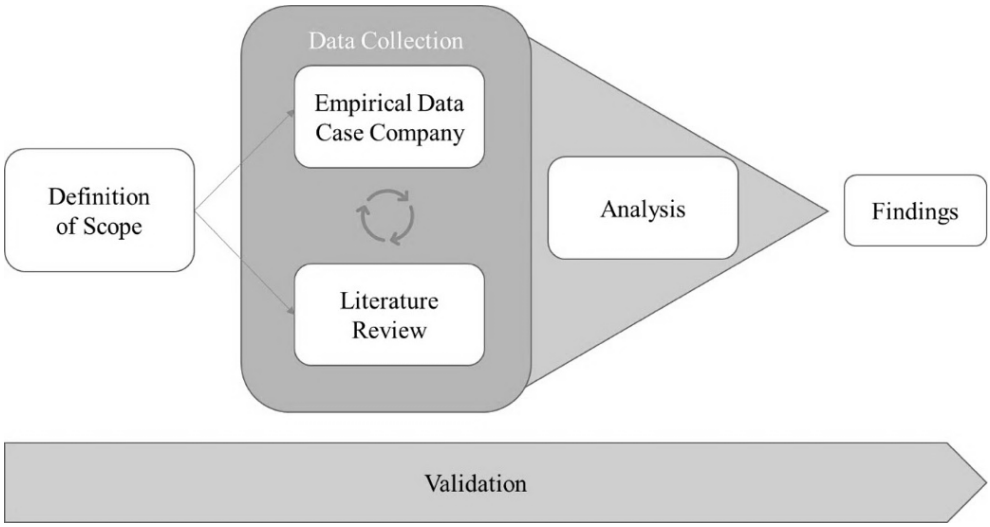


Figure 2.1 – Research Process

2.5 Ethical considerations

When conducting business research, Bryman and Bell (2011) point out four main ethical principles that researchers should consider and avoid. These are: *harm to participants*, *lack of informed consent*, *invasion of privacy* and *diversion*.

Regarding harm to participants, this study mainly considers non-physical harm such as stress, self-esteem or career threats (Bryman & Bell, 2011). To mitigate these potential harms, all conducted interviews were voluntary and anonymous to ensure that no response could be traced back to any individual. Before each interview or observation, the scope and the aim of the study, as well as the reason for the interview or observation, was clearly explained to the participants, thus ensuring that informed consent could be obtained and that no deception took place. Lastly, to avoid any invasion of privacy for the participants, the semi-structured interview questions were closely related to the role of the interviewee and not to them as an individual. If the interviewee at any point felt that interview questions or observations were too personal, they had the right to refuse to answer or abort observations or any activities related to the research.

All data related to the research were collected from the case company. The company has had the right to decide on each piece of data to how it could be presented in the final report. In the case where quantitative data has been used and deemed classified by the case company, it has been distorted into percentages to avoid any traceability, but does not affect the general results of the study. All other qualitative data regarding processes, role descriptions, policies, etc. have been permitted to be included in the final report.

3 Literature Review

In this chapter theoretical concepts, frameworks and models relevant for the study are presented.

3.1 Procurement

Procurement is responsible for the purchasing input in a company's value chain (van Weele, 2009). Within procurement, the purchased goods or services varies greatly. It can relate, but is not limited, to raw material, services, buildings or machinery. The process in general terms is the same and is shown in Figure 3.1 (ibid.). Determining the needs is the first step and from there a specification is prepared and the search for a suitable supplier is initiated. Often multiple possible suppliers are identified, and negotiations are held to get a lower price and a better contract. When the contracts are signed the more tactical part of the process is complete and the orders can be placed and monitored. However, within the processes, the different steps can vary greatly for example when purchasing for a project compared to a standardised product. The purchasing function should work closely with material planning, quality and inventory management to be effective (ibid.).

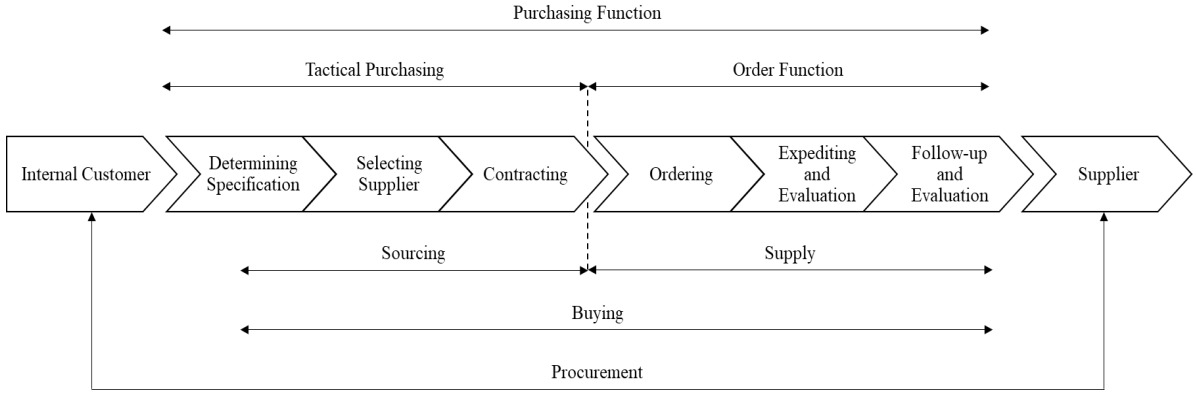


Figure 3.1 – Procurement process model and some related concepts. (adapted from van Weele 2012)

3.1.1 Strategic Importance of Procurement

Top managements view of procurement as a key business driver has been increasing and the importance has made procurement transition from a process to a strategic function in many companies (Calvinato & Kauffman, 2000; van Weele, 2009). According to van Weele (2009) the purchased materials and services usually account for 50% of the cost of goods sold (COGS) in manufacturing companies, when considering other business costs, the purchasing stands for roughly 68% of total costs anchoring its importance as a strategic function. However, the importance of purchasing does not only relate to costs, for it can have a big impact in product development and lead times creating competitive advantages with a better product offering and increasing revenues as a result (ibid.).

Van Weele (2009) constructed a six-staged development model for purchasing., which can be used to evaluate the maturity of an organisation's procurement The model proposes some different stages of how integrated purchasing is in the company and what the main objectives are within purchasing. The model is best used as a guidance for classification and not as a reality.

- *Transaction orientation: serve the factory.* The primary task in this stage is to locate suitable suppliers and ensure that the required materials are available for the company's operations. The activities are mostly administrative and operational, and indirect purchasing is generally done by the intended user. Little knowledge exists of the total spend and the management mostly evaluates the performance from complaints, no complaints imply a well-performing purchasing function. The purchasers have usually received very little formal education.

- *Commercial orientation: lowest unit price.* Within this stage, a purchasing manager is recruited which is tasked with negotiating with suppliers for lower prices. The purchasing has more autonomy and authority with the goal of reducing the unit price, the function has its own department and reports to the business unit manager. The purchasers typically responsible for special product groups and are driving hard negotiations with several suppliers. The performance is measured by price, cost savings and delivery performance and the purchasers have experience of purchasing.

- *Co-ordinated purchasing*. Is characterised by a central purchasing department that implements systems and policies that facilitate coordination and control over the purchasing. This is the first stage with some type of clear strategy consisting of trying to leverage internal synergy and co-ordination to increase purchasing volumes and consolidate among suppliers. The department has an influence on price and costs but also the level of quality of the purchased goods. Non-production buying or indirect material is given some acknowledgement and the purchasing function is starting to get attention from top management. By using portfolio analysis, different supplier strategies are created for how to manage and treat suppliers. The staff are educated, and different roles exist within the department. Training is focused on improving analytics, communication skills and total quality management.

- *Internal integration: cross-functional purchasing*. Shifts the focus from lowest unitary cost to the total life cycle cost by making use of cross-functional problem-solving. Key suppliers are often involved in product development processes indicating more partnership relationships and less confrontational supplier relations. Purchasing is becoming more process-oriented and focused around the internal customers and the strategic importance is fully recognised and involved in make-or-buy and core/non-core decisions. Non-production buying is given serious attention. Operational buying is, with the introduction of advanced systems, integrated into other functions such as material planning and scheduling. Improvements are aimed at integrating the different involved business units in the purchasing process by linking systems of information.

Performance is measured by benchmarking and internal customer satisfaction. The people involved in purchasing have a high level of education and understanding of business with sought after skills in team building and communication.

- *External integration: supply chain management*. Is the first stage with an expressed outsourcing strategy and strong regard to supplier collaboration in product development and planning maximising leverage over external resources. The purchasing function executes or fully supports the non-production buying where users comply fully with corporate contracts and e-catalogues with major supplier involvement. A lot of work is put in to make the life simpler for users with tools such as catalogues, EDI and systems contracting. Cross-functional teams are responsible for the initial purchasing and no longer by individual departments. Residential engineering is used, a concept where representatives from different departments and suppliers are residing within the company to aid improvements and sourcing. Systems are integrated, not only, internally but also with selected suppliers. Sought after skills in participants are the total cost of ownership principles, cost modelling, strategical supply chain management and universal leadership and management skills.

- *Value chain integration.* Within the final stage, the focus is shifted towards generating value for the end customer. Suppliers are here asked to support company strategies for products and markets and to actively take part in product development with goals of creating the most efficient value-chain for serving the end-customer. Purchasing strategy is evaporated and the traditional marketing and purchasing functions are integrated and everything builds on a shared vision with an entrepreneurial culture.

3.1.2 Strategic Sourcing

With the increasing competitiveness among firms and due to the large variety of purchased goods companies cannot treat all items and categories in the same way but instead must prioritise amongst them (Cavinato et al., 2000). Segmentation is necessary and different supply strategies, tactics and approaches are essential to link procurement to the overall strategy. Strategies within purchasing comprises of different ways of acquiring or sourcing products and services. Strategies relate to the use of suppliers but also decisions regarding make- or buy and outsourcing (van Weele, 2009). The choice of strategy depends on many different aspects and the overall strategy of the company (ibid.). For some products price is the only appropriate criteria whilst for others lead time, supplier involvement, and customisation is the most valued criteria.

A development within the area of procurement is the view of total costs of acquisition, not only the price you pay for the product or service but also costs like transportation and administrative costs should be considered (van Weele, 2009). A study conducted by Mitchell and Sawchuk (2012) on indirect material and services over a ten-year period showed that the average cost to process an purchase order (PO), receipt, and invoice was approximately $25 ($25 ≈ 250 SEK, at the time of the study) for the non-world-class performers and 90 SEK for the top performers. Gadde and Håkansson (1994) come to a similar conclusion when

examining the Swedish construction industry, where the average PO process cost was 300 SEK. Additionally, the cost of sourcing, setting up, transacting, and managing the relationship with a new supplier is between $700 – $1 400 (≈ 7 000 – 14 000 SEK, at the time of the study) in internal costs (Mitchell & Sawchuk, 2012). Both the transaction costs and the supplier set-up and management cost provides a rationale for companies to consolidate and reduce their supplier base. This also brings further benefits for the company in the form of reducing the non-compliance purchases that can take place (ibid.).

3.1.3 Kraljic Matrix

To choose a suitable sourcing strategy for the many different purchased items and suppliers, the portfolio model developed by Kraljic (1983) is a popular matrix to make use of. Kraljic designed a two-by-two matrix with the axes of *Supply Risk* and *Importance of Purchasing* for the item or supplier. The result is a matrix with four quadrants of different types of items/suppliers, as illustrated in Figure 3.2. These are *Bottleneck Items, Non-Critical Items, Leverage Items,* and *Strategic Items*.

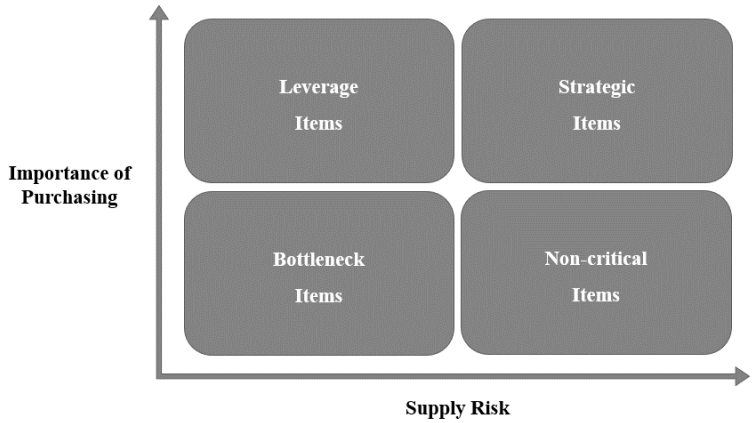


Figure 3.2 – The Kraljic Matrix (adapted from Kraljic, 1983)

The company analyses the supply risk by investigating the existing market conditions in terms of what is available and the substitutability of an item or supplier (Kraljic, 1983). The importance of purchasing can concern the volume and cost of the item, the profitability of the item, and its value-added profile. The company conducting the analysis then weights its bargaining power against that of the potential suppliers to find suitable supply terms and strategies to mitigate risks and to get good deals.

When suppliers have low bargaining power, due to low supply risk, the recommended strategy is to exploit the supplier to get a beneficial price and improve profit margins (Kraljic, 1983). When the suppliers bargaining power is great, the recommended strategy is to diversify by finding alternatives or even finding ways of backwards integration in the supply chain by investing in R&D or acquiring a supplier. When neither the company nor the suppliers have a clear advantage in negotiations, the approach of "balance" is suggested.

From this analysis, action plans should be generated to implement the correct sourcing strategies. For items deemed "strategic" the recommended, short term, the action plan is to consolidate its purchases to a single supplier and accept high prices, for the long-term diversification or backwards integration are recommended to decrease dependency on a single source (Kraljic, 1983). For items where the company has a strong position, it can spread its purchases, reduce prices, and reduce its inventories.

3.1.4 Synergies

Synergies within the field of purchasing is defined by Rozemeijer (2000) as "the value that is added when two or more business units (or purchasing departments) join their forces (e.g. combined buying) and/or share resources, information, and/or knowledge in the area of purchasing" (p.7). The synergies are often divided into three types: economies of scale, economies of information and learning, and economies of process (Trautmann et al., 2009). Economies of scale refer to the standardisation of products and aggregation of volumes to increase the buying power and reduce prices. Economies of information and learning relates to the benefits gained from sharing information on suppliers, technology, applications etc. across sites. Economies of process are the benefits gained from sharing the similar processes and procedures within the organisation (ibid.).

The synergies of co-ordination can then also be identified on a more specific level in which they generally refer to six synergies (Rozemeijer, 2000):

- *Pooled negotiation power.* By consolidating the groups needs more leverage over suppliers is withheld and better supply terms can be acquired.
- *Sharing intangible resources.* By coordination of different departments and employees, there is greater information sharing that can help the different departments make use of each other's knowledge to improve the processes and adopt best practices.
- *Share tangible resources.* With the increased co-ordination, resources such as machines and facilities can be utilised more effectively, and the organisation can gain economies of scale.
- *Vertical integration.* By synchronising flows of products and services between units often comes with opportunities to reduce stock levels, improve product development, and increase capacity utilisation.
- *Co-ordinated strategies.* By adopting similar or the same strategies in different parts of an organisation can come with benefits but is often difficult to achieve across business units.
- *Combined business creation.* By combining intangible and tangible resources new business units and ideas can be generated that can provide value to the organisation.

Co-ordination in itself is touted to be largely dependent on geographical proximity and physical distance of the different departments or workgroups that aim to co-ordinate (Kiesler & Cummings, 2002).

3.1.5 Porter's Five Forces

According to Porter (2008), several different forces shape the climate and attractiveness of industries. Porter's Five Forces framework is widely known and used to analyse business climates and opportunities. The five forces are:

- *Threat of Entry.* If the industry has low entry barriers the risk of entrants is high and fierce competition for market share follows.
- *Power of Suppliers*. In an industry dominated by few suppliers, these often charge higher prices, limiting the profitability of the industry.
- *Power of Buyers*. If the buyers are few and big, they can have a lot of control over their suppliers as they usually represent a large share of their income.
- *Threat of Substitutes*. If a lot of substitutes to the product or service exists, the buyers have a lot of alternatives and therefore profitability is lowered.
- *Rivalry Among Existing Competitors.* Fierce competition among the different companies drives down prices and profitability of the industry.

These powers are very often related and affect each other. For example, the power of buyers increases with an increase of substitutability and a fierce rivalry among existing competitors (ibid.).

3.2 Purchasing organisation

The organisation and structure of purchasing in multi-unit companies varies due to both situational factors and industry characteristics (van Weele, 2009). Some organisation have corporate level purchasing departments responsible for strategic purchasing and operative purchasers for buying commodities. Other companies have specific groups, or even business units, of purchasers responsible for different categories while this within smaller to medium-sized firms often can be carried out by a general manager (ibid.)

3.2.1 Organisational Purchasing Structures

The structure of purchasing is usually distinguished as centralised, decentralised, or a hybrid which is a mix between the two (van Weele, 2009). The terms refer to how and in what part of an organisation that the different procurement processes are executed.

A decentralised structure, illustrated in Figure 3.3, is usually found in companies that have a business unit structure, where every business unit manager is accountable for the financial results of the unit and therefore also responsible for all purchasing activities (van Weele, 2009). This structure can often result in situations where different business units are negotiating over the same products with the same supplier and by so, competing with each other and driving up the price. The structure is however often used and applicable for companies where the different business units are purchasing entirely different products from other business units and therefore are not exposed to the risk of competing for intra-company (ibid.).

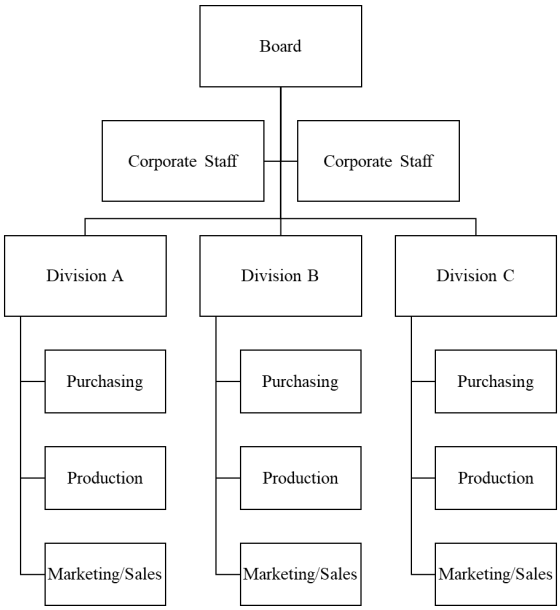


Figure 3.3 – Decentralised Purchasing Structure

A centralised structure, as illustrated in Figure 3.4, consists of a corporate level purchasing department that makes decisions and purchases for strategic and tactical levels (van Weele, 2009). Specifications and supplier selection are carried out centrally and often in collaboration with R&D and engineering divisions. Contracts usually span over multiple years and state the supplier conditions in detail. The operative activities within purchasing is conducted at the operating company level. By improved co-ordination within purchasing this can result in better supplier terms concerning price, service and quality (ibid.). Disadvantages include limited responsibility in purchasing for business unit managers, these managers might also be convinced that they can attain better conditions and therefore undermine the structure and act individually. The structure is suitable when different business units purchase the same, strategic products.

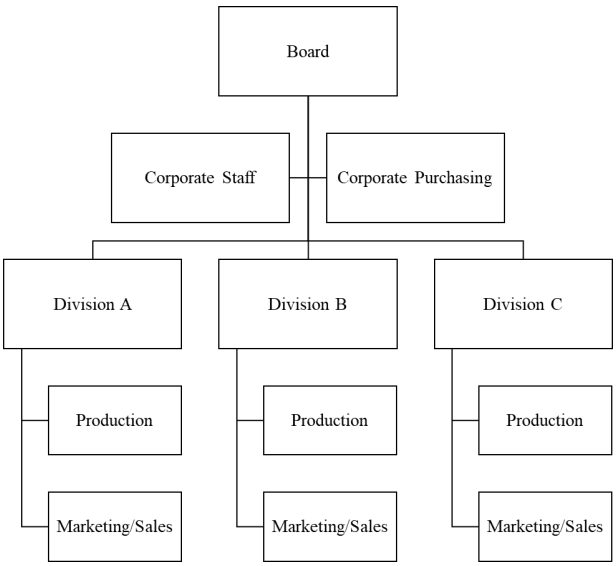


Figure 3.4 – Centralised Purchasing Structure

The hybrid structure, as shown in Figure 3.5, is a combination of both the centralised and decentralised structures. Tasks within purchasing are here divided between the corporate functions and the local offices, long term contracts can, for example, be negotiated on a corporate level while the subsidiaries handle ordering and the more operative tasks (Monczka, Trent & Handfield, 2002). The aim is to combine the purchasing of products that are used in several operating units to leverage and gain power in negotiations with suppliers (van Weele, 2009).

A key challenge is deciding what categories should be incorporated and sourced centrally and what categories are best kept separate (Trautman, Bals & Hartmann, 2009). A risk of centralising certain categories and procurements are that some sites might have better deals with local suppliers and therefore a centralisation will result in higher costs as a result.

The co-ordination of this structure varies, the unit responsible for purchasing of a product category can be based on voluntary participation, the unit buying the biggest volumes, or by the unit that designed the product or component. The co-ordination can also be done on different levels so that the responsible department manages a specific article, supplier or regional level etc. (van Weele, 2009). The hybrid structure is growing in popularity and research has shown that it is the structure that is growing fastest in the US (Johnson et al., 2014).

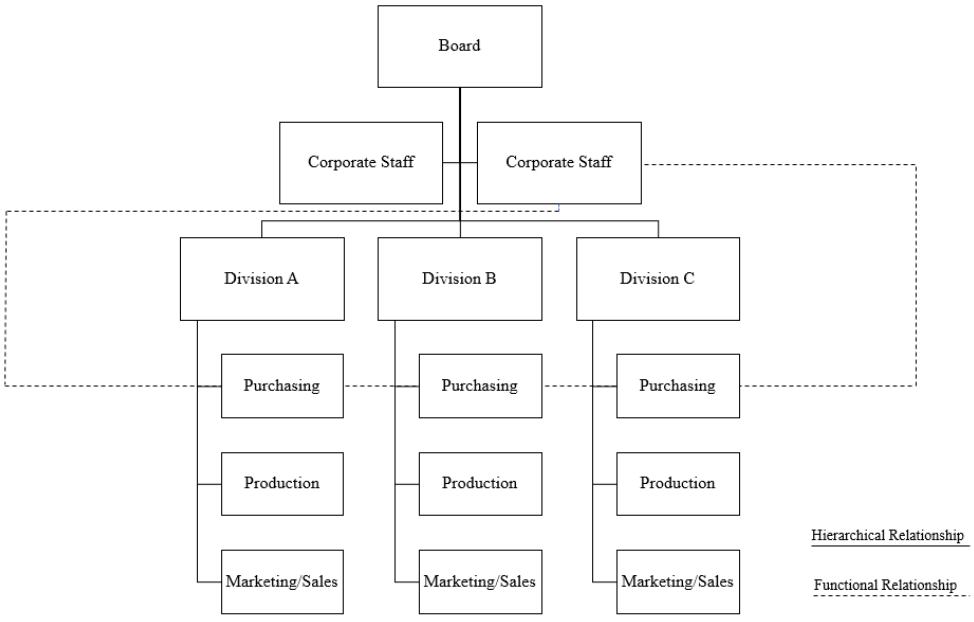


Figure 3.5 – Hybrid Purchasing Structure

3.2.2 Organisational Factors

One of the strongest factors that influence the structure and location of purchasing is how it is viewed by top management (van Weele, 2009). If it is considered as an operational activity it is more likely to have a lower position within the hierarchy. Management's view of

purchasing generally increase if purchased goods make up a large share of total costs, the organisation is financially pressured, and how dependent the company is on its suppliers (ibid.). The following factors affecting the choice of structure is other factors mentioned by van Weele (2009):

- *Commonality*. A higher degree of common goods favours a centralised purchasing structure.
- *Geographic location*. When business units are spread out over different continents it might be more efficient to coordinate on a regional level.
- *Supply market structure*. If a few suppliers are available and have a power advantage, co-ordination is suitable to increase the negotiating power.
- *Savings potential*. The price of certain raw materials and components are very sensitive to changes in volume and therefore co-ordination can be attractive.
- *Expertise required*. Occasionally very specific knowledge is essential for effective purchasing, often for high-tech components. Therefore, centralisation is desirable in these situations.
- *Price fluctuations*. If the price of commodities such as wheat or coffee is sensitive to the political and economic climate, a centralised structure is usually advantageous.
- *Customer demands*. In certain industries, the customer has specific demands of what supplier to use for different business units. Hence, a centralised approach is impractical.

3.3 Direct vs. Indirect Procurement

This sub-chapter will be dedicated to differentiate the characteristics of the terms *direct* and *indirect* procurement. A literary overview of the two terms will be provided to understand what sort of materials and services are included in which type of procurement.

3.3.1 Direct Procurement

As previously stated, when discussing procurement, the topic is mainly the procurement of direct material (Cox et al., 2005). Direct material, or revenue-generating expenditure, consists of the raw materials, components, goods, etc. that go into the manufacturing of a product or a service (Jayaram & Curkovic, 2018). As this material is directly related to the products or services produced within a company it is the one area within purchasing that receives a great deal of attention.

3.3.2 Indirect Procurement

Indirect procurement, conversely, to direct is the sourcing and purchasing of materials and services "…not directly tied to the creation of a finished product or service…" (Payne et al., 2011, p. 1), or the non-revenue-generating expenditure as Cox et al. (2005) would define it. The goods and services purchased are bought for internal consumption at different business

units or functions. The indirect materials and services are often referredin literature with the abbreviation *IDM*.

There is no universally accepted or agreed definition to what should be categorised as a direct or an indirect cost, as it differs from organisation to organisation regarding how they choose to allocate their costs. Payne et al. (2011) have however attempted to sample the most common indirect spend categories, being expenses in *Administration*, *Facility*, *Finance and HR*, *Sales and Marketing* as well as *IT and Telecommunications*. Jayaram and Curkovic (2018) include these types of expenses in their definition as well, shown in Table 3.1, but at a more detailed level.

Table 3.1 – Indirect Procurement categories (Jayaram & Curkovic, 2018)

Category	Example
Marketing related services	*Media purchases, promotional activities, …*
Professional services	*Consultants, advisers, …*
Travel management	
IT-related services	*Hardware, software, …*
HR-related services	*Recruitment, training, …*
Facility management	*Furniture, cleaning, …*
Utilities	*Gas, water, electricity, …*
Consumables	*Grease, oil, …*
MRO	*Maintenance, Repair, Operations*
Capital goods	*Plant, machinery, …*
Fleet management	

- *MRO (Material, Repair and Operational expenditure)*

  As noted in Jayaram and Curkovic's (2018) categorisation of indirect procurement, the term MRO (Maintenance, Repair and Operational expenditures) is mentioned. These are items and services that are purchased to ensure that the company's operations (manufacturing, administration, etc.) can keep running. Spare parts for machines is usually a large spend area within MRO goods.

3.3.3 Key Differences between Direct and Indirect Procurement

To illustrate the key differences between the direct and indirect procurement of materials and services, Cavinato et al. (2000) has summarised the key characteristics of the two types of procurement. This summary is represented in Table 3.2.

Table 3.2 – Direct vs. Indirect Materials (Cavinato et al., 2000)

	Direct Production	Indirect Materials
Source	MRP	Catalogues
Forecasted	Yes	Rarely/Difficult
Order Format	Digital	Voice/Fax/Paper
Order Frequency	Scheduled	Unscheduled
No. of Suppliers	Low	High
% of Expenditure	~ 80%	~ 20%
% of Transactions	~ 20%	~ 80%

3.4 Indirect Procurement Processes

Having highlighted the key differences between direct and indirect procurement of materials and services, several researchers have identified difficulties in managing their indirect procurement processes as opposed to direct. Among these are de Boer et al. (2003), arguing that a large portion of organisations fail to understand the importance of indirect procurement and thereby puts less effort into developing well-functioning processes. Jayaram and Curkovic (2018) have identified three main problem areas in the processes that differ from the direct material and services procurement processes:

1. The indirect procurement is often spread out in the organisation and its departments, whereas the direct procurement often is centralised to one procurement department.

2. Processes for the indirect procurement are often non-existent or they lack defined KPI's for follow-up activities on the purchasing performance.

3. There is often a lack of guidelines or standards, regardless of the size of the organisation, resulting in a growing number of indirect materials and service suppliers.

Regarding Jayaram and Curkovic's (2018) first finding of the decentralisation of the indirect procurement is backed by de Boer et al. (2003), being that the purchasing function's involvement in companies total purchasing spend is rather low. The authors (ibid.) refer to a *CAPS – Center for Advanced Procurement Strategies* – study where the total purchase spend of 116 companies was analysed. Of the total spend, only 41% was purchased through a purchasing function, and the remaining 59% through other functions such as R&D, finance, marketing, etc. (ibid.). This decentralisation leads to several difficulties when attempting to effectively manage the indirect spend.

3.4.1 Difficulties in Indirect Procurement Processes

From the characteristics of the indirect procurement processes, several difficulties can be identified. These will be presented in the following subchapter.

- ***Management's failure to identify the importance of indirect procurement***

  Jayaram and Curkovic's (2018) findings regarding problems in indirect procurement processes are aligned with what van Weele (2009) and Cox et al. (2005) discuss regarding the mindset of purchasers and managers. Especially Cox et al. (2005) mentions that the indirect procurement largely is forgotten, or at least not considered to have a large effect on the procurement performance, and thereby regarded as a low-value and low-risk area to manage. However, as previously mentioned, empirical evidence from previous studies show that the indirect spend constitutes between 40-50% of an organisation's total spend (Cox et al., 2005; van Weele, 2009; Cavinato et al., 2000), making the previous argument invalid.

- ***Decentralisation of indirect purchases***

  The spreading of the purchasing activities does, however, carry some flaws, mostly connected to the lack of purchasing expertise at the employees placing the purchasing orders (de Boer et al., 2003). As purchasing is not their main activity, spend management is not highly prioritised and selection of suppliers is instead selected irrationally and through personal connections or relationships, resulting in fragmented supply chains (Payne et al., 2011; Cox et al., 2005).

- ***Collection of indirect spend data***

  Since upper management tends to overlook the strategic importance of indirect procurement, the responsibility is instead dispersed to purchasers or lower-tier managers in different departments of the organisation (Cox et al., 2005). As the purchases are being spread to different departments or different business units, it makes the work of collecting and gathering the total spend data regarding indirect materials and services much more difficult. The data gathering process becomes even harder and more manual labour intensive if the spend categorisation is not standardised. Carrying out this data collection is according to Carter et al. (2003) crucial to be able to analyse and identify what spend categories can be levered and improved.

- ***Demand tracking***

  Another difficulty that Jayaram and Curkovic (2018) discuss is that not a lot of companies keep a record of the inventory on hand of indirect materials. This makes it more or less impossible to keep track of the actual demand for the products, and the purchasing cannot be carried out with e.g. re-order points or other inventory management techniques. As a result of this, the risk of non-authorised purchases (*maverick buying*, further explained later) taking place throughout the organisation is substantially increased as there is no reliable way to measure the true demand or demand patterns over time.

  As van Weele (2009) argues that the measurement of consumption of indirect material is of great importance when building the spend analysis, being a crucial step in identifying,

and ultimately realising, savings potential. Another aspect of van Weele's (2009) discussion of tracking the actual consumption is that it tends to increase towards the end of the year, presumably because departments want to spend their entire allocated budget for that year. Not spending the entirety of the budget may lead to budget cuts in the following year, but also means that the organisation is purchasing materials and services which it does not need.

3.4.2 Maverick Buying

Having briefly mentioned the concept of what maverick buying is in the previous chapter, the concept will be explained further in detail together with the underlying reasons for it. *Maverick buying* (or *maverick purchases*) are the unauthorised purchases that take place outside of an organisation's formal purchasing processes or existing corporate purchasing agreements (Karjalainen et al., 2009; van Weele, 2009). Especially the indirect purchases are often affected by maverick purchases, as the indirect purchases usually are decentralised with no one with the sole responsibility of managing these purchases.

Making decentralised maverick purchases outside central agreements removes advantages of volume consolidation to fewer suppliers, purchasing leverage, and ultimately being able to reduce purchasing costs. Even if a lower purchasing price for the one-off purchase sometimes can be found, the costs coupled to processes of finding a new supplier, ordering and payment will most likely make the purchase more expensive than purchasing from a preferred supplier. The risk of not meeting eventually promised volumes to preferred suppliers is also prominent if purchases are made with other suppliers, and therefore not complying with the agreed terms can be costly or strain the relationship (Karjalainen, 2009).

The reasons for maverick purchases taking place is according to Karjalainen (2009) ranging from employees lacking awareness, mostly due to limited knowledge or information, to them actively acting opposite to agreed processes and agreement. The latter behaviour usually stems from the belief that what they are doing is better for the organisation.

3.5 Identifying and Realising Potential Savings in Indirect Procurement

The often perceived problems and difficulties experienced within companies regarding the control of their indirect spend entails large possibilities of realising potential cost savings (Kapoor & Gupta, 1997). To be able to realise these theoretical savings however, the company needs to conduct a thorough project to map current purchasing processes to know how they are performing today. In this chapter, the crucial project steps of *data collection and spend analysis*, *identifying potential savings*, *prioritising opportunities*, *realising opportunities*, and *follow-up and continuous improvement* will be described. This to not only make the savings project a one-off saving but to ensure a continuous future work of identifying and realising potential indirect savings (ibid.).

3.5.1 Data Collection and Spend Analysis

The recurrent first step when setting out to realise the potential savings in indirect procurement is, of course, to identify potential savings through a detailed spend data analysis (van Weele, 2009; Payne et al., 2011). The main purposes behind the spend analysis is to identify where to focus the effort of, often limited, resources and to understand both quantitative and qualitative requirements and underlying reasons behind why the spend is distributed in the way it is.

- ***Spend data collection***

  To be able to conduct a spend analysis, the spend data must first be collected. The two main pieces of information is usually the *quantity* and *price* (Payne et al., 2011). However, these pieces of information are not as simple as they may seem to gather. Price, or price per unit, may be affected by price breaks, freight terms, or simply that the item or service does not have a negotiated fixed price. The purchased quantity is often only analysed for the previous twelve months, while in many cases substantial changes in volume can have happened from the year before and should be considered when negotiating new deals or consolidating volumes with other company sites if they exist.

  As mentioned in the previous chapter, collecting this data for indirect spend is often complicated. Some companies have already identified the need for and implemented advanced spend analysis tools. However, if the company in question has not come this far, the *general ledger* or *accounts payable ledger* (AP) can be used to manually extract data regarding the company's purchasing spend (Payne et al., 2011). The general ledger provides all the transactions that take place in the company's different accounts, but often at a high level of detail regarding categorisation of the expense. Each transaction is also often noted with comments referring to either accounts payable or a purchasing order (PO) to note what sort of purchase – goods or service. These comment fields are usually free text fields, making the data inconsistent. This field may contain important information regarding the supplier, PO-number, etc., and will require substantial manual work to cleanse out the information needed for the spend analysis. If instead the AP ledger is used, it carries some advantages over the general ledger in this regard. The accounts payable ledger only carries information of what has been paid to specific vendors, not all transactions as in the general ledger which can be both in and out. As it carries information about specific vendors, supplier names or numbers are more likely to already be systematically recorded and thus reducing the manual efforts required (ibid.).

  Both the general ledger and AP ledger can provide a high-level list of what is being purchased, but there is a risk that the item level is far from standardised. It can prove to be a tedious task to try and sort out for the line-item level to build an even more detailed report of what is being purchased form each supplier. Instead, Payne et al. (2011) suggest that suppliers often keep very good track of their sales and that they can provide this level of detail if contact is made directly. However, there is a risk that the supplier will understand that there is an ongoing search for savings opportunities and may do their best

to avoid assisting, especially if they know themselves that they are not selling at a competitive price.

If the company has multiple locations and sites, the data collection can increase in complexity. Especially if the different sites are using different ERP systems, it requires aid from IT-departments to understand how these ERP systems are integrated and what possibilities there are for generating coherent reports for the total spend. If the indirect purchasing is decentralised and ordering and payment methods differ in throughout the company, assistance from the finance department might be required to be able to construct desired reports (Payne et al, 2011).

- ***Spend analysis***

  When all the data is collected it requires standardisation and categorisation for the analysis to be carried out in the desired way. If the collected data is of high quality already, the main task in the spend analysis will be the categorisation (Payne et al, 2011). This can be done by classifying suppliers through either industry-standard categorisation code systems, such as NAICS (North American Industry Classification System) or UNSPSC (United Nations Standard Products and Services Code), or manually assigning a fitting spend category to the supplier. A problem arises with suppliers that provide a wider range of different goods and services, making them harder to assign one single category. However, assigning to one category by e.g. the largest spend for a particular product or service will be enough to carry out a high-level spend analysis (ibid.).

  The drawback of conducting this sort of manual data collection and spend analysis, apart from it being time-consuming, is that it will only represent a snapshot of the organisations spend for a selected period (Payne et al., 2011). This data can quickly become outdated, and the need for a new data collection and spend analysis will be required in the future. Instead, several spend analysis tools can utilise different techniques and methods to standardise, cleanse and categorise the spend data to facilitate the possibility of drafting spend analyses with current data (ibid.).

  When categories are finalised, the spend data can be sorted per category, per supplier and identify the number of suppliers per category. This ranking will provide an idea for where a further and more detailed analysis should be conducted (Payne et al., 2011).

- ***Other relevant data and information***

  The spend analysis will not provide a straight answer to identifying potential savings. To understand the spend data in more detail, discussions with the employees that make the purchases should be held (Payne et al, 2011). In this way, a better understanding of how sourcing is done and more specific information about what is purchased at the different departments can be attained. What roles and responsibilities exist, how suppliers are being chosen, the awareness of the indirect spend, etc., are all questions that can be answered during these discussions.

Another important aspect is to map what current contractual agreements are in place for different product or service categories. Especially important for identifying potential savings are the general, pricing and liability terms to be able to compare contracts in future negotiations (Payne et al., 2011). For service contracts, the service level requirements, scope of work and specifications of the service should be considered to reduce future supplier switching costs. This reduces subjectivity when conducting sourcing efforts of services by having a clear understanding of what the service entails and can be referred to if the service is not carried out satisfactorily (ibid.).

3.5.2 Identifying Potential Savings

When it comes to identifying cost savings opportunities, or potential savings, Payne et al. (2011) categorises these opportunities into three different types – leveraging opportunities, process improvements, and product or service changes.

- *Leveraging opportunities*. The information from the data collection and spend analysis is used to leverage negotiations with current or new suppliers of a product or service to reduce the price. This is the most common type of cost-saving that companies achieve when successfully reducing their indirect spend.
- *Process improvements*. Identifying inefficiencies in the indirect procurement process and taking actions to improve, through e.g. utilising new technologies. This sort of opportunity does not only reduce costs, but it also removes unnecessary costs.
- *Product or service change*. Identifying alternative product or services that can be sourced to a lower price, of course, subject to that it meets the specifications and requirements.

Developing a more advanced and strategic sourcing entails several potential cost reduction opportunities for a company. The effects of such efforts has been studied by Rudzki (2005), wherein Table 3.3 the results are presented as an interval of potential savings for several spend categories.

Table 3.3 – Possible potential cost reductions per category (Rudzki, 2005)

Category	Potential cost reduction (% of spend)
Raw materials	2 – 5%
Packaging	10 – 20%
Indirect materials and services	10 – 20%
Information Technology (IT)	15 – 30%
Professional services (consulting, legal, HR, ...)	8 – 15%
Logistics/freight	7 – 15%
Media/marketing/promotional items	10 – 20%
Other indirects (nonproduction costs)	5 – 15%
Capital projects	7 – 15%

3.5.3 Prioritising Opportunities

Every organisation has ideas on how to improve themselves, but different projects are coupled with different results and effort. Therefore, prioritising between projects is a key activity to effectively improve an organisation. In general, the factors to prioritise among is the potential benefit from the project and the estimated effort of completing such a project successfully (Chakravorty, 2012).

The benefit of a project can be estimated by asking executive members and other personnel to value projects in terms of quality, financial impact, safety, productivity etc (Chakravorty 2012). The values are then weighted to aggregate into a quantitative value for the benefit of different projects. The same can be done for estimating the effort required for different projects. Here the factors can, for example, relate to required personnel, duration, cost and risk of the projects. The values are then visualised by a two-by-two matrix with axes of *effort* and *benefi*t, graded from low to high as illustrated in Figure 3.6. Naturally, the projects in the "*high benefit, low effort*"-quadrant (1) are the ones that should be of highest priority to make quick wins and show that the efforts are making results. The projects in "*high benefit, high effort*" (2) should follow, then "*low benefit, low effort*" (3), and lastly "*low benefit, high effort*" (4) if they are deemed to be worth the required effort.

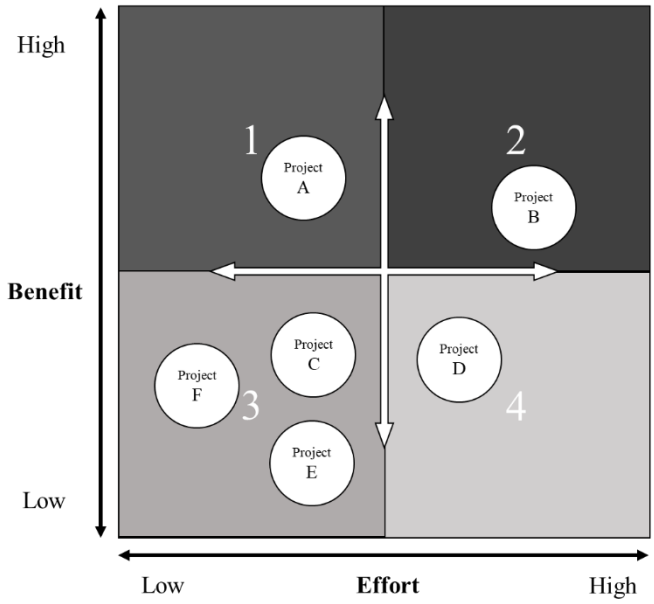


Figure 3.6 – Prioritisation Chart (adapted from Chakravorty, 2012)

Even if savings potential and opportunities have been identified, it can in many cases turn out to be hard to implement within the organisation. Payne et al. (2011) point out that the change management must be well-considered and a plan in place for how to convince business units, departments and individuals to act following the savings efforts. One important part of this change management is to make sure that the plan is anchored with the executive team of the company and make the realisation of savings a prioritised item of their interest.

3.5.4 Successful project management

Successful project management is required to transition from potential to realised savings. Projects within the area of IDM often face internal resistance as it is an area where pretty much every employee, to some extent, is an internal customer of the products and services (Payne et al., 2011).

Several authors (Payne et al., 2011; Kotter, 1995) state the importance of having a dedicated team or resource to the project. Without declaring roles and responsibilities projects often stall as the project loses momentum. A team needs dedicated time for the project, clear roles, tasks, and timelines to help drive the project. A high-level sponsor is also needed to increase credibility and provide assistance if problems arise during the project (Payne et al., 2011; Kotter, 1995).

The project team needs to maintain and update the high-level support as the project progresses. Weekly updates should be conducted to ensure that the project is aligned with managements vision and that deadlines and objectives are met (Payne et al., 2011). High-level support also facilitates commitment to the project and helps the employees understand the need for change as well as creating a sense of ownership from the management, increasing the chances of a successful project (Hayes, 2018).

3.5.5 Follow-up and Continuous Improvement

To ensure that improvements are anchored within the organisation and that maturity of IDM grows over time it is important to follow-up and monitor the results of past projects (Payne et al., 2011). Continuous evaluation and monitoring of spend and compliance of both internal customers and suppliers are required to ensure that the projected savings are met. Monitoring incoming invoices and comparing them to established contracts should be done to ensure that contractual terms and prices are adhered to. Monitoring the spend towards certain types of suppliers and comparing to the baseline can be done to monitor the compliance within the company, ensuring that preferred suppliers are used and that implementations are anchored in the organisation.

4 Empirical findings

In this chapter, the main empirical findings will be presented. The objective is to provide a background, current state, and context of indirect procurement at DIH based on the different data collection methods used.

4.1 The case company

The business units Wellspect and Implants have been part of the same group since 1993 when Implants was started as part of the Swedish company Astra Tech AB. Wellspect is a manufacturer of technical products that aid persons with bladder and bowel problems, while Implants is a manufacturer of dental implants. This group of companies was acquired by the American company Dentsply Sirona in 2011, which is the world's largest manufacturer of professional dental equipment and products and has acquired several companies worldwide.

Wellspect and Implants are located near each other at the site in Mölndal, Sweden. They share functions for HR, IT, Finance, Legal and Site Support that manages restaurants and cafeterias etc.

4.1.1 History

Wellspect's history began in 1948 when the company AB Sjukvårdsutensilier was founded and operated as a hospital wholesaler. The company was in 1957 acquired by Astra AB and in 1983 it launched the first hydrophilic catheter LoFric. Within Astra AB, the new business division Implants was founded in 1992 and two years later the name Astra Tech was introduced for the two business divisions. Astra AB merged with the Zeneca Group in 1999, and Astra Tech was subsequently a part of the newly formed company AstraZeneca. In 2007 two strategic acquisitions of Atlantis Inc. (USA) and Denics International Co. Ltd. (Japan) took place. In 2011 Astra Tech AB was acquired by Dentsply International Inc. (USA) from AstraZeneca, and the following year the separate business units Wellspect and Implants were formed. DS Group has 40 locations spread out across all continents.

Historically the companies have been working closely and have shared both facilities and resources to a great extent. The procurement teams of Wellspect and Implants shared offices during the early 2000s but was later divided when different quality systems were implemented for the companies. Ever since this division, the procurement functions of the different companies have a low degree of collaboration and communication. There is a low degree of awareness about shared suppliers and products, both for the direct material but even more so for the indirect material and services.

Wellspect is less governed and controlled by the general group management in comparison to Implants, likely as a result of the differences in products between the dental focus of the group on a global level and Wellspect's products for bowel and bladder. Global initiatives have influenced Implants more in comparison to Wellspect which operates rather individually and identify less with the group.

4.1.2 Organisational Structure

Wellspect has a majority of its operations and functions located in Sweden with the HQ in Mölndal. Outside of Sweden, they operate a manufacturing plant in Kazan, Turkey. All of the operations such as manufacturing, R&D, Sales, Marketing and Quality etc. are based in the Mölndal HQ.

Implants also conduct most of their operations in Mölndal. R&D, Marketing, Sales and some Manufacturing is performed at the site. Implants's products are however more dependent on manufacturing operations conducted in other sites. The functions and shared functions at the Mölndal site are pictured in Figure 4.1 below.

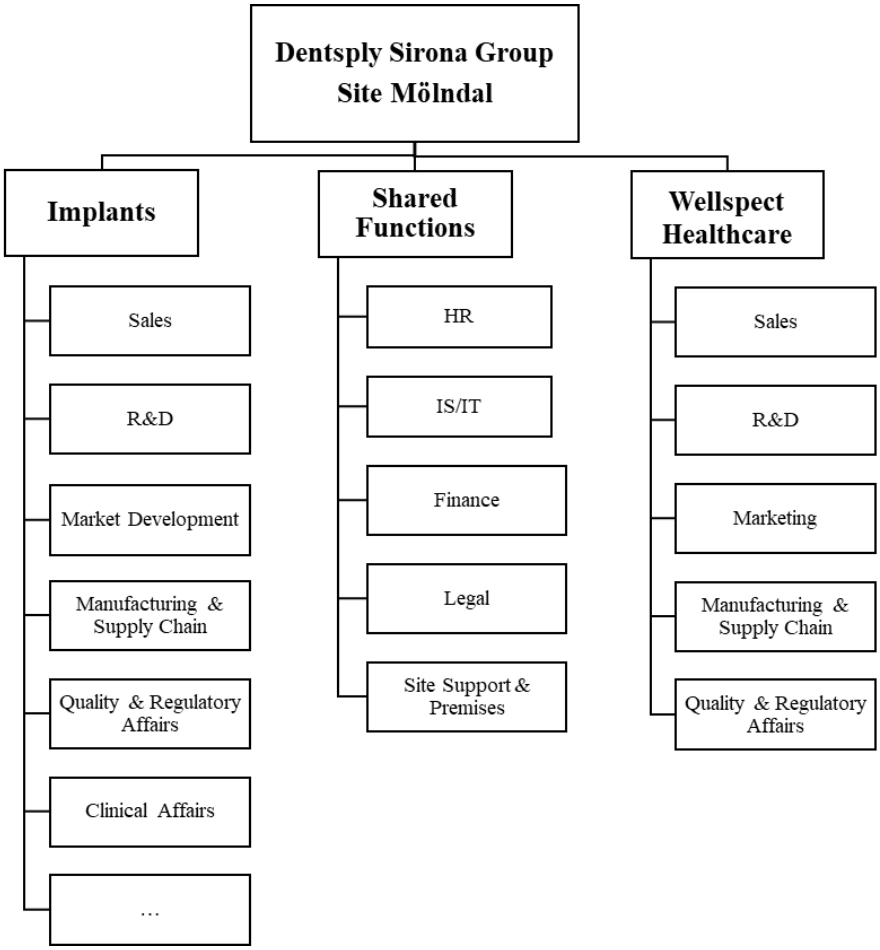


Figure 4.1 – Site Mölndal Functions

4.2 Procurement Organisation

The procurement organisation will be presented for both the DS Group's procurement function and the procurement functions located at DIH in Mölndal. This will give a general overview of the different roles, responsibilities and processes throughout the company and provide a deeper understanding to how and why the focal company has decided to organise themselves in the way that they have.

4.2.1 Procurement Function, DS Group

DS Group's procurement function is organised in a way where certain types of purchasing is conducted on a globally centralised level while more product and specific purchasing is performed on a business unit level. The organisation has recently initiated a reorganisation of the procurement functions and implemented global category managers, mainly for the procurement of direct material. The global procurement organisation and the number of managers within the different areas is depicted in Figure 4.2. It is comprised of three areas; the *Direct*, the *Indirect*, and the *Center of Excellence (CoE)* – all reporting to the Vice President of Procurement.

The *direct* procurement area is responsible for all material that goes into the manufactured products within the group, which e.g. could be metals, electronics, etc. The *indirect* is conversely responsible for everything which does not go into the manufactured products. Area managers for the direct and indirect are tasked with managing the spend more effectively and efficiently across the entire DS Group. *The Center of Excellence (CoE)* carries the responsibility of standardising processes, categories, roles and training for all employees involved in the procurement function of the organisation.

Traditionally, and still, the direct material has been the priority for DIH. The company is operating in a very regulated industry where there are tough specifications that need to be met and therefore quality and supplier management have received a lot of attention. The industry has also experienced rapid growth and has required a lot of resources for securing supply as demand has increased.

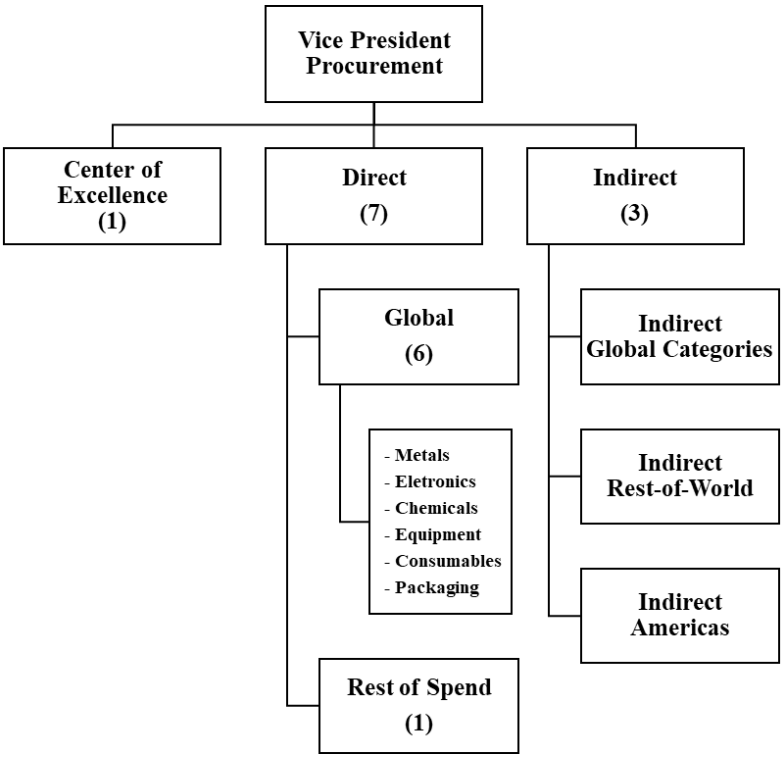


Figure 4.2 – DS Group Global Procurement Organisation (number of area managers)

Contracts for certain items and materials are negotiated centrally to leverage volumes and reduce prices. The reorganisation and introduction of clear category managers serve the purpose of increasing the central agreements to become more effective and efficient on a group level.

4.2.2 Procurement Functions, site Mölndal

In Mölndal, Wellspect and Implants have entirely separate procurement functions. This is mainly due to the reason that they operate within two very separate areas within MedTech, with Wellspect operating within bladder and bowel aids while Implants operates in dental implants. Therefore, the direct material and services they procure differ in nature.

Wellspect's procurement function is only responsible for carrying out the strategic and tactical part of the direct procurement process. Sourcing is the largest part of their responsibility with continual evaluation of suppliers, assessment of suppliers, sending out RFQ's, negotiations and contracting. This sourcing role is called a *sourcing lead*. The role also carries a responsibility within certain projects regarding the development of new products, which could range from finding new suppliers of certain materials or components to the procurement of new production machinery.

The operational purchasing for Wellspect is not carried out by the procurement function, but by the supply chain function. The supply chain function's responsibility is to ensure that the right goods are at the right location at the right time, to the lowest cost possible. Therefore, the placement of purchase orders is handled by the supply chain function and by the role of *planners*. In Figure 4.3, this organisation and coordination is illustrated. At Implants, both the strategic and operational purchasing activities are handled within the procurement function.

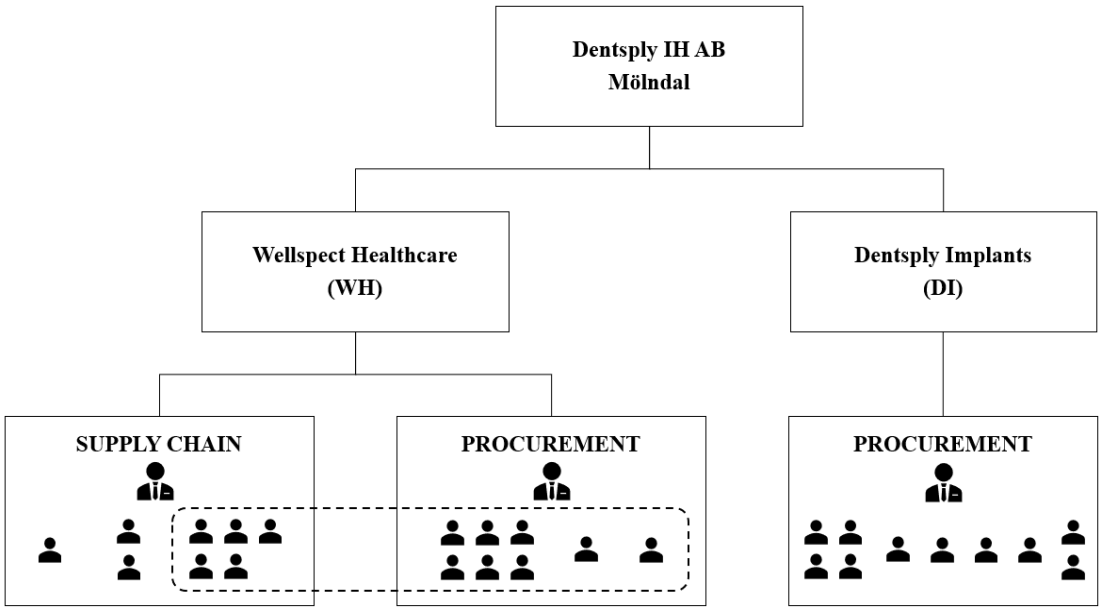


Figure 4.3 – DIH Procurement teams and coordination

The procurement for Wellspect in Mölndal consists of six sourcing leads, one supplier quality engineer. The team is then complemented by five more planners from the supply chain function. The responsibilities of specific materials, components or suppliers are divided between them and are exclusively related to the procurement of direct material.

The Implants procurement team in Mölndal consists of ten people split by four sourcing leads, one strategic purchaser, one buyer, one administrator, one purchasing agent, and two resource consultants with purchasing roles. The responsibilities are divided amongst them and the majority is focused on exclusively direct material. However, one consultant is responsible for indirect material. This person is responsible for sourcing safety gear that is used by both Wellspect and Implants at Dentsply IH AB.

These procurement teams at Wellspect and Implants are not formally responsible for any indirect procurement but may assist other departments in case of questions regarding sourcing or contracting. A lot of time is spent on controlling and evaluating the quality of products and suppliers as both business units are operating within MedTech, a very heavily regulated and controlled industry.

4.2.3 Indirect Procurement Functions, site Mölndal

Although the procurement of IDM within the departments receives little acknowledgement and there is no formal indirect procurement function, certain departments within DIH are more focused on IDM. Some functions are shared between Implants and Wellspect in Mölndal, such as Facility, Site Support and IT. These functions have sole responsibility for the site, whether it is for Wellspect or Implants, making the functions more coordinated in their purchasing. These functions have typically not received any education within purchasing but do have better control and overview of their costs as they are centrally handled and collected.

At DIH as of today, there is no function or formally allocated resources, neither fully or partly, within the organisation which is assigned the responsibility of managing IDM. As previously mentioned, there is one employee within the purchasing department of Implants that is working on coordinating the purchasing of protective clothing and equipment for manufacturing for both Implants and Wellspect as they use similar products. Except for this person, there is no formal collaboration within indirect procurement between the two business units except for the aforementioned shared functions.

During the early 2000's one person within each department was responsible for its purchasing and received a short introduction within the area of purchasing to aid in understanding the process and practices for conducting a complete sourcing effort and negotiating good deals. Department purchasers were later deemed redundant and the departments have not received education since, although the departments still have the same responsibility for their IDM purchases. This is nowadays not assigned to one specific employee if the department themselves have not chosen to do so themselves. Few examples within DIH of this can be found.

4.3 Indirect Procurement

At DIH, indirect procurement is for the most part largely decentralised except for some expressed global categories. Every department is responsible for their IDM purchases with little to no coordination among departments and even less among the two business units Implants and Wellspect.

4.3.1 Roles and Responsibilities

On a global level, there are three managers responsible for indirect procurement within DS Group. Reporting to these managers are several other specific category managers responsible for categories such as travel or events and are controlling the different units and negotiating contracts with suppliers.

Two global category managers are situated in Mölndal, their respective responsibilities are *Travel* and *Meeting/Events and Trade shows*. DS Group has dedicated most of their time for the category of travel where the majority of sites and employees are controlled and constrained to certain contracts via a third-party digital platform that everything goes through. *Meeting/Events and Trade shows* is one of the later initiatives and have recently implemented a similar third-party digital platform to help employees to comply with policies and central agreements.

Central agreements exist for some categories but do not have any controlling systems and there is a low degree of knowledge about these agreements. Several departments express a feeling of not knowing if any central agreements exist. In certain cases, departments know that there are central agreements, but nobody knows where to find them or what they include.

4.3.2 Indirect Purchasing Process

As mentioned, the purchasing of IDM is conducted in various functions and departments within both Wellspect and Implants in Mölndal. However, the business units have created some general guidelines and policies to comply with to increase the effectiveness of each function's or department's procurement efforts.

- ***Sourcing***

  Every department is responsible for its procurement, and there are policies to comply with when procuring a product or service which is followed to varying degrees. If the service or product could have a direct or indirect effect on the quality of the manufactured product, it should follow certain supplier evaluation processes to be accepted and placed on an *"Approved Supplier List"*, or *ASL*. In this process, the risks associated with the supplier must be identified together with how the suppliers mitigate these eventual risks. This could e.g. be through adhering to quality control standards which often is required in association to MedTech products. Indirect materials and services that could influence the product are for example chemicals, calibration, and maintenance services. If the item or service is not deemed to have any effect on the products the supplier is not subdued to an evaluation. This supplier is then only checked by finance and the department manager

before being accepted. No formal process of coordination or checking if a similar supplier used for other departments or functions is defined or conducted. The company does not take administrative costs into account when selecting suppliers.

Finding suitable suppliers is the departments responsibility. Some departments acquire help from the procurement function, either because they do not have the required attestation rights, but also to get help in complying with policies and the establishment of new contracts. This is not a formal policy or guideline for the departments to follow but an individual choice for each department.

Each department has developed its roles and processes for their procurement. Very few functions outside of procurement have a clearly defined purchaser that devotes the majority of their time to purchasing. The department of MRO is one of the few functions that have a dedicated purchaser. This person helps both MRO at Implants and the department of Production Development at Wellspect with finding suppliers and placing purchases. There is in general no processes for controlling if another department is procuring a similar product or service or what suppliers they are using.

In some cases, there are framework agreements in place with certain suppliers. These agreements can be established on different levels, by the department themselves, by Wellspect or Implants, by DIH or by the DS Group on a global level. This facilitates the possibility for multiple people within the department to place orders as prices and terms are already negotiated. However, even if a central agreement is in place there is no control process in place to assure compliance. Clear examples can, therefore, be found where spend is still being allocated to the old supplier instead of a new preferred supplier.

Departments such as *Facility* and *Site Support* are conducting their sourcing processes with little to no help from the purchasing department. RFQs are obtained from several suppliers when it is possible, where constraints can be time or supplier competence.

- ***Ordering***

  Within IDM procurement at DIH there is a low use of requisition processes. Some controlling systems and portals are implemented for certain categories. These are Travel, Meetings/Events and Trade Shows, and Office Supplies. When asked about these tools the general view of the interviewees is that they work well and that they appreciate them due to the support the system provides.

  DIH has recently implemented the use of a requisition process they call a *Spend Control Tower* to create a better overall control of the indirect spend. Individuals at each level of the organisation is assigned an attestation limit for purchases from their closest manager. The lower in the organisation, the lower the attestation right. If a purchase is above the individual employee's or manager's attestation right, a requisition for the purchase must be placed and approved by a higher-level manager before the purchase can be placed.

  A large portion of DIH's purchases of IDM are today placed without a formal purchasing order (PO). Instead, the purchases are handled by e-mail or contact via telephone directly with the supplier. DS Group estimate that roughly 40% of all orders of IDM worldwide is placed through a formal PO.

- ***Payment***

  As Implants and Wellspect share financial department, all invoices are accumulated there. When the invoices are received, they undergo an automated three-way match which takes place in DIH's financial system against the PO. In this matching process, the supplier, volume and price are checked to see if anything in the invoice deviates from the PO. If any deviation is found, the invoice requires a manual check and the finance function will need to track and contact the department or individual responsible for the PO to check if the deviation can be accepted or if it should be denied.

  Some of the invoices that have not undergone requisition and approval create problems within coding and attestation. The process of sorting these issues are time-consuming and can eventually also result in late penalty fees to the suppliers if the delay leads to that the invoice cannot be paid on time.

  As mentioned, a large part of the purchases are placed without a formal PO. When suppliers ship the goods or carry out their service, the invoice is simply sent to the finance department. However, as there is no PO connected to the invoice, the automated three-way match cannot take place. All invoices must, therefore, be checked manually to see if there is an approved requisition in place and check with the person who placed the order to see that the invoice is correct and can be paid.

  There is a newly launched global project within DS Group aiming to increase the number of purchases made with a formal PO through the company's ERP system. This initiative is called "*No PO – No pay*" and will more or less mean that the invoice will not be paid if there is no PO connected to the purchase. There will however be amount thresholds to when a PO through the ERP system is required and, in some cases, where there are agreements to e.g. purchase directly from an approved supplier's online ordering system. This initiative has not yet been rolled out to all DS Group sites and will be done in different phases to better integrate the order-to-pay process in the different ERP systems. There are three different ERP systems in use within the group, and the ERP system used at site Mölndal has not yet been involved in the initiative.

- ***Follow-up Activities***

  The individual employee that have added a new supplier is responsible for the compliance to policies and reviewing the performance. Some interviewees believe that there in some cases exists a low degree of knowledge about the Approved Supplier List (ASL) and its policies. The ASL should be reviewed and updated annually by each department to assure that the suppliers are fulfilling the specifications. As there is no generally implemented process for how to control IDM and evaluate costs this is done to varying degrees. Some interviewees have for example tracked work of consultants by using project management tools to keep track of these costs whilst others do not control these costs at all.

  The facility department always uses contracts for consultants and contractors that have variable costs related to hours. The facility department have total insight into the reporting of these companies and have central agreements with selected contractors. In

case of larger projects that have been planned in collaboration with consulting firms the facility department often get an estimation of what a specific project should cost by the consultancy firm to aid in finding a reasonable price on the market.

Today there is no convenient or reliable way to obtain historical data of spend. The available data is attained from the general ledger and of very low quality and readability and is therefore not used within the companies. No system or process is implemented to review the spend performance of indirect procurement within the company. There was however an initiative within Wellspect in 2018 to analyse this data from the fiscal year 2017 which spurred several cost-saving initiatives that were implemented to varying degrees.

DIH has a global tool called GEP that aims at managing and getting insights into the global spend in different categories. The data from all sites' ERP systems are aggregated into the tool to see total spend and to be able to analyse the spend by using spend cubes that indicate who, what and where purchases are made. However, as the DS Group have many sites and different ERP systems the data is difficult to standardise and harmonise, and the quality of the database is therefore low. Several employees that have been interviewed do not trust the data at all and are therefore not using it as a resource.

4.3.3 Indirect Spend Categories

At DIH (site Mölndal), the spend is divided into "Direct", "Indirect", "Capex" (machine investments, etc.), and "Non-procurable" (salaries, interest, etc.). The spend categorised as "Indirect" has been divided into 13 different categories. These categories, in turn, are comprised of various materials and/or services and are presented in Table 4.1.

Table 4.1 – Indirect Category Taxonomy, Dentsply IH AB (site Mölndal)

Category	Example
Facility Goods and Services	Remodelling, Security, Maintenance, and Canteen etc.
Financial costs and income	Credit card fees, Banking fees, Interest
Fleet	Cars and Trucks
Human Resource Services	Temporary Labour, Benefits, and Education etc.
IT and Telecommunications	IT Services, IT Hardware, and Software Licenses etc.
Lab Supplies	Lab Equipment, Chemicals, and Calibration Services.
Marketing and Sales Services	Translation Services, Marketing Agencies, and Exhibitions etc.
MRO Goods	Personal Safety Supplies, Maintenance and Repair Materials, Tools.
Office Equipment, Furniture & Supplies	Furniture, General Office Supplies, and Other Office Equipment
Professional Business Services	Cleaning, Technical Consultants, and Clinical Affairs etc.
Real Estate	Real Estate, rent.
Travel	Air, Hotel, and Car Rental etc.
Utilities	Electric Power, Oil, and Water & Sewer etc.

Earlier, logistical costs of e.g. freight and warehousing was considered as an indirect cost category. However, this category will no longer be handled by the procurement function but instead handled centrally at a corporate level. Therefore, the spend will not be collected as an "Indirect" cost for the procurement functions at DIH.

At a global level, a new category taxonomy for all costs – direct, indirect, CAPEX and non-procurable, has been developed. This taxonomy will eventually be used within the entire DS Group and carries a higher level of detail. In this taxonomy, the costs are divided into a three-level sub-categorisation to increase the visibility to in detail see what is being purchased as illustrated in Table 4.2. At DIH, this categorisation has not been used and it means that e.g. in the category *Professional Business Services* it does not clearly show how much of it is cleaning services or consultancy services.

Table 4.2 – New DS Group Category taxonomy (Indirect categories only, not complete breakdown)

Category Level 1	Category Level 2	Category Level 3
Facility good and services	…	…
Fleet	…	…
Human resource services	…	…
IT and telecommunications	…	…
Lab supplies	…	…
Marketing and sales services	…	…
MRO goods	…	…
Office equipment, furniture & supplies	…	…
Professional business services	Financial services	Rating agency
	Financial services	Financial reporting
	Legal services	Tax
	Management consultants	Management consultants
Real estate	…	…
Travel	…	…
Utilities	…	…

The goal of using a group-wide category taxonomy is to increase the visibility and accuracy of the spend data as it is aggregated from the different ERP systems at the different sites. This is a problem that they have today, as sites use their categorisation. An effort has been made to categorise each supplier to a corresponding category level 1, 2, and 3 using an external AI (Artificial Intelligence) tool. The tool could categorise roughly 60% of the IDM suppliers used in 2019, whereas the remaining would require manual categorisation. Also, this categorisation method assigns a supplier to only one category even if it supplies within multiple.

At DIH, no effort has been made to carry out a re-categorisation of their currently used taxonomy to the new group category taxonomy. It is not yet determined who will be responsible to assign accounts to the correct corresponding category 1, 2 and 3 in the new taxonomy. This would be a time-consuming task and requires coordination between Wellspect and Implants to agree upon the categorisation for DIH in Mölndal.

4.3.4 Ongoing and future changes within IDM

During the period of the study, DS Group has been undergoing big changes in how the corporate IDM structure is organised. New organisational structures and employees with new roles have been presented and rolled out. During this year DS Group aims to hire several people globally to develop the procurement of IDM. The global categories managed by global category managers are:

- Marketing
- Meetings & Events, Tradeshows, Key Opinion Leaders
- Travel
- Human Resources
- I/T Digital
- Technical Business Services
- Professional Business Services
- Corporate Real Estate & Other Services

Within the EMEA region, five regional sourcing leads will be responsible for the following categories:

- IT and Telecomm
- Travel & HR
- Marketing & Sales services / Meetings & Events, Tradeshows
- R&D, Fleet & Utilities
- Facility, MRO/Lab, CAPEX, Office Supplies

These categories will eventually consist of a regional sourcing lead, strategic buyers, and operational buyers down to site level. These people will support and help drive initiatives at the DS Group sites within the region.

4.4 Indirect Procurement – Spend 2019

The indirect spend data was extracted from the general ledger of all the transactions for the fiscal year 2019 for the Mölndal site. Transactions for Wellspect and Implants could be separated by the product group related to the transaction. A larger number of the transactions were unallocated to either Wellspect or Implants, but these costs could be allocated using

allocation keys (a percentage split) connected to the cost centre (CC) of the transaction. Some cost centres are fully owned by either Wellspect or Implants, while some are split with some percentage between the business units (these will be denoted as "Shared CC's"). The cost centres were also used to allocate the cost to the functions of Wellspect and Implants through a mapping conducted by the company themselves.

Each transaction has also been allocated to a specific account, which the employee responsible for the transaction assigns, describing what the cost consisted of. This could, for example, be *Consultancy fees* or *Electricity*. These accounts were all mapped to a spend type – direct, indirect, or non-procurable (mostly financial expenditures or income) – and a category (see taxonomy in Table 4.1). For the spend analysis, only the indirect spend type has been considered. The category "Freight, logistics, warehousing has been excluded from the spend collection, as it will not be handled by the procurement function.

On request from the case company, no absolute figures of the spend has been included due to confidentiality policies. Instead, the spend will only be presented as percentages. The indirect spend at site Mölndal is distributed with 49,4% of the spend to Implants, and 50,6% to Wellspect. However, a portion of these costs (25,0%) come from shared cost centres which is illustrated in Figure 4.4. These shared cost centres mainly consist of costs related to IS/IT, facility, utilities, etc. which both Wellspect and Implants use to some extent. The indirect spend at DIH represent approximately 50% of the total spend, which was a shared picture by the heads of procurement at both Wellspect and Implants.

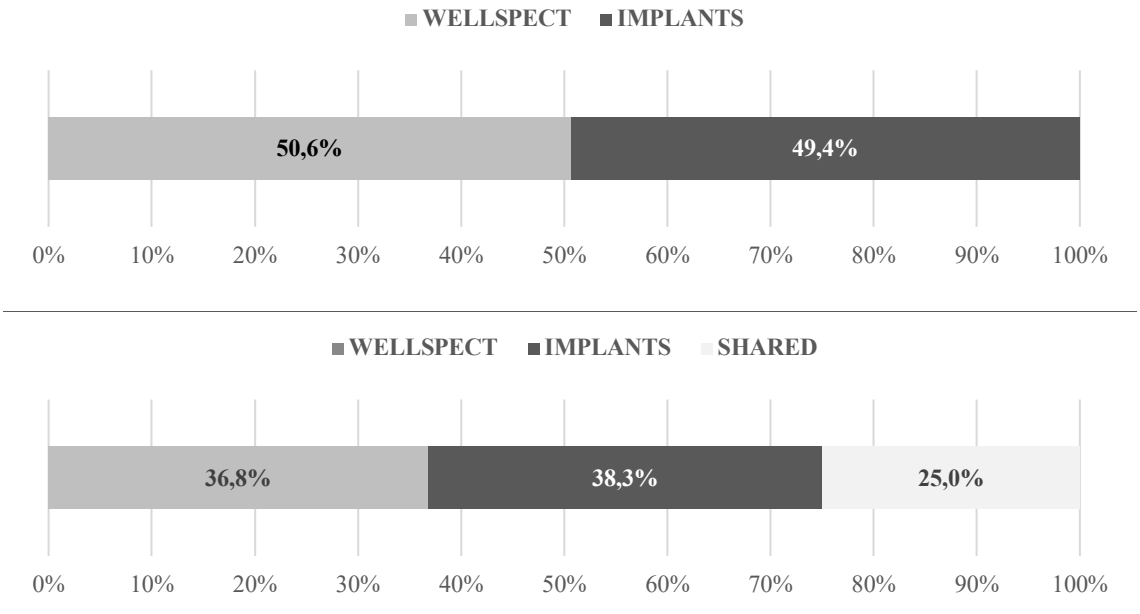
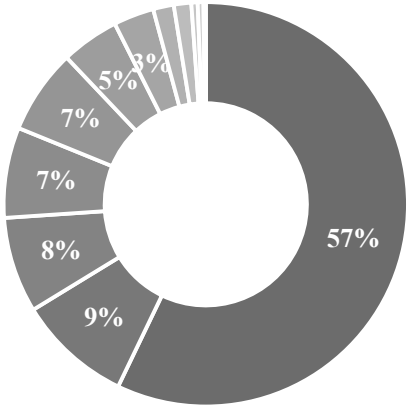


Figure 4.4 – Indirect Cost Distribution, site Mölndal

The indirect costs for the entire site Mölndal are distributed by category as illustrated in Figure 4.5. In this distribution, “Professional services” is the largest (57%).



Category	% of Spend
Professional services	57,14%
Marketing and Sales services	9,13%
MRO goods	7,65%
IT & Telecommunications	7,23%
Facility goods and Services	6,77%
Travel & entertainment	4,64%
Utilities	3,24%
Human resource services	1,65%
Fleet	1,39%
Office equipment, furniture & supplies	0,50%
Lab supplies	0,46%
Financial costs and income	0,14%
Other	0,04%
Grand Total	**100,00%**

Figure 4.5 – Indirect Spend per Category, site Mölndal

The spend is distributed to 1 610 unique suppliers.This distribution per category is illustrated in Figure 4.6.

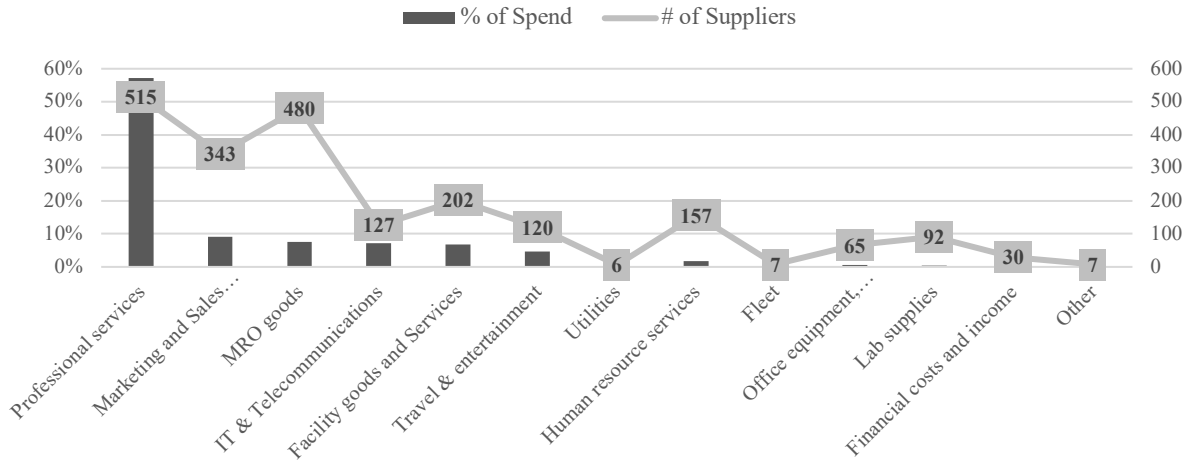


Figure 4.6 – Indirect Spend per Category and number of Suppliers, site Mölndal

4.4.1 Wellspect – Indirect Spend 2019

In this section, the indirect spend for Wellspect for the fiscal year 2019 will be presented. Only fully owned Wellspect CC’s will be considered as these are the costs that they can fully control themselves.

- **By category**

The Wellspect indirect spend is presented by category in Figure 4.7 and shows that "Professional services" is the largest category, making up roughly 66% of the spend.

Category	% of Spend
Professional services	66,66%
MRO goods	12,31%
Marketing and Sales services	8,32%
Facility goods and Services	3,66%
Travel & entertainment	3,12%
IT & Telecommunications	1,97%
Human resource services	1,33%
Fleet	1,27%
Lab supplies	0,96%
Utilities	0,20%
Office equipment, furniture & supplies	0,16%
Financial costs and income	0,03%
Other	0,02%
Grand Total	**100,00%**

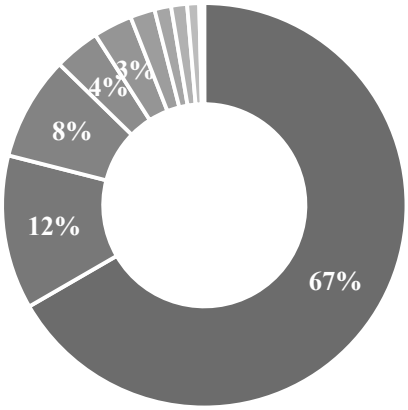


Figure 4.7 – Indirect Spend per Category, Wellspect (fully owned CC's)

The spend is distributed to 768 unique suppliers (999 including all CC's). In Figure 4.8 the number of suppliers is plotted by category, where "MRO goods" has the highest number with 329 unique suppliers making up 12,3% of the total spend. 80% of the total Wellspect spend is allocated to 58 suppliers (7,6% of the suppliers). In Appendix A, a table illustrating the percentage of suppliers constituting 80% of the spend per category is found. For example, 12,8% of the suppliers in "MRO goods" make up 80% of the "MRO goods" spend.

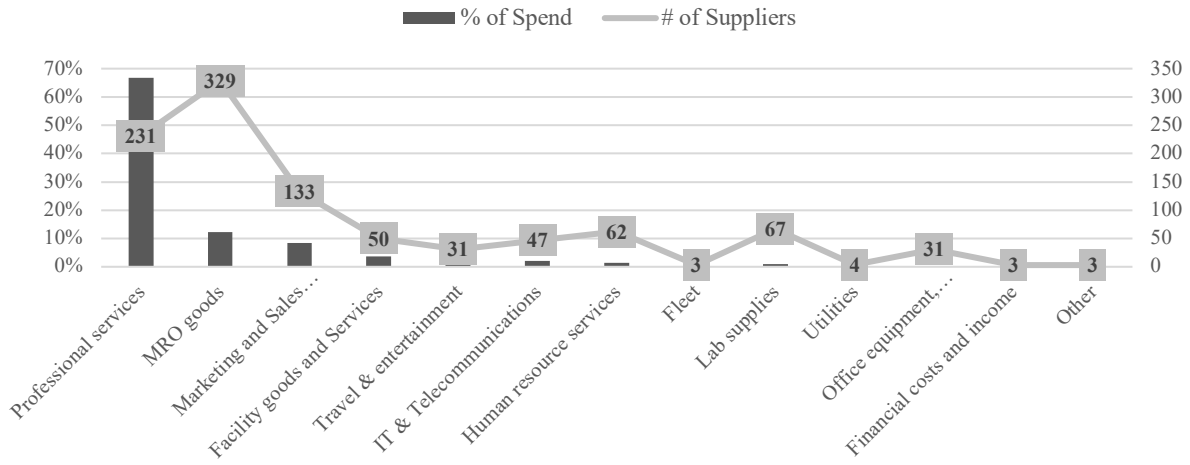
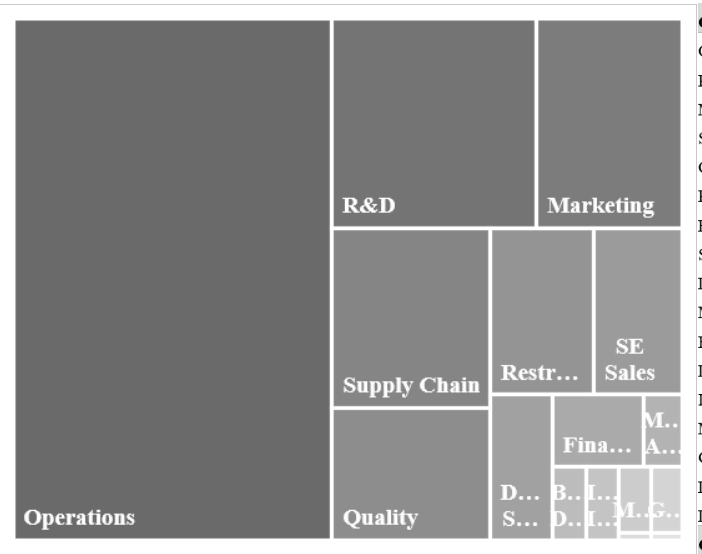


Figure 4.8 – Indirect Spend per Category and number of Suppliers, Wellspect (fully owned CC's)

- **By Function**

The Wellspect indirect spend by function is presented by function in Figure 4.9 and shows that "Operations" is the largest function, making up 45% of Wellspect's indirect spend.



Category	% of Spend	# of Suppliers
Operations	44,56%	368
R&D	11,49%	158
Marketing	8,23%	98
Supply Chain	7,56%	87
Quality	5,62%	116
Restructuring	4,60%	3
Business Development	4,01%	19
SE Sales	3,95%	81
DEX Sales	2,54%	15
Med Affairs / Clin Ed	2,41%	44
Finance	1,76%	15
Legal	1,46%	8
IS/IT	0,64%	7
Management	0,56%	15
Global Sales	0,56%	13
Dental	0,06%	1
Distribution	0,00%	1
Grand Total	**100,00%**	**764**

Figure 4.9 – Indirect Spend by Function, Wellspect (fully owned CC's)

4.4.2 Implants – Indirect Spend 2019

In this section, the indirect spend for Implants for the fiscal year 2019 will be presented. Only fully owned Implants CC's will be considered as these are the costs that they can fully control themselves.

- **By category**

The Implants indirect spend is presented by category in Figure 4.10 and shows that "Professional services" is the largest category, making up more than half of the spend (64%).

Category	% of Spend
Professional services	63,97%
Marketing and Sales services	15,08%
Travel & entertainment	7,96%
MRO goods	6,24%
Fleet	2,21%
IT & Telecommunications	1,88%
Human resource services	1,04%
Facility goods and Services	0,85%
Office equipment, furniture & supplies	0,37%
Lab supplies	0,29%
Utilities	0,09%
Financial costs and income	0,03%
Other	0,01%
Grand Total	**100,00%**

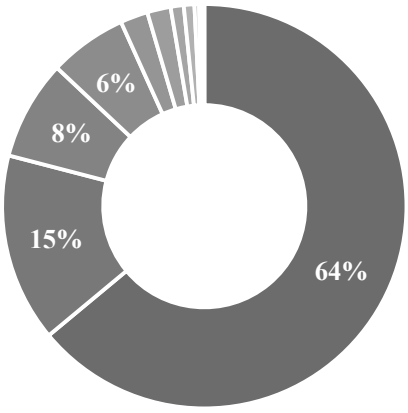


Figure 4.10 - Indirect Spend per Category, Implants (fully owned CC's)

The spend is distributed to 835 unique suppliers (1 082 including all CC's). In Figure 4.11 the number of suppliers is plotted by category, where "Professional services" has the highest number with 263 unique suppliers for 64,0% of the spend. 80% of the total Implants spend is to 82 suppliers (9,8% of the suppliers). In Appendix A, a table illustrating the percentage of suppliers constituting 80% of the spend per category is found. For example, 18,5% of the suppliers in "MRO goods" make up 80% of the "MRO goods" spend.

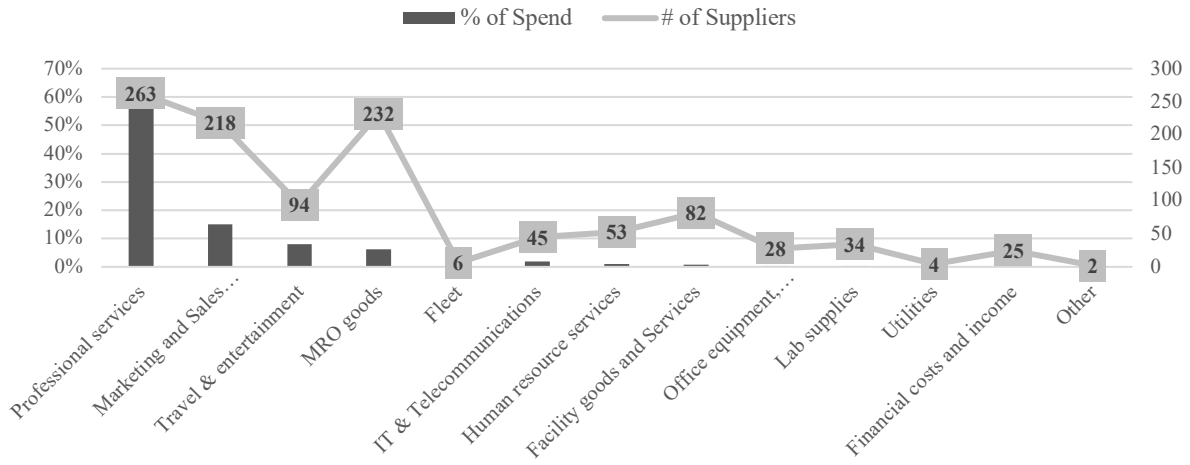


Figure 4.11 – Indirect Spend per Category and number of Suppliers, Implants (fully owned CC's)

- **By Function**

The Implants indirect spend could not be presented by function in an accurate way due to lacking cost centre mapping.

4.4.3 Shared – Indirect Spend 2019

The shared costs for site Mölndal are constituted of goods and services that is utilised by both Wellspect and Implants. These are collected from CC's that are not fully allocated to either Wellspect or Implants but are instead allocated with a specific "key". This key indicates how the costs should be allocated, for example, 70/30, 50/50, 60/40, etc., depending on the known usage or size of the respective facility. The shared costs at site Mölndal can be described as:

$$Mölndal\ Shared = Total\ Indirect - Fully\ owned\ Wellspect\ CC's - Fully\ owned\ Implants\ CC's$$

The costs in the shared CC's summarise to 25,0% of the total indirect spend at site Mölndal, as illustrated in Figure 4.4. The cost distribution can best be described by function, which indicates more clearly what type of spend the cost is related to. As illustrated in Figure 4.12, the three largest spend functions at site Mölndal are "IS/IT", "Facility", and "Site Support"

which all are central functions for both Wellspect and Implants. The function "IS/IT" are responsible for procurement, maintenance, and support for everything regarding computers, printers, information systems (e.g. ERP, where Wellspect and Implants use the same), etc. The "Facility" function is centrally responsible for handling reconstruction and maintenance for both Wellspect and Implants, as well as procuring utilities such as electricity, heating, and water. "Site Support" is responsible for all goods and services that are required to run daily operations, such as office equipment, cleaning services, security surveillance, etc., but also for other site related expenditures such as the restaurant.

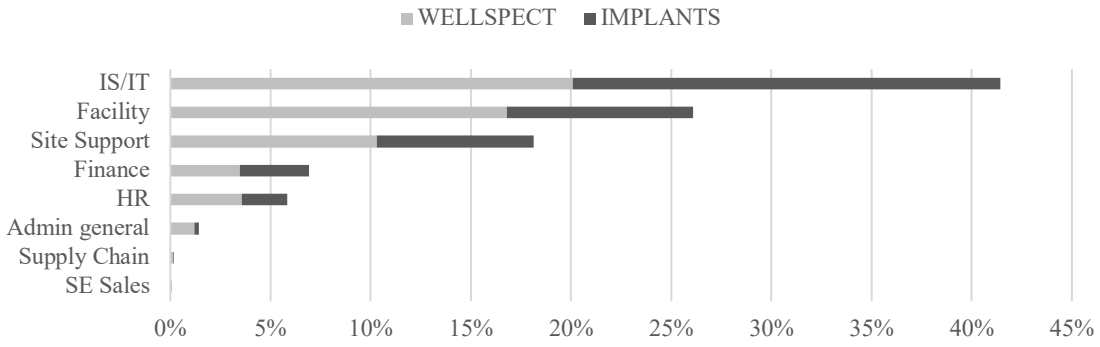


Figure 4.12 – Indirect Spend by Function (shared CC's)

The shared spend is distributed to 330 unique suppliers, wherein Figure 4.13 it is illustrated that "Site Support" has the largest number of suppliers with 102 suppliers for 22,1% of the shared spend.

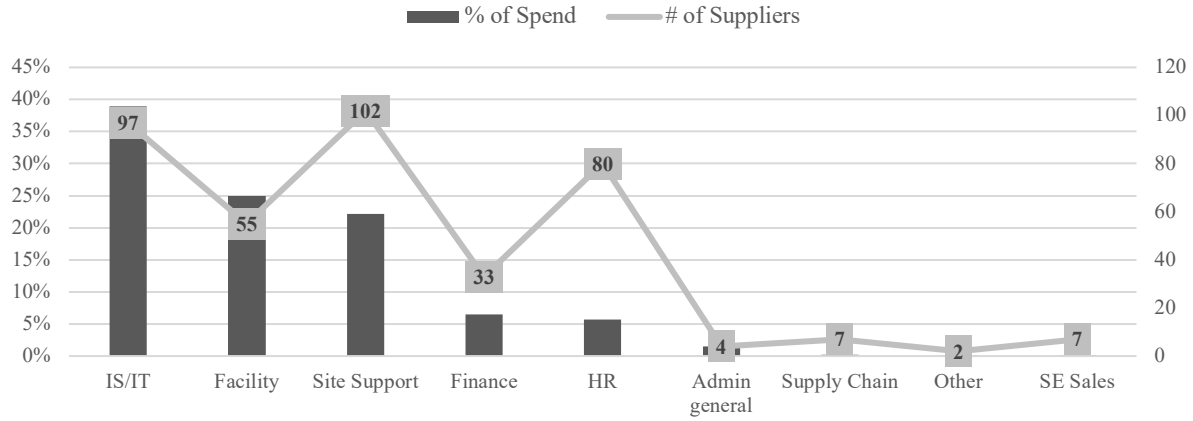


Figure 4.13 - Indirect Spend per Function and number of Suppliers (shared CC's)

4.4.4 Indirect Spend - Suppliers used by both Wellspect and Implants 2019

The data is here broken down into suppliers that have been used by both Wellspect and Implants sometime during 2019, considering all CC's. Out of the total IDM spend of 2019, 65,9% is allocated to suppliers that are used by both business units, the share of spend per category that is split is shown in Figure 4.14.

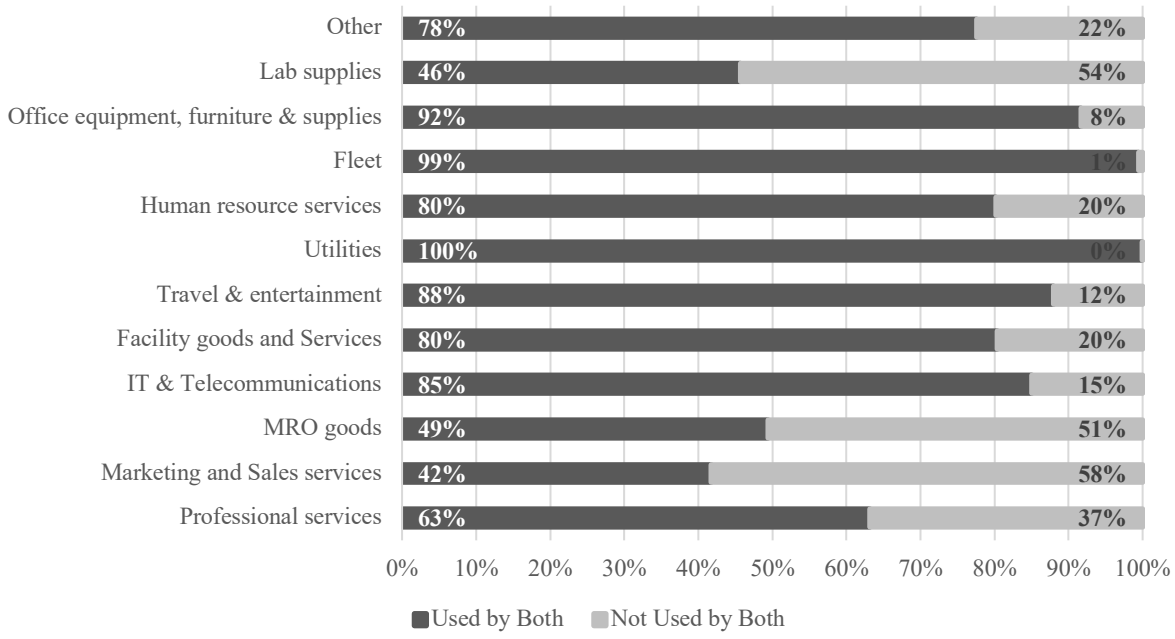


Figure 4.14 - Share of Spend per Category allocated to Suppliers used by both Wellspect and Implants

If only the CC's that are *not* shared are considered, the share of suppliers that are used by both Wellspect and Implants is 12,1%. The breakdown of these shared suppliers per category is illustrated in Figure 4.15.

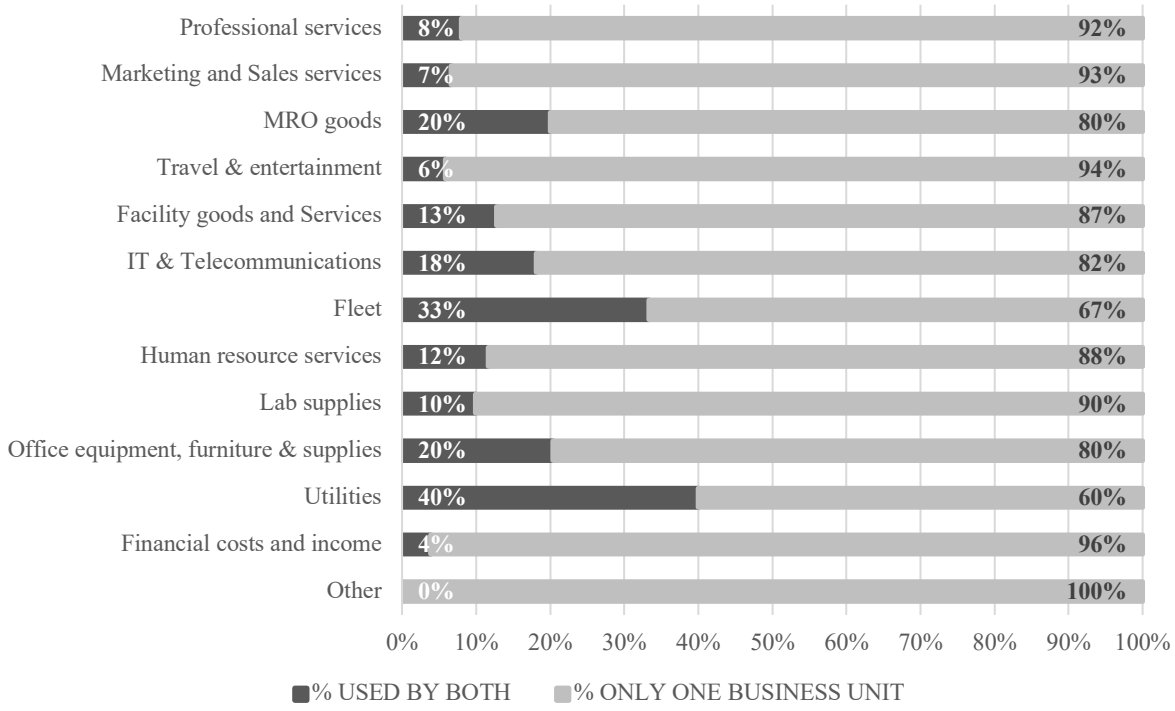


Figure 4.15 - Share of Spend per Category allocated to Suppliers used by both Wellspect and Implants (not shared CC's)

The split of spend between Wellspect and Implants for the top 10 shared suppliers by spend can be seen in Figure 4.16.

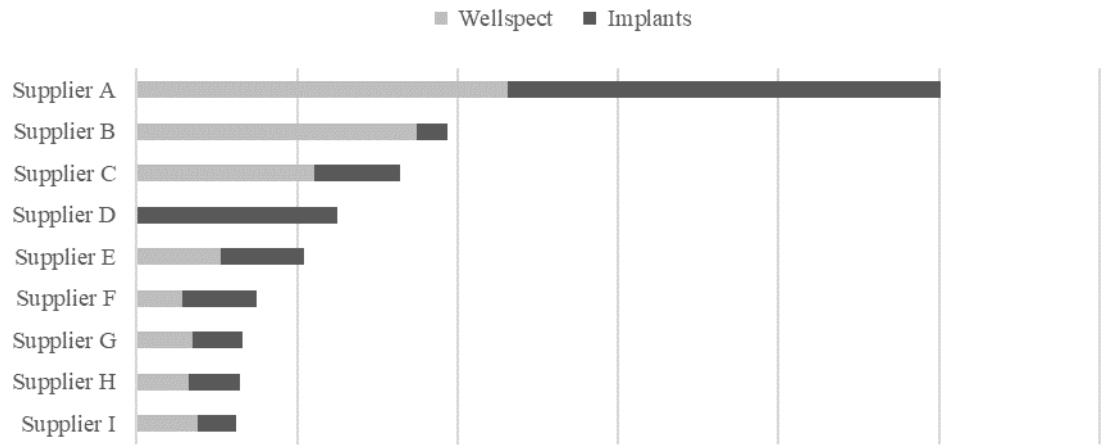


Figure 4.16 - Top 10 Suppliers by Spend Used by Both Wellspect and Implants

4.5 Benchmark

During the later stages of the study, two interviews were held with purchasers from two different companies, both located in Gothenburg. One company is active in the same industry (MedTech) and the other in a separate industry. Both companies have been driving active projects intending to reduce IDM costs.

4.5.1 Company 1

The company has many comparable characteristics to DIH. It is a global MedTech company with many sites around the world and with a similar organisational structure. IDM was handled much in the same way as within DIH. A global organisation had control over IT, Travel and Fleet categories whilst the other categories where managed more at the local plant level.

Regarding processes of procurement, all orders must be made through a formal PO, which gives the firm easier access to quality data and more control over the suppliers and spend. Another controlling process that might contribute to limiting the number of suppliers is that the process of adding a new supplier must pass through a complicated process within the central organisation. However, for purchases below ~4000 SEK a purchase card is used and a monthly invoice is received.

The project of reducing IDM costs was initiated by executives and aggressive, quantitative goals were set. One full-time resource in the form of a consultant was allocated to the project. The timeframe was set to six months and after two months the resource had paid for itself many times over with the savings generated from consolidating and renegotiating contracts.

Firstly, the consultant prioritised among categories purely on the size of the spend, starting with the largest. Thereafter, a more in-depth spend analysis was done within the category and the contracts where reviewed. A business case was made and presented to the executives and a decision was made if the process of consolidation and renegotiation should start.

Takeaways from the project is that IDM is an area where a lot of employees have opinions that you need to consider getting backing and support from the organisation. It is not always ideal to simply consolidate all different company phones to one due to the different demands of the people in the organisation. Another realisation is that it is difficult to concretise the internal costs coupled to administrative tasks such as supplier management and ordering, as this is a big saving when consolidating the supplier base but is rarely considered as a cost reduction.

4.5.2 Company 2

This company is in a different industry but has similar organisational characteristics – a global organisation with sites all over the world. The company operates within the industry of electrical equipment and automation. However, IDM is organised in a similar way to DIH with global categories of insurance, IT etc. whereas other categories are managed locally.

The firm has one strategic purchaser and one operative purchaser dedicated to the sourcing of IDM at their site in Gothenburg. Every order needs approval before placement and everything passes through the procurement function. The firm makes use of several suppliers that takes care of procurement for them to consolidate and reduce the number of suppliers.

Recently they have completed a project where the category of professional services, with a special focus on technical consultants, was reviewed and improved. The project was initiated by the strategic purchaser of IDM and its manager as they saw great potential from the large (15-20) supplier base and a large spend. No external resources were allocated to the project and the strategic purchaser executed it in conjunction with HR. The main objectives were to ensure the competence of the consultants, save time in sourcing, as well as realising savings related to a percentage of the spend.

The project started with an analysis of the current and historical contracts, prices, and volumes to establish what reasonable terms were. Internal discussions were held to get forecasts on how many consultants would be needed in the future, what competencies that were required, and from this conclude what suppliers would be suitable. Thereafter, the specifications were sent to possible suppliers and a reverse auction was held to get better prices. The specification also helped to draw up contracts and agreements that were to be met to protect the company.

The sourcing strategy for professional services is to have a two-tiered supplier list. The first tier consists of four suppliers that are preferred and should be able to satisfy most of the demand. The tier-one suppliers are also given the responsibility to secure the competence that the company requires. If they are not able to deliver the company's needs, the second tier is contacted, also consisting of four suppliers. Thereafter, the company is free to contact other

suppliers if the tier two cannot deliver. Many of the tiered suppliers make use of a network with other consultancy firms to secure the competences that are required.

A lot of preparatory work was needed to get the internal stakeholders to accept lesser control in the sourcing of consultants. This was done by discussions where the stakeholders could discuss their demands and experiences with different suppliers and consultants. Some consultants were asked to switch employer to a preferred supplier instead as part of the project. The project was finished in January 2020 as supplier negotiations were completed. After this, the plan was to naturally phase out non-preferred suppliers as their contracts or projects expired. The results are unfortunately not yet comparable as the company, as an effect of Covid-19, has laid off all consultants. However, there is a great deal of belief that this new sourcing strategy will entail that hired consultants have more apt competence and experience. The company has also managed to reduce prices and internal costs of handling the sourcing of professional services in the negotiations with suppliers.

5 Analysis

The following chapter aims at analysing the empirical data within the realms of the provided literature review. Both qualitative and quantitative data is analysed and used to answer the proposed research questions.

5.1 Procurement at DIH

Within this chapter, the organisation of procurement within DIH will be analysed.

5.1.1 Organisation

As the procurement at DIH is divided into two separate functions, one for Wellspect and one for Implants, the organisation cannot be considered entirely centralised as van Weele (2009) describes. In such a case, the company purchases all products and services for the company to leverage volumes and synergies. This is a viable organisational choice if the business units purchase roughly the same products and services, but this is not the case for Wellspect and Implants. Wellspect operates within bladder and bowel, whereas Implants operates within dental implants – of course with very different needs for direct goods and suppliers. Therefore, the purchasing at DIH has been more decentralised, although not to a full extent. As some of the procurement activities for the different areas, such as logistics, travel and meetings etc. is carried out centrally at a global group level, the purchasing organisation at DIH should be described as a hybrid structure (van Weele, 2009; Monczka et al., 2002).

As Trautman, Bals & Hartmann (2009) also has identified, the company must fully agree on a group level on what categories should be handled centrally and what should be decentralised. This work has started in DS Group, where the level one managers for the direct, indirect and Center of Excellence has been appointed in December 2019. During the spring of 2020, the level two managers within the indirect spend were decided and appointed. These managers will be responsible for the global and/or regional categories. Within these categories, DS Group will work to identify synergies for their sites worldwide and regionally for spend categories that are common for both Wellspect and Implants even if they procure very different direct materials and services.

5.1.2 Processes

The procurement processes are mature in the case of direct material, purchase orders are placed in the ERP system and spend, stock level, and incoming deliveries are thoroughly monitored. However, just as the literature (Cavinato et al., 2000; Jayaram & Curkovic, 2018; Cox et al., 2005) says, the processes are often less mature for indirect purchasing and procurement as a function is less involved. This is also the case within DIH, orders for IDM are rarely placed by a PO but instead via email or telephone, resulting in less overview of the situation and greater risks of maverick buying (Karjalainen, 2009). The departments use different processes and is controlled in different ways. Some departments make use of a lot of support from the procurement department in order to get everything correct when hiring consultants and other large orders whilst others simply place orders as they perceive fit.

A standardisation of processes is fundamental for getting a fair overview and insight into the state of the organisation (Payne et al., 2011). If all orders are placed in the ERP system in the same way, reporting tools can be built and supply the employees with both current and historical data, enabling analyses of trends, which currently is a very time-consuming process. As the DS Group also has the tool called GEP for aggregating spends across all their sites, standardisation of processes is essential for getting accurate data, something that is lacking today.

5.2 Indirect Procurement within DIH

The focal company of this study is active in the MedTech industry – an industry that is heavily regulated and has experienced rapid growth. The regulations have evolved over time and have forced DIH to allocate a lot of resources to evaluate suppliers and sourced material to ensure that all regulations are met as this is required to be able to sell the products.

The sourcing of direct material has up until now been the priority, and more or less sole focus, for the procurement functions and the company has mature processes and good control over this spend. This makes the case of DIH very much like Cox's et al. (2005) argument that most organisations focus on the direct procurement. These requirements and the allocation of resources to the direct procurement have hindered the improvements within the sourcing of IDM as this has been of low priority.

The neglect or low degree of development within the procurement of IDM is also dependent on other factors. In DIH's case, this procurement is decentralised, and every department is, and have been, responsible for its procurement of IDM. This means that the situation at DIH also agrees with what Jayaram and Curkovic (2018) and Boer et al. (2003) argues, being that the indirect purchasing in most cases is spread out in the organisation and highly decentralised. In practice, this leads to low control and awareness of the spend and neither those who make purchases or managers within the company have a clear insight into the company's total spend on different IDM categories. The lack of, or easy accessibility to, this data and knowledge has restricted abilities at DIH to search for synergies and areas of consolidation and coordination between departments, also in line with Jayaram's and Curkovic's (2018) and Carter's et al. (2003) findings regarding the difficulties for organisations to collect the indirect spend data. The functions and departments use different processes and a low degree of the purchases and invoices can be linked to a PO in the ERP system, further complicating aggregation of data. This is something that is also reflected on the DS Group level where a mere 44% of purchases within IDM are linked to a PO. Within the DS group, three different ERP systems are used, and the data requires standardisation to facilitate aggregation of total spend by category.

Taking this into consideration, when the IDM procurement is analysed through van Weele's (2009) model of purchasing stages, DIH would place in the lowest stage, being "*Transaction Orientation*". The focus is mainly on acquiring what is needed to conduct business as usual and purchasing is mainly seen as administrative work. The departments are purchasing according to their own needs and there is a low degree of collaboration with other

departments. The majority of the ones making purchases lack education within the area of procurement. The departments or functions does not either make use of the possibility to compare costs for the same materials or services, even if it is within either of the business unit Wellspect or Implants. Only one example could be found where the department manager made use of the procurement function to compare rates for consultants. This collaboration is even rarer across Wellspect and Implants. By making use of the van Weele's (2009) model of purchasing processes, the immaturity of DIH's indirect procurement becomes evident.

The IDM categories currently used at DIH are very similar to the categories presented by Jayaram and Curkovic (2018), as illustrated in Table 5.1. This indicates that DIH has good coverage of all the costs that should be regarded as IDM spend. There are some categories, such as DIH's "Financial costs and income", that differ a bit but can still be considered as IDM spend as it mainly is related to, for example, bank fees or credit reports. These costs should of course not be viewed as direct costs. What was found, however, is that there was large freedom for employees when assigning costs to accounts. This can lead to situations found where costs were allocated as, for example, consultancy fees instead of temporary labour and thereby fall under the wrong category. Without a formal process or definition of accounts, this can lead to a misrepresenting spend picture.

Table 5.1 – Categories currently used at DIH compared to literature

CATEGORIES	
Jayaram and Curkovic (2018)	**Currently used at DIH**
- Marketing related services	- Marketing and sales services
- Professional services	- Professional services
- Travel management	- Travel and entertainment
- IT-related services	- IT & Telecommunications
- HR-related services	- Human resource services
- Facility management	- Facility goods and services
- Utilities	- Utilities
- Consumables	- Office equipment, furniture & supplies - Lab supplies
- MRO	- MRO goods
- Capital goods	-
- Fleet management	- Fleet
-	- Financial costs and income - Other

The costs can be collected through an extensive spend analysis, as there is a cost mapping in place. Indirect costs are thereby possible to collect and assign to relevant cost categories similar to the ones presented by Jayaram and Curkovic (2018). Even if DIH does have an adequate category taxonomy in place, no one has been assigned to monitor the costs for all of

these categories. Therefore, little knowledge generally exists within the organisation, especially on a detailed level, about the total IDM spend and there is not any real continuous work with reducing the costs for IDM. The spend analysis has previously only been conducted once, and it led to no concrete actions with the intention to reduce spend. From the interviews conducted, this was mostly due to the lack of driving force from the management team. Responsibility was not allocated to specific resources but instead dispursed to the entire organisation, which did not result in a lot of fullfiled savings.

5.2.1 Savings Potential at DIH

Two types of potential savings exist within the procurement of IDM. First is the external supplier cost, which is what is paid to the suppliers through negotiated prices. Second is the internal costs, which quantifies the time and efforts made by the company to procure the IDM into monetary values.

External supplier costs analysis

As the IDM is, as aforementioned, fragmented and scattered, DIH has experienced it difficult to easily create a picture of the real IDM spend at the site in Mölndal. One previous attempt to visualise the spend has been made in 2018, but only for the Wellspect business unit and no concrete actions came out from the analysis. One large barrier, confirmed by several interviewees, is that there was no resource, fully or partly, formally allocated to the effort of reducing the IDM spend. This since it has been difficult to illustrate for the executive team what the savings potential is and if it would be worth the investment for extra allocated resources to the IDM.

One way to indicate some sort of savings potential is to make use of Rudzki's (2005) observations regarding the savings for different spend categories (illustrated in Table 3.3). When translating these categories to the ones currently used at DIH and adjusting for the percentage of the spend each category represents, a potential savings interval on the total IDM spend is achieved. In Appendix B, this is illustrated for Wellspect, Implants, and DIH in total. The total savings potential, according to Rudzki (2005) is presented in Table 5.2.

Table 5.2 – Total potential savings of IDM spend at DIH (from Rudzki, 2005)

		Rudzki (2005)	TOTAL (Pot. Savings of total IDM spend)	
Category	**% of Spend**	**Pot. Saving**	**Low**	**High**
Professional services	57,1%	8 – 15%	4,6%	8,6%
Marketing and Sales services	9,1%	10 – 20%	0,9%	1,8%
MRO goods	7,7%	10 – 20%	0,8%	1,5%
IT & Telecommunications	7,2%	15 – 30%	1,1%	2,2%
Facility goods and Services	6,8%	5 – 15%	0,3%	1,0%
Travel & entertainment	4,6%	5 – 15%	0,2%	0,7%
Utilities	3,2%	5 – 15%	0,2%	0,5%
Human resource services	1,7%	10 – 20%	0,2%	0,3%
Fleet	1,4%	5 – 15%	0,1%	0,2%
Office equipment, furniture & supplies	0,5%	5 – 15%	0,0%	0,1%
Lab supplies	0,5%	10 – 20%	0,0%	0,1%
Financial costs and income	0,1%	5 – 15%	0,0%	0,0%
Other	0,0%	5 – 15%	0,0%	0,0%
Grand Total	**100,0%**		**8,4%**	**17,0%**

From this analysis, it is illustrated that DIH has a total savings potential for IDM of 8,4 – 17,0%. However, this is under the circumstance that they carry out a thorough savings project or initiative for the IDM categories. Due to its high share of the total spend, the largest savings potential lies in the category "Professional services". According to Rudzki (2005), the savings potential is 8 – 15% for professional services, which implies a potential saving of 4,6 – 8,6% on the total IDM spend at DIH in Mölndal only by making an effort in this category.

As illustrated in Figure 4.7 (Wellspect IDM spend per category) and Figure 4.10 (Implants IDM spend per category), the spend distribution per category is very similar. Because of this, the potential savings per business unit looks very similar to the total site figures. This is also illustrated in detail in Appendix B.

Internal cost analysis

As Mitchell and Sawchuk (2012), and Gadde and Håkansson (1994) discuss, a significant portion of the costs of procurement comes from internal handling and administrative costs. This relates to costs of supplier management, invoice handling, ordering etc. Figures of 250 SEK (Mitchell and Sawchuk, 2012) and 300 SEK (Gadde & Håkansson, 1994) per processed PO have been presented by companies in these studies, resulting in large internal annual costs (ibid.).

DIH has not made much use of this type of costs in their calculation of IDM costs although it consumes a lot of internal resources. If the average cost of the two studies is used, the PO process cost is 275 SEK. As the PO usage at DIH is not representative for all indirect purchases, the number of indirect supplier transactions will instead represent the number of purchases made and to be processed. When 275 SEK is applied to the 33 881 indirect supplier transaction during the fiscal year 2019 at DIH the internal cost equals to approximately 9,3 MSEK.

As the top performers in Mitchell and Sawchuk's (2012) study averaged 90 SEK per processed PO, it shows potential savings on the internal cost side for DIH if they could streamline their processes. The PO process cost of a top-performing company would only incur an internal cost of 3,0 MSEK for DIH's number of internal supplier transactions. This shows a savings potential of 6,3 MSEK annually.

Additionally, Mitchell and Sawchuk (2012) observed that a supplier set-up and management cost intervals at approximately 7 000 – 14 000 SEK. As DIH made use of 1 610 unique suppliers for their IDM procurement in fiscal year 2019, this incurs an internal cost of somewhere between 11,3 MSEK and 22,5 MSEK for their supplier base. The cost would directly be reduced if the procurement volumes were consolidated to a fewer number of suppliers.

5.2.2 Global initiatives and limitations

DIH is controlled by the global DS Group. The group's main business area is the dental implants market and therefore Implants is more integrated in the global organisation than Wellspect, which is to be viewed as a rather independent business unit. The groups newly established global procurement organisation is driving initiatives for aggregating spend across the different subsidiaries and negotiate global contracts where applicable. For many of the categories, this is difficult as few global suppliers can fulfil the needs of all subsidiaries. In these cases, the group may seek regional or local initiatives to find satisfying deals that can serve several sites, which is in line with van Weele's (2009) reasoning for the choice of purchasing structure. In this case, it motivates the hybrid procurement organisation structure.

The new structure of the IDM organisation will provide more support and control the different categories to a larger extent. Regional and local sourcing managers will drive initiatives at the different sites and report to the global category managers to ensure that global policies, directives and agreements are fulfilled and used. This will mean that the procurement of IDM will move from a more decentralised structure towards a more centralised hybrid structure as presented by van Weele (2009). This comes with advantages as it enables more opportunities to consolidate volumes within the whole organisation and use it as leverage to get better prices from suppliers, centralisation will also increase the ability to control the spend. However, Trautmann et al. (2009) mentions that there can be drawbacks with these types of centralisation as sometimes a global procurement will result in increased prices for some sites that have very beneficial agreements with local suppliers in comparison to global providers.

Implants is, in general, more engaged and obliged to comply to such central agreements in that they are more aligned with the overall dental business of the DS Group than Wellspect that operates within urology and enterology, being entirely different customer segments. Therefore, Implants is more controlled by the corporate functions than Wellspect, as the central organisations have more knowledge of the dental industry.

5.2.3 Systems and processes

The company has an ERP system in place for placing purchase orders, this is as previously mentioned, used to a very low degree for procurement of IDM. This is likely since the purchasing is performed within all different departments and that these are not trained to place orders in the system, a recurring pattern in many companies according to van Weele (2009). A common process of placing orders is via e-mail or telephone and therefore these purchases only show up in the invoice data of the general ledger and reports from the ERP system is not exhaustive. For the more mature categories of *Travel* and *Meetings/Events and Trade Shows* digital platforms have been implemented and should be used for these purchases. The employees that are using these systems perceive them as positive and the category managers can get better control of the expenses and ensure that the users are complying with the company policies. Another benefit is also that the category managers can, as understood from interviews, get good quality data of volumes and prices from these digital tools, a benefit that Payne et al. (2011) also mentions.

5.3 Differences between departments

As the procurement of IDM is very decentralised and every department acts according to their processes the development stages vary greatly if the departments are analysed individually through van Weele's (2009) model. Categories such as *Travel* and *Meetings/Events and Trade Shows* are more mature and controlled than categories such as professional services or marketing. In general, it seems that the more developed categories are a result of a responsible resource specifically dedicated to that category, also a finding presented by several authors (Payne et al., 2011; Kotter, 1995). Locally, the procurement within the categories facility management and IT are more developed than for example professional services, likely since they are managed by the Facility Manager and IT department respectively and therefore not spread out across the organisation.

Another factor is certainly how important the categories are deemed to be, similar to how the Kraljic (1983) matrix classifies products and suppliers the same can be done with categories of IDM. The importance of a category at DIH is based both on the spend data but also on top managements intuition and sense for what categories are worth investigating, such as *Travel* and *Meetings/Events and Trade Shows*, a pattern which Payne et al., (2011) has observed in other firms.

5.3.1 Characteristics of IDM

The focal business units experience difficulties in changing suppliers for direct material. The industry is heavily regulated, the number of qualified suppliers is low, and the switching costs are high. Many of the services and products within the IDM spend is relatively standardised and easily substituted. These types of categories typically have low supplier power, high substitutability and low switching costs, an example of such a product is office supplies or cleaning services. This type of situation is very beneficial in terms of potential for DIH as this increases their buyer power and opportunities for negotiation (Porter, 2008). When sourcing a service or product many suppliers are available and can, therefore, compete for the contract, lowering the prices for DIH by consolidating their demand and reducing the supplier base. By looking at Figure 4.6 an example of a category with potential for consolidation in the case of DIH is "Marketing & Sales services" that made use of 343 suppliers during 2019, several with similar competences. Another is "MRO Goods", making use of 480 suppliers in 2019. Both categories are relatively small in spend if compared to "Professional services", even though this category also makes use of more than 500 suppliers.

However, other factors have limited the change and consolidation of spend in the past. Mainly the lack of insight and overview of the IDM spend has limited the ability to attain information of purchased volumes and existing suppliers. However, the decentralisation and lack of clear roles is a large obstacle towards coordination and consolidation as well, almost no one has the responsibility to improve the sourcing of IDM within DIH. The company has also been lacking specifications in some IDM categories. The knowledge has instead lied with the suppliers, which further increases the switching cost when looking for new suppliers.

5.3.2 IDM within individual functions

As aforementioned, the procurement of IDM is mainly up to the individual department and controlled by the department managers. All parts of the procurement process including identifying a need, finding a supplier, negotiating, contracting and ordering can be performed by the departments. The actual execution of these processes varies greatly, some departments ask for more support from the procurement function, while others act entirely independent of other functions. As an example, the department responsible for "MRO Goods" within Wellspect helps with purchasing for both production development and production support at Implants and is an example of how cross-functional collaboration is used. The reasons for why "MRO Goods" has developed in this direction is likely since they are one of the only departments that have an employee fully dedicated to purchasing activities. This further indicates and supports the argument that the lack of resources explicitly allocated to IDM is a big factor for the lack of development within the area. Within "MRO Goods" it has gone to the point that the purchaser is aware of several possible, simple, cost-saving projects that could generate savings, but the time constraint to pursue these is too great as the daily tasks consume too much time. In Figure 5.1 the spend and number of suppliers for the category of "MRO Goods" is pictured, where 80% of spend goes towards 16% of the suppliers. It illustrates that the category, as many other, has a long "tail" of suppliers with near to no spend.

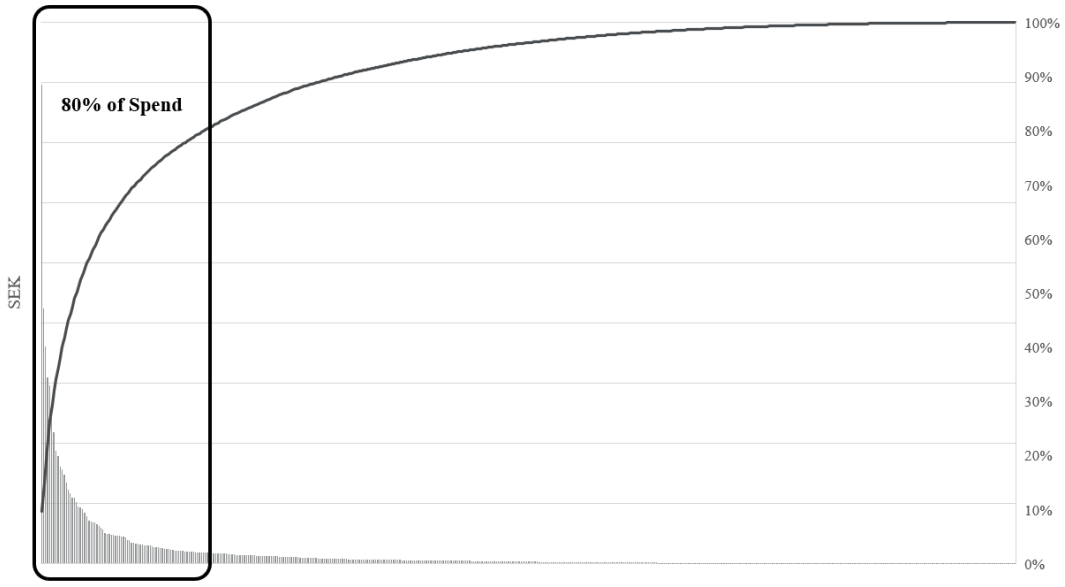


Figure 5.1 – Spend distribution per Supplier – "MRO Goods", DIH

5.3.3 IDM within shared functions

What is clear from the empirical data collection is that the shared functions of Site Support, IT, and Facility have a much better knowledge of their processes and spend than other departments. This is likely due to several reasons. First, these functions sole responsibility is within managing the indirect spend, therefore they are more experienced and have resources

to allocate to improve this area. Secondly, these functions act as centralised purchasing functions for their specific categories. No other department than the central function is, for example, procuring cleaning services or facility maintenance and the spend is thereby easier to control. Finally, they carry budget responsibility and they closely relate to the corresponding category. For example, the shared function "IT" closely corresponds to the category *IT and Telecommunications*. Therefore, they continuously monitor the actual compared to the projected costs giving them better insight and understanding of how costs develop over time.

5.4 Potential synergies between Implants and Wellspect

As both Wellspect and Implants are situated in Mölndal and in close proximity to each other, it facilitates coordination and therefore also the potential for realising synergies (Kiesler & Cummings, 2002). The business units also have a history of working closely together since the start, although they have drifted apart since the company was acquired in 2011. Sharing the same site offers opportunities for sharing both tangible and non-tangible resources effectively, the shared functions of Facility, IT and Warehousing is an example of how the location can benefit the business units. The most important synergy regarding IDM is likely the pooling of negotiation power but also the sharing of both tangible and non-tangible resources is important to decrease costs and increase utilisation of investments (Rozemeijer, 2000).

The business models and products of the two units are entirely different and therefore it exists less potential for synergies within direct material as it is often very specific. However, for the indirect material, the nature of the materials and services is often more standard and generally several possible suppliers exist in the market, decreasing the suppliers negotiating power, as described by Porter's (2008) five forces, increasing the potential for synergies and the use of leveraging volumes in negotiations. A good indicator of where the potential for these kinds of savings initiatives exist is data regarding the number of suppliers per category or account within the company that is on a more detailed level.

By looking at Figure 4.14 and Figure 4.16 that show data over suppliers used by both business units, it is clear that even though Wellspect and Implants have very different customers and products they still share a large portion of IDM spend. 65,9% of the IDM spend is allocated to suppliers used within both business units. This indicates that there can be situations much like how van Weele (2009) discusses that decentralisation can result in circumstances where different departments are buying from the same supplier without coordination, and therefore compete and drive up the prices as a result.

Further, the overlap extends over departments within the separate units that purchase similar IDM and use similar suppliers, negotiated on department level. This results in big potential for savings if the company can collect data of volumes, current suppliers, and existing contracts to leverage this and obtain better deals as a result. By using the collected and categorised data it is easy to see in how many and what functions a specific supplier is used, this can then be used to coordinate amongst these to get better deals.

Sharing resources, both tangible and non-tangible, such as a warehouse or IT makes use of the pooling negotiation power (Rozemeijer, 2000). The synergies are therefore related and create even stronger positive effects if managed effectively. In DIH's case, the functions that are shared for the site makes good use of synergies as they accumulate the needs of both business units and have enough data to leverage volumes when negotiating with suppliers. Many activities and services can potentially be shared between the two units, not only by pooling the volumes and negotiating larger contracts but also by conducting make-or-buy analyses and see potential savings by moving currently outsourced activities in-house. Both Implants and Wellspect have a significant share of costs related to, for example, printing marketing material which potentially could be moved in-house. This is something that has been investigated by the company previously but was disregarded as there was a change in management and an investment in machinery was required.

5.4.1 Prioritising among opportunities

To realise the potential savings that exist efficiently, some prior work is needed. Kapoor & Gupta (1997) argues that data needs to be collected, validated and analysed to effectively prioritise between different projects related to savings within IDM. This prioritisation can, for example, be made by estimating the potential savings for a category against the feasibility of such a project, much like in the model by Chakravorty (2012) in Figure 3.6. However, as the author suggests for the model, it requires input from executive management regarding the benefit of the project which may not only be monetary. The same goes for the estimated effort that would be required to achieve these benefits. To make a robust analysis for this sort of prioritisation, both the benefits and effort must be evaluated and quantified by management. As the question regarding IDM has not received as much attention at DIH in Mölndal, this evaluation has not yet taken place.

The spend data is also very important for getting information regarding historical demand of both products and services. This data is key in negotiations with suppliers and for getting better prices by pooling the demands within the company and consolidating within the supplier base. Increasing volumes in one specific category, material or service indicate an area that should be prioritised and renegotiate larger volumes to better prices.

5.4.2 Realising potential savings

To realise the savings, improvement projects need to take place within DIH with dedicated resources. These projects can, for example, be done on a category basis. Several authors (Payne et al., 2011; Kotter, 1995) state the importance of assigning dedicated resources with clear roles, responsibilities, and objectives to the project so that they can devote sufficient time to it and keep up the momentum. Otherwise, these kinds of projects often fail as the daily tasks take precedence of the employees' time and the project stalls as a result. The projects also demand high-level sponsors to increase the credibility of the project in the organisation and lower the reluctance to change of inside stakeholders. Regular status updates should be held with the sponsor to give a sense of ownership of the project and the results as this increases the chance of successful execution (Hayes, 2018).

Upon completion of a project where new terms, processes, and suppliers are established it is important to ensure that the organisation complies with these to ensure that the performance is improved over time as more and more projects are executed (Payne et al., 2011). Monitoring compliance of both suppliers and internal customers should be done to measure compliance. Supplier compliance can be evaluated by examining incoming invoices and comparing to agreements, internal compliance can be evaluated by monitoring and comparing the current spend towards the baseline and ensuring that the preferred suppliers are used. In the case of DIH, it is now difficult to monitor the current data and get an overview. To simplify this process, the purchases should ideally be made through a PO as this makes it easier to monitor and get data over the situation.

5.5 Contrasting quantitative and qualitative company data

From the qualitative data collection, it was clear that the interviewees experience a lack of coordination, overview, and structure within the area of IDM. When asked about what processes, who is responsible, and how much is purchased the employees rarely bring up any standardised processes except for the category of "Travel" or "Meetings/Events and Tradeshows".

This view is also supported by the quantitative data collection and analysis. From the process of collecting, validating, and cleaning the data it is evident that this type of analysis is time-consuming and difficult to complete resulting in a lack of overview. A lack of coordination is seen in the large and excessive number of suppliers for different categories and services shown in Figure 4.6 where the category Marketing and Sales Services and MRO goods have several hundred suppliers.

The company is in that aspect self-aware in that they understand the low degree of maturity within the procurement processes of IDM and coordination. Interviewees express that large potential likely exist within different categories, but the lack of data is an obstacle for decision making and initiatives for improvement.

6 Discussion

This chapter aims at discussing the results from the study and the implications, both for the case company in focus but also in more general terms of application.

6.1 Relevance of the study

Although the area of purchasing has been under progressive development during the latter decades, the subject of indirect purchasing has received less attention. This although it often amounts to equal or more spend than its counterpart of direct purchasing (Cox et al., 2005; van Weele, 2009; Cavinato et al., 2000). Therefore, it should receive more strategical focus from management than it has traditionally.

Most of the literature within the subject of IDM focuses on the process of improving these processes within one company, whether it is a global multi-site company or a company with a single site but with similar business units. This study, however, also aims to contribute with insights into how business units within one company, although active in very different industries, within close proximity can identify and leverage synergies within the procurement of IDM. Therefore, the study's two research questions, (1) *How can companies identify and prioritise potential savings opportunities within indirect procurement?* and (2) *what initiatives are required to realise potential savings and capture synergies within indirect procurement?*

For this study, the questions were analysed in the context of a case study at DIH in Mölndal. In total, 31 interviews were conducted, see Appendix C, as well as collecting spend data from company databases. With this empirical material and an exhaustive literature review, the study has identified key aspects for organisations to consider within procurement of IDM.

6.2 Identified problems and potential savings within IDM

This section will be dedicated to discussing the implications and suggestions related to the study's first (1) research question.

6.2.1 Barriers within IDM

Several issues have been identified during the case study at DIH in Mölndal. These issues have all been contributing to the lack of control and visibility of the IDM spend.

- **Management's recognition of IDM**

The study confirms, within the limitation to the studied case company, the picture painted by literature that the subject of IDM receives little attention from management and is less mature than the area of direct purchasing. MedTech as an industry has experienced rapid growth, both in demand but also in regulation of the produced products resulting in less time over for improving procurement of IDM. The resources focus almost exclusively on complying with quality restrictions and securing the supply of direct material to comply with the differing

requirements of different markets and to meet increasing demand. As the direct material has been the focus, no resources have been formally allocated to the procurement of IDM.

The study does, however, point to that management at DIH should look at the indirect spend as strategically as the direct. Being that the indirect spend in many companies, DIH included, almost is as large as the direct spend, the savings potentials are too large to ignore. The total potential savings within IDM for DIH is 8,4 – 17%, which are figures that in no sense would be ignored by management if it was for the direct materials and services.

- **Lack of coordination**

From the empirical findings and literature review, it is rather clear that the problems within the procurement of IDM within DIH stems from a lack of coordination. This is true not only for the business units Wellspect and Implants but also between the different functions and departments within the business units. The close location of the business units should facilitate coordination as both tangible and intangible resources are more easily shared and the pooling of demand is simpler to implement. However, as there is no shared or dedicated IDM resource at either Wellspect or Implants it means that there is no one that regularly seeks possibilities to better coordinate and manage the IDM spend. The general understanding from the interviewees at DIH is also that Wellspect and Implants cannot coordinate to a large extent due to the differences in the products. However, the study can identify a significant synergy potential at DIH as roughly 65% of the spend is to suppliers used by both Wellspect and Implants.

What has been found from interviews and spend data is that the functions that are more mature in their procurement of IDM seem to be those that have allocated resources for this sourcing. IT and Facility for example aggregate all demands at DIH and control both the spend and supplier in more efficient ways than other functions that operate more individually such as R&D.

- **Spend data collection**

The lack of coordination also complicates data collection and analysis, which in turn becomes another obstacle for coordination as the employees or managers do not have insight into what other departments purchase and where from. The difficulty to gather complete and accurate spend data at DIH has proven to be a great obstacle to start the work of reducing the IDM spend. One aspect of this was that no complete mapping of accounts or cost centres had been conducted, and it required substantial work to complete this for both Wellspect and Implants.

Another factor that complicates the spend data collection is the relatively low usage of formal PO's. At other DS Group sites, the usage of PO's for the indirect purchases has been 44% and the general understanding from interviews and observations at DIH is that the PO usage for IDM is relatively low in Mölndal as well. This does not only make the invoice handling more difficult, but it also reduced the spend visibility. Spend data cannot be gathered from PO history but instead from historical transactions from the general ledger. In the general ledger, a deeper analysis on, for example, item-level cannot be conducted as it only shows the amount of the invoice or transaction.

6.2.2 Future projects within IDM

During the study's progression, there has been undergoing projects within the DS Group that will address some of these identified issues at DIH related to IDM. This is a strong indication to that, at least at the global procurement level, the IDM has received more management recognition due to its large portion of the total DS Group spend.

Firstly, the new global procurement organisation will formally allocate resources at the global, regional and site level to look for better ways to coordinate functions and business units and manage the IDM supplier base more effectively. The roles of these resources were successively rolled out and appointed during the study. However, the effects of these changes have not been in place long enough to impact the results of the study.

Secondly, the "No PO, No Pay" project will continue at the DS Group sites and eventually also at DIH in Mölndal. This will aim to increase the PO usage and ultimately facilitate easier and more accurate spend collection, which has been an issue historically at DIH.

Lastly, the new category taxonomy within the DS Group will eventually be introduced at DIH. This new taxonomy will offer a deeper level of detail into what the different spend categories consist of. However, the company should consider they should, as they have now, categorise the spend by suppliers. The AI tool that has been used now could only categorise roughly 60% of the suppliers in the IDM spend for 2019 at DIH. Also, suppliers will only fall under one category even if they provide materials and services in more than one category. Therefore, a consideration could be to categorise by accounts as DIH has done with their current taxonomy. In this way, the spend from one supplier can fall under multiple categories to provide a more accurate picture of what is procured.

6.2.3 Potential savings and prioritisation

What is especially interesting is the degree to whichthe two business units with very different products still allocate 65,9% of the spend within IDM to suppliers that are used by both. Multiple cases for specific suppliers could be identified where one business unit was certain that the other business unit did not use the same, although the spend analysis could prove that this was not the case. This implies that there is a large potential for consolidation of demand within the area of IDM, getting better prices and reducing transaction costs. However, further investigation needs to be carried out to see over the current contracts and who has been negotiating these in the past as this responsibility today is unclear in many cases.

This suggests that there is a large potential in looking for opportunities for collaboration with local business units without taking industry, product, or business model into account, as a lot of the spend is allocated to categories that are quite general and independent of industry. This analysis can also be done between departments intra-company to create initiatives to review current contracts and prepare negotiations to drive down price. An often-forgotten benefit when analysing potential savings is the administrative and transactional costs coupled to ordering and supplier management. As presented in the analysis, the cost of supply management and invoice handling at DIH is likely to amount to more than 10 MSEK, costs

that are very dependent on the number of transactions and supplier used. These costs are not represented as indirect costs in the financial reports but rather as time consumed by internal resources.

Due to the immature processes and the rather untouched subject of IDM within DIH, this has generated suboptimal results and large potential for savings consequently exists, both externally and internally. Within organisations, many different ideas for improvements exist among employees. From the two benchmark interviews, it was apparent that both companies focused on conducting a thorough spend analysis and then direct focus to the larger spend categories, as these categories would imply the larger potential savings. However, to create a more ideal prioritisation to start realising savings other aspects, such as effort required, should also be considered.

To conduct this prioritisation among proposed projects, it should therefore be recommended to evaluate both the potential benefits of the initiative in relation to the perceived effort required in a prioritisation chart, much like the matrix presented by Chakravorty (2012) in Figure 3.6. This prioritisation was attempted by the authors for the case of DIH and made from a site Mölndal perspective and the result is illustrated in Figure 6.1.

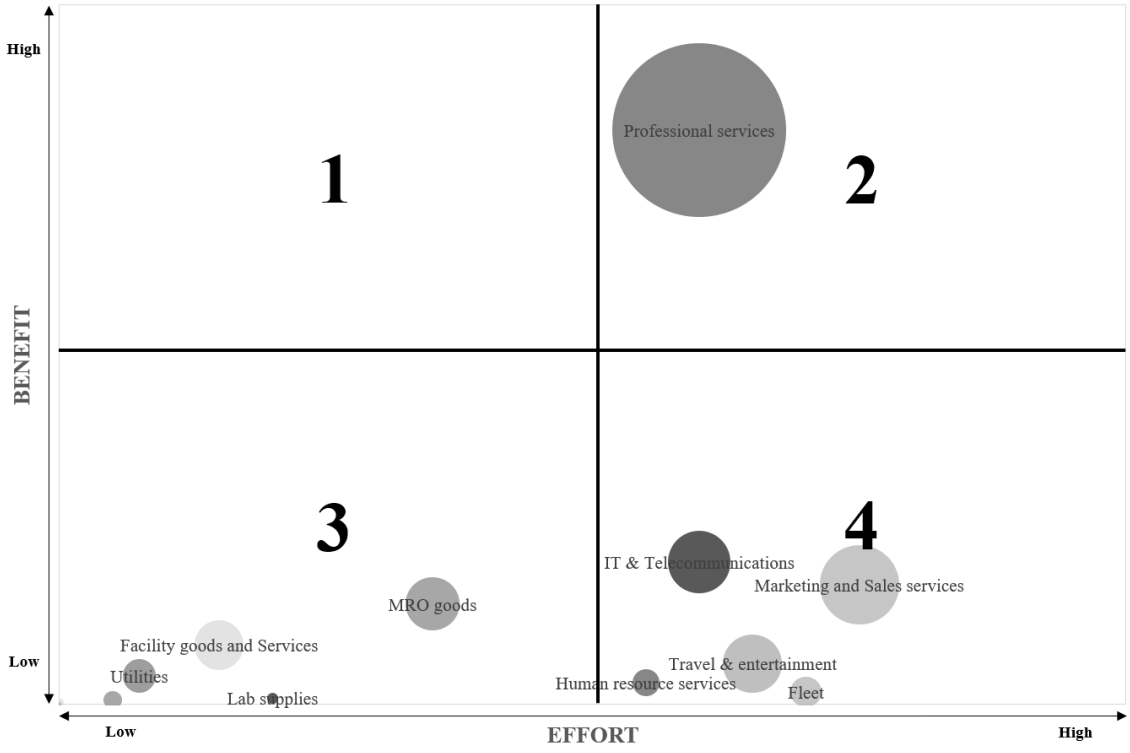


Figure 6.1 – Prioritisation chart, Indirect categories DIH

The benefit could be more objectively estimated with the calculations for the savings potential from Table 5.2, where the average value of the theoretical savings interval was used for the "benefit" axis. Regarding the required effort, however, it required a more subjective

estimation as it is harder to quantify or read from collected data. Instead, a holistic judgement was made from reviewed literature, interviews, and observations and assigned an ascending low to high value on the "effort" axis. Categories controlled more centrally within DS Group or where there are fewer suppliers that are locked in with DIH would presumably require a higher degree of effort to reduce the IDM spend for that category. The size of the bubble only represents the share of total indirect spend per category and does not affect the results that come out.

From the, regarding required effort, speculative prioritisation chart in Figure 6.1 it is evident that no category falls into the priority 1 quadrant, due to the relatively low potential benefit that would be achieved of the low effort categories. Instead, in quadrant 2 "Professional services" is found by itself and further strengthens the study's results that this is where DIH should start to focus their time and efforts. After having carried out a savings initiative for this category, they should move on to quadrant 3 where smaller benefits still can be achieved, but to a lower perceived amount of effort or difficulty. Lastly, the company could seek for initiatives in quadrant 4. However, these are categories which are more centrally handled within DS Group and thereby more difficult for DIH in Mölndal to affect in the same way as for other categories in previous quadrants. This would end up in a priority list that looks close to the what is illustrated in Table 6.1:

Table 6.1 – Prioritisation table, Indirect categories DIH

PRIORITY 1	
PRIORITY 2	Professional services
PRIORITY 3	MRO goods
	Facility goods and Services
	Utilities
	Lab supplies
	Office equipment, furniture and supplies
	Financial costs and income
	Other
PRIORITY 4	Marketing and sales services
	IT & Telecommunications
	Travel & Entertainment
	Human resource services
	Fleet

Internal potential cost savings

Also, as previously discussed and identified from analysis, there is large internal savings potential for the procurement of IDM. The analysis made from Mitchell and Sawchuk's (2012) study indicated an internal savings potential of 6,3 MSEK for the PO processing. Their findings are directly applicable and relevant for this study, as they only considered IDM categories when looking at PO handling costs and supplier base costs. These are savings

that could be realised from consolidating the volumes to fewer suppliers and work more closely with these suppliers to streamline PO and invoice processes. Other ideas, such as monthly invoices instead of one per PO, could also be an alternative to reduce PO process costs. However, with the current spend control with requisitions, this could prove to be difficult as multiple employees potentially would have to approve an invoice.

Something obvious in the study was that the decentralisation of IDM purchases led to a significantly large number of suppliers that were used in many categories, such as "Professional services", "Marketing and Sales services", and "MRO Goods". As of the time of the study, there has been no incentive for employees making IDM purchases to reduce the number of suppliers used. However, Mitchell and Sawchuk (2012) pointed out several benefits that come with consolidation and that there is savings potential here as well. Each supplier costs 7 000 – 14 000 SEK to set up and manage, but this cannot be seen as an annual cost as a supplier is only set up once. To estimate what the true annual cost of managing a supplier is would require a separate study and could not be performed within the scope of this study. But to convey the rationale and provide the incentive for DIH to try and reduce their supplier base, a figure of 5 000 SEK per year could be used to represent the management and contact cost per supplier.

In 2019, DIH made use of 1 610 unique suppliers for IDM. This would incur a cost of 8,0 MSEK using the aforementioned rational. For every supplier that is reduced, a 5 000 SEK internal saving would take place. So, if DIH, for example, could reduce their IDM supplier base by 10% to 1 450 it would realise an internal saving of 800 000 SEK. Of course, this is a saving which potential would be more difficult to realise the more you work with it. But from the as-is at DIH within IDM today, it provides some significant short and long term savings.

6.3 Realising the potential savings within IDM

This section will focus more towards the study's second (2) research question. It will discuss the initiatives in form of actions and decisions that are required from the management and organisation to realise the potential savings that lie in indirect procurement.

As the identified root cause is the lack of coordination among departments and business units the purpose of the proposed solutions are different ways to increase coordination. The big obstacles and barriers for coordination needs to be addressed. The main obstacle we identify to be the lack of access to quality and complete data over the indirect spend. This is also reflected in the reviewed literature where the fundamental step in improving the purchasing of IDM starts with collecting quality data to monitor, control, and prepare for consolidation and negotiations. Without data over the current situation, it is more difficult to motivate a change towards an increased focus on IDM.

To improve the procurement of IDM over the long term it is essential to provide the organisation with data over the current situation to monitor the actual state and trends. Cleansing and validating the data in the current state requires a lot of manual labour and information from different functions and resources within the organisation. This leads to it

being done very rarely and that the data becomes outdated and ultimately not used. By constructing a report or a business intelligence solution, for example in Power BI, data over the costs are more easily monitored and extracted to use in decision-making and as a basis for improvement. However, this requires an improved classification of data in the ERP system, such as category, spend type and allocation of shared costs.

By having quality data readily accessible departments can get insight into what supplier other departments use and by doing so create initiatives for cooperation between departments and consolidation of the supplier base. The data may also work as a motivator for the departments to focus more on indirect spend as they will be more aware of the costs.

Coordination can be improved in many ways. Travel spend is for example controlled and coordinated by a digital tool that ensures that the employees travel by using central agreements and complying with policies. This solution is believed to work best for categories that are quite standardised, such as office and lab supplies. This is not a suitable solution for the procurement of, for example, professional services where the requirements vary to a much greater extent.

For the less standardised categories, the internal customer may have more requests and specifications that need to be met when selecting a supplier. Therefore, a solution such as a portal is of less use. Instead, a central responsibility within DIH could be established, this would then have control and take care of negotiations with suppliers. For the case of professional services, this unit can guide the departments in selecting a supplier that is preferred to consolidate volumes and reduce the price. As of now, several interviewees experience the sourcing of consultants as a process that they are insecure of, in terms of what they can and should do when it comes to sourcing and negotiating. Some internal customers require consultants with very specific expertise and therefore are limited when selecting suppliers, but this supportive unit could take care of negotiations and ensure that the contracts are sound and in line with policies. It would likely be favourable to have this unit at a local or regional level instead of using a global category manager for professional services, as the consulting firms often vary globally and the departments at Wellspect and Implants often require very local specific expertise that is difficult for a global category manager to accomplish effectively.

From the two benchmark studies, it is apparent that the focus for realising IDM savings can be conducted with both a short-term and long-term orientation. Company 1 mostly focused their efforts into the, relatively simple, task of challenging current suppliers on price and other contract terms. Even from this, a consultant had paid itself off after only two months. These sort of “easy wins” could really help to spur interest within the organisation to take on larger long-term efforts as in Company 2’s case with consultancy services. This further strengthens the argument to start with high benefit/low effort IDM projects to spur management’s interest to invest further into larger efforts to secure more long-term benefits for the company.

6.4 Recommendations

The general recommendation for DIH is to make use of the results and findings of this study as a basis for the allocation of resources, internal or external, to a pilot project where initially the category of "Professional services" is investigated. The project should aim to review the current supplier base, the internal current and future needs within the category, and to find a suitable solution with a consolidated number of suppliers. By identifying the internal needs regarding comepetence and resources for professional services suitable suppliers can be selected for negotiations. By reviewing the current contracts it is possible to evaluate what suppliers are appropriate to either consolidate or renegotiate with. When forecasted volumes of the needed resources are acquired these can be used as support in negotiations. After the completion of such a project an evaluation should be made, the results should be reviewed and decisions on how to continue working with indirect spend should be discussed. Similar projects have been done in the objects of the benchmarking with good results. As it is still not entirely clear how the global/regional organisation for the category of "Professional services" will look like this project can be done without the risk of interfering with DS Group initiatives.

Even though the recommendations can be made very specific for DIH, the methodology for how to identify and realise potential savings within an organisation can be generally applied to any type of company or industry. Throughout the study, no focus was specifically made towards MedTech's procurement of IDM, which reflects in the study's findings where none are specifically made for a MedTech organisation. Instead, the example of the MedTech company like DIH can be used as a classic example of where the IDM has not received much strategic importance but where initiatives to manage this more effectively can have a large impact on the company's bottom line.

7 Conclusions

The study was aimed to investigate the state of procurement of indirect materials and services (IDM) within DIH and understand the underlying reasons for a lack of development as well as identifying suggestions for progress. The quantitative contribution was mainly the aggregated view of the indirect spend and its distribution between business units, departments, functions. This view may not contribute with any new information to the company, but the way of illustrating and showing potential synergies between two very different business units was a new way of looking at the IDM procurement. The results aim to not only apply to DIH or other organisations within MedTech but instead to be a generally viable way for increasing effectiveness in the area of indirect spend.

- *How can companies identify and prioritise potential savings opportunities within indirect procurement?*

Some key points regarding IDM has been discovered during the period of the study. The characteristics of such materials and services are in general more standardised than the direct, and many suitable suppliers can often be found in the supply market, generating potential for consolidation and opportunities for collaboration amongst sites, business units, functions, and departments. In the focal company, roughly 65% of the total spend of the two very different business units went to suppliers that they both were using, even though they have very different products. The relevance of this study has therefore increased during its course as the area of IDM definitely seem to cross boundaries such as business plans and industry. One should, however, differ between IDM that can influence the end product and IDM that do not affect the end product. Professional services can, for example, require more attention than the sourcing of office supplies due to its possible influence on the quality of the products.

To determine the potential of categories it is essential to get both qualitative and quantitative data. Spend data is needed to determine the size of the opportunity of an initiative whilst the qualitative data is required to estimate the required effort of realising such an initiative. The collection of data is not always straightforward as the area of IDM often has received little attention from companies as found in both literature, the focal company, and the benchmarks performed during the study. A low degree of standardised processes and a greater deal of purchasing decentralisation makes the process of data collection a complex and time-consuming task.

When analysing the data, it is beneficial to get an aggregate view of the spend to see the largest categories, the functions, and the most used suppliers. Thereafter, a more detailed breakdown of categories and functions is interesting to see how different departments operate and what IDM they procure to find opportunities for consolidation. By looking at suppliers within a category it is possible to find providers of similar services and internally investigate the need to keep all of them or to consolidate. If a supplier appears in different functions or business units, it is interesting to see if they are negotiated cooperatively or if they have received different contracts and pricing terms.

What to consider when prioritising different opportunities is, apart from the potential benefit, also the perceived effort needed to complete an initiative. Some categories are more complex than others and therefore likely require more time to examine. If there are many internal stakeholders with differing demands it is essential to have frequent discussions to find a common ground on the specifications of what is needed within this category. One way to get a sense of the required effort is to include department or executive managers and let them discuss the complexity of projects within different categories in terms of required resources, duration, cost, and risks of the project. By letting the group assign values to these difficulties, it can, together with the potential be shown in a matrix for an overview of what to prioritise. The projects with a large potential benefit and low required effort should be prioritised.

- *What initiatives are required to realise potential savings and capture synergies within indirect procurement?*

From the study, it is clear that the biggest obstacle for the effective procurement of IDM is a lack of coordination. Without an overview or ability to get insight into what is procured, what suppliers are used, and what prices are paid it is a daunting task to consolidate demands across sites, units, and departments. Therefore, easily accessible and high-quality data is essential for driving savings initiatives. It helps in building a business case to the executive team as well as a basis for renegotiations with suppliers. By having access to current data, the trends and performance of IDM procurement can be monitored over time and help ensure that improvements are anchored in the organisation and that compliance to processes are held.

The access to data can also spur initiatives for cooperation as department managers can see what suppliers' other departments and units are using to get information from them about the quality and pricing of goods and services as well as initiate opportunities for consolidation. Hopefully, by having accessible data the departments will also be more motivated to focus more on indirect spend due to its significant impact on the costs of the company and department.

Solutions for how to coordinate vary and the company is today making use of different techniques such as digital portals for booking of travel to shared departments for categories such as IT and facility services that consolidate and take care of all sourcing. The solutions should be adapted to the characteristics of the category. Standardised products and services are more suitable for a standardised selection that employees can choose from, whilst more advanced services require more support and coordination in the process of sourcing. For these types of IDM, it is more suitable to have a supporting unit that is responsible for coordinating and support in negotiations within the category, DIH is at the moment implementing regional category managers that may assist this kind of support in the near future.

To increase the chances of successful projects the task should have dedicated resources, either in the form of consultants or internal resources that have allocated time to work with the project. The project also needs to have support or sponsorship from a high-level to increase the likelihood of success. This helps with increasing the credibility of the project and helps employees accept changes, the sponsor should receive weekly updates to feel

ownership of the results and ensure that the project progresses in the desired pace and direction.

Further research which could complement this study is to take on a historical perspective within the area of IDM, as this study has only considered the spend of the fiscal year 2019. Monitoring trends of spending in categories, functions, and suppliers and relate this to the sales trends to see correlations between costs and sales. In this way, one-off costs only related to a specific would show more clearly and could, if needed, be disregarded. Additionally, research concerning specific types of solutions is needed to determine, in more detail, how to set up supporting processes and tools and their effects on the indirect spend.

Another interesting area for future research is the compatabilit of the two business units Wellspect and Implants. We have shown that there is a big overlap in use of suppliers and spend but looking at how processes and organisations align for cooperation is a uncovered area.

The study has mostly analysed and discussed the central activities such as spend data collection, spend analysis, and how to use these to secure management recognition and resources to carry out savings initiatives. Further studies that focus solely on how to move on from here would be interesting to see.

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Appendix

In this section, other relevant data and calculations not included in the report are presented.

Appendix A

The tables illustrate the percentage of suppliers per indirect spend category that constitutes 80% of the spend for the category.

WELLSPECT:

	# of Suppliers 80%	Total # of Suppliers	% of Spend	% of Suppliers
Facility goods and Services	3	49	81%	6%
Fleet	1	2	98%	50%
Financial costs and income	2	2	100%	100%
Human resource services	21	61	81%	34%
IT & Telecommunications	10	46	81%	22%
Lab supplies	10	66	81%	15%
Marketing and Sales services	21	132	81%	16%
MRO goods	52	328	80%	16%
Office equipment, furniture & supplies	7	30	82%	23%
Other	2	3	90%	67%
Professional services	22	230	80%	10%
Travel & entertainment	9	30	83%	30%
Utilities	1	3	100%	33%
Grand Total	**63**	**767**	**80%**	**8,2%**

IMPLANTS:

	# of Suppliers 80%	Total # of Suppliers	% of Spend	% of Suppliers
Facility goods and Services	10	81	82%	12,3%
Financial costs and income	1	5	97%	20,0%
Fleet	8	24	81%	33,3%
Human resource services	14	52	80%	26,9%
IT & Telecommunications	13	44	82%	29,5%
Lab supplies	9	33	80%	27,3%
Marketing and Sales services	36	217	80%	16,6%
MRO goods	46	231	80%	19,9%
Office equipment, furniture & supplies	7	27	83%	25,9%
Other	1	1	100%	100,0%
Professional services	39	262	80%	14,9%
Travel & entertainment	19	93	80%	20,4%
Utilities	1	3	82%	33,3%
Grand Total	**89**	**834**	**80%**	**10,7%**

Appendix B

Category	% of Spend			Potential saving (Rudzki, 2005)		WELLSPECT		IMPLANTS		TOTAL	
	WELLSPECT	IMPLANTS	TOTAL	Low	High	Low	High	Low	High	Low	High
Professional services	56,8%	57,5%	**57,1%**	8%	15%	4,5%	8,5%	4,6%	8,6%	**4,6%**	**8,6%**
Marketing and Sales services	6,4%	11,9%	**9,1%**	10%	20%	0,6%	1,3%	1,2%	2,4%	**0,9%**	**1,8%**
MRO goods	9,8%	5,4%	**7,7%**	10%	20%	1,0%	2,0%	0,5%	1,1%	**0,8%**	**1,5%**
IT & Telecommunications	6,9%	7,5%	**7,2%**	15%	30%	1,0%	2,1%	1,1%	2,3%	**1,1%**	**2,2%**
Facility goods and Services	8,9%	4,6%	**6,8%**	5%	15%	0,4%	1,3%	0,2%	0,7%	**0,3%**	**1,0%**
Travel & entertainment	2,7%	6,6%	**4,6%**	5%	15%	0,1%	0,4%	0,3%	1,0%	**0,2%**	**0,7%**
Utilities	4,3%	2,1%	**3,2%**	5%	15%	0,2%	0,6%	0,1%	0,3%	**0,2%**	**0,5%**
Human resource services	1,9%	1,4%	**1,7%**	10%	20%	0,2%	0,4%	0,1%	0,3%	**0,2%**	**0,3%**
Fleet	1,0%	1,8%	**1,4%**	5%	15%	0,1%	0,2%	0,1%	0,3%	**0,1%**	**0,2%**
Office equipment, furniture & supplies	0,4%	0,6%	**0,5%**	5%	15%	0,0%	0,1%	0,0%	0,1%	**0,0%**	**0,1%**
Lab supplies	0,7%	0,2%	**0,5%**	10%	20%	0,1%	0,1%	0,0%	0,0%	**0,0%**	**0,1%**
Financial costs and income	0,1%	0,1%	**0,1%**	5%	15%	0,0%	0,0%	0,0%	0,0%	**0,0%**	**0,0%**
Other	0,0%	0,0%	**0,0%**	5%	15%	0,0%	0,0%	0,0%	0,0%	**0,0%**	**0,0%**
Grand Total	**100,0%**	**100,0%**	**100,0%**			**8,3%**	**17,0%**	**8,4%**	**17,1%**	**8,4%**	**17,0%**

Appendix C

Business Unit	Function	Role	Date	Duration
Implants	Procurement	Consultant, purchasing	2020-02-04	60 min
Wellspect	Procurement	SQE	2020-02-05	60 min
Wellspect	Procurement	Sourcing Lead	2020-02-06	60 min
Wellspect	Procurement	Sourcing Lead	2020-02-13	45 min
Implants	Procurement	Administrator	2020-02-13	30 min
Global	Procurement	Global Procurement Project Manager	2020-02-18	60 min
Global	Procurement	Global Category Manager	2020-02-28	60 min
Global	Procurement	Senior Category Manager	2020-02-28	60 min
Wellspect	Procurement	Sourcing Lead	2020-03-03	60 min
Dentsply IH	Facility	Senior Manager Facilites Management	2020-03-09	60 min
Global	Procurement	Director, Global Indirect	2020-03-10	60 min
Wellspect	Prod. Support	Department Purchasing Coordinator	2020-03-10	60 min
Global	Procurement	Director, Indirect - Rest of World	2020-03-11	60 min
Wellspect	Operations	Head of Supply Chain	2020-03-11	30 min
Wellspect	Prod. Dev.	Head of Production Development	2020-03-11	30 min
Dentsply IH	Site Support	Manager Site Support	2020-03-13	45 min
Implants	Marketing	Director Marketing Communications	2020-03-16	45 min
Implants	Marketing	Sen. Manager Global Communication and Market Support	2020-03-16	45 min
Wellspect	Marketing	VP Marketing	2020-03-16	30 min
Dentsply IH	IT	Manager IT Support	2020-03-17	30 min
Global	Procurement	Global Procurement, SBU Sourcing Leader	2020-03-17	45 min
Wellspect	Quality	Laboratory Engineer	2020-03-17	60 min
Global	Clinical Affairs	VP Global Clinical & Scientifical Affairs	2020-03-25	45 min
Implants	Procurement	Buyer	2020-03-30	20 min
Benchmark 1	Procurement	Project Buyer, Indirect Procurement	2020-04-15	60 min
Implants	Procurement	Sourcing Lead	2020-04-30	60 min
Benchmark 2	Procurement	Strategic Buyer, Indirect Procurement	2020-05-07	60 min
Wellspect	Finance	Senior Controller	Recurring	Monthly
Implants	Procurement	Head of Global Procurement	Recurring	Weekly
Wellspect	Procurement	Head of Procurement	Recurring	Weekly
Wellspect	Finance	Controller	Recurring	Monthly

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