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1. **Customer**
2. **Value**
3. **Service**

ABSTRACT

Dow Chemical Company sponsored an IQP concerning the disaggregation of product and service among its European coated paper customers. The project team used non-probabilistic sampling to interview Dow customers throughout Europe, and discovered that six key themes emerge as important perceptions of either product or service. These include Quality, Discussion, Price, Problem Solving, Research and Development, and Analysis. We conclude that Dow has the possibility to use these six themes, which increase customer value, to improve their future service offerings.

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1. INTRODUCTION

For companies to gain an advantage over their competitors they must have an understanding of what their customers value. Companies should look at all elements that create value for the customer instead of only looking at the customer's satisfaction with the service. With an understanding of what is valued by a company's customers, the company can increase market share and reduce costs by offering only the services that add value for the customers.

Dow Chemical Company is one of the leading suppliers of latex for the coated paper industry in the United States and Europe. Dow wants to assess their European customers' value for the services provided in addition to the products the customers receive. Dow sponsored our Interactive Qualifying Project to research product, service, and value in the coated paper industry as well as to discover the perceptions their customers have about the services they receive. For this project, our group gathered data from Dow's four top European customers about what they perceive as service versus product as well as what they value about these elements.

Information that was relevant to our project was collected and placed in our literature review chapter. In this chapter we look at the paper production process, the coated paper industry, product, service, value, organizational buying behavior, sampling, methods for data collection, and analysis.

The paper production process in the mill consists of three areas: the wet end, the coating process, and finishing. Pulp is dried and flattened to become base paper in the wet end of the production process. Latex, along with the other coating chemicals, is applied in the coating part of the process. Once the paper is pressed at the end of the coating process, the paper is rewound and cut to the customer's specifications. After understanding the process, our group wanted to define product, service, and value.

Our group defined product as the actual material that is purchased as well as the customer's expectations for the performance and characteristics of the material. Benefits that are offered to the customer in addition to the material itself were defined by our group to be services. We defined value as the customer's perception of the usefulness of a product or service based on what is received and what is given. Companies should gain knowledge about their customer's wants and needs, and then use that information to increase customer value. Building a customer value model allows a company to focus on elements that create value for their customers. Focusing on those elements will help a company be successful in the future. Additionally, we needed an understanding of how purchasing decisions are made within companies.

Organizational buying behavior details the way purchasing is accomplished by a producer like a mill. The various organizational members who have a role in selecting, purchasing, and using a product or service are known as the buying center, or decision-making unit, for that product or service. The members of the buying center who make the final purchasing choice are called decision-makers. Influencers are members of the buying center who will make recommendations to affect the decision-makers' final choice. Users, who are the people in the organization who actually use the product, may also try to sway the final decision. An understanding of purchasing within companies helped us to begin to decide on a sample.

There were two qualitative sampling designs that we researched in depth, purposive sampling and reference sampling. Purposive sampling is a sample that is chosen by a researcher because a particular group has certain attributes that the researcher is trying to focus on. Reference sampling is a qualitative technique in which people from the original sample give references to other people to speak to. Reference sampling is important because it provides context and depth to a particular group.

Our methodology chapter discusses the qualitative data collection techniques our team used as well as our techniques for analysis. We used purposive sampling to select the mills and people that our group would collect data from. We used reference sampling to gain additional respondents. Our principle data collection technique was interviewing, which was conducted at fifteen mills in seven countries. Here our group used a semistandardized interviewing schedule followed with probing questions. Our methodology chapter also discussed an additional data collection method, which was focus groups. Two focus groups were conducted, which provided us with an opportunity to interview two people at once and see how the respondents would react and interact in a small group.

The final section of our Interactive Qualifying Project is our results and conclusions chapter. It focuses on six key elements that were valued by many of our respondents. These areas are the *quality of the product*, *discussions with suppliers*, *factors affecting price of the product*, *problem solving assistance*, *research and development*, and *analysis of the material and equipment needed*.

To meet the mill's need for the quality of the raw materials they purchase, the supplier must produce a raw material that meets pre-specified parameters. The supplier should report this quality to the customers on a regular basis. Also, the supplier's ability to produce a cost effective product and maintain consistency of quality by minimizing variation of the raw material are all expected from the product the mill purchases.

The supplier should generate a common level for discussion between themselves and their customers by arranging regularly scheduled meetings and contacts. These contacts can be face-to-face as well as by telephone, fax, or electronic

mail. In addition to these methods for talking with the customer, the supplier should share market-oriented information with the customer.

From the data collected, it can be seen that our respondents perceived price as both part of the product and also a service in some respects. For the most part, price was seen as one important aspect when deciding which product to purchase. In addition to this, some respondents were interested in services that relate to price and cost, such as rebates and vendor managed inventory.

Many respondents felt it is important for suppliers to be able to assist the mills when problems occur. It was stated by several respondents that suppliers can help solve problems by using their knowledge of the raw material and problems that can occur with the raw material or the paper machine. The supplier and the mill can then discuss together the best solution to the problem. In some cases, on-site visits by the suppliers are required to solve the problem. Many respondents would like to be able to contact their suppliers twenty-four hours a day in order for mills to have problem-solving personnel to talk to whenever they need help.

Research and development includes more than just the development of new raw materials. Mills also value facilities that the supplier has, a supplier that can use their technical expertise to do development, and having developments carried out together with the suppliers. Development work is important to the mills on many levels. The mills expect some of the elements of research and development to come with the product, but in general they look at the service elements such as pilot plants and knowledge to be the most important aspects. As a result they consider research and development to be a service.

The respondents that were interviewed were looking for two types of analysis, namely problem solving and development. Problem solving analysis involves analysis

of different raw materials when a problem arises in the mill. This type of analysis is used to determine what raw materials are responsible for a problem. Development analysis is used for multiple reasons. Smaller mills value analysis tests because they cannot afford the equipment. Many mills value specialized tests because they cannot afford to keep equipment that will not be used regularly. Also, some mills use comparison analysis to compare the products of different suppliers. Based on the responses received during interviewing, different mills value analysis for different reasons but most rely on the supplier to provide this service to them.

In our conclusions and recommendations we state that Dow should look at all six valued elements when deciding how to change their service offerings in the future. Dow can use the information we present in this final report to gain an advantage over their competitors, maintain current customer relationships, and acquire new customers in the paper industry. In addition, we discuss the knowledge our group members have gained from this project experience.

2. LITERATURE REVIEW

2.1 INTRODUCTION

In our literature review, we examined several different topics to gather background information for our project. The first section is background research information about the product and the paper making industry. Next, we looked at product, service, and value, in which we disaggregated product from service as well as looked at how value is created and measured. The next section is organizational buying behavior, where we looked at who the decision makers and influencers are within the mills and their corporate research centers. Sampling, which was used to decide which mills our group would visit follows this section. In our last section, we examined some methods for data collection and analysis. These methods include interviewing and focus groups. Furthermore, we discuss the analysis of this data which includes the use of the computer program NUD*IST and eyeball analysis.

2.2 BACKGROUND

Dow Chemical Company produces latex for the paper industry. Latex is used in the paper industry as a glue to hold a coating mixture onto paper (Jones, 2001). The coating mixture consists of chemicals, such as pigments and latex, which can make paper whiter and stronger. Due to the small size of the latex particles, they are suspended in water by dispersion. When latex is manufactured, the particle size, polymer composition, and molecular weight are variables that can be controlled to get different properties for the paper coating (Jones, 2001).

Paper is coated for aesthetic appeal (Jones, 2001). Paper that is coated has better print quality, is smoother, glossier, stronger, and creates sharper images, according to Jones (2001). The recipe for the coating is created in a coating kitchen.

Variables that affect the recipe include time, temperature, pressure, agitation, reactor size, and the order in which the ingredients are added.

Along with an understanding of how latex is used by the paper industry, it is important to have an understanding of the papermaking and coating processes in the mills. Paper is created during the wet end process in which wood chips are soaked and ground to create a lumpy substance that is known as pulp. This pulp, which is nearly ninety percent water, is then placed on a grid where it is flattened and dried several times to get the flat paper easily recognized today. This pulp can be mixed with recycled paper pulp to get a recycled paper mix as well. The wet end process was important during our interviews with the production managers because they deal with the wet end process on a daily basis. This knowledge of the wet end process aided our group when we discussed their everyday work. While the wet end process was valuable to understand, we aimed for further information concerning the services within the coating process.

The coating process begins in the coating kitchen. The supplier of the latex creates particular formulas for its customers that will work for the type of coating the customer wants. A large quantity of this latex formula is then made and delivered to the customer. The coating section of the mill's production line then takes that formula and fills a drum with a portion of the latex mix. The paper is then run through the coating section of the paper machine where the coating is applied to either one or both sides of the paper depending upon what the customer's order calls for. This can be seen in Figure A7.2 in Appendix 7. The paper slides through the coating filled drum in this coating section and is run through a series of infrared and gas dryers. Once the coating is dried, the paper is sent through the calendaring section of the mill where the coated paper is fed into a series of round drums, some of which are heated. Here the

paper is smoothed by gently pressing the coated paper between the drums, which removes any leftover imperfections. The finished paper is then sent through the rewinding portion of the mill where the paper is placed back on the reel it originally came from, is cut to the correct size requirements, and is wrapped for shipping (Varli, 2001). The entire process can be seen in Figure 7.1 in Appendix 7. This background of the mill process was important for our group to understand in order to have basic process knowledge which we expanded upon during our interviews. This knowledge of the process also allowed our group to analyze the data we collected on problems and support services to see if people in the mills would value new services in this area.

For our research, we needed in-depth knowledge of the paper industry. Cody (2001b) argues that the paper industry is affected by supply, demand, and cost. Demand for paper has decreased in the past year. Cody (2001a) argues that the reasons for the lower demand include a decrease in advertising since the economy has slowed down, as well as hikes in the postage rates by the United States Postal Service.

For the overall paper industry, production is up worldwide. Production is growing in Europe and Asia, while mills are closing in the United States. According to Cody (2001b), this means that the price of paper has stayed relatively high in the United States, but with the increased production, prices are lower in Europe and Asia.

One major change in the paper industry is the consolidation of many companies (Cody, 2001a). For example, the Finnish company StoraEnso has recently acquired Consolidated Paper, an American company. Also, the American company International Paper bought Champion International, by outbidding UPM-Kymmene, another Finnish paper company. UPM-Kymmene has placed a bid for the German paper company Haindl Papier (Cody, 2001a). This consolidation means the top paper companies have more of the overall market share than they held in the past (Cody, 2001a). For

example, StoraEnso, the world's top coated paper producer, has a capacity of 5.1 million metric tons and a 13.3 percent market share. Compared to this, SAPPI Ltd., the third-largest coated paper company, has a capacity of 2.97 million metric tons and a 7.7 percent market share.

In order to produce paper, the paper companies are supplied chemicals from many different companies for different reasons. In a survey designed by Ferguson (2000), these chemical companies were asked to describe company and product improvements that would help paper companies improve efficiency and product quality. Among the responses, Bayer Corp. mentioned that their fluorescent whiting agents (FWAs) allow paper companies to get paper even whiter, up to the European ultra-white grades. Dow additionally uses efficient hollow, plastic pigments that provide better performance at a lower cost. Dow's pilot coater gives customers the opportunity to duplicate different mill conditions and machines (Ferguson, 2000). For one other example, OMYA is conducting research to investigate formulations that will provide higher brightness, opacity, and gloss (Ferguson, 2000).

According to Van Arnum (2001), the market for these chemical companies is shaped primarily by the paper industry. There are three types of chemicals: pulp and fiber treatment, processing aids, and functional chemicals. Pulp and fiber treatment chemicals include bleaching, pulping, and deinking chemicals. They are used in the early stages of the papermaking process. Processing aids are used to improve the efficiency of paper production (Van Arnum, 2001). Functional chemicals include coating chemicals, which are used after the paper has been made. This coating process was an important part to understand for our project.

The chemical suppliers have been consolidating like the paper industry so the companies can continue to be the suppliers to increasingly larger paper companies (Van

Arnum, 2001). Some chemical companies are expanding. BASF is in the process of investing $470 million in its paper chemical operations. About $115 million is being spent on research and development, with the rest being spent on increasing capacity and building new production plants (Van Arnum, 2001). Dow is also building a new plant in China, and expanding production capacity at facilities in Sweden and Italy (Ferguson, 2000).

In summary, we needed a proper understanding of the product and the paper industry. In addition to needing knowledge of Dow's customers in the paper industry, we also needed an understanding of Dow's competitors in the paper chemicals market. Understanding these concepts helped our group formulate questions as well as understand the types of data we received. Understanding the process and the product helped us interpret the answers we received from interviews and focus groups.

Knowing only a few companies hold a large share of the market, we chose four of these top companies to conduct our interviews at. Understanding the chemical supplier market gave our group insight into what Dow is competing against and the importance for Dow to maintain its relationships with its customers. In addition to having background about the product and the market, we needed to define product, service, and value.

2.3 Product, Services, and Value

For our project, our group needed to disaggregate product and service. Once this was accomplished, we needed to measure what Dow's customers value about the services they receive. In order to do this we examined the importance of value and how it is created. We also needed to understand what a customer value model was and how a supplier can use it.

To begin, we defined product as the actual material that is purchased as well as the customer's expectations for the performance and characteristics of the material. Our group also defined service as the benefits offered to the customer in addition to the product itself. Now that we have defined product and service, we will discuss how value is created and the connection between value and product as well as value and service.

Value can be defined as "the customer's overall assessment of the utility of a product based on perceptions of what is received and what is given" (Andreassen and Lindestad, 1998, p. 10). For a given cost, customers receive both the product and a variety of services from a supplier, all of which will have a certain utility or value for the customer. Value is very important to suppliers, because suppliers can only gain an advantage over their competitors if they offer products and services with superior value to their customers.

Value is created in any relationship between a customer and a supplier. Not only is value created for customers by providing valued products and services, but also suppliers can gain value for themselves from their relationship with their customers (Walter, Ritter, and Gemünden, 2001). Suppliers gain product ideas, technologies, and access into a particular market for their products from customers. For these reasons, Walter, Ritter, and Gemünden (2001) argue that suppliers can only succeed if they offer more value to their customers.

Simpson, Siguaw, and Baker (2001) argue that companies should acquire knowledge about their customers, and use that knowledge to provide customer value. One way to provide value is to use this knowledge to help the customer increase efficiency, reduce costs, or solve problems. Two examples of this idea are Dell Computer and MCI. Dell uses the information they gather about their customers to

install software the customer will need and assemble the computer to decrease the number of tasks the customer must perform. MCI gathers information on its business customers in its Proof Positive program, and uses that information to provide the customer with the most cost-effective calling plan. According to the authors, this would mean less revenue for MCI from each customer. MCI had 13 percent growth and a 25 percent decrease in customer loss because they increased perceptions of trustworthiness in the customers (Simpson, Siguaw, and Baker, 2001).

Value is developed in other ways as well. Suppliers consider several factors to enhance value. These include relational factors, product factors, service factors, and physical distribution factors (Simpson, Siguaw, and Baker, 2001). Relational factors include commitment and trust, communication, cooperation, shared ethical values and professionalism. Product factors include quality, reliability, and cost, as well as product profitability, line assortment, guarantees, physical design, product improvements and innovations, and the market competitiveness of the product. The ability of the supplier to offer a total product bundle can increase value for the customer. A total product bundle is the combination of product and service that represents what the customer wants and needs. Service factors include training, technical support, and specialized technical facilities. Physical distribution factors include order processing, information management, inventory management, and transportation management. For our project, relational factors were considered to be part of the product. Some physical distribution factors, such as on-time delivery or structured logistics, were included with the product. However, other physical distribution factors, such as vendor managed inventory, were included as services that customers receive in addition to the product.

Services are important because companies are less interested in just the individual product or individual services, but increasingly want a solution that will combine these offerings to help them increase efficiency and reduce costs (Simpson, Siguaw, and Baker, 2001). According to Simpson, Siguaw, and Baker (2001), value is developed when the supplier provides services that are specific to the customer, especially if they improve sales and save money for the customer. The perception of value is even greater if the customer will not be able to get those same services if they switch to a competitor. Our group sought to determine what types of services paper mills value most so Dow can look to expand service offerings and increase value for their customers.

With all the different factors that create value for the customers, it is important for a company to see in which factors they have an advantage over their competitors, and in which areas they are weak. They do this by creating a customer value model, where a company can determine the key attributes that shape value for their customers (Anderson and Narus, 1998). The company can then focus on gaining strength over the competitors in those areas, instead of focusing on areas that are not key to the customers.

The first step to creating a customer value model is to generate a list of value elements, which are anything that affect the costs and benefits of the offerings from a supplier. These elements can be characterized as technical, economic, service, or social. A technical element is one that deals with how well the product works, for example, how well the latex adheres the coating to the paper. Receiving one monthly invoice, instead of an invoice for each purchase is an example of an economic element, which is defined as an element that deals with the buying and selling of the product. Extra benefits that come with the product, such as technical support, fall under the

service heading. Ease of communication with the supplier would be considered a social element, which deals with the relationship between the customer and the supplier. Technical elements and social elements are being considered part of the product for this project, while economic and service elements are being considered services.

Anderson and Narus (1995) state that it is very important for companies to tailor their offerings to the specific needs and wants of the customers. If suppliers are flexible in the services they provide to customers, they can reduce the number and cost of services they use along with their product, charge more for the specific services, and provide greater value to their customers. To have flexible service offerings, suppliers must assess the value of each service to their customers and the cost of providing that service. In order to assess the value of the service, the supplier must look beyond the customer's satisfaction with the service (Anderson and Narus, 1995).

Other ways to use a customer value model include guiding the development of new or improved products and services, gaining customers, and sustaining relationships with current customers (Anderson and Narus, 1998). Suppliers can use the customer value model to determine which improvements are worthwhile for the customers, and which have a higher priority. Suppliers can design persuasive value offerings based on the knowledge they gather from the model. A supplier can sustain relationships with current customers by demonstrating trustworthiness and commitment. One way a supplier can do this is by providing evidence to customers of their accomplishments. Based on the results from our data collection and analysis, Dow can determine what they should do in order to increase their customer base, increase their profit, and make their customers happier.

Our group needed to define product and service so we could determine from our data what the paper mills perceive as necessary or part of the product, as compared to

extra benefits or service. With an understanding of value, its importance, and how it is created, our group sought to measure which services or criteria of the product were most important to the customer. With this background, we had an understanding of what our group needed to find through data collection. In the next section, we discuss organizational buying behavior where we talk about how we selected the types of people we would interview at the paper mills and corporate research centers.

2.4 Organizational Buying Behavior

The next step in our research was to examine the organizational structure within the mills and corporate research centers of the selected companies in order to select the influential decision representatives. Alan Andreasen (1985) reemphasizes the importance of knowing the industry and further discusses how to break down that corporate structure by examining the decision-making process from end to beginning. This backward approach follows the corporate decision-making process. Andreasen draws attention to the numerous surveys completed and the amount of non-actionable results produced by researchers. Andreasen attributes these disappointing findings to the failure of involvement between researchers and management. Often times, researchers will derive who the consumers are that buy a product or service. However, researchers consistently lack the knowledge of what motivated these consumers to buy (Andreasen, 1985).

Most exchanges between buyers and sellers involve marketing to organizational buyers, so it is vital for marketers as well as researchers to understand buying processes and the influences that affect the final buying decision. Organizational buyers are those people who buy products and services within an organization. There are four main classifications of organizational buyers including producers, resellers, governments, and other institutions (Churchill, 1995). Within the scope of the latex coating of paper,

producers were the targets of investigation. Producers are organizational buyers that buy goods and services in order to produce other goods and services for sale. Paper mills purchase the latex from Dow Chemical Company to apply to their paper, which in turn allows the coating to adhere to the final product. Organizational buyers demand goods and services that will help them make a profit and meet the needs of their own customers. Therefore, marketers serving organizational markets must be concerned not only with the demands of the organizations, but also with the demands of the consumers for the customer's product (Churchill, 1995).

Competitors are an important part of the marketing environment for any supplier. A supplier can lose one small customer without a threat to business profitability, but to lose one large corporate customer to a competitor can be detrimental to the supplier. To gain competitive advantage, suppliers must be familiar with their target markets and what the customers need (Churchill, 1995). With a wealth of knowledge being centralized at the sales level, our team collected valuable data on the services within the market by interviewing the buying representatives at some of the paper mills who purchase from Dow Chemical Company.

Demand, competition, and technology play an important role in organizational buying decisions. Organizational buyers require goods and services that will help them make a profit and meet the needs of their own customers. Their demand shifts in response to changes in the various dimensions of the marketing environment. Often an organization makes a particular type of purchase from a single supplier referred to as sole sourcing. Sole sourcing is a desirable arrangement for the seller because he or she can concentrate more resources on pleasing customers then on convincing them to buy. Sole sourcing, coupled with human beings' normal tendency to resist change, can make

it especially difficult for a marketer to win business from a competitor (Churchill, 1995).

Technology is yet another way marketers can gain or lose their competitive advantage. Organizational buyers expect their suppliers to have expert knowledge and advanced technological expertise of the products the suppliers sell. Marketers must use new technology appropriately. For instance, retailers find convenience in replenishing their inventory quickly via electronic invoicing. However, the buyer is expecting prompt, short runs of just enough of the product tailored to their specific needs. Deliverables are anticipated to be distributed as fast as the electronic invoicing process (Churchill, 1995).

When marketers serve organizational buyers, the exchange process can involve several individuals. The various organizational members who have a role in selecting, purchasing, and using a product or service are known as the buying center or decision-making unit for that product or service. The buying center is not a formal group, but merely the people who communicate with one another regarding the purchase. The buying process begins with an initiator who starts the purchase process by recognizing a problem or need that can be resolved with a purchase. These initiators typically have the authority and responsibility to select a supplier and negotiate contract terms. From that supplier, the purchasing agent does the actual purchase. At the other end of the process is the decision maker, who makes the final decision (Dwyer & Tanner, 2002).

Influencers are members of the buying center who will make recommendations to affect the outcome of the decision maker's final decision. The influencers advocate which vendors, products, or services are best for the organization's needs. Sometimes users also try to sway the decision. Users are the people in the organization who actually use the product. A gatekeeper can also influence the final decision. The

gatekeepers control the flow of information into or within the buying center. Such employees may include secretaries, technical experts, and purchasing personnel (Dwyer & Tanner, 2002).

For this project, our data collection involved interviews with the purchasers who can be influenced by those close to the latex product and those who use the services. Production managers and development managers were our target influencers. The mill workers were the users who utilize the latex on a daily basis. The technical expert role within the mill was the coating kitchen manager. They possess valuable data about the latex product and technical services. These representatives were all interviewed to gather their perspectives.

Research of the paper industry can be tracked backward to first observe decisions made and where the choices (including services and products) originated (Andreasen, 1985). Dow Chemical Company believes they understand what their customers value about the latex and the services associated with it. The question is whether the customer would value these services and products the same if they did not come as a whole. We gathered feedback on our definitions of service and product from Dow managers and sales representatives to obtain clearer images of services and product definitions in the European context. Before, our data collection could begin on what Dow's customers perceive as service and product, our group needed to select a sample of respondents.

2.5 SAMPLING

Sampling is a selection process created from three principles. First, time, money, and the lack of access to people can cause a survey to be impossible for a researcher to conduct. Second, every researcher has biases that will influence their selection of who would be a good candidate to participate in the study. Third, in

qualitative research, it becomes important to take all biases of the researcher in the selection of candidates into account in order to overcome them to ensure valid results of the data (Sampling and Error, 2001).

The procedure that is used to select a sample is called the sampling design (Seber & Thompson, 1996). There were two qualitative sampling designs that related to our project, purposive sampling and reference sampling. Purposive sampling is a sample that is chosen by a researcher because a particular group has certain attributes that the researcher is trying to focus on. In the case of our project, the sample was concentrated on Dow's four top European customers, which are high latex consumption companies. The reason why these customers were chosen was because they all use both Dow's services and latex in their daily processes. These were the particular attributes we tried to focus on. Although this technique was biased, it allowed our group to get a general understanding of the latex industry. It also allowed us to understand how Dow is improving its customers' satisfaction with the latex product. This technique was biased because it did not allow us to look at a random sample of the industry. Purposive sampling was a good way to collect a sample of Dow's customers because once the initial interviews were completed, the sampled respondents gave references to other individuals they thought should be interviewed as well. This process will be discussed next in reference sampling (Sampling and Error, 2001).

Reference sampling is a qualitative technique in which the group chosen as the sample is of all the same type of person and has mostly all the same ideals. These sample people will then give references to other people to speak to. Reference sampling is important because it provides context and depth to a particular group. Reference sampling is perfect for use after purposive sampling because the sample is chosen from references that were given by the candidates chosen for the sample for

purposive sampling. For example, if our group was to interview the CEO of Dow and we were to ask him for someone else to talk to about the latex process and Dow's customers, we could use the name he gave us and interview them. This interview would be well received by the respondent because the name of Dow's CEO would be linked with the reference we received and therefore, the interview is less threatening to give because the benefits outweigh the costs. Reference sampling will allow the researcher to understand the group's thoughts, feelings, and actions in detail (Sampling and Error, 2001).

Purposive and reference sampling were important to our project because they were the techniques we used to select the mills and people we interviewed. Our group relied on purposive sampling when we chose the four top European companies that we interviewed at and all of the mill or corporate workers that we chose to interview with. We chose purposive sampling because we felt it was important to focus on the latex industry and on Dow's top latex customers. This technique gave us useful data that did not represent the whole industry but still focused on the largest portion of the latex industry Dow is involved with.

Our group used reference sampling because we hoped that during our interviews with the already selected respondents we would be able to gain leads as to other people that should be interviewed in order to get the most useful data. We found that when cancellations occurred, we were able to fill those empty spaces with references that we received during other interviews. This allowed our group to gather even more data on the services that Dow and other suppliers offer and allowed us to understand what Dow's customers are satisfied with and what Dow could do to increase value for the customer.

2.6 Qualitative Research Methods

Our group decided that our methods would include interviewing and focus groups as our sources of primary data collection. The first and core method we used was interviewing. Interviewing was a desirable method to find explicit qualitative data from individuals related to the paper coating industry. Interviewing allowed our group to talk to an individual as a means to extract answers to our questions. In particular, we interviewed production managers, mill workers, coating kitchen workers, research and development workers, and purchasers of raw materials to get their perspectives on the services provided in the paper making industry and the relative values of these services.

There are ethical issues involved when doing any kind of research. During interviewing, our group needed to be aware of many issues in order to ensure that our methods were ethical. Kvale (1996) gives some useful guidelines for ethics issues involved in doing interviews. He suggests informing the participants in some capacity as to the purpose of the experiment, maintaining the confidentiality of information received from the participants, and informing them as to how the results will be used and portrayed. He also points out that transcriptions of interviews should be a "loyal written transcription of an interviewee's oral statements" (Kvale, 1996, p. 111). Another possibility is to tape record interviews for accuracy. Rossman and Rallis (1998) state that if one is to use a tape recorder for recording then the "unbreakable rule is to obtain permission for its use" (p. 160). Kvale (1996) goes on to describe two more procedures for interviewing. He says to brief and debrief respondents in order to give context to an interview.

Interviewing as a method of data collection is comprised of seven stages (Kvale, 1996). Kvale lists the seven stages of a qualitative interview study as thematizing, designing, interviewing, transcribing, analyzing, verifying, and reporting. The first step

to any interview study is to create a theme for the study. A theme consists of researching the background in the subject matter to be investigated, clarifying the purpose of the study, acquiring knowledge of different interviewing techniques, and deciding which to apply to one's study (Kvale, 1996). Thematizing is essentially the background work and problem statement for the study. We investigated the subject matter within this literature review and used it as background research to help us determine which techniques to use for interviewing. The purpose of our study was to assess the values of various services offered by Dow Chemical Company and other suppliers to the customers. In addition, we were trying to see which of these services are perceived by the customers to actually be additional services and which of them are perceived as an integral part of the products that Dow and other suppliers sell. This was the frame for our research.

The next step was to design the methodology for how the interviews would be done. In this step, we had to decide on a strategy for getting the information that we wanted. We conceptualized and operationalized certain concepts (Babbie, 1989; Berg, 2001) such as product, services and value. For the project, we conceptualized and defined services to be any benefits that a supplier offers to its customers in addition to the product sold to the customer. We defined the product to be the material itself along with the expected performance and characteristics of the material. According to Andreassen and Lindestad (1998, p. 10), "perceived value is the customer's overall assessment of the utility of a product based on perceptions of what is received and what is given." Our team used this definition of value in our research.

We then had to operationalize the concepts of service and value. In other words, we had to find a way to measure service and value in order for these concepts to be analyzed. We had to operationalize service and value because the customers'

opinions in relation to these two concepts were the perceptions that our group was basing our data analysis on. For the operationalization of service we needed to ask questions of the customer as to whether particular services were useful and whether or not they were perceived as separate from the product. Our group already knew Dow has several benefits that they offer that Dow perceives as services. These benefits include free returns if the customer is unsatisfied, an account viewable online, a program to give the customer a secure channel for communication with Dow, vendor managed inventory and an integrated supply chain, as well as a Technical Service and Development (TS&D) team which travels to the mills to help solve problems as needed. Dow also has two pilot coaters which allow customers to run tests, an environmental impact group which will work with mills when necessary, and Dow's Six Sigma initiatives program which is a process designed to help the customer increase productivity by narrowing product variance. Our objective was to find which of these benefits the customers valued and find any additional offers the customers perceive as services.

In order to achieve this objective, we designed our interviews to ask follow-up questions such as, "Do you think that is a service or do you consider it to be essential for the supplier to offer in order to supply to you?" This type of question allowed us to verify what the customer perceives as a service. We asked them about the utility of the items as well. Our team also had to operationalize the value of the services. We had to be aware of whether a customer valued the service or not. We also asked them whether they thought that a particular service was actually useful or if they never used it. If there was value in the service, we were especially aware of what words the customer used to describe value in order to assess how strong the perception of value was. In

addition, we asked the customer how they would rank these services compared to each other according to their perceived value and utility.

The next stage was to create a strategy for conducting the interviews. We decided to interview the decision-makers and influencers from Dow's four major European customers within the paper coating industry. To do this, we interviewed people at three corporate research centers and fifteen different mills from Dow's four top European customers.

Once the logistics were worked out, we designed the interview protocol and figured out how we were going to ask the questions. Then we pretested our strategy at Dow. Finally, we met with the customers and conducted our interviews. During this time, we were constantly taking field notes and keeping records of everything we had learned. Rossman and Rallis (1998) also suggest starting analysis while still in the interviewing stage so that one can keep sight of the goals of the project and maybe even see ways to improve the study by addition or modification of questions. As our research went along, we made some minor modifications by adding questions to our interview protocol.

The first part of the interviewing step was deciding what form we were going to use for the interview process. Berg (2001) gives examples of three types of interview schedules: standardized, unstandardized, and semistandardized. A standardized interview schedule follows a preconfigured set of questions very regularly with no variation. An unstandardized schedule is the opposite because there is almost no structure to the questions asked in the interview. Questions asked might be along the lines of "How do you feel about this topic?" A semistandardized schedule seeks to use a set of questions that should be asked in each interview but the interviewer is free to add questions or follow lines of conversation initiated by the respondent as the

interviewer sees fit. Our group used the semistandardized type of interview schedule. It allowed our group to create a set of questions about services offered in the industry and to get the customers' perceptions of those services. It was also designed to allow the respondents to elaborate if they mentioned some additional information about a particular service that we were interested in.

The next issue was designing the questions we would ask and how they would be worded. Berg (2001) speaks of the types of questions that can be asked in an interview. He identifies these questions as essential, extra, throwaway, and probing questions. Essential questions are questions that are central to the information one is trying to gain from the respondent. Extra questions are similar to essential questions but are reworded in order to try to verify responses to the initial questions asked. Throwaway questions are general questions to help develop rapport and ease the concerns of the respondent while probing questions are used to draw out more complete answers from respondents.

In addition to giving the types of questions mentioned above, Berg (2001) also states that questions should be worded so that they are clear to the respondent and "motivate the respondents to answer as completely and honestly as possible" (p. 76). Denzin (1978) agrees with this point. He mentions two purposes that an interview must serve; "It must translate research objectives into specific questions... and it must assist the interviewer in motivating the respondent, so that the necessary information is given" (Denzin, 1978, p. 117).

Denzin (1978) goes on to say that there can be some issues with the way a respondent views questions. He cites two studies by Edwards and Orne that show that respondents will often respond to questions in such a way as to present themselves as credible and knowledgeable, especially if they see an opportunity to help the

interviewer understand their point of view. This may lead the respondent to "distort, mask, or lie about their attitudes on any given question" (Denzin, 1978, p. 119). The respondent might also try to understand what the interviewer wants from them and might mold their answer according to that thinking. Both of these phenomenons can distort the reality of the situation and lead to inaccurate findings.

Due to this, Denzin states, "the interview should not be made up of ambiguous questions. Questions must be framed in ways that have meaning for the respondent" (p. 119). The questions given during the interviews were phrased in such a way that they were as clear as possible to the respondent and so they would lead to the proper information that our group was looking to collect. All of this relates to the cost-benefit analysis of the Social Exchange Theory.

The core of the Social Exchange Theory is based on the costs and benefits to a respondent for answering a specific question honestly. The respondent will only answer the question accurately and completely if the benefits to him outweigh the costs. If the costs outweigh the benefits then the respondent will either not say anything or give untrue information that could be misleading. Gorden (1975) calls items that are costs to the respondent inhibitors of communication and items that are benefits facilitators of communication. He lists a handful of inhibitors and facilitators that we were aware of when formulating our interview strategy and questions. Inhibitors that we were concerned with included time demands, threatening the respondent's self-esteem, and avoiding situations where the respondents would not answer questions due to etiquette. In addition, we tried to be aware of peer-response biases. We were aware of the possible biases introduced by the Dow sales representative's presence at the interviews and also by communication between respondents. Facilitators that we tried to use to our advantage included providing an expectation for the respondent to fulfill,

giving the respondents recognition, appealing to the respondent's altruistic side, being a sympathetic and understanding listener, and offering extrinsic rewards such as allowing companies access to the data we collected or maybe Dow offering them new services. By being aware of these, we were able to raise the benefits to the respondent above the costs in order to get more useful and truthful responses.

We designed our questions to fit loosely into a funnel-shaped interview format in order to find which services Dow's customers value. We first asked them some broad questions. When asked broad questions concerning the respondents typical day, these questions are considered as low risk and make the respondent feel comfortable with the interviewer when sharing responses. These low risk questions enabled our group to build trust with the respondent before continuing with more questions. We then used their responses to ask some more specific probing questions and questions with higher cost to the respondent to get the information we wanted. Because of the trust we had built up with our initial questions, the respondents were more likely to give us honest answers. We started by asking the respondent what their typical day was like. We then asked them some questions about problems that arose during their days and also how they dealt with those problems. After that, we moved into the more costly questions including asking respondents to rank how much they liked particular services and asking about their relationship with their suppliers.

There are four roles that can be played by an interviewer. These roles are sympathetic naïve, unsympathetic naïve, sympathetic sophisticated, and unsympathetic sophisticated.

	Sympathetic	Unsympathetic
Naive	**X**	
Sophisticated		

FIGURE 1: INTERVIEWING ROLES

A sympathetic naïve role portrays the image of the interviewer not knowing about the subject at hand but would like for the respondent to teach the eager interviewer more about this subject. For unsympathetic naïve, the interviewer is still unknowledgeable about the subject but does not show interest to learn more. When the role of sympathetic sophisticated is taken, the interviewer is very familiar with the topic being researched and is eager to continue learning in that subject. Lastly, the unsympathetic sophisticated role consists of a knowledgeable interviewer with no wish to learn more from the respondent. We played the role of sympathetic naïve during our interviews. This means that we demonstrated to the respondents that we had a lack of knowledge on the paper industry and the paper process, but that we were interested in learning this information from the respondents. We asked questions in our interviews like "Could you please explain this to me?" Because of the role we played, the respondents were willing to teach us in their answers, and in fact were more open to our interview questions. Figure 2 shows our funnel design for interviews in the mills.

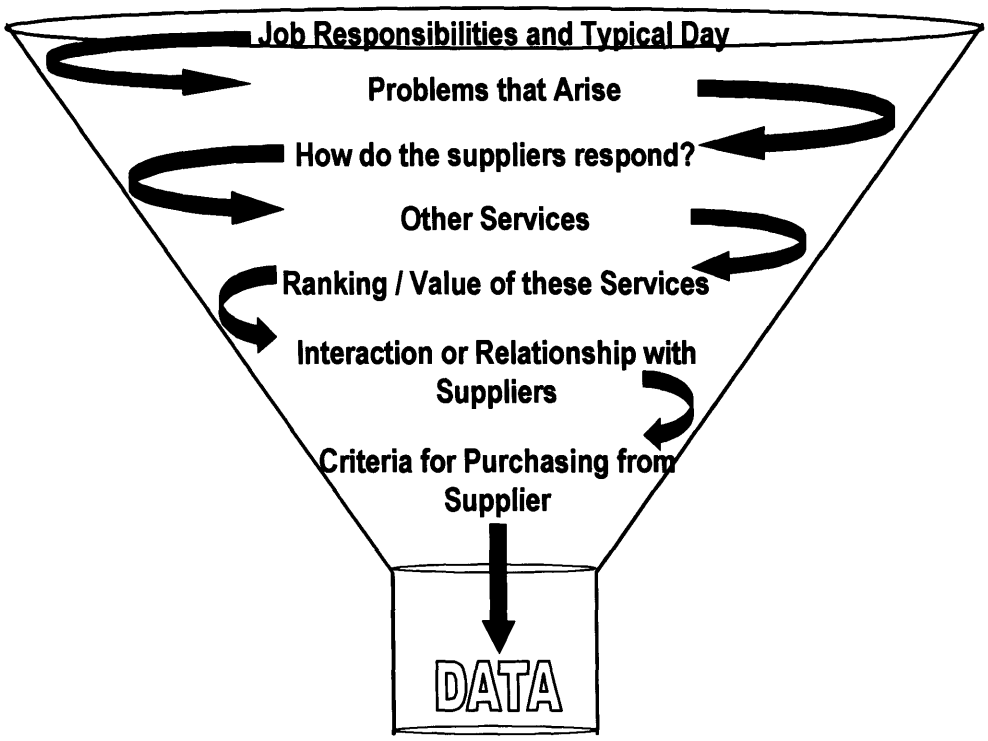

FIGURE 2: FUNNEL-SHAPED INTERVIEW

Once we designed our questions and methods for asking them, Andreasen (1985) suggested pretesting our interviewing design plan with a manager in order to get an idea of how well we had structured the interview. Through practice interviewing with various representatives at Dow we were be able to test the strengths and weaknesses within our interviewing plan. This pretesting helped to confirm that our questions were understandable and would not be offensive to respondents. Moreover, we were able to obtain feedback on the flow of the interview and our particular strengths and weaknesses as interviewers. This pretesting allowed us to see that our design was appropriate and also gave us some ideas and the opportunity to revise these questions.

Managers tend to define the research problem as a broad area of ignorance. Experience tells Andreasen that findings will be off target if managers expect to know what to do with the results once they come in. Close collaboration between researcher and corporate decision makers can help a company arrive at actionable findings. Research should be designed to lead to a decision (Andreasen, 1985).

After we pretested our interviewing strategies we conducted the actual interviews and transcribed the data. During this time, we had to be acutely aware of the need to take notes on our conversations. We took notes for every conversation that we had at the mills. We also recorded almost all of the conversations we had with the respondents. Whyte (1997) warns, however, that recording interviews may be a hindrance to free expression by the respondent. When we were only able to use conventional note taking to record our conversations, it was imperative that we took accurate notes and recorded a transcript of the interview as soon as possible after it was completed. This allowed us to write the transcript while the conversation was still fresh in our minds. Whyte (1997) also stresses to write down anything, including emotions

and gestures (even if you are tape recording) regardless of whether it seems relevant at the time because it might become useful later.

We made sure to record as many emotions and gestures as possible in our transcripts. Babbie (1989) tells us to record our interpretations of what we hear as well while it is fresh. We had to be aware of any biases we might have when making these interpretations. Berg (2001) gives us some guidelines for the actual interviews in his Ten Commandments of Interviewing. The ten points he makes are: never begin an interview cold, remember your purpose, present a natural front, demonstrate aware hearing, think about appearance, interview in a comfortable place, do not be satisfied with monosyllabic answers, be respectful, practice as much as necessary, and be cordial and appreciative. We followed these guidelines as closely as we possibly could so the interviews would go as smoothly as possible.

We began transcribing the interviews onto a computer as soon as we had completed them. On the first page we put the job description for the person we had interviewed along with information on the date and location of the interview. We did not place the proper names on the transcriptions in order to preserve the confidentiality we promised to the respondents. We then transcribed the interviews based on the tape recordings we had and notes we had taken. In any case where we were unsure of the word the respondent used, but understood what was meant by the statement, we used italics to show that the words displayed on the transcript were not necessarily the exact words of the respondent. Any pauses, sounds, or facial expressions that we believed were important were included in the transcript inside of brackets. After we completed the transcription of the recordings, we played the tape through one more time to ensure accuracy (Rogers & Kalmanovitch, 2001).

The other data collection method used was focus groups. Our group conducted two focus groups. These focus groups provided us with an opportunity to interview two people at once in a small group instead of in an individual interview session. The focus groups were done because the four respondents that participated in the two focus groups had personal time constraints that needed to be addressed.

We decided to use our regular interview protocol as a guideline for the focus groups. We used the original questions from our interview protocol but took special care to ensure that each respondent participated in the conversation. We directed some questions to particular individuals to make sure that each individual participated. We were also aware of how the two respondents interacted with each other and used that to be aware of any peer response biases that may have been affecting the answers we received.

By doing these focus groups, we were able to speak with two people in roughly the same time it would have taken us to interview one person. There were some drawbacks to these focus groups though. There was a high chance of biases between the two respondents. For example, if there was an interview where the two respondents were a boss and his employee, there was a great chance that the employee's responses would be affected by the fact that his boss was present in the room. We had to be aware of this type of situation and acknowledge that the data gathered in this focus group may have been severely biased. Another related problem was the lack of confidentiality allowed in a focus group setting. Any response that one respondent gave was automatically heard by the other respondent. This could have lead to suppression of responses if one respondent was afraid of the other hearing what he or she had to say. We tried to minimize these drawbacks in the focus groups we did and were also aware of these possibilities of biases in the data when doing our analysis.

Once we finished collecting all of our data using the above methods we began to analyze it in order to find any conclusions that could be drawn from the data. All of the data from the interviews and focus groups was analyzed in the same way. We also looked at the results through the perspective of what method we used to get them.

One of the first and most important things we had to consider when analyzing data was making sure that we understood everything that the respondents said in their own terms, or at least as close of an approximation of what they meant as possible. Both Rubin and Rubin (1995) and Denzin (1978) recognize this possibility of incongruence and warn of it. We worked on understanding the common language of workers in the mills through our pretest interviews at Dow, listening closely for meanings while we were in the field, and asking follow-up questions of the respondents to verify meanings. In addition, we attempted to increase our understanding of the terms that the respondents used by using Dow's sales representatives as culture brokers. We spoke with each of these sales representatives to get an idea of the specific needs of the mills that our group visited and the personalities of the people we interviewed. Because the sales representatives are responsible for selling to their customers in certain parts of Europe they were the people best equipped to give us that kind of information. We also had to be sensitive to detail and the context of data as well as rigorously exploring possible themes and discovering and testing patterns in our data ("Training in Qualitative Data Analysis," 2001).

Once we were confident that we had the best understanding of our data possible, we had to break it down into meaningful text segments, begin to categorize it, and see if we could discern some patterns in the data. This is called coding the data. We rearranged these coded segments in order to seek regularities and to combine concepts into related categories. These categories reduced the number of concepts to be handled

and provided a stronger conceptual basis for the themes discovered. To come to any concrete conclusions about our data, Rossman and Rallis (1997) suggest the best practice to be recoding our data multiple times. In addition, they suggest searching for alternate understandings of apparent patterns in the data. Finally, all the coded material should be reorganized into a new narrative document. This can be a daunting task, and the timeframe, available resources, and human attention typically restricts the amount of analysis (Rouse & Dick, 1994).

Rubin and Rubin (1995) warn that coding is dependent upon the precision of the data. For the tape recorded interviews we were able to look for particular words and concepts in the transcripts. For the transcripts of interviews that we only had written notes from, certain words could have been our own. We had to be more cautious in how we coded this data. Once we coded the data in ways that we deemed to be appropriate and useful then we were able to "formulate themes, refine concepts, and link them together to create a clear description or explanation of a ... topic" (Rubin & Rubin, 1995, p. 251). We were able to utilize the descriptions and explanations we derived from the data analysis to help us to write our final report.

Computer assisted qualitative data analysis software (CAQDAS) has become a popular tool to analyze unstructured and structured data collected by novice and well experienced researchers in an organized and timely manner. We decided, as novice researchers, that a CAQDAS program would help assist our analysis of the data collected through interviewing and focus groups. Additionally, due to the limitations of an eight-week project, we felt the computer assistance would help automate and thus speed up the coding process. Next, the pros and cons of using a CAQDAS program, how it may affect the analysis process, and the end product are discussed.

The hopes and benefits are that CAQDAS can provide a more complex way of looking at the relationships in data, provide a formal structure for writing and storing memos to develop the analysis, and aid more conceptual and theoretical thinking about the data. There are many criticisms and doubts, however, about the software not being technologically advanced. The assistance of the computer tends to distance the researcher from their data, view qualitative data quantitatively, and increases the likeliness of non-unique analysis (Barry, 1998).

The concern about distance from the data was raised by Seidel's 1991 work "Method and Madness in the Application of Computer Technology to Qualitative Data Analysis" (cited in Barry, 1998). He felt that the software might lead the users to be caught up with working out how to code and thus causing them to lose sight of the data. Barry (1998) disagreed with this thought. Barry found computer-assisted analysis impossible without the prior reading and familiarization of one's data before analysis. The process of analysis relies on the necessity of re-reading data in both complete transcripts and field notes, along with categorized chunks, repeatedly to develop an analysis with any depth (Barry, 1998). Our research team was forced into knowing the data from both reading the transcripts for eyeball analysis and purely inputting the data into the software package. Eyeball analysis is the process of reading all data completely and allowing concepts and themes to be evoked through one's reading. Eyeball analysis was used to help us familiarize ourselves with our transcriptions and to determine what themes to search for using a CAQDAS package.

To break the cycle of non-unique data analysis, Barry (1998) recommends the use of 'how to' books to encourage the novice researcher to reflect on these issues; in our case, we used NOSMOKE, an online project tutorial for NUD*IST, as a teaching aid to the program. First time researchers, especially those using qualitative data

collection, often feel relief of anxieties related to analysis when using computerized analysis tools for dealing with complex and unstructured data sets. However, once qualitative researchers find their feet they are happy to reject methods and tools that will not serve their type of data and type of problem. While some software packages do some analytical tasks such as data administration and data archiving, they only assist in theoretical thinking and analysis. The benefit of having software to assist in the remedial analytical tasks is that it encourages the researcher to easily arrange and rearrange their data in a myriad of possible combinations and offers better opportunities for teams to analyze together. The dangers of the convergence between quantitative and qualitative methods and the loss of emotions can be problematic when using software (Barry, 1998). As always, the job of analysis and data validity is for the researchers themselves, as was the case for our research team.

Different software packages and different versions have different effects on the analysis process. Different packages transform the data in different ways. There are three categories of data analysis approach: pure code-and-retrieve, hypertext, and coding and theory building. Each approach has a different effect on the analysis process. The pure code-and-retrieve principle organizes the information contained in the text of the transcripts in categories, which creates a conditional loss of information. For example, if a category titled Pilot Coater was created in our analysis, this type of software would only locate the number of times the term pilot coater existed in the transcriptions. The software lacks the ability to give information about the position in which the first occurrence of the term showed up in each of the documents and the emotional context in which the term arose. Additionally, this method conflicts with the atmosphere where the qualitative research project took place. The respondent who mentioned the pilot coater could have had a bad experience with the crew at a particular

pilot coater plant and have a negative attitude towards its use in development. Another respondent may praise the use of simulating the mill conditions at a pilot coater plant and have many positive comments on the favor for continued use of pilot coaters with their particular mill. Both contexts are valuable and need to be noticed in the final analysis.

Hypertext is used in other software packages to jump between words in related topics. The pitfall of hypertext is recognized as there being too little structure and too much flexibility, which leads to cognitive overload. The openness makes hypertext software assistance disorienting and difficult to know where to begin with analysis, whereas other packages have more obvious starting points and set strategies. This type of unstructured software can severely complicate the data collected from the respondents; therefore, we disqualified the hypertext type of software when investigating for the best procedures for analyzing our data.

Lastly, a coding and theory building software package is concerned with the relationship between different categories, or themes. However, other packages are concerned with the relationship between a given category and the data within that category (Fielding, 1994). We chose to utilize NUD*IST (Non-numerical Unstructured Data* Indexing Searching and Theorizing) which aids users in handling non-numerical and unstructured data in qualitative analysis, by supporting processes of coding data in an Index System, Searching Text or patterns of coding, and finally theorizing about the data. Qualitative research employs a range of ways of discovering and exploring the meanings of unstructured data. This requires getting close to the data to understand its meaning and getting distance, to see patterns and explanations necessary for analysis. NUD*IST is designed to allow one to manage the data efficiently without losing closeness to the data (Richards, 1998).

Once we finished the analysis, we were able to start working on the report. Kvale (1996) mentions in his seven steps that validity of the data collected should be assured first though. Kvale states that this step is not totally a step unto itself but actually a running theme throughout the project. Everything in the interview process was verified as soon as possible through the use of extra questions to validate answers to essential questions. We also cross-validated answers between respondents or participants. Once the study was completed and we had analyzed the data, we were able to make the judgment that our results were valid for our problem statement and were relevant and useful. Since our group found some terms within the transcripts that needed validation and defining, we conducted several follow-up phone interviews with our initial respondents. We asked these respondents for verification on some key points and for clarification on vague topics or descriptions. These follow-up phone calls allowed our team to verify exactly what the respondent meant so these key points could be included in our analysis. After this validation step was complete, the final part of our study was to report our results.

Some of the themes throughout the interview process were important to keep in mind while writing up our final report. The most important of these themes were validation and ethical issues such as confidentiality. Whyte (1997) makes a point on confidentiality by stating that one should not release personal, confidential, or proprietary information in a report. Rossman and Rallis (1997) advise the consideration of the research audience and remembering the purpose of our project when presenting findings. They also mention that the voice we choose for our writing will have an important impact on how our audience views our project.

2.7 RECAPITULATION

In order to complete our project for Dow, we needed to have background information on latex, the paper making process, the paper industry, and the chemical supply industry. Latex is important for the paper companies because they use latex as an adhesive to hold coating onto base paper. Understanding the importance of the latex and the paper making process helped our group as we formulated our interview protocol and in understanding the information we were receiving that was related to the specific needs of customers based on the product and the process.

Once we understood the paper production process and the coated paper industry, we needed to define what is meant by product and service, as well as understand the importance for a company to create and measure customer value. Understanding the key factors that influence customer value will allow a company like Dow to increase value for their current customers and gain new customers in the market. This understanding helped us to disaggregate product from service in our results, and understand that gaining knowledge of what customers value is critical if a company wants to be more successful in the future. With this background knowledge, we then looked at organizational buying structure and sampling to decide who our group would collect data from.

The study of organizational buying structure pointed out the influencers and decision makers responsible for choosing a supplier. Each company's organizational buying structure was considered to select the type of respondents we interviewed within the research centers and mills. We chose to interview the production managers, research and development workers, mill workers, coating kitchen workers, and purchasers. They possess valuable information about the product and services. These

respondents were all interviewed to gather their perspectives on services in the paper industry.

The sampling strategies that were chosen for our data collection were purposive sampling and reference sampling. Purposive sampling was chosen because it represented a particular group that had certain attributes that we chose to focus on. Our group chose to interview at mills belonging to a purposive sample consisting of Dow's four top European customers. Reference sampling was applied when respondents referenced other people to conduct interviews with.

After our background research was complete, we designed our interview protocols based on a funnel-shaped, semistandardized schedule. We designed these interview protocols to be as simple to understand as possible while still allowing us to ask probing questions on very specific topics. We chose to pretest the protocols during the first week at Dow and make corrections according to the feedback we received during this pretesting. We learned from our research that we needed to be aware of topics such as ethics, social exchange, and validity of the data during the interviewing stage. We then used information gathered on analysis to begin to draw conclusions from our data. Before conclusions can be reported though, it is necessary for our group to discuss the methods that were used to collect and analyze our data.

3. METHODOLOGY

In order to accomplish the goals of identifying the valued services and the perceived disaggregation between service and product, our group needed to collect data from Dow's top European customers in the coated paper industry. To be sure our group was interviewing the top customers in the market, we created a sample from which our respondents were chosen. Our sample was created from both purposive sampling and reference sampling. We created a purposive sample based on the criteria of latex consumption by company. Our group asked to interview respondents from both large and small consumption mills. Therefore, our interviews were conducted with Dow's four top European customers at mills with different consumption patterns. Once the companies were set, the next step was to decide who the interviews would be conducted with.

In general, we sought to interview the decision-makers and the influencers as well as the employees that work closest to the latex. By looking at the organizational structure of these four companies, our group decided that the production managers, research and development personnel, and mill directors would be knowledgeable respondents to interview with. From these our selection grew to include these three types of workers along with purchasers, mill workers, and coating kitchen personnel. After interviews were scheduled, it became evident that mill directors would be impossible to interview due to their changing schedules and their need to deal with problems that arise in the mill. Therefore, the respondents for our interviews were production managers, mill workers, coating kitchen personnel, research and development workers, and purchasers. With our sample chosen and our respondents selected, our group began the process of data collection. We performed this data collection through qualitative research methods including interviews and focus groups.

Our primary data collection technique was interviewing. We conducted forty-five semistandardized interviews in which prepared questions were asked first followed by probing questions. Our group split into two groups of two in order to focus on several mills from Dow's four top European customers: M-Real, SAPPI, StoraEnso, and UPM-Kymmene in a short amount of time.

We began our data collection process by pretesting our interview questions with Dow employees. Our group had five interviews with employees who were playing the role of particular types of workers. This pre-testing allowed our group to experience the pressures of interviewing as well as to ask these employees if they felt our questions were appropriate for the task we had ahead of us. We were able to test our questions on a production manager, a mill manager, a supply chain representative, and two research and development personnel. Once these pretesting interviews were complete, we were given Dow's approval to begin our scheduled interviews with their customers in the coated paper industry.

During the first week of work at Dow, our entire group also had the opportunity to visit Dow's pilot coater facility. Here, the group met with an engineer on the production line, the pilot coater director, and a coating kitchen worker. The three individuals gave the group an overall understanding of the coating process and problems that can happen with the latex and the coating process. This understanding of the process gave the group a knowledge base of the papermaking and coating processes to go into the interviews with.

Our interviews were conducted at fifteen mills within seven different countries. The Dow sales representative responsible for each mill served as our culture broker in addition to transporting each group to the corporate research and development centers and mills in each country. Each group informally interviewed each sales representative

to gather information about the cultural differences and character traits of the respondents being interviewed in the forthcoming visits. We summarized the purpose of our project to the sales representatives, clarified any questions or concerns they may have had, and reviewed their role during the interviews. The sales representative accompanied each group to most of the interviews as a translator if communication difficulties arose. Prior to conducting any interviews, we informed each sales representative of our goal for the communication to be as verbatim as translation would allow. We did not want them to interpret or add their opinions at that point in the data collection. After each series of interviews, we informally asked for their perception of the interviews.

Our second data collection method was focus groups. Focus groups are an easy way to gather data from several people at one time. We conducted these focus groups at two SAPPI mills, one in Scotland and the other in the Netherlands. One focus group involved two research and development engineers who were interviewed at the same time because they each had personal time constraints. The second focus group was conducted with a purchasing manager and a quality, environment, health, and safety worker. These two focus groups were conducted with the same questions that were used in our regular interviews but directed at both participants in each focus group. This ensured that each person in the focus group was involved in the conversation. The focus group data fit with our data collected through interviews because the responses obtained from these focus groups matched many of the responses we received from other personnel interviewed in various places.

Once all of our data collection techniques were finished, we transcribed all of our interviews and analyzed the data. The transcripts were analyzed using eyeball analysis. Using ourselves as the analysis tool during eyeball analysis, our group

decided to focus on four different categories for analysis. These categories included company, country, job, and mill. We analyzed these categories using the transcriptions from the interviews and were able to pull out the meaningful themes and concepts.

We then used these themes in our second analysis tool, which was NUD*IST, a qualitative analysis software package. This qualitative analysis tool allowed our group to break down the responses given in the research into the key elements we had discovered during our eyeball analysis. Using NUD*IST, our group was able to see that six of the key elements found during eyeball analysis were valid and relevant, and therefore needed to be reported in our chapter on results and conclusions.

The last method that was used during our project was data validation. During our analysis stage, our group was able to do follow-up interviews with the respondents from our original interviews. Follow-up interviews were conducted if a vague point that needed more description or verification was found in the respondent's transcript. Five follow-up interviews were conducted by telephone to save time for both the respondents and our group.

Throughout our data collection and analysis, it was important for our team to understand that biases existed in our data. These biases were created through both, interviews and focus groups. Within our interviews, peer response bias was created when the sales representatives from Dow sat in on the interviews. Having the sales representatives in the room during the interviews could have caused the respondents to change their responses they gave to talk more about the good characteristics Dow possesses as a supplier instead of elements Dow could improve. The respondents might have changed their responses so no other suppliers were discussed in order to keep the conversation focused on Dow's product and Dow's services.

Our focus groups could have also had elements of peer response bias. Both of the focus groups that were conducted had two people in them. Bias could have been created because one respondent might have felt threatened by the other if they gave particular responses. Therefore, one respondent might have changed his responses to please the other respondent instead of being truthful when answering the questions that were asked.

Realizing that peer response biases could exist in our data, our group gave less weight to responses that were given when the Dow sales representatives asked questions of the respondents or when the respondents laughed when giving a response. To try to overcome the bias, our group used NUD*IST, a qualitative analysis software package to look at how many times a particular key element that was found in our data was stated. Knowing a percentage of the respondents stated a particular thought about the product or services they use, our group found particular elements were important to the mills and were valid elements that needed to be expanded upon in our analysis. Our group used this technique to overcome the biases that existed in our data in order for our conclusions to be valid.

4. RESULTS AND CONCLUSIONS

4.1 INTRODUCTION

According to the information we gathered in our literature review chapter, a company should gather knowledge about their customers in order to increase value. We gathered this knowledge through our data collection, including interviews and focus groups. After we had completed our data collection process, we began to analyze the data to determine the products and services that were valued by Dow's customers in the paper industry. Part of this analysis included creating a list of product criteria and services that are valued by different respondents, which is the first step in creating a customer value model. These lists, which are compiled by company, country, and job, are placed in Appendices A4 through A6 respectively.

After completing the lists of value elements, our group decided there were six key value elements that Dow should focus on to increase customer value. According to the literature, companies must focus on similar key elements to determine where they have an advantage over their competitors and where they are weak. Tailoring the product and services to the desires of the customer not only increases customer value, but also helps the company reduce costs and allows the company can charge more for those valued services. Also, based on our analysis, Dow can determine which improvements in product and service offerings are worthwhile for their customers, and which of these improvements have a higher priority.

The first key element our report examines in depth is quality, where we focus on the quality of the product. After quality, our report focuses on discussions between the supplier and the customer. In this section we also look at the importance placed on the supplier for having knowledge of the industry. Price, including ways the supplier can help the mill reduce costs, follows this section. Next, our group examines the

importance of supplier support in solving problems that occur at the mill. Research and development is another important element, especially development that improves the quality of the mill's produced paper. The last section is analysis, where our group focuses on laboratory tests and equipment the suppliers offer to the mill. In each section our group defines what the customers want in that area, why it is important to our project, and states whether the key area is perceived to be a product or a service by the customer.

4.2 QUALITY

The first of the key elements discovered within our analysis of the data collected was quality of the raw material. When analyzing data collected from the respondents we interviewed, our group found that quality was an element of the product. Our definition of product matches the consensus of the literature, and states that the actual material that is purchased as well as the customer's expectations for the performance and characteristics of the material all qualifies as product. Quality signifies an expected part of the product that is purchased and thus is a product element.

In almost of the interviews conducted the most important element of the product was the quality of the raw material received by the customer. The quality was described as the fulfillment of pre-specified parameters expected from the product. These parameters, also referred to as specifications, of each product should meet the agreed upon properties and tolerances. The specifications of the paper need to be within these set tolerances. If the product is not within these tolerances, the various raw material shipments for the same production order could produce different paper qualities when compared to a paper roll that used an earlier shipment of this material. The ranges for specifications include the technical properties, quality tolerances, and production specifications such as degree of brightness. Printability, e.g. the ability of

the paper to hold ink onto the paper's surface, is another key quality parameter that the paper must meet.

Another factor is the supplier's ability to produce a cost effective product. As the paper grade goes from a more specialized application like food containers to a typical paper grade like Xerox copying paper, a need for paper mills to produce cheaper products grows. In order to achieve cheaper end products, the mill must demand cheaper raw materials from its suppliers and develop ways to make the production process cheaper. Therefore, in this type of situation the mill expects the product to meet their parameters for a cheaper production. The quality of the product must fulfill these specifications to be of good quality.

One way to create a product with quality is to maintain consistency by minimizing variation of the raw material. This is crucial to acquire these parameters and tolerances. The customer expects the product to be stable in quality and performance. By providing a consistent quality to the customer, the supplier thus creates value for the customer. The customer is now able to use the product they asked for and received. As characterized previously, "value is the customer's overall assessment of the utility of a product based on perceptions of what is received and what is given" (Andreasen and Lindestad, 1998). This can be seen in a response given about the importance of quality for one mill in this statement:

> "Minimum variation, I mean there are specification and we want to get what they [suppliers] promise us. Of course there is a variation all of the time, product is a product, but we need our quality and our variations cause we can't afford not to get that. That is what I mean by minimum variation."

This product factor is relevant for a supplier to consider when enhancing value.

While many respondents agree that quality is first provided in the product, there are other respondents who commented that there are many situations when there are no

real quality issues related to the supplier's ability to manufacture the product. Many quality issues are related to maintenance checks of the paper production process within the mill. Running at full operating range over a long period of time will mean that from time to time the paper machine must be cleaned and maintenance must be performed. One respondent comments, "...Running full operating range, that will mean from time to time, that we have to clean up the paper machine and other things, and we make the problems that are caused." Suppliers that offer a product that can work with the mill's production can enhance value.

In general, the respondents agreed that problems with quality are not much of an issue. There is a particular comment that demonstrates this point which is, "Everyone is delivering excellent quality; the mill must sell this same quality or better or else it will not sell a kilo of the product." Most of the interviewed respondents expect the best quality possible out of their supplier's product and if they cannot receive this quality they will ask the supplier to improve their situation immediately or the mill will move on to the next supplier. As one respondent put it, "If I get the wrong quality, or something, that means I will lose face." The supplier's reputation will be scarred and the mill must move on to a more reliable supplier who can provide a product of constant quality.

Another key aspect of the guarantee that the product is indeed within the specifications agreed upon is the testing and recording of these properties by the supplier before the product's shipment to the customer. One respondent thought, "Well from my point of view, what is most important is the constant quality and the reporting of that quality especially when something is wrong with the quality, that we are informed... That he [the supplier] report the quality to us, and not we control the quality." A few respondents feel that the supplier should record, store, and ship a copy

of the report containing the variance tested along with every delivery of the product. Additionally, the supplier should have these reports available for future troubles that may arise in which that specific product is believed to be the origin of the problem. A formal record of the product's properties will shorten the time needed to find the root cause of the problem. These customers want to be able to contact the supplier, check for quality, trace production, and move from one possible cause to another in the least amount of time. At the time of the data collection, these same respondents claimed that most suppliers have the ability to trace production. These raw materials have complicated chemical properties and are sometimes difficult to handle in the paper production process. The mills expect the supplier to know the quality of the product they are providing.

Technology improvement and new products can also create a situation for a higher level of quality. The higher level of quality, through improvements in methods and processes, can make the variation in parameters less, thus producing a better overall product. The relationship between the customer and the supplier contributes to the successful construction of the higher level of quality. The supplier finds a new product, like glue tape, for instance. Glue tape is used for attaching the end of one paper roll to the beginning of a new paper roll easily and quickly. The suggestion for using this tape to attach the two paper rolls together created a situation where the paper was able to run through the machine without needing to be re-fed. The use of the new glue tape was displaying properties of good quality and reliability. One sign of these properties was that the use has led to fewer paper breaks at the machine. Not only has the supplier created value for the customer by providing quality products and services, but the supplier can also gain value for itself from its customer as stated in the literature. This supplier gained the product idea in the market and applied it at one of

their customer's mills. Now the mill can make paper with more efficiency, thus creating a situation for more production and buying of raw material. The supplier also succeeds by obtaining more business when providing quality and value to the customer.

The fulfillment of pre-specified parameters, the supplier's ability to produce a cost effective product, and maintaining consistency by minimizing variation of the raw material are all expected from the product. Hence, in addition to offering a product that can work with the mill's production, reporting the product quality, and improving technology, these elements can all be used to generate quality which will enhance value. The literature states that by providing more value through quality product factors to the customers, the supplier can succeed in having an advantage over their competitors and retain customers.

4.3 DISCUSSION/KNOWLEDGE

Suppliers can consider relational factors as another means to enhance value for the customer. A relational factor can be any of commitment and trust, communication, cooperation, shared ethical values and professionalism. The key relational element determined from our analysis was discussions. The term discussion in our context is simply the exchange of dialogue between the customer and their supplier. According to the literature relational factors are considered to be part of the product. Because the data shows discussion to be a relational factor we are considering it to be an aspect of the product.

Many respondents wanted meetings once or twice a year, along with regular contact, and for discussion to take place regarding the interest of how the product is running in the mill and problems or ideas thought of by all of the employees within the mills. Discussions occur when problems arise, as well as when information is needed about where the market is going, market gossip, and market analysis. Discussions

concerning projects, both short-term analysis and long-term neutral interest trial runs also take place. Other times, there are technical talks about additional product and process information, experiments, developments, and discussions about environmentally friendly initiatives and regulations. The retelling of the supplier's expertise gained through experiences with mills in the industry is also seen as a type of discussion that can be extremely useful for solving problems in the mills. This type of relational factor enhances the value of the product being received.

Face-to-face as well as telephone, electronic mail, and teleconferencing may be used as methods for discussion with the customer. Face-to-face discussions at the mills are shown to be a meaningful form of communication when interviewing many of the respondents. From the face-to-face visits to the mill, the supplier can get a first-hand look at the everyday problems faced with the machines in each mill as well as build a personal and long-term relationship with those workers closest to the machine process. Consequently, this first-hand experience with many of the problems faced in production allows an opportunity to let those workers voice their experiences and troubles to the supplier. Many production managers and shift leaders felt this was key to the future of constructive discussions.

Within these discussions, the customers hope to have productive conversations to brainstorm ideas for new products and processes. In addition, the respondents want a feeling that a long-term relationship has developed between the mill and the supplier and that both are on a common level from which a universal goal can be obtained by both. Most mills want their discussions with the supplier about specific product improvements not revealed to other companies. This helps that mill maintain a competitive advantage.

Information is often discussed on market-oriented analysis in which the mills talk with the suppliers about paper industry shortages and surpluses along with possibilities for new product offerings and chemicals. There are certain demands for the future and the respondents want to be made aware of these demands so they too can profit from new products. Both the respondent and supplier can either profit monetarily or gain knowledge from a better quality product which can last for many years. One respondent stated,

> "If they do it [market analysis of whether the supplier measures up to other suppliers within the paper industry] and they take the right results to improve themselves then it's, it's a kind of service because we profit then from their improved quality, whatever it is then, which is part of quality."

By having regularly scheduled meetings and contacts through the various forms mentioned above, the supplier is generating a common level for discussion to take place. These methods for discussion with the customer in addition to the market-oriented information shared from supplier to customer are all elements that form relational factors of the product. The ability of the supplier to provide these relational factors when selling their product and services signifies the supplier's willingness to represent what their customers want and need as discovered from our literature review. The combination of this factor with the other aspects to follow all combine to create value for the customers.

4.4 PRICE

In addition to quality, the respondents are also looking for a fair price for the product. Price is one of the product factors that we mentioned in the literature review. From the data and our definition of product from the literature we determined that price is mostly an element of the product that is sold. In addition there are some services related to price and those will be discussed as well.

Price was one of the key factors in choosing a product for many of the respondents we interviewed. In general, they wanted the cheapest product that would perform up to their expectations for quality. In many cases the price of the product was one of the main criteria in making a decision on where to buy a product, along with the product's quality and the services offered with the product. Most respondents stated that price was either first or second on the list of purchasing criteria. This was especially true for a product they had for an extended period of time that could be supplied by any supplier. A standard latex product could be supplied by any supplier, so the one with the best price would be chosen.

However, there were a few respondents who mentioned that price is not always the main factor. These respondents said that price was only a secondary factor when a product was being developed. During this time, they were looking more for the development of a new product to fit their need than price. However, once this development was complete, they would then expect the price of the new product to change to be within a competitive market range for an existing product.

Another aspect that was mentioned on a few occasions was that the cheapest product was not always the best. Because some respondents had noticed that the cheapest products sometimes caused problems in the mill they were looking more for a product that gave them value for their money. This is described by the comment below from one of the respondents:

> "We don't buy it cheap, because it is cheap, and it may rebound on you. We don't buy it expensive, because it has a reputation as the best. You don't buy a Rolls Royce if you just need a Volkswagen. So, value for money, you look at the cost, the true cost, rather than the price. We're looking for quality goods at the right price per unit that can be delivered in usable quantities and qualities..."

In many cases the respondents wanted a product that both has a reasonable price and works well as the main criteria for decisions on which product to use.

In addition to expecting a fair price for a product, there are some elements of price that were considered by the respondents to be a service. One such service is rebates. Some respondents liked the idea of getting price rebates or price reductions if there are problems with the delivered materials being of poor quality. They liked the idea of a pricing system that was dependent upon the product being delivered at the quality expected.

Another way some customers seek to reduce cost is through the use of telemetry. Telemetry is a process where the supplier receives material levels directly from the mill's tanks through electronic means. The supplier can then use this information to determine when the mill needs a raw material and send it automatically. The mills see telemetry as a way to minimize time and effort in the reordering cycle, which could help the mill to reduce costs.

In summary, from the data it can be seen that price was perceived as both part of the product and also a service in some respects to the respondents. According to the literature, price is predominately a product factor. We decided that product factors were part of the product provided and thus considered price to be a part of the product. Price was mostly seen as a major qualifier for a good product by the respondents so this fits with the literature that we read. In addition to this, some respondents were interested in services relating to price and cost such as rebates and telemetry. These were additional elements that the customers mentioned that they did not think were expected elements of the product, and thus were services. Another service stated by the respondents was problem solving, which is discussed next.

4.5 PROBLEM SOLVING

Problem solving is defined as a process in which a problem is stated, discussed, solved, and explained. When looking at the definition of service in our literature review, service is defined as the benefits that were offered to the customer in addition to the product itself. Our group found a correlation between our definition of service and our definition of problem solving. Using the two definitions and the information we collected from our respondents, our group decided that problem solving is in the category of service.

In the case of this project, problems occur within the mills of the coated paper industry and are solved by either the mill personnel, the suppliers to the mill, or a combination of the two. For many respondents, the process of solving a problem was described as the following: 1) identify there is a problem, 2) discuss internally what the problem might be, 3) solve internally if possible, 4) contact the supplier if the problem cannot be solved internally, 5) supplier response with steps necessary to solve the problem. Therefore, knowing this process, it was easy for respondents to describe what they liked and disliked about their suppliers' problem-solving abilities.

To begin, many respondents feel problem solving with their suppliers should be offered. Every mill has different capabilities as far as problem solving goes but almost all of the respondents stated that they use their suppliers at some point for problem solving. Many respondents feel their suppliers have a great deal of expertise about both the product and problems that can occur with the product. Therefore, with that expertise, the suppliers can analyze the particular problems each mill is facing and use their knowledge to solve the problem or give suggestions. In most cases, this knowledge of the product allows the supplier to have in-depth discussions with the mills about problems before any action is taken to resolve the problem.

During these discussions, the mills go through a step by step process of what was done before the problem started, while the suppliers listen and try to formulate a hypothesis of what the problem could possibly be. If the problem is with a raw material, the supplier may take samples of the raw material and test it to see if the raw material caused the problem. One of our respondents described this sampling as,

> "The suppliers of raw materials, they take samples. They tend to check that way. We say okay, we send our own samples back to them so they can analyze it and say what has happened and what they can do to prevent it from happening."

If the problem is machine related, the machine suppliers would just listen to the mill personnel to see if the problem is recognizable by description. No matter what the problem is related to, the suppliers will then either suggest steps for the mill personnel to take or will come on-site to the mill to solve the problem.

The problem solving steps that can be provided to the mills without an on-site visit can be provided through many types of communication the mills have with their suppliers. Communication can be accomplished via telephone, electronic mail, or fax. This communication leads to many of the respondents' thoughts that the suppliers need to be contactable. This contactability is the driving force which allows problems to be solved as quickly as possible. Many respondents requested that the suppliers find ways in which communication, by any of the three means stated above, can occur twenty four hours a day. This twenty-four hour contact is important to many mills because problems happen throughout the whole day and having the supplier available to solve these problems helps the mills to cut down on lost production time. If problems cannot be solved internally or through communication with the suppliers, the next step is for the suppliers to come on-site.

On-site problem solving was an important factor for many respondents that were interviewed. This on-site support is given when problems occurred in the mill

that could not be solved over the telephone, over electronic mail, or by internal personnel. A technical expert from the supplier travels to the mill to take a first hand look at the problem and then attempts to fix the problem while there. On-site support seemed to be used most often when large problems occurred within the mills in which no mill personnel had the experience necessary to solve the problem. Some examples of these problems might be bacteria contamination of the coating, machine breakdowns, or electronic and computer problems.

In summary, our group discovered that all of our respondents felt suppliers need to have problem solving abilities in order to assist the mills when problems occur. According to the literature, problem solving is seen as a way in which value is created by the suppliers for their customers. Value is broken into four factors, including relational, product, service, and physical distribution. Problem solving exists as a factor of service, because training, technical support, and specialized facilities are all aspects of service. Problem solving can be seen as technical support in this case because the suppliers are using their knowledge of the product to provide support to the mills when problems occur. In fact, it was stated by several respondents that problem solving abilities stem from the supplier's knowledge of the product and problems that can occur with the product or the machine. Using this knowledge, the supplier can hold discussions with the mills to decide what step is the right step to take to solve the problem. In some cases, the suppliers can just send step-by-step directions to the mill to solve the problem but sometimes, on-site visits by the suppliers are necessary. In many cases, the respondents felt it was important to work together with the supplier to solve problems in order to get a faster result. It was also found that many respondents would like to see their suppliers have twenty-four hour contactability in order for mills to have problem-solving personnel to talk to whenever necessary. In addition to

looking for problem solving services, mills are looking for a supplier who has research and development capabilities.

4.6 Research and Development

Research and development was another important element identified by our respondents. From our definitions of product and service we determined that the respondents saw research and development as a service that the suppliers offered above and beyond the product they provided. When looking at the list of factors to enhance value contained in our literature review we realized that research and development is actually a combination of product, service, and even some relational factors.

The main aspect the mills are looking for in research and development is a supplier with a high capacity for research and development. This means that the mill has the facilities and personnel necessary to do constant development work on their products. The mills considered it to be a service if a supplier could help them by developing newer or better products. Many of the mills wanted a supplier that is open to development and can assist them in improving an existing product, a process, or in developing a new product whenever it is needed. They wanted a supplier who is willing and able to help with this development work and that will give their full support in equipment, people, and knowledge so that the mill can improve their end product. This full support could include a supplier having laboratories for testing and the ability of the supplier to provide a pilot coater facility with a knowledgeable crew for the development process. Some of the mills expect the supplier to have a high level of knowledge of the whole papermaking process so they can develop useful solutions for the mill.

One aspect of development that was mentioned by about half of the mills was the ability to work on development together with the suppliers. This seemed to be more

prevalent in the smaller or specialty mills that might not have large research and development capabilities or the necessary knowledge for this development themselves. These mills wanted to be able to work with the supplier on product research and development so that the knowledge of the new products could be shared openly. Most of these mills did mention though that it was important that they have a confidential agreement with the supplier to know that the information gained through the joint research would not be passed on to the mill's competitors. This view was portrayed by one of our respondents who said,

> "So, especially for development work, you have to set up some confidential agreements. And then you can work closely then together. That's what I really like."

Another point that was mentioned by a few respondents was the want for a supplier to be able to develop products specifically for particular mills. They want a supplier who will listen to what the mill wants and try to develop a product to fit those needs. One respondent said he was looking for "how much they are ready to do development and adjust their product to make special things for us." These mills wanted the suppliers to work closely together with them in order to develop the materials that the mills need to be able to produce a better product. Many times the mill would come up with an idea and then expect the supplier to be able to help them make that idea a reality. This relates to the literature, which states that suppliers can gain product ideas from the customers that they can then use to create more value for the customers. The supplier could use these product ideas from the individual mills to develop new product ideas of their own that could benefit other customers as well. By creating a product that the mills specifically need, the suppliers can concentrate their efforts on developing value where the customer wants it.

From the data collected we could see that research and development was an important service to many of the respondents. As stated earlier, they look at research and development as a combination of product, service, and relational factors. Each of these factors was mentioned in the literature that we read as ways for the supplier to enhance value. The development of new products fits as a product factor according to the definition of a product factor in our literature review while the facilities and technical expertise used to do this development fit under the literature's definition of service factors. In some cases there were even elements of relational factors when these developments were carried out together with the mills. Relational factors include communication, cooperation, commitment, and trust according to the literature. Each of these factors is involved in joint development projects. All of these factors show that development work is important to the mills on many levels. The mills expect some of the elements of research and development to come with the product but in general look at the service elements of development such as pilot coater facilities and knowledge to be the most important aspects and as a result consider research and development to be a service. Therefore, it is important for Dow to look at research and development whenever evaluating their service offerings to create value through those offerings.

4.7 Analysis

While looking at the data, our group discovered there was a very distinct desire from our respondents to have analysis provided by suppliers. Analysis can be defined as testing done to see if specifications have been met for a particular product or to see if an element in the product is wrong. Analysis is typically a procedure done easily by a supplier due to their knowledge of the product at hand. In the case of our project, analysis is being used to test particular parts of the paper making process in order to ensure proper specifications are being met. Our team used the data and our definition

of service, the benefits offered to the customer in addition to the product itself, as qualifying factors as to which category, e.g. product or service, analysis would fall under. Our group found that analysis is really a service to the mills because it is a benefit that is not expected with the product when the product is purchased.

Many of the respondents that were interviewed during our data collection had several comments about analysis that our team found to be very interesting. Our group found that analysis can be split into two categories, problem solving analysis and development analysis.

Problem solving analysis is done when a problem is discovered by the mill that cannot be solved internally. When this occurs, samples are taken of the raw material that is in question and the supplier of the raw material analyzes the sample to make a hypothesis as to what the problem is. Once the hypothesis is made, the next step is to solve the problem with the supplier or internally. A more in-depth look into problem solving can be found in the problem solving section of our results.

Development analysis was a very important part of analysis for many respondents. Upon investigation, our team discovered that several respondents from smaller mills want their suppliers to offer analysis laboratory facilities and equipment. This equipment and the facilities are very important because it was found that several mills cannot afford to have analysis equipment in their mills and therefore look to their suppliers to offer the location and equipment for analysis to be conducted. A good example of this can be seen when looking at a statement from one of our respondents,

> "They [suppliers] help out a lot with analysis. That I would say is a service. As we are a small mill, with quite the small organization we have a need for the service of, example, analysis, trial runs, and such from the supplier. And I would say the most important thing that we use suppliers for are discussions and analysis."

Several respondents also valued development analysis of a specialized nature. Many respondents were looking for suppliers that could offer specialized analysis testing. This was important to some respondents because most mills cannot afford to keep equipment in their mill that will not get used on a daily basis. While this analysis was wanted by many respondents, there was no correlation between the respondents that stated they wanted the specialized tests and the mill size.

Another use for development analysis is when mills use their suppliers for a comparison analysis of one supplier's product to another supplier's product. This was an important aspect to certain mills because it is impossible for these mills to have the necessary equipment to do these comparison tests. However, if the tests were not completed, the mills would never know if a competitor's product is of higher quality than the supplier that is currently being used.

In general, the respondents that were interviewed are looking for two types of analysis, problem solving and development. Problem solving analysis is used to analyze samples taken of the raw material to see if the raw material is responsible for a problem at the mill. Development analysis is used for three main reasons: analysis tests for smaller mills that can not afford the equipment, specialized tests because no mill can afford to keep equipment that is not used on a daily basis, and comparison analysis to compare the products of different suppliers.

Overall, most of the respondents felt that analysis of some kind was important to the mills they work at. Therefore, using our literature, our team was able to deduce that analysis is a major service factor that mills look for from their suppliers. The literature we researched states that companies need to tailor their offerings to be specific to the needs and wants of the customer. When this idea is applied to analysis and the mills, one possibility for the suppliers is to tailor their service of analysis to

particular mills depending upon what type of analysis is requested. The literature we researched also states that suppliers need to assess the value of the service to their customers and the cost of providing the service. It is obvious from the responses received during interviewing that different mills value analysis for different reasons but all rely on the supplier to provide the means for analysis. Therefore, from the data that was collected and the literature that was researched, analysis that is tailored to particular mills, depending upon the mill's demands, is a service provided by suppliers.

4.8 CONCLUSIONS

Our data collection and analysis allowed our group to see trends that existed throughout the responses given by our respondents during interviewing. Using the literature we gathered, our team choose the key points that were stated by our respondents. These key points include quality, price, discussion, problem solving, research and development, and analysis. During our analysis, it was discovered that each of these key points fell under the category of product or service. This means that every key point was either a service from the suppliers to our respondents or an expected part of the product that is purchased. Our group used the definitions of product and service from our literature review and our data to decide which of the key elements were part of the product and which were services.

Once the key elements were properly categorized, our group gave detailed explanations as to what each key element includes as well as how each relates to the literature we read and why it is important to our project.

Quality of the raw material was an important element of the product received by the mills. Without the raw material being within the pre-specified parameters, the product was not useful and therefore was not valuable to the mills. By meeting the product factors of a consistent material with minimal variance, producing cost effective

products, guaranteeing the quality of the product received, and providing opportunity for improved quality, the customer's expectations for the performance and characteristic of the material were satisfied. This meeting of expectations of product factors can create customer value for the product supplied to the respondents.

Discussion was an important relational factor of the product found in our analysis. This relates back to the literature researched on what factors enhance value for the customer. Many of the respondents interviewed wanted regularly scheduled meetings and other forms of regular contact through telephone, electronic mail, on-site visits, or occasionally even teleconferences. These comments illustrated the underlying point that regular discussions were necessary for problem solving and sharing of ideas and knowledge between the mill and their suppliers. Market-oriented information can be shared in addition to the other relational factors, which demonstrate commitment and trust, communication, cooperation, shared ethical values and professionalism. By the definition of value in the literature our group researched, the use of these relational factors enhances the value of the product for the customer.

Price was another important factor to many of the respondents. Most of the mills mentioned that they wanted a quality product with the lowest price possible. They expected the price to be reasonable as a main aspect of the product. The literature we read listed cost as a product factor and from this definition and our data we decided that price was a part of the product the mills purchase. There were two elements of price that were considered by the respondents to be more of a service though. These were rebates and the introduction of vendor managed inventory. From the literature review, we found rebates to be a specialized service and vendor managed inventory to be a physical distribution factor that is considered to be a service. The respondents seemed to talk about these two elements as services and so we classified them as such.

Problem solving with the supplier is a key point that all respondents stressed was a necessary part of the industry. Most mills need help from their suppliers when problems arise but every mill has a different capacity for dealing with problems internally. In general, mills will try to solve the problems they have internally first, and if that is not possible, then the mills will turn to their suppliers for discussion. This discussion will then spread to the supplier either trying to solve the problem from a distance or coming on-site for support. The literature portrays problem solving as a valued service factor due to supplier's technical support that is given during problems and the knowledge the suppliers must possess to solve these problems. Problem solving was defined through our literature research as a key element that is considered a service.

Research and development was a very important service element mentioned by the respondents. Research and development was considered a service by about 75 percent of the respondents because they saw the facilities and knowledge of the suppliers as the most important elements of research and development. Our literature review shows that these two elements can be considered service factors and thus are services offered by the supplier in addition to their product. About 70 percent of the respondents expected their suppliers to have this capacity in facilities and people for development of both new and existing products. They wanted the supplier to be able to develop both their own products and the mill's products to constantly offer a quality product. This is important for Dow to know when determining how to modify their service offerings in the future because it was an important point to many of the respondents.

Analysis was defined by the literature as a service. It was defined this way through a combination of the data that was collected during our interviews as well as

the literature we read on service definitions. In general, respondents were very interested in having their suppliers offer analysis. The data revealed to our group that analysis consists of two categories, which are problem solving and development. Most mills want to have some kind of analysis and analysis equipment provided by their suppliers. It would be up to the supplier to tailor the analysis to the mill in order for maximum value to be obtained by the mill for the analysis. Our literature review points out that tailoring of products is an essential way in which value is expanded upon for the customer. Therefore, it would be very beneficial to Dow to discover what each mill they provide latex to is looking for by way of analysis assistance.

In general, each of these key elements is valued by the mills in the coated paper industry. These six key elements are the major factors that most mills find important for their daily tasks. Knowing this information, our group would like to recommend that Dow focuses on these six key elements when looking at what services to offer and improve in the future. Our group feels the information provided in this project can benefit both Dow and the respondents that were interviewed during our data collection process.

On a personal note, our team discovered several aspects about the business world that were enlightening. We found that conducting business in the United States as compared to business in Europe has vast differences. We did not expect such differences when we arrived in Zürich. For instance, it is very common for a European company to be multinational, which is not as common in the United States. This fact alone was a major change for our group to adjust to because all of our experiences to date were in American companies that had only slight cultural differences.

The additional presence of different languages constantly being spoken around us made us discover new and interesting ways to communicate with others. It became

evident to our group that our limited abilities to speak languages other than English hindered our interaction with Dow employees as well as most of our respondents during our interviews. Even with our limited abilities, we were able to communicate with everyone, but there were definite drawbacks within our interviews and conversations. One such example was when the word choices we used during interviews with the respondents were first misinterpreted or spoken too fast for them.

Despite the language barrier, our group felt that Dow was a very understanding and supportive sponsor. We felt that Dow treated each member of our group as fellow team members which made the process of integration into a multinational company easier. Our group was also impressed by Dow's openness to change. Understanding the limitations we had, Dow was able to conform our project to meet the needs of our educational goals and our timeframe as well as their goals and intentions for sponsoring our project.

Within the scope of our data collection and our report themes, our group found that traveling to collect our data was exciting but at the same time was tiring and time consuming. After experiencing the traveling side of the business world, we decided that being sales representatives is not something that any of us are looking to do when we complete our degree requirements. This idea was an important discovery for all of us because without the experience Dow allowed our team to have, we never would have realized that traveling daily is not something that interests us.

Along with traveling, our team also saw many differences within the cultures of the countries we traveled in. These cultural differences and language barriers caused interaction to be difficult but gave our group an understanding of different cultures which increased our understanding of different types of people who have different beliefs than we do. Within these cultural differences exists a difference in food, which

our team was very pleased to have the chance to experience. We felt very lucky to have the ability to experience cuisine of over seven different countries between the four of us.

Our team learned a great deal about people as well. Our team learned that different countries and cultures have different attitudes about the way everyday tasks should be conducted. Realizing that there is a good deal of uniqueness between cultures, it became important that we were conscious of these differences and so we tried to act more appropriately for each. We learned that different countries are also more open to differences than the cities and towns we were more familiar with in the United States. Respondents from particular countries were more willing to discuss the paper business and their lives with us than respondents from other countries. This hesitation by some respondents caused our group to tailor our questions more for the personality and beliefs of the respondent.

Within our data collection, our team realized that different people have diverse opinions about the raw material products they use. Our team was able to relate these diverse opinions to the job each respondent had. It was evident that production managers had a much better grasp on the entire process and problems that occur throughout the whole process than the mill workers or coating kitchen workers did. Meanwhile, the coating kitchen workers had a much better grasp for the development of new products than the purchasers did. Therefore, it was obvious that a link existed between the job the respondent had and their opinion of what problems can exist with the raw material. Despite this, our team was able to form an understanding of what was important about the product and the services that suppliers offer.

Along with learning about the industry and the people within it, the group members learned a great deal about themselves as well. Some of us discovered that

being far from family and friends was a very difficult obstacle to overcome while still trying to focus on the project and the project-related tasks. Others of us learned that even though our project was stressful at times, we were able to overcome obstacles to focus on the overall picture allowing us to produce quality work. Still, others learned that we focus on work too much and we do not enjoy the little things that make being in college an exciting experience.

Our team also learned about our personal work ethics. Each one of us has different abilities and strengths when it comes to working on projects and with others. Therefore, we all needed to adjust to each other's strengths and weaknesses in order for our project to be completed in a timely fashion and for it to be our best possible joint work effort. Our team learned so much about what customers value about particular products and how value is created. It is our hope that in the future, members of our team will be able to use the knowledge we gained about customer value and how value is created in our future business careers. We are hoping that this knowledge will aid in creating value for our own customers as well as being conscious of what the customer is really looking for from the product they are receiving.

In conclusion, each member of our team learned a great deal about culture, language, and social science themes. Each member started this project with no knowledge of the paper industry or social science topics such as data collection methods or analysis methods. Along with these topics, our team also had no understanding of the immeasurable differences that exist in various cultures or the obstacles we would face while living in Zürich. Now that our team can look back on the process we have been through and the changes we have faced, we are able to say we have a slight understanding of Swiss culture (which we are grateful for). Despite any downfalls or obstacles we have faced, our team feels we were successful in achieving

the goals of our project. We are grateful to Worcester Polytechnic Institute for giving our team the opportunity to work on this project. We are also grateful to Dow Chemical Company for giving the four of us the chance to work within a corporate environment and for the opportunity to see seven intrinsically different and beautiful parts of Europe while we were gathering our data.

APPENDICES

A1 – MATERIAL USAGE FOR DOW'S FOUR TOP EUROPEAN CUSTOMERS

TABLE A1.1: PRODUCT USAGE

Country	Mill	Application	Volume [Metric tons/year]
FINLAND	StoraEnso Oulu	Paper	32640
GERMANY	UPM Nordland	Paper	25000
FINLAND	M-Real Kirkniemi	Paper	22213
GERMANY	StoraEnso Kabel	Paper	19350
FINLAND	StoraEnso Kemi	Paper	17750
BELGIUM	SAPPI Lanaken	Paper	17000
SWITZERLAND	M-Real Biberist	Paper	16500
AUSTRIA	SAPPI Gratkorn Topcoat	Paper	15490
FINLAND	UPM Kaukas Voikkaa	Paper	13654
FRANCE	StoraEnso Corbehem	Paper	11997
FINLAND	M-Real Aanekoski Paper	Paper	11036
GERMANY	M-Real Zanders	Paper	10020
GERMANY	M-Real Stockstadt	Paper	8400
FINLAND	UPM Kaukas Lappeenranta	Paper	8208
FINLAND	UPM Rauma	Paper	8124
UK	UPM Caledonian	Paper	7901
GERMANY	M-Real MD Albbruck	Paper	7600
NETHERLANDS	SAPPI Maastricht	Paper	7500
GERMANY	SAPPI Ehingen	Paper	7000
NETHERLANDS	SAPPI Nijmegen	Paper	6600
UK	M-Real Sittingbourne	Paper	6540
GERMANY	SAPPI Alfeld	Paper	6528
GERMANY	M-Real MD Dachau	Paper	6450
SWEDEN	StoraEnso Grycksbo	Paper	6400
SWEDEN	StoraEnso Fors	Board	5870
GERMANY	M-Real MD Plattling	Paper	5640
GERMANY	StoraEnso Uetersen	Specialty	5050
FINLAND	M-Real Tako	Board	4592
FINLAND	StoraEnso Kaukopaa Board	Board	4500
FINLAND	UPM Kaukas	Paper	4295
FINLAND	UPM Kaipola	Paper	4289
SWEDEN	StoraEnso Nymoella	Paper	4000
FINLAND	UPM Kymi Kuusanniemi	Paper	3661
GERMANY	StoraEnso Uetersen	Paper	3400
FINLAND	StoraEnso Varkaus	Paper	3000
FINLAND	UPM Jämsankoski Label	Specialty	3000
FINLAND	StoraEnso Inkeroinen	Board	2825
SWEDEN	StoraEnso Skoghall Board	Board	2800
FINLAND	StoraEnso Kaukopaa Paper	Paper	2725
FINLAND	M-Real Aanekoski Board	Board	2625
SWEDEN	M-Real Silverdalen	Paper	2625

TABLE A1.1 (CONTINUED)

UK	SAPPI Blackburn	Paper	2621
FINLAND	StoraEnso Kotka	Paper	2299
FINLAND	StoraEnso Anjalankoski	Paper	2150
GERMANY	StoraEnso Baienfurt	Board	2000
FRANCE	UPM Stracel	Paper	1927
FINLAND	M-Real Kyro	Board	1782
FINLAND	M-Real Kangas	Specialty	1750
GERMANY	SAPPI Alfeld Release	Specialty	1566
FINLAND	StoraEnso Tainionkoski	Board	1432
FINLAND	M-Real Simpele Paper	Specialty	1412
SWEDEN	StoraEnso Moelndal Paper	Paper	1300
GERMANY	M-Real Düren	Specialty	1275
GERMANY	SAPPI Alfeld	Specialty	1205
FINLAND	M-Real Kemi	Board	1100
FINLAND	UPM Lohjan	Specialty	1003
FINLAND	StoraEnso Anjalankoski	Specialty	1000
FINLAND	UPM Jämsankoski LWC	Paper	909
FINLAND	UPM Kaukas	Paper	589
FINLAND	M-Real Aanekoski Board	Specialty	525
FINLAND	M-Real Kyro	Specialty	500
SWEDEN	M-Real Husum	Paper	440
UK	SAPPI Transcript	Specialty	422
FINLAND	StoraEnso Pankakoski	Board	339
FINLAND	UPM Tervasaari	Specialty	74

TABLE A1.2: CUSTOMERS ARRANGED BY COUNTRY AND PRODUCT USAGE

Country	Mill	Application	Volume [Metric tons/year]
FINLAND	StoraEnso Oulu	Paper	32640
FINLAND	StoraEnso Kemi	Paper	17750
FINLAND	UPM Rauma	Paper	8124
FINLAND	M-Real Tako	Board	4592
FINLAND	StoraEnso Kaukopaa Board	Board	4500
FINLAND	UPM Kaukas	Paper	4295
FINLAND	UPM Kaipola	Paper	4289
FINLAND	UPM Kymi Kuusanniemi	Paper	3661
FINLAND	StoraEnso Varkaus	Paper	3000
FINLAND	UPM Jämsankoski Label	Specialty	3000
FINLAND	StoraEnso Inkeroinen	Board	2825
FINLAND	StoraEnso Kaukopaa Paper	Paper	2725
FINLAND	M-Real Aanekoski Board	Board	2625
FINLAND	StoraEnso Kotka	Paper	2299
FINLAND	StoraEnso Anjalankoski	Paper	2150
FINLAND	M-Real Kyro	Board	1782
FINLAND	M-Real Kangas	Specialty	1750
FINLAND	StoraEnso Tainionkoski	Board	1432
FINLAND	M-Real Simpele Paper	Specialty	1412
FINLAND	M-Real Kemi	Board	1100
FINLAND	UPM Lohjan	Specialty	1003
FINLAND	StoraEnso Anjalankoski	Specialty	1000
FINLAND	UPM Jämsankoski LWC	Paper	909
FINLAND	UPM Kaukas	Paper	589
FINLAND	M-Real Aanekoski Board	Specialty	525
FINLAND	M-Real Kyro	Specialty	500
FINLAND	StoraEnso Pankakoski	Board	339
FINLAND	UPM Tervasaari	Specialty	74
GERMANY	UPM Nordland	Paper	25000
GERMANY	StoraEnso Kabel	Paper	19350
GERMANY	M-Real Stockstadt	Paper	8400
GERMANY	M-Real MD Albbruck	Paper	7600
GERMANY	SAPPI Ehingen	Paper	7000
GERMANY	SAPPI Alfeld	Paper	6528
GERMANY	M-Real MD Dachau	Paper	6450
GERMANY	M-Real MD Plattling	Paper	5640
GERMANY	StoraEnso Uetersen	Specialty	5050
GERMANY	StoraEnso Uetersen	Paper	3400
GERMANY	SAPPI Alfeld Release	Specialty	1566

TABLE A1.2 (CONTINUED)

GERMANY	M-Real Düren	Specialty	1275
GERMANY	SAPPI Alfeld	Specialty	1205
SWEDEN	StoraEnso Nymoella	Paper	4000
SWEDEN	StoraEnso Skoghall Board	Board	2800
SWEDEN	M-Real Silverdalen	Paper	2625
SWEDEN	M-Real Husum	Paper	440
UK	SAPPI Blackburn	Paper	2621
FRANCE	StoraEnso Corbehem	Paper	11997
NETHERLANDS	SAPPI Nijmegen	Paper	6600

Note: The highlighted mills are those that we visited during our data collection process.

A2 – Interview Protocols

A2.1 Interview Protocol for Mill Workers, Coating Kitchen, Production Managers, Research and Development Engineers, and Managers

NAME:_____DATE:_____

LOCATION:_____JOB TITLE:_____

I. Begin with Introductions:

Good day, my name is (Kristen Lafond and this is Joseph Frawley)/(Jennifer Gatchell and this is Mark Johnson). We are here from Worcester Polytechnic Institute in the United States to collect data about the types of services available in the paper industry. Our sponsor for this project is Dow Chemical Company. We understand that your time is valuable and ask for only a half an hour of your time to talk to us about the paper industry and services in this industry. We will ask you several questions and ask you to please answer these questions as completely as possible. We want you to know that all of your responses are confidential and all transcripts and records of these interviews will be destroyed. Once all of our data is collected, we will send you analyzed information of currently available services based on interviews our group will conduct across Europe. To more accurately record the information you tell us, we would like to record the interview. Again all records, including tapes will be destroyed at the end of our research.

II. Questions:

Please tell me what your typical day is like.

Please describe for us the types of problems that arise in paper manufacturing.

When a problem arises, how do your suppliers respond?

What other services do your suppliers provide which help your mill?

What would you rank as the most important service you receive?

What do you like about your mill's interaction with its suppliers?

Which services are the most useful for the purchasers when making a purchasing decision?

III. Conclusion

We would like to thank you for your time. All of your responses are confidential and all transcripts and records of these interviews will be destroyed. No names will be used in the analysis. We will send you analyzed data regarding our research of service in the European paper industry by mid-February.

Is there anyone you feel we should contact and talk to to help us with our data collection and analysis?

A2.2 Interview Protocol for Purchasers

NAME:_____DATE:_____

LOCATION:_____JOB TITLE:_____

I. Begin with Introductions:

Good day, my name is (Kristen Lafond and this is Joseph Frawley)/(Jennifer Gatchell and this is Mark Johnson). We are here from Worcester Polytechnic Institute in the United States to collect data about the types of services available in the paper industry. Our sponsor for this project is Dow Chemical Company. We understand that your time is valuable and ask for only a half an hour of your time to talk to us about the paper industry and services in this industry. We will ask you several questions and ask you to please answer these questions as completely as possible. We want you to know that all of your responses are confidential and all transcripts and records of these interviews will be destroyed. Once all of our data is collected, we will send you analyzed information of currently available services based on interviews our group will conduct across Europe. To more accurately record the information you tell us, we would like to record the interview. Again all records, including tapes will be destroyed at the end of our research.

II. Questions:

Please tell me what your typical day is like.

What factors need to be considered when purchasing from a supplier?

What benefits does your company/mill anticipate from purchasing a material?

What types of services are most important for you to do your job?

How would you rank these services?

What do you like about your offices' interaction with their suppliers?

What do you feel makes a company service-oriented in the industry?

Which services do you perceive as being the most useful for the mill workers in paper production?

IV. Conclusion

We would like to thank you for your time. All of your responses are confidential and all transcripts and records of these interviews will be destroyed. No names will be used in the analysis. We will send you analyzed data regarding our research of service in the European paper industry by mid-February.

Is there anyone you feel we should contact and talk to to help us with our data collection and analysis?

A3 – Main List of Services

A3.1 Services Wanted

- 24-hour availability
- Analyze product
- Analyze samples
- Assistance when mill lacks competence
- Audit of coating machine annually
- Confirmation on delivery
- Contact with suppliers
- Delivery on time
- Delivery reports several times a year
- Development
- Education of staff during mill shutdowns
- Exchangeable products
- Faster response
- Get spare parts faster because supplier contacts other mills
- Good delivery
- Improve quality and runability
- Information given on quality
- Information on new products
- Innovation
- Laboratory analysis
- Laboratory equipment
- Logistics
- Market information
- Measure the raw material's effect on the process
- Measurement of product quality
- One contact and find the right expert
- Online quality measurement system
- On-site support
- Pilot trials
- Price
- Product development
- Product does what is expected
- Quality
- Quality assurance
- Quality pricing rebates
- Reduce supply chain costs
- Service package for complicated systems
- Short delivery time
- Suggestion of supplier for other products
- Supplier's personnel in mill for new machine installation
- Support service
- Tailor-made raw materials
- Technical meetings several times a year
- Technical service
- Technology department with knowledgeable people
- Telemetry
- Websites with helpful information for mills
- Work closely together

A3.2 EXPLANATION OF TERMS

24-hour availability – Mills want their suppliers to be reachable twenty-four hours a day in case problems arise or assistance is needed.

Analyze product – Mills would like the product they purchased from their suppliers to be tested for the required specifications that were agreed upon before the product is delivered.

– Mills would like the product tested by the supplier when problems occur with it to see if the problems exist on the part of the supplier or on the part of the mill.

Analyze samples – Mills would like sample to be taken of the product and tested by the supplier when problems occur.

Assistance when mill lacks competence – Mills would like their suppliers to provide help to the mill when problems arise and mill personnel are not equipped with the knowledge to solve the problem.

Audit of coating machine annually – Mills would like their coating machines inspected yearly by the supplier of the machine.

Confirmation on delivery – Mills that use fax and telephone to order their raw materials would like a confirmation from their suppliers saying the order was received by the supplier and showing the price, date and time the raw material will be delivered to the mill.

Contact with suppliers – The mills would like suppliers to be available for discussion or problem solving as well as for supplier to conduct visits to the mills and phone calls as often as is necessary.

Delivery on time – Mills want the product delivered at the time and location that was previously agreed upon and arranged.

Delivery reports several times a year – Mills are looking for reports from their suppliers containing consumption records for the months past 3 or 4 times a year.

Development – Mills are looking for suppliers that can aid in product development or product improvements through development techniques.

Education of staff during mill shutdowns – Mills would like suppliers to provide training to their production workers on products or machine usage while the production line is shut down for repairs.

Exchangeable products – Mills are looking for products that can be exchanged for cheaper products of the same kind without loss of quality or cause of machine problems.

Faster response – Mills are looking for suppliers that can respond to their needs immediately or as soon as possible.

Get spare parts faster because supplier contacts other mills – Mills would like suppliers to be capable of locating spare parts at other mills in order for waiting time to get the spare parts to be reduced.

Good delivery – Mills are looking for suppliers that are reliable and flexible in their delivery as well as suppliers that deliver the right product, in the right specifications, and at the right time.

Improve quality and runability – Mills are looking for suppliers that are constantly trying to improve the quality of their product as well as suppliers that are willing to help the mill improve the runability of the product in the mill.

Information given on quality – Mills are looking for suppliers that offer a sheet that gives the specifications of the product upon delivery.

Information on new products – Mills are looking for suppliers that offer information on new products that are in the market as well as products that should be focused on in the future.

Innovation – Mills are looking for suppliers that are creative and capable of developing new products and changing old ones.

Laboratory analysis – Mills want suppliers that can provide lab analysis for their products. This is desired by mills that cannot afford to have the analysis equipment in the mill.

Laboratory equipment – Mills want suppliers to provide lab equipment necessary for lab testing. This is desired by mills that cannot afford to have the equipment in the mill.

Logistics – Mills are looking for suppliers that can provide logistics that are right the first time and for suppliers that do not have problems with the logistics part of the process. In general, mills want delivery to be on time, with the product to be up to specification, and for the delivery to be placed into the correct tank at the right time.

Market information – Mills are looking for suppliers that can provide information about where the market is moving in the future and what products should be focused on.

Measure the raw material's effect on the process – Mills want suppliers that can measure the raw material's ability to benefit or effect the process on the machines to see if the product should be redesigned to fit the machine's needs better.

Measurement of product quality – Mills want suppliers to be able to provide the mill with tests that measure the quality or specifications of the product.

One contact and find the right expert – Mills want one contact from each supplier that can decide who the correct person to speak to in the supplier's company is, and direct the mill to speak to that person.

Online quality measurement system – Mills want suppliers to provide a database as to the quality of the product upon delivery so specifications can be compared between deliveries.

On-site support – Mills want suppliers that will come to the mill when problems occur to help solve the problems in a timely fashion.

Pilot trials – Mills want suppliers to allow for use of the pilot coater by the mill in order for products to be tested before being run on the machines in the mill.

Price – Mills want suppliers that can provide a competitive price for the product that is purchased.

Product development – Mills want suppliers that can provide development of new products as well as development to improve existing products.

Product does what it is suppose to – Mills expect suppliers to deliver products that do what is expected of them.

Quality – Mills want suppliers that can deliver the right product at the right specifications. These specifications are the quality the mill is looking for.

Quality assurance – Mills are looking for suppliers that can provide information and tests that prove the product is correct in quality.

Quality pricing rebates – Mills would like suppliers to provide rebates on product prices if the product is out of specification or is contaminated upon delivery.

Reduce supply chain costs – Mills are looking for suppliers that can be creative and flexible in order for cost to be taken out of the supply chain as often as possible.

Service package for complicated systems – Mills would like the supplier to offer a service package for machines that are complicated so problem solving and machine maintenance are performed by the supplier and not by mill personnel.

Short delivery time – Mills would like suppliers that can deliver the product in a timely fashion as well as have suppliers that can deliver the product the next day if the product is needed immediately.

Suggestion of supplier for other products – Mills would like suppliers that can suggest other suppliers for different raw materials. An example of this is when Dow gave the name of a reliable supplier for biocides to one of their clients.

Supplier's personnel in mill for new machine installation – Mills would like suppliers that provide personnel to the mill when a new machine is installed to ensure small problems are taken care of immediately and that the machine is meeting specifications.

Support service – Mills would like suppliers that can provide assistance in the mills when problems arise, like analysis or technical help on the machines.

Tailor-made raw materials – Mills would like suppliers to have the capability to custom-make products that fit the mills' needs better.

Technical meetings several times a year – Mills would like suppliers to have meetings discussing the changes to technology in the market three to four times a year.

Technical service – Mills want suppliers that can assist with technology which can include analysis, problem solving techniques, and development of the product.

Technology department with knowledgeable people – Mills are looking for suppliers with a large technology department because most mills cannot afford the equipment needed. Therefore, the mills are turning to their suppliers for this equipment as well as the personnel experienced in using the equipment and the product.

Telemetry – Mills that use the system want telemetry to be used more by all of their suppliers so automatic delivery will occur with most raw materials that are purchased.

Websites with helpful information for mills – Mills want suppliers to have websites with documents about historical orders for the mills as well as information about storage levels and consumption patterns of the mill.

Work closely together – Mills want suppliers where development and problem solving can be accomplished together as a team, supplier and mill.

A4 – List of Services by Company

A4.1 M-Real

A4.1.1 Services Wanted from Supplier

- Analyze product
- Analyze samples
- Delivery on time
- Delivery reports
- Development
- Education of staff
- Give information on quality
- Joint projects
- Know the mill's process
- Laboratory equipment
- Long-term related service
- Market information
- Meeting with supplier
- On-site support
- Pricing rebates
- Product knowledge
- Reports of laboratory analysis
- Support service
- Technical meetings several times a year
- Vendor managed inventory
- Work closely together

A4.1.2 Characteristics Wanted from Supplier

- Anticipate future
- Competent supplier who understands process 100%
- Experience
- Good communication
- Long-term relationship
- Stability of supplier
- Supply security

A4.1.3 Explanation of Services

Analyze product – M-Real would like the product they purchased from their suppliers to be tested for the required specifications that were agreed upon before the product is delivered.

– M-Real would like the product tested by the supplier when problems occur with it to see if the problems exist on the part of the supplier or on the part of the mill.

Analyze samples – M-Real would like samples to be taken of the product and tested by the supplier when problems occur.

Delivery on time – M-Real wants the product delivered at the time and location that was previously agreed upon and arranged.

Delivery reports – M-Real is looking for reports from their suppliers containing consumption records for the months past 3 or 4 times a year.

Development – M-Real is looking for suppliers that can aid in product development or product improvements through development techniques.

Education of staff – M-Real would like suppliers to provide training to their production workers on products or machine usage.

Give information on quality – M-Real is searching for suppliers that offer a sheet that gives the specifications of the product upon delivery.

Joint projects – Possibility for M-Real's mills and the supplier to work on a project that solves both short-term and long-term neutral interest issues.

Know the mill's process – M-Real wants their supplier's representatives working with their mills to know the mills' processes to create a situation where the outside supplier, can troubleshoot without the biases of being in the process; "Easier for an outsider to compare us as opposed to us being in the process."

Laboratory equipment – M-Real wants suppliers to provide laboratory equipment necessary for laboratory testing. Some of M-Real's mills that cannot afford to have the equipment in the mill desire this.

Long-term related service – A business relationship between M-Real and a supplier, customer consisting of the selling of the product and the additional technical support offered with the product for as long as the product is being bought.

Market information – M-Real is looking for suppliers that can provide information about where the market is moving in the future and what products should be focused on. M-Real would like for suppliers to benchmark themselves against their competitors so the supplier can take the right steps to improve themselves because the mill profits from the supplier's improved quality.

Meetings with supplier – The M-Real mills would like suppliers to be available for discussion, problem solving, or to talk about results to a laboratory analysis as well as for the supplier to conduct visits to the mills and phone calls as often as is necessary.

On-site support – M-Real wants suppliers that will come to their mills in a timely fashion when problems occur to help solve the problems that cannot be solved over telephone or electronic mail.

Pricing rebates – M-Real would like suppliers to provide rebates on the product price to the purchasers when the product is out of specification or is contaminated upon delivery. Some of their mills want the discount to be proportional to the variation for which the product is out of specification.

Product knowledge – Supplier's best possible knowledge of the chemical properties of the product they supply and its effects when added into the paper production process.

Reports of laboratory analysis – M-Real wants the supplier to analyze the chemicals in products and final paper and then send the results from these analyses in a formal written report back to the mills and research centers.

Support service – M-Real would like suppliers that can provide assistance in the mills when problems arise, like analysis or technical help on the machines.

Technical meetings several times a year – M-Real would like suppliers to have meetings discussing the changes to technology in the market 3 to 4 times a year.

Vendor managed inventory – Some of M-Real's mills want the product inventory levels to be controlled by the vendors or suppliers who offered the products. Many think the use of this service can be reflected in the price they pay for the product.

Work closely together – M-Real wants suppliers where development and problem solving can be accomplished together as a team, both supplier and mill.

A4.1.4 CHARACTERISTICS WANTED

Anticipate future – M-Real wants their suppliers to anticipate what product and developments within the paper market will best apply to their mills so their company can profit in the future.

Competent supplier who understands process 100% – M-Real wants a supplier who understands the chemical properties of their product and has knowledge of the whole paper process in order to trouble-shoot with the mills.

Experience – M-Real would like their suppliers to have knowledge gained from working with many different mills. M-Real believes this exposure and assistance when working with the other mills will help the supplier gain experience that will help the mills of M-Real.

Good communication – M-Real wants to be able to talk and have back-and-forth discussions with their supplier on a common level in which both are looking to accomplish the same goals. They want to feel that each participant within the discussion is helping each other to attain their company's goals.

Long-term relationship – A business relationship between M-Real and their supplier consisting of a history of contact, trust, communication, and reliability.

Stability of supplier – M-Real representatives want a supplier whose company is financially stable as well as know to be reliable within the paper industry

Supply security – The ability and reliability that the supplier will supply a product when it is needed by the M-Real.

A4.2 SAPPI

A4.2.1 Services Wanted from Supplier

- 24-hour availability
- Analyze product
- Certifications about product analysis
- Discussions
- Education of staff in mill
- Internet communication
- Laboratory equipment
- Market strategy information
- Permanently updating logistics
- Pilot trials
- Pricing rebates
- Product knowledge
- Quick response
- Regular contact and meetings with supplier
- Rental of equipment
- Research and development
- Special tests for products
- Support service
- Technology department with knowledgeable people
- Telemetry

A4.2.2 Characteristics Wanted from Supplier

- Anticipate future
- Competent supplier who understands process 100%
- Environmentally conscious
- Experience
- Good communication
- Long-term relationship showing trust
- More proactive, less reactive; active in paper community
- Partnership that goes with economy
- Social interaction
- Stability of supplier
- Supply security

A4.2.3 Explanation of Services

24-hour availability – SAPPI wants their suppliers to be reachable twenty-four hours a day in case problems arise or assistance is needed.

Analyze product – SAPPI would like the product they purchased from their suppliers to be tested for the required specifications that were agreed upon before the product is delivered.

– SAPPI would like the product tested by the supplier when problems occur with it to see if the problems exist on the part of the supplier or on the part of the mill.

Certifications about product analysis – SAPPI's mills would like certificates delivered with products stating the product's chemical properties and variances.

Pages incorrectly numbered in original

IQP/MQP SCANNING PROJECT

Discussions – The exchange of dialogue between the SAPPI and their supplier concerning anything from problems, proposed solutions to problems, development, to market strategies.

Education of staff in mill – SAPPI would like suppliers to provide training to their production workers on products or machine usage.

Internet communication – SAPPI wants to be able to have business transactions through e-commerce with their suppliers.

Laboratory equipment – SAPPI wants suppliers to provide laboratory equipment necessary for laboratory testing. SAPPI's mills that cannot afford to have the equipment in the mill desire this.

Market strategy information – SAPPI is looking for suppliers that can provide information about where the market is moving in the future and what products should be focused on.

Permanently updating logistics – SAPPI are looking for suppliers that can provide logistics that are right the first time and for suppliers that do not have problems with the logistics part of the product. In general, SAPPI wants delivery to be on time, with the product to be to specifications, and for the delivery to be placed into the correct tank at the right time.

Pilot trials – SAPPI wants suppliers to allow for use of the pilot coater by the mill in order for products to be tested before being run on the machines in the mill.

Pricing rebates – SAPPI would like suppliers to provide rebates on product prices if the large volume purchases are out of specification or is contaminated upon delivery.

Product knowledge – Supplier's best possible knowledge of the chemical properties of the product they supplier and its effects when added into the paper production process.

Quick response – SAPPI is looking for suppliers that can respond to their needs immediately or as soon as possible.

Regular contact and meetings with suppliers – SAPPI would like suppliers to be available for discussion or problem solving as well as for supplier to conduct visits to the their mills and phone calls as often as is necessary.

Rental of equipment – One respondent clearly stated the want for suppliers to offer mills the use and availability of specialized laboratory equipment. This laboratory equipment is so specialized that it is otherwise very expensive and not seen as worthwhile for the mill to purchase. This respondent felt the supplier should let the mills hire their own employees to conduct the tests on this equipment.

Research and development – SAPPI is looking for suppliers that can aid in product development or product improvements through development techniques.

Special tests for products – The SAPPI mills want the supplier to offer specialized tests for the products produced with the specialized material purchased from the supplier.

Support service – SAPPI would like suppliers that can provide assistance in the mills when problems arise, like analysis or technical help on the machines.

Technology department with knowledgeable people – SAPPI is looking for suppliers with a large technology department because most mills cannot afford the equipment needed. Therefore, the mills are turning to their suppliers for this equipment as well as the personnel experienced in using the equipment and the product.

Telemetry – Many of SAPPI's mills that want telemetry to be used more by most of their suppliers so automatic delivery will occur with some of the raw materials that are purchased. This particular company has one mill that was using telemetry with one of their suppliers on a six-month trial basis. They are unsure of the problems that could arise when using telemetry. They want reassurance that the stock will not run out and if it does, they want to know who will pay the costs of production loss, supplier or mill?

A4.2.4 Characteristics Wanted

Anticipate future – SAPPI wants their suppliers to anticipate what product and developments within the paper market will best apply to their mills so their company can profit in the future.

Competent supplier who understands process 100% – SAPPI wants a supplier who understands the chemical properties of their product and has knowledge of the whole paper process in order to trouble-shoot with the mills.

Environmentally conscious – SAPPI wants a supplier who is conscious of the challenges and regulations within the paper industry when dealing with environmental issues. SAPPI wants their supplier to take the first step by providing environmentally friendly processes to produce their product and providing environmentally friendly products. One way to provide this is by maintaining a consistent quality of the product so all products can be used and not thrown away because it is out of specifications.

Experience – SAPPI would like their suppliers to have knowledge gained from working with many different mills. SAPPI believes this exposure and assistance when working with the other mills will help the supplier gain experience that will help the mills of SAPPI.

Good communication – SAPPI wants to be able to talk and have back-and-forth discussions with their supplier on a common level in which both are looking to accomplish the same goals. They want to feel that each participant within the discussion is helping each other to attain their company's goals.

Long-term relationship – A business relationship between SAPPI and their supplier consisting of a history of contact, trust, communication, and reliability.

More proactive, less reactive; active in paper community – SAPPI wants their supplier to be active in the paper community by discovering new products and process and sharing those elements with SAPPI's mills.

Partnership that goes with economy – This business relationship should represent a partnership that goes with "the waves of the economy" as one respondent commented. They want a supplier who can adjust their prices to the economy when charging the SAPPI mills.

Social interaction – SAPPI expects more from a supplier than just coming into their mills and signing papers. SAPPI wants the supplier's representatives to form a relationship with the members of the their mills.

Stability of supplier – SAPPI representatives want a supplier whose company is financially stable as well as know to be reliable within the paper industry.

Supply security – The ability and reliability that the supplier will supply product when it is needed by SAPPI.

A4.3 StoraEnso

A4.3.1 Services Wanted from Supplier

- 24-hour availability
- Analyze product
- Analyze samples
- Contact with suppliers
- Delivery on time
- Development
- Discussions
- Good delivery
- Information on new products
- Innovation
- Market information
- On-site support
- Pilot trials
- Process knowledge
- Product development
- Product does what it is suppose to
- Product knowledge
- Reports of laboratory analysis
- Service program or follow up program
- Special tests for products
- Tailor-made raw materials
- Technical meetings several times a year
- Technology department with knowledgeable people

A4.3.2 Characteristics Wanted from Supplier

- Anticipate future
- Competent supplier who understands process 100%
- Experience with product and within industry
- Frequent contact
- Good communication
- Leading edge of technology
- Long-term neutral interest trial runs of new products
- Long-term relationship trust
- More proactive, less reactive; active in paper community
- Reachable contact for technical support to be contacted as quick as possible
- Stability of supplier
- Supply security

A4.3.3 Explanation of Services

24-hour availability – StoraEnso wants their suppliers to be reachable twenty-four hours a day in case problems arise or assistance is needed.

Analyze product – StoraEnso would like the product they purchased from their suppliers to be tested for the required specifications that were agreed upon before the product is delivered.

– StoraEnso would like the product tested by the supplier when problems occur with it to see if the problems exist on the part of the supplier or on the part of the mill.

Analyze samples – StoraEnso would like samples to be taken of the product and tested by the supplier when problems occur.

Contact with suppliers – The StoraEnso mills would like suppliers to be available for discussion or problem solving as well as for supplier to conduct visits to the mills and phone calls as often as is necessary.

Delivery on time – StoraEnso wants the product delivered at the time and location that was previously agreed upon and arranged.

Development – StoraEnso is looking for suppliers that can aid in product development or product improvements through development techniques.

Discussions – The exchange of dialogue between the customer and their supplier concerning anything from problems, proposed solutions to problems, development, to market strategies.

Good delivery – StoraEnso is looking for suppliers that are reliable and flexible in their delivery as well as suppliers that deliver the right product, in the right specifications, and at the right time.

Information on new products – StoraEnso is looking for suppliers that offer information on new products that are in the market as well as products that should be focused on in the future.

Innovation – StoraEnso is looking for suppliers that are creative and capable of developing new products and changing old ones.

Market information – StoraEnso is looking for suppliers that can provide information about where the market is moving in the future and what products should be focused on. Market analysis, market oriented discussions and meetings, measuring the supplier's company against competitors, formal meetings once or twice a year, and more information about the market, new chemicals, new offerings, new products, new processes, and new trends are also wanted within this market information.

On-site support – StoraEnso wants suppliers that will come to the mill when problems occur to help solve the problems in a timely fashion. They also want the supplier to be on site when a machine runs an initial full-scale trial.

Pilot trials – StoraEnso wants suppliers to allow for use of the pilot coater, with skilled personnel or crew, in order for the product's performance to be tested. They want to feel that they can trust the results before being run on the machines in the mill.

Process knowledge – StoraEnso wants a supplier who has knowledge of the effects of the chemical properties of the product they supply on the paper production process.

Product development – StoraEnso wants suppliers that can provide development of new products as well as development to improve existing products.

Product does what it is suppose to – StoraEnso expects suppliers to deliver products that do what is expected of them.

Product knowledge – Supplier's best possible knowledge of the chemical properties of the product they supply and its effects when added into the paper production process.

Reports of laboratory analysis – StoraEnso wants the supplier to analyze the chemicals in products and final paper and then send the results from these analyses in a formal written report back to the mills.

Special tests for products – The StoraEnso mills want the supplier to offer specialized tests for the products produced with the specialized material purchased from the supplier with quick turnaround time for the results.

Tailor-made raw materials – StoraEnso would like suppliers to have the capability to tailor make products that fit the mill's needs better.

Technical meetings several times a year – StoraEnso would like suppliers to have meetings discussing the changes to technology in the market three to four times a year.

Technology department with knowledgeable people – StoraEnso is looking for suppliers with a large technology department because most mills cannot afford the equipment needed. Therefore, the mills are turning to their suppliers for this equipment as well as the personnel experienced in using the equipment and the product.

A4.3.4 CHARACTERISTICS WANTED

Anticipate future – StoraEnso wants their suppliers to anticipate what product and developments within the paper market will best apply to their mills so their company can profit in the future.

Competent supplier who understands process 100% – StoraEnso wants a supplier who understands the chemical properties of their product and has knowledge of the whole paper process in order to trouble-shoot with the mills.

Experience with product and within industry – StoraEnso would like their suppliers to have a knowledge about their own products and the effects it has on the overall production process as well as gain knowledge from working with many different mills. StoraEnso believes this exposure and assistance when working with the other mills will help the supplier gain experience that will help the mills of StoraEnso.

Frequent contact – StoraEnso wants to be able to reach a supplier at any time of day and by any means of communication.

Good communication – StoraEnso wants to be able to talk and have back-and-forth discussions with their supplier on a common level in which both are looking to accomplish the same goals. They want to feel that each participant within the discussion is helping each other to attain their company's goals.

Leading edge of technology – StoraEnso wants their suppliers to be aware of the most current technology related to the products they sell, including areas such as tests, formulas, and processes.

Long-term neutral interest trial runs of new products – StoraEnso wants to have joint projects with their suppliers where the long-term development involved will benefit both participating companies equally.

Long-term relationship – A business relationship between StoraEnso and their supplier consisting of a history of contact, trust, communication, and reliability.

More proactive, less reactive; active in paper community – StoraEnso wants their supplier to be active in the paper community by discovering new products and process and sharing those elements with StoraEnso's mills.

Reachable contact for technical support to be contacted as quickly as possible – StoraEnso would like the technical representatives from their suppliers to be contactable within a short period of time when a problem or situation arises where help is needed.

Stability of supplier – StoraEnso representatives want a supplier whose company is financially stable as well as know to be reliable within the paper industry

Supply security – The ability and reliability that the supplier will supply product when it is needed by StoraEnso.

A4.4 UPM-KYMMENE

A4.4.1 SERVICES WANTED FROM SUPPLIER

- 24-hour availability
- Analyze product
- Analyze samples
- Contact with suppliers
- Delivery on time
- Delivery reports several times a year
- Development
- Discussions
- Fast response
- Give information on quality on arrival
- Good delivery
- Improve quality and runability
- Information given on quality
- Information on new products
- Innovation
- Laboratory analysis
- Laboratory tests conducted by supplier
- Make new recommendations
- Market information
- Measurement of product quality
- On-site support
- Pilot trials
- Product development
- Product knowledge
- Quality assurance
- Report of laboratory results
- Research and development
- Suggestion of supplier for other products
- Support service
- Tailor-made raw materials
- Technology department with knowledgeable people

A4.4.2 CHARACTERISTICS WANTED FROM SUPPLIER

- Anticipate future
- Competent supplier who understands process 100%
- Experience
- Familiar contacts not always changing, but not necessarily dependent on a long-term relationship
- Good communication
- More proactive, less reactive; active in paper community
- Stability of supplier
- Supply security

A4.4.3 EXPLANATION OF SERVICES

24-hour availability – UPM-Kymmene wants their suppliers to be reachable twenty-four hours a day in case problems arise or assistance is needed.

Analyze product – UPM-Kymmene would like the product they purchased from their suppliers to be tested for the required specifications that were agreed upon before the product is delivered.

– UPM-Kymmene would like the product tested by the supplier when problems occur with it to see if the problems exist on the part of the supplier or on the part of the mill.

Analyze samples – UPM-Kymmene would like samples to be taken of the product and tested by the supplier when problems occur.

Contact with suppliers – The UPM-Kymmene mills would like suppliers to be available for discussion or problem solving as well as for supplier to conduct visits to the mills and phone calls as often as is necessary.

Delivery on time – UPM-Kymmene wants the product delivered at the time and location that was previously agreed upon and arranged.

Delivery reports several times a year – UPM-Kymmene mills are looking for reports from their suppliers containing consumption records for the months past 3 or 4 times a year.

Development – UPM-Kymmene is looking for suppliers that can aid in product development or product improvements through development techniques.

Discussions – The exchange of dialogue between the customer and their supplier concerning anything from problems, proposed solutions to problems, development, to market strategies.

Fast response – UPM-Kymmene is looking for suppliers that can respond to the needs of their mill and research centers immediately or as soon as possible.

Give information on quality on arrival – UPM-Kymmene is looking for suppliers that offer a sheet that gives the specifications of the product upon delivery.

Good delivery – UPM-Kymmene is looking for suppliers that are reliable and flexible in their delivery as well as suppliers that deliver the right product, in the right specifications, and at the right time.

Improve quality and runability – UPM-Kymmene is looking for suppliers that are constantly trying to improve the quality of their product as well as suppliers that are willing to help the mill improve the runability of the product in the mill.

Information given on quality – The UPM-Kymmene mills want the quality results of the chemical properties of all products to be given or available for view by the mill and research centers.

Information on new products – UPM-Kymmene is looking for suppliers that offer information on new products that are in the market as well as products that should be focused on in the future.

Innovation – UPM-Kymmene is looking for suppliers that are creative and capable of developing new products and changing old ones.

Laboratory analysis – UPM-Kymmene wants suppliers that can provide lab analysis for their products. Mills that cannot afford to have the analysis equipment in the mill desire this.

Laboratory tests conducted by supplier – The UPM-Kymmene mills want the supplier to take the initiative to perform laboratory tests on products that will help the production of the mill without being asked.

Make new recommendations – UPM-Kymmene wants the supplier to share their experience by making recommendations to the mill about new products or modifications they can integrate to benefit their production plant.

Market information – UPM-Kymmene is looking for suppliers that can provide information about where the market is moving in the future and what products should be focused on.

Measurement of product quality – UPM-Kymmene wants suppliers to be able to provide the mill with tests that measure the quality or specifications of the product.

On-site support – UPM-Kymmene wants suppliers that will come to the mill when problems occur to help solve the problems in a timely fashion.

Pilot trials – UPM-Kymmene wants suppliers to allow for use of the pilot coater by the mill in order for products to be tested before being run on the machines in the mill.

Product development – UPM-Kymmene wants suppliers that can provide development of new products as well as development to improve existing products.

Product knowledge – Supplier's best possible knowledge of the chemical properties of the product they supplier and its effects when added into the paper production process.

Quality assurance – UPM-Kymmene is looking for suppliers that can provide information and tests that prove the product is correct in quality.

Reports of laboratory analysis – UPM-Kymmene wants the supplier to analyze the chemicals in products and final paper and then send the results from these analyses in a formal written report back to the mills.

Research and development – UPM-Kymmene wants suppliers where development and problem solving can be accomplished together as a team, supplier and mill.

Suggestion of supplier for other products – UPM-Kymmene would like suppliers that can suggest other suppliers for different raw materials. An example of this was when Dow gave the name of a reliable supplier for biocides to one of their clients.

Support service – UPM-Kymmene would like suppliers that can provide assistance in the mills when problems arise, like analysis or technical help on the machines.

Tailor-made raw materials – UPM-Kymmene would like suppliers to have the capability to custom-make products that fit the mill's needs better.

Technology department with knowledgeable people – UPM-Kymmene is looking for suppliers with a large technology department because most mills cannot afford the equipment needed. Therefore, the mills are turning to their suppliers for this equipment as well as the personnel experienced in using the equipment and the product.

A4.4.4 Characteristics Wanted

Anticipate future – UPM-Kymmene wants their suppliers to anticipate what product and developments within the paper market will best apply to their mills so their company can profit in the future.

Competent supplier who understands process 100% – UPM-Kymmene wants a supplier who understands the chemical properties of their product and has knowledge of the whole paper process in order to trouble-shoot with the mills.

Experience – UPM-Kymmene would like their suppliers to have knowledge gained from working with many different mills. UPM-Kymmene believes this exposure and assistance when working with the other mills will help the supplier gain experience that will help the mills of UPM-Kymmene.

Familiar contacts not always changing, but not necessarily dependent on a long-term relationship – UPM-Kymmene wants contacts from their supplier that are not always changing. UPM-Kymmene does not want a contact that changes every two years. UPM-Kymmene feels it is not necessary to depend on one long-term relationship and encourages younger employees to come in and learn each mill's special production habits.

Good communication – UPM-Kymmene wants to be able to talk and have back-and-forth discussions with their supplier on a common level in which both are looking to accomplish the same goals. They want to feel that each participant within the discussion is helping each other to attain their company's goals. UPM-Kymmene wants feedback as to what can be done in their mills to improve their production without always having to ask for this advice.

More proactive, less reactive; active in paper community – UPM-Kymmene wants their supplier to be active in the paper community by discovering new products and process and sharing those elements with UPM-Kymmene's mills.

Stability of supplier – UPM-Kymmene representatives want a supplier whose company is financially stable as well as know to be reliable within the paper industry

Supply security – The ability and reliability that the supplier will supply product when it is needed by UPM-Kymmene.

A5 – List of Services by Country

A5.1 Finland

A5.1.1 Services Wanted from Supplier

- Call 24 hours a day
- Delivery on time
- Development, new products
- Dow makes latex less sticky
- Education during shutdown
- Focus on specific tasks every year
- Good delivery is a service
- Mill trials
- On-site visit
- Pilot coater
- Price
- Product quality
- Same contact people
- Service
- Supplier has own facilities
- Support backup
- Take samples, make analysis

A5.1.2 Characteristics Wanted from Supplier

- Best people, best opportunities
- Customer service
- Expect the supplier to know their process well
- Follow the process and needs more
- Long-term relationships
- Partnership
- Quick response
- Telling confidential things to each other
- Want suppliers to be more proactive instead of reactive

A5.1.3 Explanation of Services

Call 24 hours a day – Finland wants the ability to call on their supplier twenty four hours a day and to be able to get assistance, over the phone, by electronic mail or in person.

Delivery on time – Finland wants their suppliers to deliver the raw materials on the day and time agreed upon.

Development, new products – Finland looks to its suppliers to have development equipment and capability for new products.

Dow makes latex less sticky – Finland is looking for Dow to development a solution to their latex being too sticky. The latex now is so sticky that it causes the paper to stick together and to the machine so tears happen during production.

Education during shutdown – Finland wants its suppliers to have training for its employees during time when the mill is shut down for mechanical problems.

Focus on specific tasks every year – Finland look to focus on a particular task with its suppliers every year in order for production to improve yearly.

Good delivery is a service – Finland wants delivery that is to specification and that is on time to be a service that is provided by their suppliers.

Mill trials – Finland looks to its suppliers for pilot coater trials where their newly developed products can be tested.

On-site visit – Finland wants suppliers that can provide on-site visits to the mill to solve the problems the mills are facing.

Pilot coater – Finland wants suppliers to have a pilot coater available for the mills to use to test new products before they go out to the production floor.

Price – Finland sees price as one of the major factors looked at when choosing a supplier. Finland wants the supplier to have a competitive price for a quality product.

Product quality – Finland defines product quality as having the product exist in the correct specifications that were ordered from the supplier.

Same contact people – Finland would like to have their suppliers offer contact personnel that are consistently the same throughout the whole process and from year to year.

Service – Finland looks for their suppliers to offer service along with the product that is purchased. These services can be technical service or development.

Supplier has own facilities – Finland would like to use suppliers that have their own analysis and development facilities as well as equipment.

Support backup – Finland is looking for their suppliers to offer assistance when the production line is down or individual mills need help solving a problem.

Take samples, make analysis – Finland uses its suppliers to take samples of the product and analyze it to see if the product causes problems within the mill or if the mill process is to blame.

A5.1.4 Characteristics Wanted

Best people, best opportunities – Finland is looking for its suppliers to offer the best or most qualified personnel to assist particular mills and for their suppliers to offer the very best chances for development and testing.

Customer service – Finland is looking for suppliers that offer an extensive customer service department in order to ensure all problems are dealt with in a timely fashion.

Expect the supplier to know their process well – Finland expects their suppliers to know the processes of the particular mills in Finland as well as the workers do. They

want suppliers that can understand particular mills so problems can be solved immediately due to supplier know-how.

Follow the process and needs more – Finland would like supplier to understand the processes that are developed in the mills as well as the needs of the mills more. They want suppliers that are understanding and very flexible to assist in any way needed.

Long-term relationships – Finland is looking for suppliers that they can hold long-term relationships with. They want suppliers that can assist in both the good times and the bad times and assist along the road to success.

Partnership – Finland is also looking for suppliers where a partnership can be built. They want suppliers who can work together with the mills on projects and problem solving.

Quick response – Finland is looking for their suppliers to provide a quick response to problems or questions. They are expecting their suppliers to respond as fast as possible instead of placing the questions into a pile of problems.

Telling confidential things to each other – Finland is looking for suppliers where confidential discussions can be held but where these confidential discussions will remain between the supplier and the mill and will not be publicized throughout the industry.

Want suppliers to be more proactive instead of reactive – Finland is looking for suppliers that will be more proactive or that will be more responsive to problems before they happen. Finland would like suppliers to know what will go wrong before it does.

A5.2 FRANCE

A5.2.1 SERVICES WANTED FROM SUPPLIER

- 24-hour response time
- Cost
- Custom development
- Delivery
- Development of product
- Expect to get help from mother company
- Important to have regular face to face contact
- Improving current grades
- Joint projects
- Long-term projects
- Measurement Equipment
- Minimum variation
- On-site data collection for analysis
- Pilot coater
- Printability analysis
- Quality
- Specific contacts where they get help right away
- Supplier analysis equipment

A5.2.2 CHARACTERISTICS WANTED FROM SUPPLIER

- Faster response from latex supplier
- Good companionship with supplier
- Growing in knowledge, need to know supplier is there to assist
- Human to human
- Know questions are taken seriously, and acted upon
- Logistics, not a service
- Must know the people
- No need for constant on-site support unless needed
- No secrets between supplier and company
- On-site support, part of agreement, not service
- Open line of communication
- Reliability
- Suppliers as partners – share views, if not, supplier can't help
- Suppliers familiar with process/methods
- Team and want the same goal
- Trust
- Want to climb the mountain together

A5.2.3 EXPLANATION OF SERVICES

24 hour response time – France is looking for its suppliers to provide twenty four hours response time, meaning that someone is available for problem solving whether over the phone or by electronic mail at any point during a twenty four hour day.

Cost – France is looking for suppliers to provide a product that is cost effective without losing quality.

Custom development – France wants its suppliers to provide custom development for products in order for products to be tailor-made for particular machines in particular mills.

Delivery – France feels that delivery is included in the product and is not a service.

Development of product – France is looking for suppliers that will assist in development of the product that is being used in order to solve and remedy problems that exist in the existing product.

Expect to get help from mother company – France expects to get product development and analysis help from their overall company in order to keep developments within the company.

Important to have regular face to face contact - France believes it is important for their mills have to face to face contact with their suppliers on a frequent basis in order for discussions to take place.

Improving current grades – France would like suppliers that can help the individual mills improve the particular grades of paper they are working with.

Joint projects – France would like to have meetings once a year to decide plans for the next half of the year or year and to decide the people who are responsible for the particular parts of the project.

Long-term projects – France wants to conduct long-term projects with its suppliers in order to use both supplier expertise and mill expertise combined.

Measurement equipment – France is looking for suppliers that can provide measurement equipment to the mills in order for testing of particular properties to be conducted within the mills.

Minimum variation – France wants suppliers to provide the specifications of the product that are promised when the product is purchased.

On-site data collection for analysis – France is looking for suppliers that can come on-site for data collection in order for analysis to be conducted. This on-site collection is mostly used when problems occur within the mills.

Pilot coater – France feels use of the supplier's pilot coater allows the mill to do impossible tasks that cannot be done in the mill cause of runability and risk to the machinery.

Printability analysis – France would like their suppliers to provide the equipment for print analysis. This is necessary to the mills because the mill cannot afford the equipment for this test.

Quality – France is looking for a quality product from its suppliers which means it meets the specifications that were agreed upon during purchase.

Specific contacts where they get help right away – France is looking for suppliers where the mill contacts are able to be contacted about problems and can then direct the mill as to the person with the expertise to solve the problem.

Supplier analysis equipment – France wants their suppliers to have analysis equipment that the mills can use because the mills cannot afford the equipment themselves.

A5.2.4 CHARACTERISTICS WANTED

Faster response from latex supplier – France is looking for their latex supplier to answer calls and electronic mails faster than in the past. They would like a more immediate response to the problems arise.

Good companionship with supplier – France is looking for suppliers where a good companionship or bond can be created between the two, the mill and the supplier.

Growing in knowledge, need to know supplier is there to assist – France has a few mills that are still learning about the paper making process and these mills are relying on suppliers for assistance when problems arise and when expertise is needed.

Human to human – France would like most of their contact with suppliers to be human to human instead of having to leave a message on a cell phone or sending an electronic mail.

Know questions are taken seriously, and acted upon – France is looking for suppliers where they know their questions are not just put in a pile, but are taken seriously and acted upon immediately.

Logistics, not a service – France finds the logistics, or the process from the purchase of the product to the delivery of the product, to be included in the product itself, it is expected.

Must know the people – France feels it is important to know the people they are dealing with from the suppliers. They want to know their contacts on a personal level.

No need for constant on-site support unless needed – France finds that most of their problems can be solved internally and therefore does not have a huge needs for on-site support. On-site support is very important though when the mills cannot solve the problems internally. Therefore, the mills in France would like to make the call as to whether on-site support is needed or not.

No secrets between supplier and company – France wants to use suppliers where there are no secrets that exist between the two.

On-site support, part of agreement, not service – France finds on-site support from the supplier to be part of the product that is purchased, not a service.

Open line of communication – France wants there to be an open line for communication between themselves and their suppliers. They want to feel free to contact the supplier no matter what the situation is.

Reliability – France wants to use suppliers that are very reliable, or stable and steady in all of their work. They want suppliers that will deliver when agreed upon and deliver to the right specifications.

Suppliers as partners – France feels their suppliers should be like partners, where they should share views or else the supplier cannot help because they will not know the entire process and what steps were taken.

Suppliers familiar with process/methods – France is looking for suppliers that are familiar with the particular methods and processes that each mill uses.

Team and want the same goal – France wants to use suppliers where all are going for the same goal because they are acting as a team or a unit.

Trust – France wants suppliers that can be trusted to keep developments confidential.

Want to climb the mountain together – France wants to use suppliers where they can solve problems together.

A5.3 GERMANY

A5.3.1 SERVICES WANTED FROM SUPPLIER

- 24-hour responses
- Communication about market trends
- Communication is service
- Confidential agreements
- Custom development
- Delivery on time
- Fast answers
- Give product specifications
- Laboratory equipment access
- Market analysis
- On-site support
- Pilot trials
- Price
- Produce product modifications
- Quality
- Service
- Solve the problems together
- Supply security
- Technical service
- To have one person responsible for every mill
- Want experience

A5.3.2 CHARACTERISTICS WANTED FROM SUPPLIER

- Consistency of the product and services
- Flexibility
- Long relationships
- Reliable
- To keep secrets
- Trust

A5.3.3 EXPLANATION OF SERVICES

24 hour responses – Germany is looking for suppliers to provide twenty four hours response time, meaning that someone is available for problem solving whether over the phone or by electronic mail at any point during a twenty four hour day.

Communication about market trends – Germany is looking for suppliers to provide information about the paper industry and directions to move in for the future.

Communication is service – Germany believes that communication is a service supplied by suppliers. Communication is believed to be crucial for the entire process to work.

Confidential agreements – Germany is looking for suppliers that can provide confidential agreements where no development information is leaked to competitors or to the market.

Custom development – Germany is looking for suppliers to provide tailor-made products for particular mills depending upon product demand.

Delivery on time – Germany wants their suppliers to deliver the product on the day and time that was agreed upon.

Fast answers – Germany is looking for suppliers to provide fast answers to problems that arise, or immediate response.

Give product specifications – Germany wants its suppliers to provide the mills with the specification of the product when the product is delivered to the mill.

Laboratory equipment access – Germany is looking for suppliers that will allow the mills to use the lab equipment the suppliers have, especially analysis equipment. The smaller mills in Germany do not have the capability of doing analysis in their mills due to the cost.

Market analysis – Germany is looking for suppliers that can tell them what's new in the market and what kind of products the mills should be looking to develop in the future.

On-site support – Germany is looking for suppliers that will provide on-site support to mills that are having problems that cannot be solved internally.

Pilot trials – Germany is looking for suppliers to provide pilot trials for free to the mills.

Price – Germany is looking for suppliers that can provide a competitive price for the quality that is desired.

Produce product modifications – Germany is looking for suppliers that can produce product modifications to products that are having problems within the machines or products that need to be changed due to customer wants.

Quality – Germany is looking for suppliers that can provide consistent quality that meets the specifications that were agreed upon during the purchase.

Service – Germany is looking for suppliers that can provide service to the mills such as pilot trials, analysis equipment, and on-site support during problems.

Solve the problems together – Germany is looking for suppliers where problems can be solved together or as a team.

Supply security – Germany is looking for suppliers that can provide supply security. Supply security is for the mills to know that there is a surplus of the product so if any is needed at any time, it can be delivered immediately.

Technical service – Germany is looking to its suppliers to provide technical service to the mills. This technical service can be anything from analysis tests during problems, to assistance at the mills on the machines.

To have one person responsible for every mill – Germany would like suppliers to have one contact person responsible for every mill. This would ensure that one person has a complete grasp as to what the mill is producing and the process it runs.

Want experience – Germany is looking for suppliers that have experience with the product and the problems that might occur with the product.

A5.3.4 CHARACTERISTICS WANTED

Consistency of the product and services – Germany is looking for suppliers that can provide consistent product and service day in and day out in order to ensure product quality and customer satisfaction.

Flexibility – Germany would like suppliers to be flexible in all aspects of the industry. They want suppliers that are flexible in delivery time, quantity, and support.

Long relationships – Germany is looking for suppliers that can withstand a long relationship with the mills. This relationship is built off of satisfaction with the product and service.

Reliable – Germany want suppliers that are reliable with deliver and product quality. They want the product delivered at the time it is suppose to be delivered and at the right specifications.

To keep secrets – Germany wants suppliers that can keep secrets as to what the mills are developing and the products they are using.

Trust – Germany wants suppliers that can be trusted with product development that occurs within the mills as well as future products.

A5.4 THE NETHERLANDS

A5.4.1 SERVICES WANTED FROM SUPPLIER

- 24/7 response time
- Analysis certificates with the product
- Constant quality of the product
- Contact any time
- Development
- E-commerce to order goods
- Environmental aspects
- Experience
- Market analysis of the future
- Need research and development because facility can not handle it at mills
- On-site support
- Pilot coater
- Price
- Quick response time
- Regular audits
- Regular contact with the suppliers
- Training of mill employees

A5.4.2 CHARACTERISTICS WANTED FROM SUPPLIER

- Face to face conversations
- Good connections between people
- Knowledge of product
- Relationship with the supplier
- To win the game together
- Trust

A5.4.3 EXPLANATION OF SERVICES

24/7 response time – The Netherlands is looking for suppliers to provide twenty four hours response time, meaning that someone is available for problem solving whether over the phone or by electronic mail at any point during a twenty four hour day.

Analysis certificates with the product – The Netherlands is looking for its suppliers to provide analysis certificates along with the product when it is delivered. These certificates would ensure that the supplier has checked for the required specifications of the product.

Constant quality of the product – The Netherlands is looking for suppliers that can provide constant quality of the product. This means that the Netherlands wants suppliers to always deliver a product that is of the same specifications.

Contact any time – The Netherlands is looking for suppliers that can be contacted at any time, day or night, and seven days a week. This will speed the process of problem solving for the mill.

Development – The Netherlands wants suppliers to provide development of new products as well as development of products with problems.

E-commerce to order goods – The Netherlands is looking for suppliers that can be equipped with the necessary devices for orders to be placed over the internet.

Environmental aspects – The Netherlands wants a supplier that will look at environmental aspects of a product before deciding to produce.

Experience – The Netherlands wants a supplier that has a great deal of experience with the product and the problems that arise with the product.

Market analysis of the future – The Netherlands wants a supplier that will provide an analysis of the market for the future. They want to know about where the market is heading and what types of products they should be looking to produce in the future.

Need research and development because facility can not handle it at mills – The Netherlands has several mills that are not equipped enough to develop new products on their own. Therefore, the Netherlands would like suppliers to provide Research and Development experience and equipment for the mills to use.

On-site support – The Netherlands is looking for suppliers that will provide on-site support to the mills when problems arise.

Pilot coater – The Netherlands wants their suppliers to provide a pilot coater for product testing to be accomplished.

Price – The Netherlands wants suppliers to provide a competitive price for the quality desired of the product.

Quick response time – The Netherlands is looking for suppliers to provide a quick response to calls about problems. This response would be more immediate than it has been in the past.

Regular audits – The Netherlands wants suppliers to provide a regular audit of the coating machine in each of the mills.

Regular contact with the suppliers – The Netherlands wants suppliers to have regular contact with their mills in order for problems to be discussed and general thoughts to be expressed.

Training of mill employees – The Netherlands wants suppliers to provide training to the employees of the mill when the mills are shutdown for maintenance.

A5.4.4 CHARACTERISTICS WANTED

Face to face conversations – The Netherlands wants face-to-face conversations with their suppliers instead of conversations over the telephone, fax, or electronic mail.

Good connections between people – The Netherlands is looking for suppliers where good connections or bonds can be created between the contact and the people who speak to him.

Knowledge of product – The Netherlands wants suppliers to have a vast knowledge of the product in order for problems to be discussed and solved immediately.

Relationship with the supplier – The Netherlands is looking for suppliers where a relationship or bond can be created between the mill and the supplier the mill uses.

To win the game together – The Netherlands wants suppliers where both can work together to solve problems as a team.

Trust – The Netherlands is looking for suppliers where trust is a major aspect between the two. The Netherlands wants to know there developments and products are kept between the mill and the supplier.

A5.5 SWEDEN

A5.5.1 SERVICES WANTED FROM SUPPLIER

- Analysis is a service
- Bacteria analysis
- Cheaper production
- Common projects done together
- Contact person with good communication
- Cost effective
- Delivery, quality, and quantity in time
- Development
- Get the product whenever you need it
- Need technical expertise
- Regular visits
- Seminars
- Solved together with suppliers
- Stable products
- Training of operators
- Trial runs, pilot coater
- Website

A5.5.2 CHARACTERISTICS WANTED FROM SUPPLIER

- Communication
- Develop products suitable to their needs, their wants
- Discussion of problems
- Environmentally friendly
- Good economical situation
- Good working environment with
- Punctuality
- Reliable suppliers
- Safety
- Trust

A5.5.3 EXPLANATION OF SERVICES

Analysis is a service – Sweden is looking for suppliers that can provide analysis tests and equipment to the mills. This is seen as a service to the mills.

Bacteria analysis – Sweden wants suppliers to provide a bacteria analysis for when problems occur with the raw material and it is believed to be bacteria related.

Cheaper production – Sweden is looking for suppliers to supply cheaper production to the mill. Aspects of cheaper production might be lower product cost, lower delivery cost, or lower analysis costs.

Common projects done together – Sweden wants to use suppliers where joint projects that both have in common are done together as a team.

Contact person with good communication – Sweden is looking for suppliers that offer a contact person that has communication abilities twenty-four hours a day.

Cost effective – Sweden wants suppliers to provide a cost effective product that fits the specifications desired by the mills.

Delivery, quality, and quantity in time – These characteristics are all aspects that Swedish mills expect from their suppliers.

Development – Sweden is looking for suppliers that can assist with development of new products and development with old products.

Get the product whenever you need it – Sweden wants suppliers that can provide the product whenever it is needed by the mills.

Need technical expertise – Sweden needs suppliers that have an extensive technical background in order for problems to be solved immediately.

Regular visits – Sweden would like its suppliers to have regular visits to the mills to talk about market developments and changes.

Seminars – Sweden would like suppliers to provide seminars a few times a year so the market can be discussed as well as new technology.

Solved together with suppliers – Sweden is looking for suppliers where problems can be solved together.

Stable products – Sweden is looking for suppliers that offer a product that is consistent with its specifications.

Training of operators – Sweden would like suppliers to provide training to operators in the mills when the production line is shutdown.

Trial runs, pilot coater – Sweden would like its suppliers to provide a pilot coater for the mills to use for analysis of new products.

Website – Sweden would like suppliers to provide valuable information on their websites about mill consumption and cost over the last few months and years.

A5.5.4 CHARACTERISTICS WANTED

Communication – Sweden is looking for suppliers that can provide communication through any means, such as telephone, electronic mail, or fax at all hours of the day so problems can be solved.

Develop products suitable to their needs, their wants – Sweden wants suppliers to take their needs and wants into account when developing new products.

Discussion of problems – Sweden wants suppliers that can have discussions with the mills about problems.

Environmentally friendly – Sweden wants suppliers that are environmentally friendly in their production.

Good economical situation - Sweden is looking for suppliers that are in a good economical situation and that will still be around after the end of the year.

Good working environment with – Sweden wants supplier where a good working environment can exist between the mills and the supplier's contacts.

Punctuality – Sweden would like suppliers to be more punctual for meetings and on-site visits.

Reliable suppliers - Sweden is looking for suppliers that supply the product that is expected at the specifications that were agreed upon.

Safety - Sweden is looking for suppliers that take the safety of the mill personnel as well as their own workers into account.

Trust – Sweden is looking for suppliers that can be trusted to keep developments between themselves and the mill without leaks to the outside industry.

A5.6 SWITZERLAND

A5.6.1 SERVICES WANTED FROM SUPPLIER

- Best logistics
- Combined projects with suppliers
- Competitive price
- Custom made products
- Direct line to supplier for help
- Discuss where market is going, demands for the future
- Faster response time
- Pilot coater trials
- Product needs to be on time
- Quality
- Receive confirmation on delivery date
- Report quality to customer
- Take pictures of problems and send by electronic mail
- Technology department
- Work together to solve problems

A5.6.2 CHARACTERISTICS WANTED FROM SUPPLIER

- Communication
- Good relationship
- Knowledge about the mills
- Listen to the customer
- Personal relationship with communication

A5.6.3 EXPLANATION OF SERVICES

Best logistics – Switzerland is looking for suppliers that can provide the best logistics or delivery and ordering processes to the mills.

Combined projects with suppliers – Switzerland is looking for suppliers that are interested in doing joint projects with the mills.

Competitive price – Switzerland is looking for suppliers that can provide a competitive price for the quality that is desired.

Custom made products – Switzerland is looking for custom made products that are designed especially for the mills.

Direct line to supplier for help – Switzerland is looking for a direct line for communication to the suppliers for help.

Discuss where market is going, demands for the future – Switzerland is looking for suppliers that are willing to discuss where the market is going and what products should be looked at for the future.

Faster response time – Switzerland is looking for a faster response time from their suppliers about problems and how to solve them.

Pilot coater trials – Switzerland is looking for suppliers that can provide pilot coater trials to the mills.

Quality – Switzerland is looking for suppliers that can provide quality of the product to be at the specifications that were agreed upon during purchase.

Receive confirmation on delivery date – Switzerland would like to see a confirmation of the delivery date to be sent to the mills.

Report quality to customer – Switzerland is looking for suppliers that will report the quality of their product to their customers, especially if there is a problem with the quality.

Take pictures of problems and send by electronic mail – Switzerland would like to see suppliers try to solve problems by allow the mills to take pictures of the problem areas so on-site visits could be avoided.

Technology department – Switzerland is looking for suppliers with a large technology department that is suited with development and analysis equipment for the mills to use.

Work together to solve problems – Switzerland is looking for suppliers where problems can be solved together or as a team.

A5.6.4 CHARACTERISTICS WANTED

Communication – Switzerland is looking for suppliers that can provide a means for communication at all times during the day.

Good relationship – Switzerland is looking for a supplier that can have a relationship with the mills.

Knowledge about the mills – Switzerland is looking for suppliers that are very knowledgeable about the product and problems that might occur with it as well as the processes that are in the mill and how the product effects them.

Listen to the customer – Switzerland would like their suppliers to concentrate on listen to the customer and what they want from the product.

Personal relationship with communication – Switzerland is looking for suppliers where a personal relationship can exist between the mill and the supplier with communication existing throughout.

A5.7 UNITED KINGDOM

A5.7.1 SERVICES WANTED FROM SUPPLIER

- Analysis
- Continuity of quality
- Cost competitiveness
- Delivery
- Development, project ideas
- Environmental
- Good technical backup
- Laboratory service
- Look at forward forecast
- No contaminations
- No pollutants
- No mix-ups
- On-site support
- Pilot coater
- Quality
- Ready to use
- Replace raw materials with cheaper versions
- Samples taken to solve problems with raw materials
- Specialized equipment mill doesn't have
- Technical service
- Training
- Use for market analysis, gossip
- Vendor managed inventory
- Yearly audit of coating machine by supplier

A5.7.2 CHARACTERISTICS WANTED FROM SUPPLIER

- Contactable
- Discussion, ideas
- Expertise
- Face to face
- Flexible
- Knowledge of product
- Long relationship with the supplier
- Open flowing communication
- Quality assurance
- Reliable
- Trust

A5.7.3 EXPLANATION OF SERVICES

Analysis – The UK wants suppliers to provide analysis equipment and facilities to the mills when the mills cannot afford to analyze their products.

Continuity of quality – The UK wants suppliers to provide a product that is of the same consistent quality day in and day out.

Cost competitiveness – The UK wants suppliers to provide a product that is rated at a competitive price for the quality that is desired.

Delivery – The UK want supplier to deliver what they said they would, when they would, in the right condition

Development, project ideas – The UK wants suppliers to assist the mills in development of new product and new project ideas.

Environmental – The UK is looking for suppliers that are environmentally conscious in their production methods.

Good technical backup – The UK is looking for suppliers that have a good technical background with the product in order for problem solving to be done immediately.

Laboratory service – The UK wants suppliers to provide labs for the mills to use to conduct development and analysis tests.

Look at forward forecast – The UK wants suppliers to be forward thinking in order to predict where the market is going to in the future.

No contaminations – The UK wants products shipped with no contamination during delivery.

No pollutants – The UK wants products to arrive at the mills with no pollutants within them and for products to be made without pollutants.

No mix-ups – The UK wants products delivered without any mix-ups on the supplier's part.

On-site support – The UK wants suppliers to provide on-site support for problems that arise in the mills.

Pilot coater – The UK is looking for suppliers to provide a pilot coater for the mills to use during development of a new product.

Quality – The UK is looking for suppliers that provide consistent quality at the specifications that are desired.

Ready to use – The UK wants suppliers to ship the product ready to use right out of it container.

Replace raw materials with cheaper versions – The UK wants suppliers to be always looking for ways in which raw materials can be replaced with cheaper versions that will do the same work.

Samples taken to solve problems with raw materials – The UK is looking for suppliers that will take samples of the product when problems arise to ensure the product is not the cause of the problem.

Specialized equipment mill doesn't have – The UK is looking for suppliers to provide any kind of specialized equipment the mills might need but do not own.

Technical service – The UK is looking for suppliers to provide a strong technical service support team to the mills when problems arise.

Training – The UK is looking for suppliers to provide training to the mill employees when the production line is shut down.

Use for market analysis, gossip – The UK wants suppliers to provide a market analysis of where the market is going in the future and what products should be focused on in future years.

Vendor managed inventory – The UK wants suppliers to focus on more use of Vendor managed inventory in all mills where it is possible.

Yearly audit of coating machine by supplier – The UK wants suppliers to provide a yearly audit of the coating machine to ensure parts are still in good condition.

A5.7.4 CHARACTERISTICS WANTED

Contactable – The UK is looking for suppliers that are contactable whether through the telephone, electronic mail, or fax for problem solving at any hour of the day.

Discussion, ideas – The UK wants suppliers to be open for discussions about new development ideas as well as where the market is going.

Expertise – The UK wants suppliers that can provide the mills with contacts that are experts at using the product and trouble shooting the product.

Face to face – The UK wants suppliers to have face-to-face conversations with them instead of over the phone or leaving messages.

Flexible – The UK wants suppliers to be flexible in their delivery and quantities that are delivered to the mills in case problems arise.

Knowledge of product – The UK is looking for suppliers that have a great knowledge of the product and problems that can occur with it.

Long relationship with the supplier – The UK is looking for suppliers that can hold a long relationship with the mills in order for a better working environment to be formed.

Open flowing communication – The UK is looking for suppliers to have open-flowing communication about market trends, problems, or developments.

Quality assurance – The UK is looking for suppliers to provide quality assurance to the mills in order for the mills to know the quality of the product is guaranteed in every delivery.

Reliable – The UK is looking for suppliers that are very reliable and stable in their product and service offerings.

Trust – The UK is looking for suppliers that can be trusted to keep the developments in the mills confidential.

A6 – List of Services by Job

A6.1 Coating Kitchen Personnel

A6.1.1 Services Wanted from Supplier

- Analysis tests
- Analyze sample
- Development of their product
- On-site support
- Pilot plant
- Short delivery time
- Supplier of coater does yearly audit of machine
- Support
- Support of electronic and computer systems
- Telemetry

A6.1.2 Characteristics Wanted from Supplier

- Competence
- Development
- On-time delivery
- Price
- Product
- Relationship
- Service
- Technical backup

A6.1.3 Explanation of Services

Analysis tests – Some laboratory tests that suppliers can conduct for mills are very specialized, which means that the mill cannot justify purchasing the equipment, so they use the supplier's equipment.

Analyze sample – Coating kitchen personnel want their suppliers to analyze samples of the mill's paper, both in problem solving and development.

Development of their product – Coating kitchen personnel seek to have a supplier that does development. This includes development of their own product and joint development on better paper.

On-site support – Some coating kitchen personnel want to have on site support from their suppliers whenever there is a problem in the mill. This allows a representative from the supplier to see exactly what the problem is first hand.

Pilot plant – Coating kitchen personnel like being able to use a supplier's pilot plant. First of all, the simulation of mill conditions on a small scale is impossible to conduct in the actual mill. Also, external pilot plants are very expensive; according to one respondent they cost fifteen thousand euros per day to run.

Short delivery time – If the mill needs a new shipment of a raw material in a short period of time, the supplier should be able to deliver it.

Supplier of coater does yearly audit of machine – The supplier of the coater, Jagenberg, comes to the mill to complete a yearly audit of the coating machine to verify that everything is working properly.

Support – Many coating kitchen personnel ask their suppliers for help in areas which the mill does not have the internal knowledge to solve the problem.

Support of electronic and computer systems – When the mill's electronic and/or computer systems have problems, the mill calls in someone from London who can solve the problem. The mill said that this service was very expensive.

Telemetry – Telemetry, or vendor managed inventory, involves the supplier being responsible for the ordering of a raw material when the mill supply reaches a certain level. This is achieved by placing a sensor in the mill's storage tank that sends data to the supplier electronically.

A6.1.4 Characteristics Wanted

Competence – Coating kitchen personnel require that suppliers have knowledge of their product and of the paper making process.

Development – Coating kitchen personnel want a supplier to be working on improving their product, and also doing development work with the mill on better paper.

On-time delivery – Coating kitchen personnel require that the supplier deliver the raw material on time always to the mill.

Price – Coating kitchen personnel want to select a supplier with a competitive price for their material.

Product – The raw material must be of constant quality, and must work on the paper machine.

Relationship – Coating kitchen personnel require a supplier that they feel they can have a working relationship with for a long period of time.

Technical backup – Coating kitchen personnel require a supplier that can provide technical support service when problems arise.

A6.2 MILL WORKERS

A6.2.1 SERVICES WANTED FROM SUPPLIER

- Active communication
- Analysis
- Come on site
- Development
- Help from suppliers
- Knowledgeable about process
- Laboratory tests
- Pilot trials
- Respond quickly
- Strong network
- Supplier has interest in our problems

A6.2.2 CHARACTERISTICS WANTED FROM SUPPLIER

- Ability to supply
- Background
- Cost
- Development
- Information network
- Laboratory tests
- Location of supplier
- Price
- Quality

A6.2.3 EXPLANATION OF SERVICES

Active communication – One mill worker said that their supplier, OMYA, would contact the mill if there was going to be a delivery problem well in advance, so that supplier and mill can work together to find a solution.

Analysis – Mill workers want their suppliers to analyze samples of the mill's paper, both in problem solving and development.

Come on site – Some mill workers want to have on site support from their suppliers whenever there is a problem in the mill. This allows a representative from the supplier to see exactly what the problem is first hand.

Development – Mill workers seek to have a supplier that does development. This includes development of their own product and joint development on better paper.

Help from suppliers – Many mill workers ask their suppliers for help in areas which the mill does not have the internal knowledge to solve the problem.

Knowledgeable about process – The supplier should be competent and understand the paper production process, and possibly the specific process in the mill, totally.

Laboratory tests – Some laboratory tests that suppliers can conduct for mills are very specialized, which means that the mill cannot justify purchasing the equipment, so they use the supplier's equipment.

Pilot trials – Mill workers like being able to use a supplier's pilot plant. First of all, the simulation of mill conditions on a small scale is impossible to conduct in the actual mill. Also, external pilot plants are very expensive; according to one respondent they cost fifteen thousand euros per day to run.

Respond quickly – Mill workers find a fast response or reaction from the suppliers to needs and wants to be important.

Strong network – The supplier should have a strong network with many different customers in the paper industry, and suppliers should have a strong base of knowledge.

Supplier has interest in our problems – Suppliers need to take the problems the mill has seriously and act upon them to help the mill solve the problem.

A6.2.4 Characteristics Wanted

Ability to supply – Supplier must have the production capabilities to supply what's required to the mill.

Background – Mill workers require that their suppliers have knowledge of their raw materials, the paper process, and the paper industry.

Cost – Mill workers want to select a supplier that will allow the mill to reduce costs.

Development – Mill workers want a supplier to be working on improving their product, and also doing development work with the mill on better paper.

Information network – Mill workers require that their suppliers have a strong information network, so they can provide information to the mill to solve problems, including market analysis.

Laboratory tests – Mill workers want to select a supplier with whom they have the capability to have tests done on samples of paper. These include printability tests and surface tests that most mills do not have the equipment to conduct on site.

Location of supplier – A supplier who is located closer to the mill may have an advantage over a supplier further away, especially because the closer suppliers may be able to get on site faster in case of problems and deliver raw materials in a shorter period of time.

Price – Mill workers want to select a supplier with a competitive price for their material.

Quality – Mill workers require that a supplier send to the mill a product that is consistently within specifications.

A6.3 PRODUCTION MANAGERS

A6.3.1 SERVICES WANTED FROM SUPPLIER

- 24-hour availability of the supplier
- Analysis of samples
- Analysis of the raw material
- Backup for newly installed system
- Development
- Discussion
- Education of our staff
- Example: Dow being on site to help mill meet need of customer
- Faster response
- Find good suppliers for other products
- Get spare parts faster
- Give information
- Good delivery
- Have meetings with the supplier several times per year
- Have mill problems taken seriously and acted upon
- Improve quality and runability of the raw material
- Laboratory analysis
- Measure the effect of the raw material on the production process
- Measurement system for parameters of raw material
- More proactive support
- On-site support
- Overview of market
- Pilot trials
- Service packages for complicated systems
- Supplier and mill work together closely
- Supplier has a large technology department with very knowledgeable people
- Supplier has one contact for the mill, which will find the right person
- Suppliers provide help when the mill lacks the knowledge internally
- Supply security
- Tailor made products
- Telemetry

A6.3.2 CHARACTERISTICS WANTED FROM SUPPLIER

- Competent supplier who understands the process 100%
- Contact with suppliers
- Development
- Exchangeable products
- Innovation
- Logistics
- Price
- Product fit for purpose
- Quality
- Resources
- Right quantity in time
- Stability of supplier

A6.3.3 Explanation of Services

24 hour availability of the supplier – Some production managers want to be able to contact the supplier 24 hours a day, which will give them a faster response.

Analysis of samples – Production managers want their suppliers to analyze samples of the mill's paper, both in problem solving and development.

Analysis of the raw material – Suppliers should analyze their product both to check on quality parameters before delivery to the mill and to see to test the properties of the material should the mill have a problem.

Backup for newly installed system – Production managers desire someone from a machine supplier to be on site while that machine is first being used. One example of this was a backup person on site because the mill had purchased and installed a new quality control system from Honeywell.

Development – Production managers seek to have a supplier that does development. This includes development of their own product and joint development on better paper.

Discussion – Production managers like being able to discuss problems, new products, and possible development with their suppliers regularly.

Education of our staff – Some production managers look to the suppliers to provide education to their mill workers about the raw material, its effect on the paper, and some safety measures.

Example: Dow being on site to help mill meet need of customer – An example of excellent service that one production manager brought up is that the mill received a complaint from a customer that the paper was not printing correctly. The mill had one day to fix the problem and send the paper to the printer. Dow was on site to help the mill meet this need, and the mill managed to get paper to the printer on time. The respondent said that the business from this customer has increased since that point.

Faster response – One production manager wants Dow to respond faster when the mill asks for assistance.

Find good suppliers for other products – Production managers find it valuable when a supplier uses their experience in the industry to recommend suppliers for other products. This is valuable, according to one production manager, because the supplier makes no money because of the recommendation. An example, mentioned by one production manager, was that Dow recommended a biocide supplier for that mill.

Get spare parts faster – Production managers can get spare parts for the machines faster because the suppliers call other mills to inquire about using a spare from that mill, which reduces the time a mill is without a spare part.

Give information – Production managers desire information about new products that are available as well as quality information on the current raw material.

Good delivery – One production manager said that good delivery is a good service. Good delivery intends sending the right material, on time, in safe packaging, and undamaged in shipment.

Have meetings with the supplier several times per year – Production managers like to meet with their suppliers several times a year just to talk about any small problems they have been having or joint projects. Mills like to have regular meetings, not just seeing the supplier when they want to sell a new product.

Have mill problems taken seriously and acted upon – Suppliers need to take the problems the mill has seriously and act upon them to help the mill solve the problem.

Improve quality and runability of the raw material – The supplier should work to improve the consistency of the raw material and how well that raw material allows the paper to run through the paper machine.

Laboratory analysis – Some laboratory tests that suppliers can conduct for mills are very specialized, which means that the mill cannot justify purchasing the equipment, so they use the supplier's equipment.

Measure the effect of the raw material on the production process – Production managers want the supplier to know the effect that their raw material will have on the production process and the final produced paper.

Measurement system for parameters of raw material – The supplier should have a system to measure and report the quality parameters for the raw material. These parameters include pH, viscosity, solids content, and impurities in the raw material.

More proactive support – Suppliers should try to solve problems before they become serious problems, instead of just reacting when a problem arises.

On-site support – Some production managers want to have on site support from their suppliers whenever there is a problem in the mill. This allows a representative from the supplier to see exactly what the problem is first hand.

Overview of market – Production managers would like to get an overview of the market, including future demands for coated paper from their suppliers.

Pilot trials – Production managers like being able to use a supplier's pilot plant. First of all, the simulation of mill conditions on a small scale is impossible to conduct in the actual mill. Also, external pilot plants are very expensive; according to one respondent they cost fifteen thousand euros per day to run.

Service packages for complicated systems – Production managers purchase service packages for systems which are very complicated, or which the mill does not have the knowledge to fix internally. One example that was mentioned was the reel system.

Supplier and mill work together closely – Production managers want to work closely together with their suppliers, with both problem solving and development work.

Supplier has a large technology department with very knowledgeable people – One production manager mentioned that Tonnfelt, a Finnish felt supplier, has good service

because they have a large technical support department with very experienced and knowledgeable people.

Supplier has one contact for the mill, which will find the right person – Some production managers want one contact that they can contact from the supplier. That person could them find the right expert to help the mill.

Suppliers provide help when the mill lacks the knowledge internally – Many production managers ask their suppliers for help in areas which the mill does not have the internal knowledge to solve the problem.

Supply security – Supply security is having an agreement in a contract with a supplier that guarantees delivery of the correct product.

Tailor made products – Some production managers desire their suppliers to make raw materials that are tailor-made to their mill's specific needs.

Telemetry – Telemetry, or vendor managed inventory, involves the supplier being responsible for the ordering of a raw material when the mill supply reaches a certain level. This is achieved by placing a sensor in the mill's storage tank that sends data to the supplier electronically.

A6.3.4 Characteristics Wanted

Competent supplier who understands the process 100% – Suppliers should be competent and understand the paper production process, and possibly the specific process in the mill, totally.

Contact with suppliers – Production managers require a supplier whom they can contact easily when problems arise.

Development – Production managers want a supplier to be working on improving their product, and also doing development work with the mill on better paper.

Exchangeable products – One production manager required a product that is not custom-made, but can be exchanged with products from other suppliers.

Innovation – One production manager required a supplier that is constantly working to develop a better raw material.

Logistics – The supplier must make sure that their logistics are in order, so that the mill will receive the right product when it is required in secure packaging, so that the product will arrive undamaged.

Price – Production managers want to select a supplier with a competitive price for their material.

Product fit for purpose – Production managers require that the raw material do what it is required to do in the paper making process.

Quality – Production managers require that a supplier send to the mill a product that is consistently within specifications.

Resources – Production managers require a supplier to have resources to do development and problem solving such as laboratory testing equipment and a pilot plant.

Right quantity in time – Production managers require that they receive the quantity of the raw material they ordered, at the time it was supposed to be delivered.

Stability of supplier – Production managers require their suppliers to be financially healthy and stable.

Strong partner – Production managers want a supplier they can have a relationship with, especially to help with problems and to help with development projects.

Support service – Production managers require a supplier who can provide them with technical support when problems arise either on the machine or with the quality of the end product.

A6.4 PURCHASERS

A6.4.1 SERVICES WANTED FROM SUPPLIER

- Analysis
- Confirmation of receiving order
- Consistent backup
- Electronic procurement
- Fast reaction
- Market intelligence
- Market trends
- On-site backup
- Performance
- Pilot trials
- Reduce costs in the supply chain
- Suppliers are easy to contact
- Technical service
- Vendor managed inventory

A6.4.2 CHARACTERISTICS WANTED FROM SUPPLIER

- Consistency
- Development
- Long Relationship
- On-time delivery
- Personalized attitude
- Price
- Quality
- Service
- Technical assistance
- "Value for money"

A6.4.3 EXPLANATION OF SERVICES

Analysis – Purchasers want their suppliers to analyze samples of the mill's paper, both in problem solving and development.

Confirmation of receiving order – One purchaser said that a very important service was getting a confirmation call that the raw material order had been received and that the supplier could meet that order.

Consistent backup – Purchasers want to have consistent support from their suppliers to help solve problems that the mill is having.

Electronic procurement – Purchasers want to be able to order materials using the Internet, not having to place orders by phone, fax, or through the mail.

Fast reaction – Purchasers find a fast response or reaction from the suppliers to needs and want to be important.

Market intelligence – Suppliers can provide "market intelligence" which gives the mill some knowledge of what other companies are doing, or how to stay competitive.

Market trends – Purchasers would like to get an overview of the market, including future demands for coated paper from their suppliers.

On-site backup – Some purchasers want to have on site support from their suppliers whenever there is a problem in the mill. This allows a representative from the supplier to see exactly what the problem is first hand.

Performance – Performance means, according to one purchaser, having the right raw material, on time, and not damaged in delivery.

Pilot trials – Purchasers like being able to use a supplier's pilot plant. First of all, the simulation of mill conditions on a small scale is impossible to conduct in the actual mill. Also, external pilot plants are very expensive; according to one respondent they cost fifteen thousand euros per day to run.

Reduce costs in the supply chain – Suppliers work with the mills to lower the costs in the supply chain. This includes telemetry, reducing paperwork by getting one invoice period of time instead of one per order, and shipping using the cheapest transportation method.

Suppliers are easy to contact – The supplier should be easy to contact, this could either include contacting one person or being able to call anyone 24 hours a day.

Technical service – Many purchasers ask their suppliers for help in areas which the mill does not have the internal knowledge to solve the problem.

Vendor managed inventory – Telemetry, or vendor managed inventory, involves the supplier being responsible for the ordering of a raw material when the mill supply reaches a certain level. This is achieved by placing a sensor in the mill's storage tank that sends data to the supplier electronically.

A6.4.4 Characteristics Wanted

Consistency – Purchasers require consistency of both the product and of service.

Development – Purchasers want a supplier to be working on improving their product, and also doing development work with the mill on better paper.

Long relationship – Purchasers require a supplier that they feel they can have a working relationship with for a long period of time.

On-time delivery – Purchasers require that the supplier always deliver the raw material on time to the mill.

Personalized attitude – Purchasers want suppliers who will react in a personal way to the problems, needs, or wants of that mill, and take a personal approach to support.

Price – Purchasers want to select a supplier with a competitive price for their material.

Quality – Purchasers require that a supplier send to the mill a product that is consistently within specifications.

Service – Purchasers require a supplier that will provide them with some services, including problem solving and development.

Technical assistance – Purchasers require a supplier who can provide them with technical support when problems arise either on the machine or with the quality of the end product.

"Value for money" – One purchaser said that he wanted a product with an acceptable performance at the right price.

A6.5 Research and Development Engineers and Managers

A6.5.1 Services Wanted from Supplier

- Analysis of market
- Analysis of samples
- Anticipate the future
- Assistance
- Contact someone from the supplier any time
- Development work together
- Discussion of problems
- Immediate help from suppliers
- Laboratory testing
- On-site within 24 hours
- Online quality measurement system
- Pilot trials
- Quality assurance
- Quality pricing
- Quick response
- Summary reports on delivery of raw material four times per year
- Supply data on the properties of the raw material
- Technical backup
- Use the supplier's expertise
- Using the supplier's experience in the industry

A6.5.2 Characteristics Wanted from Supplier

- Backup plans
- Development
- Effect on final product
- Experience
- Long-term development history
- Minimum variation
- On-time supply
- Performance of product
- Price
- Professional attitude
- Quality
- Reaction
- Regular visits
- Relationship
- Reliability
- Service
- Support
- Tailor-made
- Trust in supplier

A6.5.3 Explanation of Services

Analysis of market – Research and development people would like to get an overview of the market, including future demands for coated paper from their suppliers.

Analysis of samples – Research and development people want their suppliers to analyze samples of the mill's paper, both in problem solving and development.

Anticipate the future – The supplier should anticipate the future needs of the mill and of the market in development.

Assistance – Research and development people would like to have assistance, this includes help with solving problems and developing new products.

Contact someone from the supplier any time – Some research and development people want to be able to contact the supplier 24 hours a day, which will give them a faster response.

Development work together – Research and development people seek to have a supplier that does development. This includes development of their own product and joint development on better paper.

Discussion of problems – Research and development people like being able to discuss problems, new products, and possible development with their suppliers regularly.

Immediate help from suppliers – Research and development people want immediate help from suppliers when they request assistance to fix a problem.

Laboratory testing – Some laboratory tests that suppliers can conduct for mills are very specialized, which means that the mill cannot justify purchasing the equipment, so they use the supplier's equipment.

On-site within 24 hours – One research and development worker wanted to have a supplier come on site within 24 hours if the mill determined that it was necessary.

Online quality measurement system – A pulp supplier currently has an online quality measurement system on their production line, which their customers can view through the supplier's Intranet.

Pilot trials – Research and development people like being able to use a supplier's pilot plant. First of all, the simulation of mill conditions on a small scale is impossible to conduct in the actual mill. Also, external pilot plants are very expensive; according to one respondent they cost fifteen thousand euros per day to run.

Quality assurance – One research and development worker said that an assurance or guarantee of quality could be a service, even though people take it for granted.

Quality pricing – Quality pricing entails that if the quality is slightly off specification, the mill will get a discount on how much they will owe the supplier, because it costs the mill more money to get the final product in specification.

Quick response – Research and development people find a fast response or reaction from the suppliers to needs and want to be important.

Summary reports on delivery of raw material four times per year – Research and development people want to have summary reports on the delivery of the product, including quality parameters, several times a year from their raw material suppliers.

Supply data on the properties of the raw material – Suppliers should have a system to measure and report the quality parameters for the raw material. These parameters include pH, viscosity, solids content, and impurities in the raw material.

Technical backup – Because the mills are cutting back their technology departments, these research and development people are increasingly looking to the supplier to support the mill.

Use the supplier's expertise – Research and development people want to be able to benefit by gaining knowledge based on the expertise the supplier has.

Using the supplier's experience in the industry – Research and development people like to able to use the experience that their suppliers have gained by working in the industry. This experience can help the mill in solving problems and gain an understanding of market trends and demands.

A6.5.4 CHARACTERISTICS WANTED

Backup plans – Research and development people require a supplier who can be flexible in case a delivery cannot make it to the mill.

Development – Research and development people want a supplier to be working on improving their product, and also doing development work with the mill on better paper.

Effect on final product – Research and development people require that their suppliers know what the effect of their raw material will be on the final paper.

Experience – Research and development people require a raw material supplier with experience in supplying to the industry.

Long-term development history – Research and development people will, in many cases, stay with supplier whom the mill has a long term relationship with, because that is lost when selecting a new supplier

Minimum variation – Research and development people require consistency of both the product and of service.

On-time supply – Research and development people require that the supplier always deliver the raw material on time to the mill.

Performance of product – The raw material must do what it is supposed to do in the production process.

Price – Research and development people want to select a supplier with a competitive price for their material.

Professional attitude – Research and development people require suppliers who have a professional attitude when dealing with the needs and wants of the mill.

Quality – Research and development people require that a supplier send to the mill a product that is consistently within specifications.

Reaction – Research and development people require a supplier who can react and respond quickly when problems arise.

Regular visits – Research and development people want regular meeting with a representative of the supplier so that any minor problems and development projects can be discussed.

Relationship – Research and development people require a supplier that they feel they can have a working relationship with for a long period of time.

Reliability – Research and development people require a supplier that is reliable both in delivery to the mill and in problem support and development.

Service – Research and development people require a supplier that will provide them with some services, including problem solving and development.

Support – Research and development people require a supplier who can provide them with technical support when problems arise either on the machine or with the quality of the end product.

Tailor-made – Some research and development people will select a supplier who can make a raw material that is custom made for the individual mill.

Trust in supplier – Research and development people must be able to trust in a supplier to have a long-term relationship. This includes trusting that the supplier will keep development discussions confidential from other companies.

A7 – PAPER PRODUCTION PROCESS

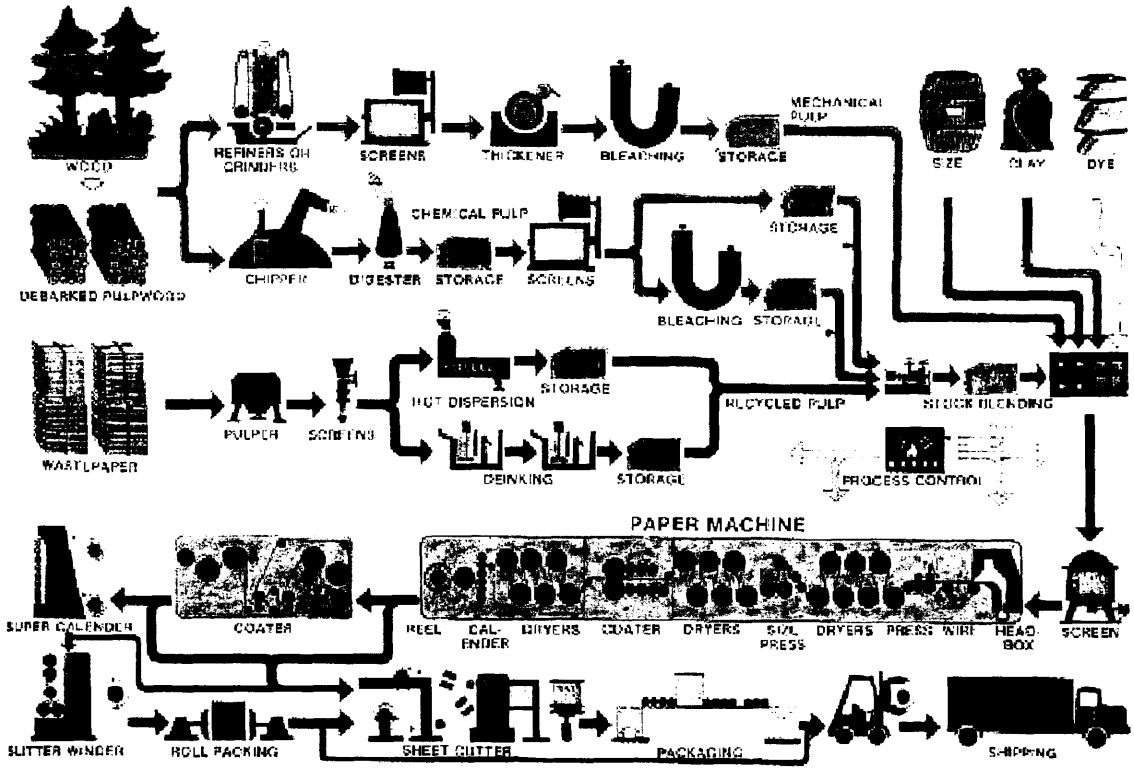

FIGURE A7.1: PAPER PRODUCTION PROCESS

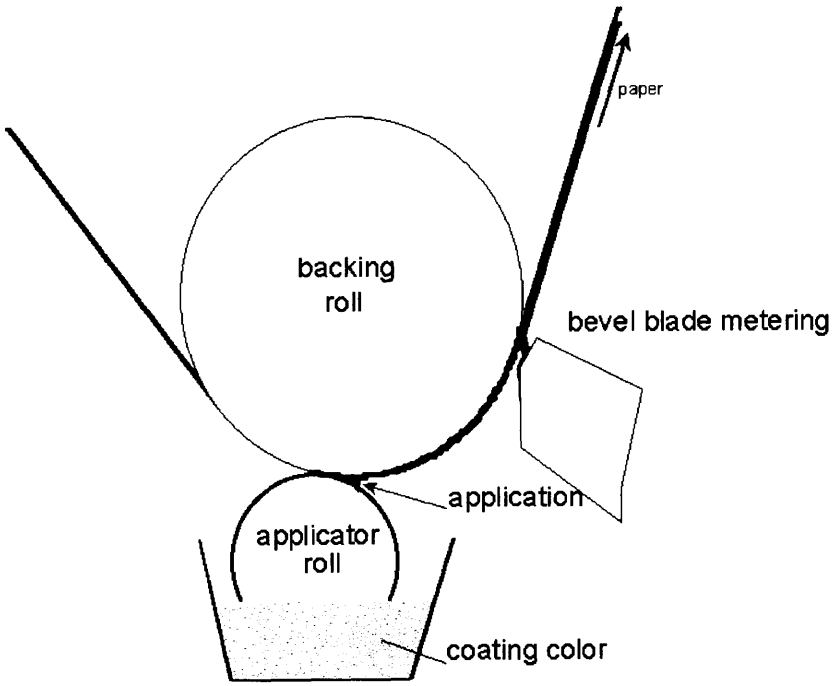

FIGURE A7.2: COATING ROLL APPLICATOR

GLOSSARY

Analysis – i. Any test conducted on the product to ensure specifications are met.
ii. Any test conducted on a machine or product to find a problem.
iii. Any test conducted on a product to compare the chemical properties to a like product of a different supplier.

Backup Support – Technical assistance provided by a supplier to aid in problem solving or developing.

Communication – Any type of opportunity to exchange ideas or contact, whether by phone, electronic mail, fax, or face-to-face discussions that mills can have with their suppliers.

Confidentiality – An agreement between the mill and the supplier that development, process, and product formulations will be kept between the supplier and the mill.

Consistent – The same specification or element every time.

Contactability – To be able to reach a supplier at any time of day and in any means of communication.

Delivery – The physical transportation of the product to the mill.

Expertise – The knowledge and ability of the supplier to understand the product and problems that occur with it.

Fast Response Time – Expectation that problems/communication will be resolved or given attention to immediately.

Flexible – Ability of suppliers to meet the changing needs of the customer.

Joint Projects – Projects involving both employees from the suppliers and the mills working together toward one common goal or direction.

Logistics – All elements involved in the purchasing and delivery of the product to a mill.

Long-Term Relationship – A business relationship between a supplier and its customer consisting of a history of contact.

On-site – Ability of a representative from the supplier to physically go to the mill.

Parameters – Agreed upon properties and tolerances for a specified product.

Performance – The ability of a product to act in a way in which the final product fulfills the agreed upon effects or parameters.

Pilot Coater – A machine capable of running trials of the coating mixture in a similar environment to a mill's paper machine.

Product – The actual material that is purchased as well as the customer's expectations for the performance and characteristics of the material.

Quality – Fulfillment of parameters/specifications expected from the product.

Reliable – To get the same product/help/personnel/delivery whenever needed.

Service – The benefits offered to the customer in addition to the product itself.

Supply Security – The supplier's ability to provide the mills with the raw material when needed.

Technology – Machinery or developments that are used to create new products, fix problems, or modify existing products or processes.

Value – "The customer's overall assessment of the utility of the product based on perceptions of what is received and what is given."

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