Exploring a New Service Model for Supplying Specialty Chemicals

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Abstract

This project builds on the existing literature of service quality measurement in a business-to-business (B2B) market. A three-part, 30 question customer survey was developed to measure service satisfaction of pulp and paper manufacturers in reference to their preferred specialty chemical supplier. The fundamental question to be answered was: For lower chemical product pricing, would the pulp and paper manufacturers consider a ‘pay-for-service’ or a ‘low-service’ business model? This is a non-traditional approach to the B2B interaction since specialty chemical suppliers currently offer their services for free with the purchase of the chemical albeit at higher prices.

A detailed literature review was performed to help structure the survey questions with standard statistical tools used to analyze the data. In general, the services provided by the specialty chemical suppliers were rated highly but most rejected the newly proposed model. The data did, however, highlight areas for improved customer satisfaction and strategic growth.
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Chapter One - Introduction

Executive Summary

Traditionally, specialty chemical suppliers to pulp and paper manufacturers have offered their services free with the purchase of the chemical product. These services, to name a few, include chemical program development, process analysis, onsite troubleshooting, chemical optimization and monitoring, inventory management, technical support, and laboratory testing. These services employ field sales people, service technicians, equipment engineers, lab scientists, and many others. All of the costs related to the services are absorbed by the specialty chemical supplier and recovered to some extent in the product pricing.

Currently, the pulp and paper industry in Canada is facing the most severe economic conditions in its history. Variable Canadian currency, unstable energy prices, limited access to raw materials i.e. chips due to sawmill closures, and large increases in transportation costs are causing many formerly profitable mills to close their doors forever. The pressure to reduce costs, therefore, is being felt by all stakeholders. Unfortunately, many of the stakeholders are experiencing the same cost constraints of their customers and are looking for price increases rather than lower product pricing. As a result, there has been an increasing trend in the industry for large corporate bids to be distributed to several suppliers in the hopes of driving down prices and instigating price wars. This is often beneficial for the pulp and paper manufacturer but detrimental to suppliers as profit margins are continually eroded.

At some point, once all the fat has been trimmed from the specialty chemical suppliers' internal costs, the ability to lower prices no longer becomes viable and alternative
business models need to be explored. This MBA research study attempts to answer the question of whether or not, for lower chemical product pricing, would pulp and paper manufacturers accept a non-traditional pay-for-service or low-service business model?

A three part, 30-question customer survey was developed to answer this question. The first section evaluated the service quality parameters of the specialty chemical suppliers. An extensive literature review on customer service quality measurement was performed to help develop the question format and survey content. This incorporated the ideas of the Nordic Model, SERVQUAL, the IMP Approach, Relationship Marketing, and others. The second section of the survey was designed to gain insight into service frequency expectations for a number of common specialty chemical applications. The third section asked the customer to rate the importance of various business parameters such as product performance, product price, service quality, etc. Overall, the survey was designed to make the customer evaluate their current service and weigh it against possibly giving it up for reduced product pricing.

The survey analysis was performed by dividing the data into two groups: Group #1 (customers who considered a specific specialty chemical supplier to be their preferred supplier) and Group #2 (customers who considered any other specialty chemical supplier from that of Group #1 to be their preferred supplier). In general, the data highlighted that both groups of customers do value the services provided by their specialty chemical suppliers but rejected the idea of a pay-for-service or low-service model.

This study builds on the previous service quality research. More importantly, it provides strategic information on how specialty chemical suppliers can tailor their service to pulp and paper manufacturers. Further, the study provides an analysis framework for other suppliers in an industrial business-to-business environment.
Trends in the Forest Products Industry

Canada’s forest products industry employs 300,000 Canadians, more than the combined work force of all three auto makers and all five major banks. Further, Canada is the global leader in exporting wood, pulp, and paper products around the world (Lazar 2009). Despite these impressive statistics, the Conference Board of Canada predicts that the industry will record its fourth consecutive negative year with losses of $435-million in 2008 and $329-million in 2009 (Lazar 2009). The Conference Board also predicts that forest industries job total will fall to 81,500 by 2011 from 87,500 in 2007 with overall production expected to fall again from the 6.6-percent decline of last year. Specifically, for the pulp and paper industry, the Conference Board predicts that 2009 will be another tough year where manufacturers continue to struggle through losses and plant closures (Globe and Mail, Dec 11, 2008).

The primary driver for these predictions stems from the slowdown that began with the US housing implosion that infected global financial markets and became a US-consumer-led slowdown in global demand. The spillover effects have occurred in all markets and are yet to be fully realized. For example, PricewaterhouseCoopers reported in December 2008 that the forest-sector has never before experienced such a level of downturn and demand is unlikely to pick up in 2009 (Globe and Mail, Dec 11, 2008).

The global economic slowdown cannot be solely attributed to the poor performance of the Canadian forest and paper products industry. Since the advent of the internet, the migration of classified advertising to online sources has threatened newspaper ad revenues and circulation. From a raw materials standpoint, Canada has traditionally had the advantage over its American and European competition due to a cheaper fiber source i.e. residual from
many local sawmills. Due to the plunge in US housing starts which precipitated the closure of many of these sawmills, chip volume is becoming scarce and is forcing many pulp and paper facilities to purchase chips from longer distances or chip more expensive raw logs. This phenomenon is even more prevalent in the US paper companies who, under pressure from Wall Street to improve returns, divested the bulk of their timberlands over the last five to ten years (Poulin 2008).

The exchange rate, especially for the Canadian pulp and paper companies, is also impacting the financial stability of their organizations. Flirting with levels last reached in 2005, the Canadian dollar is currently giving some relief to Canada’s paper industry. The exchange rate not only improves the industry’s competitiveness, but also the revenues from its products. Canada, however, is seen as an energy producing country whose currency closely trends the price of oil. As seen from the historical run up in oil prices in 2008, followed shortly thereafter by the dramatic drop, pulp and paper companies who rely on exchange rates to generate profit are in a vulnerable position. Add to this the fact that high oil prices negatively impact other areas of their business such as transportation and manufacturing chemicals, and it is easy to see why many pulp and paper mills closed their operations when oil crested $100 per barrel.

Another significant challenge faced by Canada’s forest and paper products industry is they are geared mostly to sell their products south of the border. As the U.S. housing starts are extremely low, most lumber and oriented-strand board producers, for example, are selling their products at or below cash cost value (Stewart 2009). Add to this the plunging housing prices themselves which create swollen inventories of unsold homes and the market could remain depressed for another 2 to 3 years before new home starts begin to rise (Stewart
This is a prediction reflected by Export Development Canada (EDC) that reported Canadian exporter confidence for 2009 is low for domestic and international conditions based on the U.S. housing market and overall economic conditions (Export Development Canada 2009). From a local perspective, EDC states exports from the BC forestry sector have declined 19% in 2008 and will drop by 14% in 2009 (Export Development Canada, Fall 2008).

Finally, the pulp and paper industry is being threatened by major new pulp production coming on line in Latin America and China. As North American paper producers continue to cut capacity to sustain higher prices, the demand for pulp will weaken in 2009, resulting in limited export growth (Export Development Canada 2009). In fact, world growth has not been this weak since the early 1980s, and the risk is that growth could actually be weaker still. Global activity is not forecast to pick up in a big way until the latter half of 2010 (Export Development Canada, Global Economic Forecast 2009).

As a result of the challenging market conditions, many companies in the forest products industry are looking to find new ways to improve their sustainability. For example, in the wake of the bailout trend started in the U.S., the Ottawa-based Forest Products Association of Canada (FPAC), which represents forest companies across the country, is seeking $600 million in economic stimulus from Ottawa.

Natural resources minister Lisa Raitt is promising to take FPACs’ list of demands for consideration in the Jan 27th, 2009 budget (The Canadian Press 2009). FPAC has proposed a plan that includes refundable research and development credits; increased corporate credit; investment in market promotion; help with bio-energy development; and new employment insurance rules that allow for greater work-sharing until conditions improve. Avirm Lazar,
the president of FPAC, is also requesting that the federal and provincial governments place fewer restraints on mergers and consolidation within the forestry sector. Larger companies, in theory, should be better suited to weather such economic downturns.

Similar requests are occurring on the other side of the boarder. The American Forest & Paper Association (AF&PA) are calling on the new Obama administration to support strategies designed to reinvigorate the industry, including support for manufacturing and green jobs, improving transportation efficiency and a revitalization of housing, the provision of tax relief, protection for pensions and the companies that pay them, and investment in forests (Pulp and Paper Canada 2009).

Some organizations have decided to take a stance at a more local level. The November 12th, 2008 edition of the Quesnel Cariboo Observer carried a full-page ad from the main employers in town: West Fraser Mills, Tolko Industries, Canfor, and other industry players. They encouraged local voters to reject a proposal for a new recreation centre, saying it would jeopardize existing jobs by adding to the companies' tax bills (Globe and Mail, Jan 5th, 2009). Catalyst Paper, located on Vancouver Island, is refusing to pay taxes all together at its Port Alberni operation (The Province, Jan 14th, 2009).

The decline in the U.S. housing market, along with the continuing credit crunch, asset-backed commercial paper crisis, and worsening recession have all been blamed for the Canadian forest sector's woes. The real concern for forest and paper companies, however, is how much of the economic slump is an indicator of a permanent trend? There is no doubt the forest and paper companies know their business needs an overhaul. This explains why, especially in the face of high energy costs, many mills are turning to biomass, biofuels, and
wind turbines to offset energy costs and fuels that impact production targets and transportation fees (Cook et al. 2008).

In fact, many other industries are also looking at these technologies as add-ons to their production facilities. Although these are good for reducing energy costs as well as the environment, it represents further raw materials leaving the market that could have been converted into paper. Add to this the numerous wood pellet plants and ethanol projects, and the pulp and paper manufactures are now fighting, and paying a premium, for every chip they can get.

Until the pulp and paper mills can find new opportunities to grow revenue, cost cutting will be paramount to keeping organizations profitable (Rodden 2008). Although one industry analysis said, “a major concern is for us to fall back into our prior, ineffective habits of stressing and relying on capital assets’ management and basic cost improvement programs,” (McNutt 2008) it is well known that the quickest way to remove cost from an organization is to reduce labor. As a result, many organizations have decided to curtail their production or close some operations all together. The other way to remove cost is to put pressure on your suppliers.
Commodity verses Specialty Chemical Supplier Companies

Before discussing the role of the specialty chemical supplier in the context of the pulp and paper industry, a brief review of the general chemical industry needs to occur. Specifically, the difference between ‘commodity’ and ‘specialty’ chemical suppliers needs to be understood.

Prior to the globalization of the chemical industry, ‘specialty’ and ‘commodity’ described distinct sectors that had different products and competitive landscapes. Traditionally, commodity businesses dealt with low-value/high-volume products that compete on the basis of lowest delivered cost. Specialty chemical companies, on the other hand, typically dealt with high-value/low-volume products and based their business strategies on selling differentiated products, services, and customer solutions.

Today, thanks in large part to globalization, those distinctions between the two classes have blurred. This is not because specialty chemicals suppliers have stopped serving the niche market but rather that there is more information available to the customer due to the internet and greater availability to less expensive "generic" chemicals from low-cost countries like India and China (Goldhill 2008). As a result, many customers are making more thorough purchasing decisions and are driving the added-value out of the specialty chemical market as they try and get to the lowest common denominator – price (Goldhill 2008).

What makes the chemical market even more challenging is the relationship between the commodity and specialty chemical businesses themselves. Commodity chemicals employ pricing systems that are closely linked to raw materials and have their primary customers being the chemical manufactures; which includes the highly concentrated customer base of the specialty chemical manufacturers. As the price of raw materials increases, the commodity
companies transfer a portion of the costs onto the specialty chemical producers who then struggle to pass along these increases to their customers. This becomes especially difficult when the end users of the chemical product are also struggling i.e. manufacturers in the pulp and paper industry. As a result, the end users refuse a large portion of the price increase and the margins on the specialty chemicals shrink making the business low-value/low-volume. Industry data shows that average gross margins for specialty firms fell from about 36% in first-quarter 1999 to about 30% in fourth-quarter 2004 due to suppliers not being able to successfully implement price increases (Goldhill 2008). Commoditization is one of the biggest challenges facing the specialty chemical industry today.

Goldhill (2008) classified this position as the ‘transition zone.’ It is where most specialty chemical businesses today operate; somewhere between the two extremes of commodity and specialty where there is always the natural reaction to cut costs in the face of margin erosion. This phenomenon also happens on the commodity side where businesses attempt to differentiate themselves on criteria other than price and tend to undersell their efforts. The result is converging performance in the chemical industry as a whole. Since the mid-1990s, the financial performance of companies with specialty, commodity, or diversified chemical portfolios has converged to the extent that both top-line and bottom-line results are virtually the same due to operating in this transition zone (Goldhill 2008).

That being said, investors do recognize that there is value to the specialty chemical market. Currently, the global specialty chemical sector is valued at $350-$375 billion, and is growing overall at 5% - 6% per year (Bewley 2008). Further, specialty chemical stocks have retrenched 21% from their peak in late 2007, compared to a 54% decline for commodity
chemicals (Bewley 2008). In fact, commodity chemical stocks have "dramatically underperformed" the specialty chemical sector since 2005 (Walsh 2008).

The value captured in the stock price has caused some large diversified producers such as BASF and Dow Chemical to announce specialty chemical investment plans in a bid to improve profits and margins when commodities are headed for a down cycle; a trend which is expected to accelerate in the next few years with the start up of many petrochemical plants in Asia and the Middle East (ICIS Chemical Business America 2007). Commodity chemical production in these low-cost, feedstock-advantaged countries make it increasingly difficult for North American, European and Japanese companies compete on price. As a result, these large commodity chemical companies are expanding their production into specialties and differentiated products to be competitive on a global basis (ICIS Chemical Business America 2007).

Technology that meets specific customer demand is, of course, the driving force behind the success of the specialties market. Through the development of innovative new products, and investment in marketing and sales to convince customers that their premium pricing is justified, revenue tends to be less cyclical, offers higher margin opportunities, and is generally more attractive to investors.

Most US chemical companies allocate 1 - 3% of annual sales to research and development (Challener 2008). This seems quite small in comparison to the heavily research-oriented pharmaceutical sector which allocates as much as 25% (Challener 2008). US-based consultancy agency Kline analyzed the R&D spending of the top 50 global chemical companies and found that R&D intensity peaked globally around 2004 and has been declining since (Challener 2008). Kline further broke down the top 50 companies to find that
specialty chemical firms have the greatest R&D intensity at 2.8%, followed by diversified companies at 2.0% and commodity companies at 1.1% (Challener 2008). These results appear quite logical considering that specialties, which are sold on product performance, tend to demonstrate higher R&D intensity.

In a study of public chemical companies, the US-based Council for Chemical Research found that every dollar invested in chemical R&D produces $2 in operating income over six years, or a 17% return (Challener 2008). Although the study did not clearly disassociate the impact of marketing, branding, business models, or strategies from the traditional R&D, it does highlight that investment in innovation is a lever that people should be pulling now. This is especially true because obtaining or maintaining a top-three position in this highly competitive chemical market with little product differentiation is not getting any easier (Walsh 2006).

The challenge for specialty chemical producers is getting a return fast enough to justify an R&D investment. Many specialty companies are spending most of their R&D money on process efficiency and technical improvements, rather than new product innovations (Walsh 2007). Others are making more selective investments in R&D by targeting resources at fewer projects and on those expected to yield the highest potential for returns on investments (ROI) (Walsh 2007). Many companies are adapting their M&A strategies to target startup companies, including those outside their chemical sector, with unique technologies that can be expanded under the acquirer’s leadership, guidance, and market channels (Walsh 2007). It is all about finding the next product or technology that will quickly and significantly add to their bottom line.
The biggest issue currently facing the specialty chemical producers is that demand for chemicals largely tracks economic activity (Walsh 2005). With the downturn in the global economy and lower energy prices, customers will begin to look for price reductions (Walsh 2005). Since many chemical companies are still operating in Goldhills’ transition zone where price is the only parameter, most specialty companies will be forced to comply with consumer demands.

For those specialty chemical suppliers servicing troubled industries, such as pulp and paper, the threat to full blown commodity pricing is very real. It is not difficult to envision situations where the supplier with the lowest price will obtain the business regardless of any perceived benefit from the specialty manufacturer. As a result, and until new products can be introduced into the market, alternative ways to protect profitability need to be explored. One well researched area is that of improved service quality.
Specialty Chemical Suppliers in the Pulp and Paper Industry

One of the easiest, and also potentially the hardest ways to differentiate products and generate revenue, is through service. This concept has been well established in the management literature and is almost unanimous in suggesting to product manufacturers to integrate services into their core offerings (Bowen et al. 1991, Gadiesh and Gilbert 1998, Wise and Baugartner, 1999).

There are several reasons why specialty chemical suppliers include services with the sale of their products: it facilitates additional sales of their goods, lengthens customer relationships, creates other growth opportunities, and allows for industry specific knowledge to be gained which helps drive future R&D projects. From a financial standpoint, it has been suggested that businesses in the top quartile of relative service quality on average realized an 8% higher price than their competitors (Gale 1992). Superior service has also been linked to the customers’ willingness to pay a premium price (Aaker 1991). Although the accuracy of these numbers have been disputed (Zeithaml 2000), most researchers and manufacturers believe that superior service offers a competitive edge. The strategic implications of service quality are discussed in more detail in the next chapter.

Historically, the pulp and paper industry has been service demanding. Originally, this may have been due to the profitably and buying power of the sector. More recently, however, it may be that as the number of mills has decreased while the number of suppliers offering similar products has increased, service is no longer seen as an add-on but rather a feature of the product itself. In fact, most pulp and paper manufacturers now demand goods and services as integrated solutions for their specific problems.
Typical tasks undertaken by the Sales and Service Representatives (SSR) of the specialty chemical supplier usually involves taking charge of activates once performed by the customer. This includes inventory management, onsite/offsite lab testing, equipment maintenance, and providing technical recommendations both related and unrelated to their products. Depending on the size and type of chemical application, the SSR may also be required to be onsite at the customer location everyday; behaving like a full-time mill employee. In essence, the supplier moves the demand upstream and advances the point from which it co-produces value onwards with the customer (Holmstrom et al. 1999).

As the research shows, manufacturers attempt to move away from product-related services by extending their service offerings with customer-supporting services; this changes the focus of the value proposition as the product becomes a part of the offering instead of being the center of it (Gebauer et al. 2004). As this strategy began to develop, sales people became service sales people. Service sales people then became customer experts. The role of the SSR has changed from a persuasion agent that sells product to that of a consultant and implementation agent to the buying firm (Sharma 2007).

The issue with the strategy employed by the specialty chemical suppliers is that once the customer, in this case the pulp and paper industry, begins to experience fundamental business problems requiring them to cut costs, specialty chemicals are an easy place to start. Due to the number of specialty chemical suppliers and the ability for mills to squeeze margins via the commoditization effect, the “total solutions as services” approach is sliding back to the “selling products and giving services away” model as suppliers attempt to maintain market share (Hildenbrand et al. 2004).
Giving away services has two large implications. First, the specialty chemical supplier is failing to capture a source of potential revenue. Second, if the SSR believes that the customer does not value the service, it will reduce their efforts to provide the best service they can. This is something of a catch 22 since not charging for services is not an excuse for poor service quality. In fact, it has been shown that the quality of free services is equally important to driving profitability as paid services with respect to the sales of tangibles (Brax 2005).

On the flip side, services without value should not be offered. If the customer sees no benefit, either from the product or the efforts of the SSR, perhaps the specialty chemical supplier should be selling their product using a commodity-style business model. It is also possible that the efforts of the SSR are not being communicated, captured, or recognized by the customer since it has become so integrated into their daily business. As a result, frequent checks of the customers’ service quality satisfaction should be performed by the specialty chemical supplier. This would determine what the customer truly values from the SSR and whether the SSR is working on the appropriate items to maximize potential revenue. Unfortunately, the existing models that have been developed to measure service quality, especially in business-to-business (B2B) markets, are at best ambiguous.
Service Quality Terminology

Before looking at the models for evaluating service quality there are a few key definitions or terminologies that need to be clarified.

Goods verses Services

The underlying paradigm in services marketing since the 1980s has been that services are different from goods. It was traditionally thought that four features could differentiate these two categories - intangibility, inseparability, heterogeneity, and perishability. This, however, has been an area of some recent dispute (for example, services can be made heterogeneous) making the definition of services much more challenging (Lovelock and Gummesson 2004). One comprehensive definition has been given as:

"Services are economic activities offered by one party to another, most commonly employing time-based performances, to bring about desired results in recipients themselves or in objects or other assets for which purchasers have responsibility. In exchange for their money, time, and effort, service customers expect to obtain value from access to goods, labor, professional skills, facilities, networks and systems; but they do not normally take ownership of any of the physical elements involved."

(Lovelock et al. 2008)

Others believe that there is a range of categories between goods and services. Kotler (2003) distinguishes five types of ‘service mix’ at the offering or product level. These include:
1. pure tangible good
2. tangible good with accompanying service
3. hybrid
4. major service with accompanying minor goods and services
5. pure service

According to Kotler, an offering to a customer can occur anywhere along this spectrum. Service is basically immaterial and can be characterized as an activity where production and consumption to a considerable extent take place simultaneously.

**Services verses Service**

The difference between services and service is also important. Services are ‘intangible products’ that a supplier markets to its customers (e.g. legal, janitorial, and data processing services). Service is a supplement that accompanies the core offering regardless of whether the core is tangible or intangible (Parasurman 1998). As defined by Cunningham and Roberts (1974), the main functions of the service can be broken down into:

1. Convenience Services – add value to the product while lessening the work load of the buyer and ensures the suppliers offering is tailored to the buyers needs.
2. Reliability Services – reduces the uncertainty of the product decision.

These concepts are captured nicely in Lovelock’s “Flower of Service” framework (Lovelock et al. 2008) where he depicts a sellers total offering to a customer as an eight-petaled flower whose center represents the sellers basic product (good or service), while its petals represent the key elements of how the seller serves the customer (e.g. information,
billing, technical, etc.). Service can also occur at different times of the sales cycle – pre-purchase, at-purchase, and after-sales service.

**Customer Service verses Product Service**

The difference between customer service and product service also needs to be clarified. Customer service is aimed at facilitating company sales at the general level and therefore costs are mostly treated as overhead costs (Kyj and Kyj 1994). In contrast, product service is aimed at facilitating the sales of a product provided by the company and supporting its operation (Kyj and Kyj 1994).

**Customer Satisfaction verses Service Quality**

Finally, it is important to recognize that customer satisfaction is a distinct construct from service quality. Customer satisfaction, for the most part, is based in customer complaint management. It is an emotive post-consumption evaluation of the service performance (Jayawardhena et al. 2007). Service quality, on the other hand, is a more encompassing term that refers to the customer’s long-term, cognitive evaluations of a firms’ service delivery.

**Service Quality Models in the Business-to-Consumer (B2C) Market**

It is difficult to find consensus amongst researchers as to what parameters specifically define the service quality construct. In the context of business-to-consumer (B2C) literature, researchers have adopted three broad conceptualizations as outlined below.
The Nordic Model (1984)

Originated by Grönroos (1984), the Nordic model, adopts a disconfirmation paradigm. This claims that customer satisfaction is determined by comparing perceived with expected service performance (see Appendix 1). If the expectations are met in the customers mind, this is confirmation. If they are over performed, this is positive disconfirmation. If they are under performed, this is negative disconfirmation. In the first two situations, the service quality is seen as good to overly good. In the last case, the service is seen as bad. Grönroos viewed service as a result of a consumer’s view of a bundle of service dimensions. This including both technical (what the customer gets) and functional (how the customer gets it) parts. It is suggested that the functional service quality (FSQ) is more important than the technical service quality (TSQ) in most product markets since technical competence is an entry-level qualification for being a provider of service in these markets.

The SERVQUAL Model (1988)

The disconfirmation approach is also the basis for Parasuraman, Zeithaml, and Berry’s (1988) SERVQUAL model. Like the Nordic Model, SERVQUAL views service as a gap between expected level of service and customer perceptions of the level received (see Appendix 1). Whereas Grönroos suggests two dimensions, SERVQUAL’s authors identified five core components of service quality:

1. Tangibles (appearance of physical elements)
2. Reliability (dependable, accurate performance)
3. Responsiveness (promptness and helpfulness)
4. Assurance (competence, courtesy, credibility, and security)
5. Empathy (easy access, good communication, and customer understanding)

In its basic form, the scale contains 22 perception items and a series of expectation items, reflecting the five dimensions of service quality. Respondents complete a series of scales that measure their expectations of companies in a particular industry over a wide array of specific characteristics. Subsequently, they are asked to record their perceptions of a specific company whose services they have used. When the perceived performance ratings are lower than expectations, this is a sign of poor quality. The reverse indicates good quality.

The Three-Component Model (1994)

Rust and Oliver (1994) proposed that service quality is based on the customer’s evaluation of three dimensions of the service encounter:

1. the customer-employee interaction
2. the outcome
3. the service environment

Dimensions one and two are analogous to Grönroos functional quality and technical quality, respectively. Dimension three, however, adds a new parameter which emphasizes the environment in which the service is performed. This is important since it begins to develop the concept of the overall customer experience with levels of complexity impacted from both a controllable and non-controllable standpoint.

The concept of the service environment and, more specifically, the social interaction was reflected in the work of Arnaud (1987) in Michel et al. (2003) where service quality was grouped based on four dimensions:

1. Technical (core service offering i.e. technical solution)
2. Functional (added value of customer service)

3. Relational (credibility for a long period)

4. Institutional (linked to communication and image)

Arnaud believed that the four dimensions are related to each other, and can reinforce or weaken each other (Appendix 1). The institutional dimension is the result of the other three dimensions to create and image of the service quality for the company.

**Service Quality Models in the Business-to-Business (B2B) Market**

It is difficult to make broad-based generalizations from business-to-consumer (B2C) studies to business-to-business (B2B) contexts. This is because there are fundamental underlying differences between consumer buying (B2C) and organizational buying (B2B) behavior (Chakraborty et al. 2007). Organizational buying is far more complex and requires the management of a larger number of parameters to ensure their flawless provision and outcome. It involves many people from different functional areas, multiple goals, and potentially conflicting decision criteria (Anderson et al. 1987). There is an increased demand for specialization and is driven by technology which often leads to customer-specific solutions (Anderson et al. 1987). As a result, the services purchased from organizations (B2B) are provided by qualified professionals whose expertise and skills are key elements of the quality of the service provided (Gounaris 2005). It is for these reasons that a number of studies that simply replicated the B2C models for a B2B setting found no consensus amongst their results (Zhu and Zolkiewski 2007).

This is not to say that there is no overlap between the two fields of study. Szmigin (1993) acknowledged that Grönroos’s dual aspect of technical and functional quality is
particularly well suited to act as a framework for the study of business service relationships. Believing the terms 'technical' and 'functional' were difficult to understand for service companies, she advocated their replacement with the more familiar terms of 'hard' and 'soft,' respectively. She further modified the framework to include a third quality component referred to as 'outcome quality.' Outcome quality is different from hard quality in that a company may perform well in the hard area and still not achieve the desired goal or outcome. This concept weaves into the service quality framework the idea of externality or parameters outside of the direct control of the parties in the relationship.

Homburg and Garbe (1999) also found utility in the model developed by Grönroos. Their three quality dimension model for B2B included:

1. Process Related (activities between service provider and the customer)
2. Outcome Related (results of the service delivery)
3. Structural (technical competence of the service provider)

This model differs from the other in that it incorporates the competence of the actual service provider. This adds another level of complexity to the service quality parameters. In similar fashion and utility, Morgan (1991), Edwardsson et al. (1990), and Harvey (1998) also used Grönroos initial conceptualization to explore service quality.

The Industrial Marketing and Purchasing Group (IMP) Model (2005)

Woo and Ennew (2005) criticized the models described above due to their confusing technical and functional dimensions. As a result, they broke down these terms (see Appendix 1) into more specific professional service dimensions:

1. Product/Service Exchange (core of the interaction process)
2. Information Exchange (contact pattern and contents)

3. Financial Exchange (amount and quantity)

4. Social Exchange (development of mutual trust between parties)

5. Institutionalization/Cooperation (ability to work with the customer)

6. Adaptation (ability to respond to changing conditions)

These six interaction dimensions represent a broad spectrum of activities that are performed by the representative of both the buyer and seller organizations. The first four dimensions represent the essentials of the encounter-specific interactions. The final two dimensions incorporate the development and evolution of those interactions. In part, the IMP Model brings in some elements of the emerging field of B2B relationship marketing.

**Relationship Marketing**

The concept of relationship marketing suggests that a firms’ performance depends not only upon its own efforts, skills and resources but also on the efforts, skills, and resources of other organizations, such as suppliers, which provide it with valued inputs. The fundamental principle is that the greater the level of customer satisfaction with the relationship – not just the product or service – the greater the likelihood that the customer will stay with the company providing the service or product (Chumpitaz and Paparoidamis 2004).

As such, developing and managing the relations within these organizations becomes a focus of strategic attention since these relations are key resources to be accessed to create value to customers (Wilkinson and Young 1994). In fact, recent evidence has been pointing toward perceptions-only measures as being more robust and applicable to measuring service
quality compared to the more technical and functional aspects as outlined by Grönroos (Jayawardhena et al. 2007).

Honestly, mutuality, discretion, openness, ambition, realism, empathy, humbleness, seriousness, professional skill, pride, and communication skills were some of the crucial factors mentioned when purchasers in the industrial market were asked to choose the desirable attributes of suppliers (Holmlund and Kock 1995). All of these, as well as the more tangible adaptations of products and processes, arise through a process of working together over time. They are an integral part of the relationship yet not something protected by the relationship (Wilkinson and Young 1994).

Striking the balance between cooperativeness (based in shared interest) and competitiveness (advantage for profit) in inter-firm relationships can be challenging. Some researchers have compared it to both marriage (long-term committed) or dancing partners (active cooperation between two parties moving the same way for a brief period). In any event, providing superior service is a prerequisite for effective relationships and one cannot compensate this dimension with technology.

As discussed previously, compared to retail/consumer services, industrial services are generally more complex, uncertain, and characterized by interdependence (Vickery et al. 2004). As writers on organizational buying have already recognized, purchasing behavior in these markets are not a purely rational process and some clients get very close to their suppliers and work better with this kind of association (Sheth 1973). Companies should therefore ensure that they provide superior resources and benefits (superior to the offerings of other companies) and be mindful to not take advantage of their partners thus ensuring a mutually beneficial relationship (Morgan and Hunt 1994).
Service quality is dynamic and alters as firms get to know each other as bonds evolve. Due to the number of firms, patents alone do not guarantee success over the long term as it is easy to switch both products and supplier companies. As a result, the strategic management of both relationships and traditional parameters of service quality becomes a crucial factor in a company’s business strategy.

**Service Quality Implications**

Although there is no single model to measure service quality in a B2B market, it is clear that it is no longer enough for manufacturing firms to just offer some generic kind of service in order to ensure competitive advantage (Mathieu 2001). Since all firms offer service to varying degrees, it is important to deal with service strategy more proactively. This is especially true in the B2B market where, unlike the B2C market, high service quality appears to be implicit in the standard business model (Zolkiewski and Lewis 2003).

The strategic management of service quality can become quite complex. This is especially true since over the past decade there have been two opposing intellectual forces pulling at the idea of service. On the one hand there is the desire to make the service a product or even a commodity. Opposite this is the relationship management philosophy where the emphasis is to move away from the product to develop a personal focus on the customer (Mathieu 2001).

It is because of this complexity that the individuals performing the service become so important. In reality, differentiation between service firms depends considerably on the interaction between the customer and the contact person. The overall quality of service received, therefore, becomes closely linked with the behavior of the person delivering the
service (Mehta and Durvasula 1998). As a result, service companies must pay attention to the hiring of its people to ensure they are both personable and technically sound.

This becomes especially important where technical quality is similar among providers. Good contact personnel will use the functional and relational aspects of the interaction to be a differentiator. In fact, it has been shown that if the functional (and relational) qualities are good, they can in some cases compensate for temporary problems with technical quality or even compensate for an overall lower technical quality level (Grönroos 1984). In general, an acceptable technical quality can be thought of as a prerequisite for a successful functional quality.

The importance of the abilities of the contact personnel and the overall social/interpersonal aspects of the B2B setting cannot be overlooked. Some researchers have gone so far as to study the importance of the individual service encounter and have defined these interactions as “moments of truth” where the image the customer develops of the server will play an influential role in the success of the firm (Jayawardhena et al. 2007). There are also studies with respect to the best personality types for salespeople to provide the highest service quality during the business transaction (Teng et al. 2007).

According to Bitner (1990), customers’ overall satisfaction with service depends primarily on the management and mentoring of these service encounters which take place between the customer and the ‘boundary spanner’ of an organization. The perception of service quality is person – and situation-specific, and consequently, can vary at least partly from buyer to buyer and situation to situation (Walsh 2006).

If the functional and relational aspects of the service encounter play a much greater roll than the technological aspect in forming quality perceptions (Paulin et al. 2000), why
don’t service companies just copy whomever provides the best service? Much of the research suggests that, in fact, services may not be all that easy to duplicate (Brax 2005). Services, by being less visible, more labor dependent and heavily people-based, are much more difficult to imitate (Heskett et al. 1997). This is why good service becomes a sustainable source of competitive advantage.

The other reason why companies do not spend a great deal of effort copying each other is that the link between service quality and profits is neither straightforward nor simple. The reason for this is investments in service quality do not track directly to profits (Zohorik and Rust 1992). They are rarely experienced in the short-term and instead accumulate over time, thereby making it hard to isolate and attribute the individual contribution to overall company profits (Zeithaml 2000). Essentially, it is hard to link customer perceptual measurements with organizational variables.

That being said, most believe a strategic focus on improving service quality has a significant payback. In 1990, Ford Motor Company demonstrated that dealers with high service-quality scores have higher than normal profit, ROI, and profit per new vehicle sold (Zeithaml 2000). Ittner and Larcker (1996) demonstrated that stock price is highly elastic with respect to customer satisfaction. They also found a positive correlation between customer variables (satisfaction, repurchase intention, perceived quality, perceived value, and loyalty) with financial measures such as ROA, Market-to-book value, and P/E ration.

Buzzell and Gale (1987) found companies offering superior service achieved higher than normal market share growth, increased profits, and premium prices. Kordupleski et al. (1993) also observed increased market share growth with superior service companies but stated that time lags make service quality and market share effects hard to discern in the short
term. They did claim, however, that satisfied customers spread positive word of mouth which leads to the attraction of new customers and then higher market share. The impact of positive word of mouth was also recognized by Zeithaml (2000) and Harrison-Walker (2001).

Service quality also has positive correlation to customer loyalty; the willingness to recommend the company and intentions to repurchase (Chumpitaz and Paparoidamis 2004). It is estimated that selling costs for existing customers are about 20% lower than selling new ones (Zeithaml 2000). Other data suggests that it is six times more difficult and more expensive for a new supplier to find buyers than it is for an established supplier (Holmlund and Kock 1995). An unknown product makes it even more complicated.

In addition to lower selling costs, existing customers who feel they are receiving superior service are more willing to pay a premium price (Aaker 1991). They may also stay with the company if prices are increased (Aaker 1991). One report, although dated, suggests that buyers tend not to change suppliers for a 5% price change (Buckner 1967).

Research in the professional services area has suggested that customers of business services tend to remain with the same provider if continually satisfied (Davidow and Uttal 1989, Woodside et al. 1992). Cunningham and Roberts (1974) actually suggest that the industrial market may actually be "service elastic" in that the better the service provided, the greater the share of business they will receive.

Although the validity of the financial numbers may be disputed, there is no doubt that there is enough evidence to clearly state there are benefits to performing good service quality. As a result, it seems logical that all organizations that perform a service role should periodically measure their performance with the customer. At the very least the service organization needs to determine if service for their business is a qualifying factor or a
determining factor. For example, what commonly happens according to Holmlund and Kock (1995) is that suppliers are selected on the basis of best price given an acceptable level of service or vise versa.

Finally, for advanced services, such as in the specialty chemical industry, it is argued that the supplier’s work concerning the service offer never really ends. An analysis of the B2B interaction, as outlined by Morris et al. (2001), highlights this point exactly. For “new-buy” situations convenience services are key to help reduce the feeling of risk. The buyers often make choices based on time since it helps reduce their workload. In “modified re-buy” situations, reputation and image of the supplier is important. The buyer finds it easy to put out an enquiry and used past experience to make a judgment on a new product. In “straight re-buy” situations customer satisfaction based on past experiences is key.

The goal is not to make the product work, but to help the client maximize all the different processes, actions, and strategies that are associated with the supplier’s product (Mathieu 2001). By staying focused on the customer throughout the B2B relationship, the customer feels that they are receiving more consistent and reliable service. Evidence has shown that this is something buyers will pay for from a supplier (Bayliss and Edwards 1970).

**Pay for Service Model**

Webster and Wind (1972) discovered early in the study of organizational buying behavior that companies purchasing decisions are influenced by four key factors: current level of competition, demand for its products, the technological environment of the industry in which the company operates, and the general economy. When one of these factors change, it can have an impact on the way the organization has traditionally made purchasing
decisions. Due to the recent downturn in the US housing market, this is exactly what is happening to the forest and paper sector.

Many large, multi-mill organizations have already closed the doors on their least profitable plants in an effort to reduce costs and tighten the market. For those mills left standing, the high production targets set during the housing boom have now been replaced by lowest-cost per unit manufactured targets. From the specialty chemical suppliers' standpoint, this has had two effects. First, many of the chemical programs that were established to increase production, and had the highest ROI for the customer to justify the chemical spend, have been eliminated. Second, the focus for the mills has gone straight to the bottom line meaning all programs are now open for bid and low-price appears to be the primary driver.

The state of the economy has amplified the commoditization effect to the point where specialty chemical suppliers are being challenged like never before. Add to this the fact that the costs of raw materials are significantly down and customers are putting extreme pressure on their suppliers to reduce pricing. With shrinking revenue, margins, and customers-base itself, specialty chemical suppliers are looking to find new ways to maintain their business.

As discussed in a previous chapter, R&D drives profitability in the specialty chemical industry but the time to market can be quite long. High customer service quality protects and grows business but, to draw an analogy, it is like trying to sell a first class plane ticket to someone on social assistance. Indeed the traveler needs to go from point A to point B but due to their current financial situation they are just looking for a seat.

Understanding the position of the customer and the impact of fully converting to a commodity chemical company, one possible alternative for the specialty chemical supplier may be to take a step back and decouple the chemical from the service and put a price on
each. Again using the airline analogy, it would be like offering both coach and first class seating to its passengers. Each option gets the customer to their final destination but the service expectations and price for the two tickets are quite different.

Speaking more to the specialty chemical market itself, offering the customer a choice between a low-price/low-service, low-price/pay-for-service, high-price/superior-service business models may actually fit into the fundamental concepts of service quality itself. As Mathieu (2001) has suggested, what the client wants is service that addresses their individual problems, issues and challenges. Current market conditions may support this new approach to specialty chemical service despite being a divergence from the traditional offerings.

Adopting the strategy to charge a customer for something they used to get for free, even with a price reduction, does have some significant implications. Specifically, if there is a fee for service, the customer should value that service. The only way to determine this is to use the service quality measurement tools as outline earlier in the chapter.

**Hypothesis 1 – The service provided by specialty chemical suppliers to the pulp and paper manufacturers is rated very highly suggesting customer value.**

Due to the commoditization effect, the profit margins on many chemical applications have shrunk significantly. As a result, lowering the prices on all products may not be possible. It may be possible, however, for those products that customers basically view as low-service to be treated as commodities and isolated from the rest of the business. This has two implications. First, these low-margin/high-volume products could be tied closer to raw material indices making the pricing strategy simpler and easier to communicate to the
customer. Second, it is likely that specialty chemical suppliers are spending some of their time on activities in which the customer sees no value. Identifying these programs or products and treating them as commodity business, frees up the Sales/Service Representative (SSR) to work on more customer focused tasks which will increase the perceived service quality.

**Hypothesis 2** - *There are a number of specialty chemical programs that require low-service (once per month or less) and may fit into a commodity-style business model.*

Although being new for a specialty chemical supplier company, the concept of pay for service may not be that foreign to the pulp and paper industry. Many non-chemical suppliers already employ this model. As several studies have shown, the issue may be that perceived service quality is culture-specific (Cronin and Taylor 1992) and industry-specific (Gounaris 2005). Although pulp and paper manufacturers may be familiar with the pay for service model, it may be difficult accepting it from chemical suppliers especially since there are many other companies offering their services for free. The price reduction and service quality will both have to be attractive to the customer for the model to work. Based on the state of the pulp and paper industry, however, this would be a good time to test the market.

**Hypothesis 3** - *For lower product pricing, the customer is willing to accept either lower service or a fee for service.*
Chapter Three – Methodology

Customer Survey

The study was conducted to test the three hypotheses as outlined in the previous chapter. As each hypothesis deals with service, it is important to develop an initial framework for service quality in the content of specialty chemical suppliers to the pulp and paper industry. The scale development procedures used to determine service quality were based primarily on the findings of the literature review. In general, the original work of Grönroos (1984), Michel et al. (2003), Woo and Ennew (2005), and the concepts of relationship marketing were combined into four general dimensions of service quality – Technical, Functional, Institutional, and Relational. The precise wording of these items was tailored to the pulp and paper context through four in-depth customer interviews and multiple peer review discussions. A total of 30 items were generated as shown in Appendix 2.

In general, most items were measured on a seven-point Likert scale (1 = “strongly disagree” to 7 = “strongly agree”). In addition, the measurement instrument included one ten-point ranking question and three six-point ranking questions. There were also five classification items to gain insight into specific market segments (grade produced, geography, job function, etc.) and preferred supplier choices. This was done to gain further insight into the decision making process should the response rate be sufficiently high to generate statistical significance.

This project was supported by a global specialty chemical supplier who deals with multiple industries including automotive, food additives, water treatment, composites and plastics, and others. Their pulp and paper division represents a large portion of their primary
customer base. Contact information for these pulp and paper customers was obtained through an internal database that is updated annually by the sales force for the organization. The database contained 3002 North American customer contacts who were contacted via an electronic survey.

During the 3-week data collection period, 137 responses were received, of which 107 were complete and usable (3.6% response rate). In an attempt to maximize return rate, a $5 donation to a reputable charity was offered as an incentive for each completed survey. A follow-up reminder email was sent halfway through the data collection period.

Survey Results

For simplicity, the results are divided into three sections to address each hypothesis independently. For all sections, the survey data was analyzed as a whole then subsequently broken down into two groups. Group 1 represents information on the supporting specialty chemical supplier company for this study. Group 2 refers to all other information pertaining to alternative specialty chemical supplier companies. The purpose was to determine if differences could be found between the two groups.

Hypothesis 1 – The service provided by specialty chemical suppliers to the pulp and paper manufacturers is rated very highly suggesting customer value.

The concept of a pay-for-service business model necessitates that the buyer recognizes and understands the services they are purchasing. Further, they need to see a value in these services to justify the expense. The first 23 questions of the survey use the concepts as found in the literature review to determine if the current activities performed by specialty
chemical suppliers are valued by the pulp and paper manufacturer. Appendix 2 provides a detailed summary of the questions and Appendix 3 contains the descriptive statistics. These have been ranked in terms of relative importance based on the mean result.

The difference between the overall responses is quite small and determining a specific ranking is not statistically possible. For example, under the Corporate questions (those pertaining to the company itself) the difference between rankings one and two is not significant in all cases. The same holds true for rankings one and two in the Sales/Service Representative (SSR) questions. Combining the two data sets into an overall list, however, does generate some interesting information. Although the relative differences between the questions remain small, trends do appear. Most significantly, the questions rated highest were those belonging to the Relational group (see Appendix 3). This was especially pronounced for Group 1 where four out of the top five were Relational. The rankings of Group 2 were more a combination of the Relational and Institutional questions. The greater institutional involvement from Group 2 may suggest the SSR is not seen as independent from their corporation and rather more part of a service organization.

Another possibility may be that Group 1 is employing more of a relationship based strategy in their dealings with the customer. Evidence to support this comes from an analysis of means for each individual question across both groups. Of the Corporate questions, only Question 12 showed a statistical difference in favor of Group 1 compared to Group 2 (Q12 t=2.06, p<0.05). In the SSR questions, eight of the twelve questions were statistically in favor of Group 1 (p<0.05 in all cases). Overall, customers appear to rank the satisfaction of the services of Group 1 higher than Group 2, specifically in reference to the person performing the service itself.
The individual SSR task analysis (Question 24a-j), for the most part, shows little statistical difference between Group 1 and Group 2. The two questions where this does not hold true, however, are Questions 24g and 24j. These are both knowledge-based tasks in favor of Group 1 ($t=2.07$, $p<0.05$; $t=2.35$, $p<0.05$). In fact, for all parts of Question 24, it is the intellectual/knowledge-based tasks that were rated higher in terms of importance to the customer when compared to the manual tasks. This was reflected in a factor analysis of the data where the intellectual/knowledge based tasks (Q24 a,g,i,j) were seen as significantly more important than the physical/manual tasks (Q24 b,c,d,e,f,h) for the customer (Overall $t=14.98$, $p<0.00$; Group 1 $t=7.62$, $p<0.00$; Group 2 $t=7.66$, $p<0.00$).

An item of interest in the analysis of the individual SSR tasks was the low ranking of the social relationship. In all cases, the importance of the social relationship appeared at the bottom of the list. This is in contrast to the findings of Questions 1-23 where the Relational questions were ranked so highly. This discrepancy may have been due to the wording of the 'Social Relationship' statement as it could be seen as occurring outside the workplace. Another possibility is that the customer does not link the benefits of a good social relationship with their supplier to their overall business.

In summary, Hypothesis 1 is supported by the data presented. Furthermore, there appears to be a significant relationship based influence to the business and more intellectual/knowledge-based tasks are seen as providing higher importance to the pulp and paper manufacturers.
**Hypothesis 2** – *There are a number of specialty chemical programs that require low-service (once per month or less) and may fit into a commodity-style business model.*

Most specialty chemical suppliers carry a well-diversified portfolio of products for their customers. The service requirements for these products vary based upon the specific application and the demands of the customer. Question 25 lists 12 common large-volume/large-cost specialty chemical applications found in many pulp and paper mills. The purpose of the question was to gauge the required service requirements as defined by the customer to allow the SSR more time to focus on value-added activities as outlined in the previous section.

As shown in Appendix 4, there appears to be no clearly defined answer with respect to service requirements for any of the listed specialty chemical applications. This effectively rejects Hypothesis 2. It is interesting, however, to note the differences in service expectations between Group 1 and Group 2. In almost all cases, a higher frequency of service is expected from Group 1 (see Appendix 4). This trend may have been captured in the previous section where the customers saw higher importance in the services provided by Group 1 and therefore require (or perhaps prefer) more frequently service.

**Hypothesis 3** – *For lower product pricing, the customer is willing to accept either lower service or a fee for service.*

When asking a customer to accept lower service or pay a fee for service in exchange for lower product pricing, one needs to know the weight that is placed on each of the factors that enter into that tradeoff decision. For example, if there is no value in service, then eliminating it benefits the customer if they can get products cheaper, faster, in higher
volumes, etc. If they are price sensitive, anyone with lower costs will become the preferred supplier. Question 26 and 27 (Appendix 5) ask the customer to rank six items with respect to buying specialty chemicals. This was asked of both new and continued purchases.

Looking at the top three mean rankings for **continued** purchases, Group 1 places product performance and quality of service as most important with little statistical difference between the two. This was then followed by product price which was statistically different from product performance ($z=-2.09, p<0.05$) but not quality of service. This makes the ranking product performance and quality of service at the top followed by product price. For Group 2, product performance is once again ranked number one but is statistically different from both product price ($z=-2.27, p<0.05$) and quality of service ($z=-2.02, p<0.05$). The difference between product price and quality of service is not significant. This makes the ranking product performance, product price, and quality of service. For Group 1, product performance and quality of service are closely linked while Group 2 clearly differentiates product performance from quality of service and product price.

Looking at the top three mean rankings for **new** purchases, the responses reveal a slightly different decision making criteria (see Appendix 5). For Group 1, product performance still ranks number one but is now statistically different from the quality of service ($z=-2.26, p<0.05$) as well as product price ($z=-2.56, p<0.05$). Quality of service and product price remain relatively the same. This makes the ranking product performance, quality of service, then product price. For Group 2, the ranking becomes even clearer. Product performance is ranked statistically higher than both product price ($z=-2.77, p<0.05$) and quality of service ($z=-4.28, p<0.05$). Quality of service and product price remains essentially indifferent. This makes the ranking product performance, product price, and
quality of service. For new purchases, Group 1 now sees quality of service as separate from product performance while Group 2’s decision criteria remains very similar to their continued purchases.

Another interesting difference between the new and continued purchases lies in the bottom portion of the rankings. In the continued purchases, although both Group 1 and Group 2 rank the same in terms of the means, Group 2 sees very little differentiation between the frequency of service, company reputation, and working relationship with the SSR. Group 1 places more importance on frequency of service compared to company reputation (z=-2.68, p<0.05). This again demonstrates Group 1’s preference to service components. This same trend is observed in the new purchases ranking. For new purchases in Group 2, there is again very little differentiation in frequency of service, company reputation, and working relationship with the SSR.

Questions 26 and 27 clearly show customers surveyed in Group 1 have a preference for service components in their buying decisions. The Group 2 customers, although considering service, place more importance on product performance and pricing. This differentiation between the two groups, however, is not reflected in the rest of the survey.

Questions 28 and 29 directly ask the customer about the tradeoff between lower chemical pricing and service expectations. There is little difference between Group 1 and 2 with respect to their level of expected price drop for both the low-service and pay-for-service options (see Appendix 6). In both groups, the low-service model suggests a 20-25% reduction while the pay-for-service model suggests >25% reduction. Both groups appear to recognize the value of service and expect to be significantly compensated if it is reduced regardless of the circumstances.
The final question of the survey asks whether or not customers are willing to pay a premium for a specialty chemical product should they receive superior service. The results for both groups of customers suggest this is not the case. The mean scores out of seven for the Group 1 and Group 2 were 3.32 (S.D. 1.87) and 3.65 (S.D. 1.78), respectively. The possible reason for the relatively low agreement relates back to the ranking of Questions 26 and 27 which highlight that product performance, quality of service, and product pricing are closely related. Although some level of service is expected, the customers appear price sensitive and with the availability of multiple substitute suppliers, charging a premium for service may actually penalize the specialty chemical supplier company. This effectively rejects Hypothesis 3.
Chapter Four - Discussion and Conclusion

Discussion

The overall findings of the survey suggest that pulp and paper manufacturers do value the services provided by their specialty chemical suppliers (Hypothesis 1). This is not, however, the sole driving force for their decision to buy. As highlighted in Questions 26 and 27, product performance appears to be the first qualifier in the sale. This is typically why most specialty chemical applications are evaluated in the process at the customer location before entering into supply agreements. Often the customers will evaluate multiple products from two to three different suppliers to ensure they have the best product for their mill. If there are no substitutes to the evaluated technology and it meets the expectations of the customer, the application often becomes permanent. From a strategic standpoint, specialty chemical suppliers would benefit from adopting, developing, or purchasing novel technologies for which they could charge a premium price. This difficult, however, as pulp and paper manufacturing is a very mature industry and breakthroughs in chemical technology are few and far between. Often, advances in technology from the suppliers’ standpoint are usually nothing more than ways to lower the cost of goods on existing products.

Unfortunately, there is little product differentiation between specialty chemical suppliers which makes the other buying factors more relevant. Product price and quality of service were ranked highly in terms of customer importance. Product pricing can be influenced by a number of variables (raw materials, transportation costs, labor, etc.) all of which simply shrink or expand gross profit as conditions change. Further, competing on price with undifferentiated products to a buyer with multiple choices becomes a game of who is...
willing to accept the lower margin. Quality of service, on the other hand, may offer some real strategic advantage.

In terms of service, pulp and paper manufacturers appear to place value in the work performed by the Sales/Service Representative of their specialty chemical supplier. This is especially true when these individuals focus on more knowledge or intellectual based tasks. This includes helping the customer to reduce operating costs, solving problems, and offering technical advice. Although the more manual tasks are also perceived to have value, they should only be performed in a secondary role. This strategy matches that proposed by Mathieu (2001).

The customer also sees a benefit from the social relationship although they do not directly link this to the profitability of their business. To capitalize on this finding, which expands on the concepts already found in the literature (Mehta and Durvasula 1998, Teng et al. 2007, Jayawardhena et al. 2007), specialty chemical suppliers need to hire people with strong technical and relational skills. These individuals then need to be supported by their employer through institutional tools such as high-quality resources, multiple products to sell, and technical training courses.

In addition to having the right people, the specialty chemical suppliers need to be focusing on the right tasks. It is clear from Question 24 that there is no simple answer to what a specialty chemical program needs in terms of service. For the most part it appears that the service requirements are customer driven and require weekly or bi-weekly service at a minimum.

In terms of adopting a low-service or a pay-for-service business model, it may not be as simple as originally postulated. This is especially true for those customers who already
have high expectations for service, such as those of Group 1. It may be possible, however, to have the service provided at these locations streamlined to adopt the weekly/bi-weekly model. As shown in Questions 26 and 27 of the survey, quality of service is ranked as more important than frequency of service. If the Sales/Service Representative works to improve service quality by focusing on the knowledge-based/intellectual tasks, a reduced service frequency may be possible.

Reducing the service frequency to the customer does have three potential consequences. First, less time spent with the customer may impact the relational aspect of the business. As a result, more emphasis may need to be placed on customer communication via telephone or email. This includes the establishment of regular reports delivered to the customer that capture the services provided by the SSR during each site visit and clearly outline the financial benefit to their business. Second, less time at the customers’ location may give up the potential for informal business leads. For example, the SSR happens to be onsite when there is a problem and offers some assistance which then turns into a new chemical program. With less customer face time, more emphasis will need to be placed on uncovering new sales leads both during regular site visits and via the new communication protocols. Third, and potentially the most significant, reducing the service requirements necessitates fewer SSRs.

As with reducing service frequency, reducing the number of SSRs has potential consequences. First, each SSR would be responsible for a larger number of customers spread over a larger geography. This means increased travel requirements for the SSR and more time spent away from home. As most SSRs are currently located close to their customers to allow for daily visits, as well as being able to be home every night, the dynamics of the job
would change dramatically. Second, an increased customer base comes with a need for more knowledge diversification. For example, under the old service model the SSR may only need to know about pulp mills. Under the new service model, they may have one pulp mill, three paper mills, and a newsprint recycling division to which they need to provide service. Third, with fewer people in the field the chances for personality conflicts between the customer and the SSR increases. This can damage the relational aspects of the business since even the best hiring practices cannot guarantee that the SSR will get along with everyone.

Despite the apparent downsides to the pay-for-service model, there may be a potential opportunity to grow new business using a low-service model. It is clear from the customers of Group 2 that the service expectation is much lower than those customers of Group 1. For this group, product price and quality of service are not significantly different meaning a lower price and bi-weekly service may be appealing. This strategy could be useful for gaining access to competitively held accounts. The challenge would then be to remain true to the low-service model without falling back into the old service strategy.

In terms of other strategic implications moving forward, unless the specialty chemical supplier has superior products, the success of the business really depends on setting competitive prices and the ability of the sales force. Since pricing can be highly dependent on the sales situation (geography, customer, competition, etc.), greater emphasis needs to be placed on the efforts of the SSR. As each SSR is an individual, there is little ability to standardize the sales force. As a result, underperformers need to be removed to make way for those capable of growing sales with the tools available to them (technical knowledge, relational skills, products, etc.). Since there is nothing unique about this strategy, specialty chemical suppliers can expect long-term performance to be on par with their competition.
It is important to recognize that the survey represents only a small population of the pulp and paper manufacturing sector. Further, many of the respondents were likely Group 1 supporters which may have introduced some bias into the results. It is also important to note that most of the respondents were from management who likely possess a different opinion of specialty chemical suppliers when compared to other employees in the mill. Due to the low return rate on the survey, the employment position in the mill, mill geography, and market segment could not be isolated to establish statistical trends.

As a result, future research for this study lies in gathering more detailed information from the customers. Personal interviews to follow-up on the findings of the initial survey seem appropriate. The goal of these discussions would be to gain further insight into what aspects of the service are seen as most important and explore the reasons behind the customers’ unwillingness to pay for them.

**Conclusion**

Pulp and paper manufacturers do value the services provided by their Specialty Chemical Suppliers. Although the service expectations are different for many of the specialty chemical programs, what is clear is that pulp and paper manufacturers do not want to pay for the service. They may be willing to accept lower service (weekly or bi-weekly) but the quality would need to be a consistent focus during the time spent with the customer. The reason for their unwillingness to pay may simply be that service, along with the purchase of the chemical, is currently free and available from multiple suppliers.
References


Walsh, K. 2008. “Specialties Are Back in Fashion.” Chemical Week September 22


Appendix 1 – Schematic of the various B2C and B2B business models as found in the literature on service quality measurement.
Appendix 2 - Customer Survey Question Set

Section 1 – Service Quality Measurement

Note: First six questions not shown as they were customer classification questions.

Corporate (7-Point Likert 1=Strongly Disagree, 7=Strongly Agree)

7. The company offers a large breadth of products to choose from
8. The company is seen as an industry leader in new technology
9. The company provides their Sales/Service Representative (SSR) with adequate business and technical support for your mill
10. The company challenges and re-engineers current business practices to benefit both organizations
11. The company puts safety at its highest priority
12. The process of doing business with the company is easy

Sales/Service Representative (SSR) (7-Point Likert 1=Strongly Disagree, 7=Strongly Agree)

13. The SSR offers advice that is technically sound
14. The SSR proactively offers your organization customized technical solutions (i.e. thinks outside the box)
15. You often seek the SSR’s help with problems not directly related to their specialty chemical products or programs
16. The SSR is actively involved in training your companies’ employees on how to safely and efficiently use their products
17. The SSR submits regular service reports
18. The service reports are meaningful and informative.
19. The resources provided by the SSR are of high quality
20. The SSR works well with all levels of your organization
21. The SSR builds up trust within your organization
22. The SSR is able to handle your complaints professionally and fairly
23. You personally enjoy working with the SSR

SSR Activity Importance Ranking

24. From the list of ten common SSR activities below, rate each in terms of their importance. (1=Least Important, 10=Most Important).

- Ability to reduce mill operating costs
- Onsite lab testing
- Equipment management
- Problem solving
- Industry knowledge
- Social relationship
- Inventory management
- Technical knowledge
- Offsite lab testing
- Understanding of your mill systems
Appendix 2 - Customer Survey Question Set continued...

Section 2 - Service Frequency Expectations

25. From the list of programs below, indicate the required level of service for each using:

- Daily  □ 2-3x per week  □ Weekly  □ Bi-Weekly  □ Monthly  □ None

- Boiler Treatment
- Coating Specialities
- Contaminant Control – Paper
- Contaminant Control – Pulp
- Defoamer/Anti-Foam
- Dry Strength Aids
- Influent/Effluent Treatment
- Microbiological Control
- Retention Drainage Aids
- Sizing
- Tissue and Towel Additives
- Wet Strength Aids

Section 3 - Pay-for-Service Model

26. Rank the following items in terms of their importance (1=most, 6=least) when dealing with ongoing purchases from your preferred specialty chemical supplier.

- Company Reputation
- Product Performance
- Quality of Service
- Frequency of Service
- Product Price
- Working relationship with SR

27. Rank the following items in terms of their importance (1=most, 6=least) when dealing with new purchases from a specialty chemical supplier you don't normally deal with for your mill.

- Company Reputation
- Product Performance
- Quality of Service
- Frequency of Service
- Product Price
- Working relationship with SR

28. In general, at what level of product price reduction would you be willing to accept less service?

□ 5% less  □ 5-10% less  □ 10-15% less  □ 20-25% less  □ > 25% less

29. In general, at what level of product price reduction would you be willing to pay a fee for service?

□ 5% less  □ 5-10% less  □ 10-15% less  □ 20-25% less  □ > 25% less

30. For superior service, you are willing to pay a premium for a specialty chemical product?
### Appendix 3 – Mean ranking and standard deviation for Section #1 of customer survey.

<table>
<thead>
<tr>
<th>Class</th>
<th>Question</th>
<th>Overall</th>
<th>Group #1</th>
<th>Group #2</th>
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<td>7 Large breadth of products</td>
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<td>7 Large breadth of products</td>
<td>5.67</td>
<td>6.15</td>
<td>5.37</td>
</tr>
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<td>8 Leader in new technology</td>
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<tr>
<td>Technical</td>
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<td>5.45</td>
<td>5.61</td>
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<tr>
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<td>13 Advise technically sound</td>
<td>5.37</td>
<td>5.55</td>
<td>5.15</td>
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<td>Functional</td>
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<td>Functional</td>
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<tr>
<td>k</td>
<td>Equipment management</td>
</tr>
<tr>
<td>l</td>
<td>Industry knowledge</td>
</tr>
<tr>
<td>m</td>
<td>Inventory management</td>
</tr>
<tr>
<td>n</td>
<td>Office/lab testing</td>
</tr>
<tr>
<td>o</td>
<td>Onsite lab testing</td>
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<tr>
<td>p</td>
<td>Problem solving</td>
</tr>
<tr>
<td>q</td>
<td>Social relationship</td>
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<tr>
<td>r</td>
<td>Technical knowledge</td>
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<tr>
<td>s</td>
<td>Understanding of your mill systems</td>
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Mean: 8.13; S.D: 1.84
Appendix 4 – Frequency (%) and Median results for Section #2 of customer survey (12 different specialty chemical programs).

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<td>11.5</td>
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<td>7.7</td>
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<td>Weekly</td>
<td>Bi-Weekly</td>
<td>Weekly</td>
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<td>Group #2</td>
<td>Group #1</td>
<td>Group #2</td>
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<td>4.9</td>
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<td>2-3 times per week</td>
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<td>3.3</td>
<td>26.1</td>
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<td>11.5</td>
<td>13.0</td>
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<tr>
<td>Median &gt;</td>
<td>Bi-Weekly</td>
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<td>12.9</td>
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<td>10.8</td>
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<td>16.1</td>
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<td>7.8</td>
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Appendix 5 -- Mean rankings and standard deviation for Section #3, Questions 26 and 27, from the customer survey.

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<th>Group #2</th>
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<tbody>
<tr>
<td>1</td>
<td>Company Reputation</td>
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<td>2.62</td>
<td>2</td>
<td>2.56</td>
<td>2.018</td>
<td>2</td>
<td>2.67</td>
<td>2.000</td>
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<td>2</td>
<td>Product Performance</td>
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<td>3.10</td>
<td>3</td>
<td>2.84</td>
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<td>5</td>
<td>3.13</td>
<td>1.465</td>
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<tr>
<td>3</td>
<td>Quality of Service</td>
<td>3</td>
<td>3.14</td>
<td>5</td>
<td>3.07</td>
<td>1.286</td>
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<td>3.35</td>
<td>1.416</td>
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<td>4</td>
<td>Frequency of Service</td>
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<tr>
<td>5</td>
<td>Product Price</td>
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<td>4.13</td>
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Appendix 6 -- Mean, standard deviation, and median results for Section #3, Questions 28-30, from the customer survey.

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<th>Group #2 Mean</th>
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<th>Median</th>
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<td>-</td>
<td>-</td>
<td>4.0</td>
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<td>-</td>
<td>4.0</td>
<td>-</td>
<td>-</td>
<td>4.0</td>
</tr>
<tr>
<td>29</td>
<td>Price reduction willing to pay fee</td>
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<td>-</td>
<td>5.0</td>
<td>-</td>
<td>-</td>
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<tr>
<td>30</td>
<td>Superior Service willing to pay premium</td>
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<td>-</td>
<td>3.32</td>
<td>1.788</td>
<td>-</td>
<td>3.65</td>
<td>1.779</td>
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The median score of 4 and 5 equal, prices reductions of 20-25% and > 25%, respectively.