

Establishing and Maintaining a
Buyer/Supplier Relationship within the
Product Development Industry for Model-
Making and Prototyping

A Thesis Submitted to the Honors Council at
Bemidji State University

By:

Kelly Vukad

In Partial Fulfillment of the Requirements for a
Bachelor of Science Degree

April 2002

Contents

| | |
|--|----|
| Acknowledgements..... | 3 |
| 1. Introduction..... | 4 |
| 2. Understanding the Nature of the Industry..... | 6 |
| 3. The Building Blocks of a Successful Business...12 | |
| Business Plan | |
| Internal Structure | |
| Processes & Systems | |
| 4. Getting Your Foot in the Door..... | 23 |
| Marketing Your Company | |
| Utilizing Effective Selling Techniques | |
| Supplier Selection | |
| 5. Maintaining Your Relationship..... | 35 |
| Being Receptive | |
| Continually Performing | |
| Evolving with Your Customer | |
| Bibliography..... | 40 |
| Appendix | |
| A. Subject Matter Experts..... | 40 |

Acknowledgements

The following is a thesis developed as a requirement of the Honors Program, and for partial fulfillment of the requirements for a Bachelor of Science Degree in Design Technology with a Model Design Specialization, from Bemidji State University. It is through my courses at the university, my involvement in the Association of Professional Model Makers, and the opportunities I have been given on my internships, that I have been able to develop this thesis. It is a reflection of those experiences, and a product of my continued involvement in the industry. Thank you to all of those who have made this possible.

-Kelly Vukad

Introduction

Success in business is being able to establish relationships, maintain those relationships, and gain new ones, while you concurrently accomplish your goals, objectives, and dreams for your company. Success also means staying in business, which is the most challenging aspect facing a supplier that offers a model-making and prototyping service. Even though the business is challenging, unpredictable, and controlled by your customer, there are still shops that are able to remain in business and be successful. What does it take to establish and maintain a buyer/supplier relationship within the product development industry for model-making and prototyping?

Establishing and maintaining a relationship with a buyer is directly effected by how well you build your business. This thesis development opens with, *Understanding the Nature of the Industry*, a section that concentrates on the role of the supplier in the industry. Knowing and identifying the possible challenges you will face as a supplier will allow you to set yourself up to overcome those challenges the best you can. The second section, *The Building Blocks of a Successful Business*,

takes a closer look at the key elements needed in order to reach customer service. The third section, *Getting Your Foot in the Door*, reveals the process and method used in establishing a relationship between the buyer and supplier. Lastly, in the section entitled, *Maintaining Your Relationship*, the thesis concludes with recommendations for the supplier on how to continually maintain a relationship with their buyer.

**Understanding the Nature of the
Industry**

My customer is asking for parts by 4:00 p.m. and they just dropped them off at 2:00 p.m. It is a machining operation for a latch modification on 24 parts, which will require a fixture to be made, a set-up, machining of parts, and some hand finishing to blend the contour. It will not be a job that will be repeated. It is a one-time fix, for this batch of parts. Is it feasible? Sure, we'll make it work. Is it worth it? Probably not, from a profitability standpoint, but it's the nature of the industry.

The type of model-making and prototyping work that is required obviously varies from industry to industry. Such as, modeling needs for the furniture industry will be very different from the needs of the automotive industry. Even though model-making and prototyping are treated differently in each industry it is used in, it does share some similar attributes.

Typically the supplier will take one of two directions. The supplier will either service the industry in model-making in the design phase or in the engineering phase of the product development cycle. The service firm that services the design phase, will more than likely have a staff of designers/modelers who will assist in the development of conceptual ideas for the client (industrial designer or engineer). They will produce prototypes that

will give a form factor indication to aid in the direction of a product. Their capabilities would also allow them to produce appearance models that could assist the marketing teams in their focus group studies, be used for advertisements, or annual trade shows, such as the International Consumer Electronics Show (ICES), used to debut new products to channel partners and distributors (A. Haase, personal communication, July 10, 2000). The service firm that services the engineering phase would assist the engineers with any modifications to parts, any engineering changes, or could produce a physical prototype through the use of different types of rapid prototyping, machining, or molding and casting (J. Price, personal communication, March 26, 2002). They would have the capabilities to produce fully functional prototypes.

Within these two directions a supplier will still face certain challenging aspects servicing the product development industry. Generally, products are being pushed through their developmental process at shorter and shorter cycles of development, in order to reach the market first to be competitive. Today, it is all about time to market, putting pressure on the development teams to become tighter and more efficient, to push the process to it's limits (Smith & Reinertsen, 1998). Being a service firm is going

to require quick turnaround work at a high intensity level. This type of work requires a unique set of talents, disciplines, and craftsmanship to get the job done in a short period of time (M. VandenElzen, personal communication, Fall 2001). As a supplier, the work from your clients is not going to be predictable and you are not going to be able to plan a projection of work from month to month, because it really depends on how busy your clients are, in order to outsource you the work.

As a supplier, a majority of your clients are the large product development corporations, such as Motorola, Steelcase, Johnson Controls Interiors, Donnelly, Herman Miller, Compaq, Whirlpool, etc. Within those corporations the design departments, modeling groups, and prototype development teams, will be in charge of outsourcing to their suppliers when needed. The key is understanding that each one of these industries has its ups and downs, which usually occur in cycles. It is the supplier's job to know when those times are. This is important in order to determine when there is potential to gain business from a particular client. If your potential buyer is in a slump you will not be given the opportunity to receive any business from them, it is a time where the buyer is not able to do anything about it. Their business plans will

keep their internal modelers busy during slow times in order to prevent against lay-offs. Not every industry however, is down at the same time and up at the same time.

The manager of the model shop at Steelcase, explains the biggest challenge in their continued relationship with their suppliers:

The biggest challenge in our continued relationship with our suppliers is giving them enough work. They like a continued work flow, but things change, they always evolve, sometimes they even go away because they don't need our work anymore, it's not good work for them, or they want more work and we just don't have it sometimes. We are not a reliable source that we can continue to give them work every week. If our suppliers understand this going in, we currently have some great relationships with some suppliers, they understand that, and they are always willing to help us (D. Stubbs, personal communications, March 25, 2002).

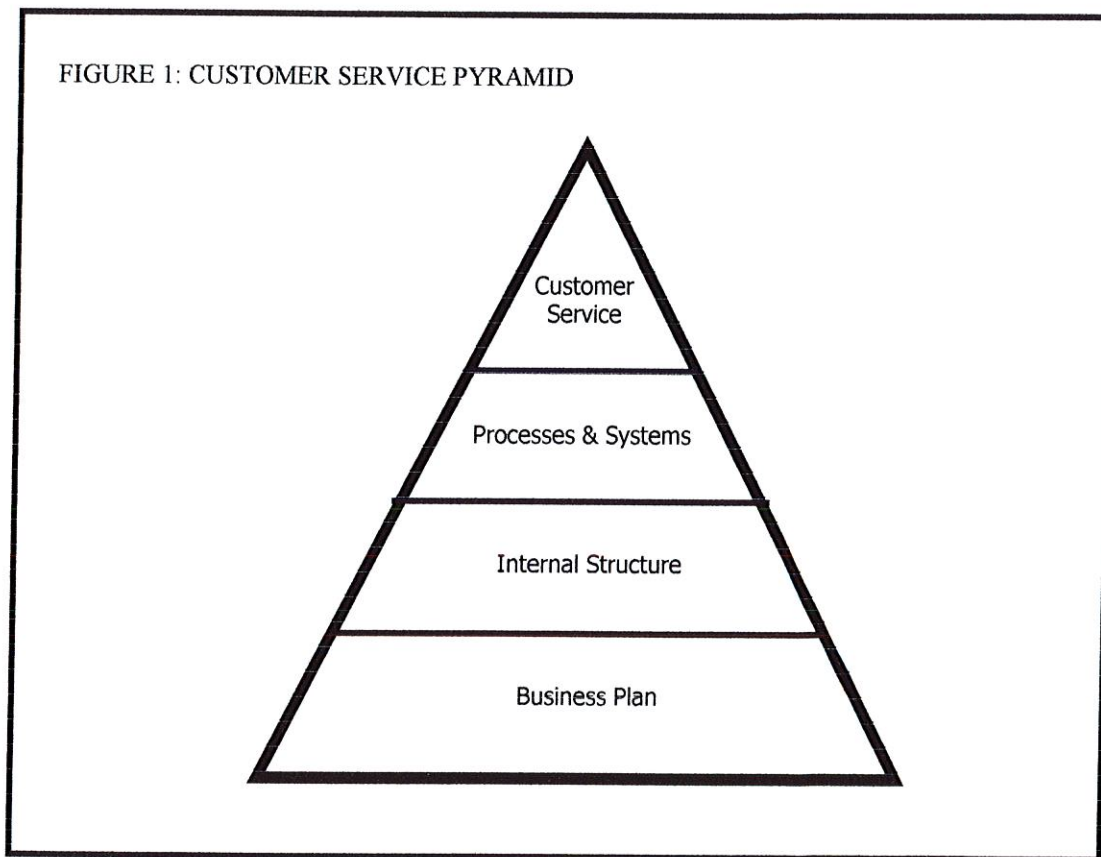
The nature of the industry tells us that being a supplier for model-making and prototyping is challenging. There is a niche market for it, where the service is definitely needed, but you have to define what your customer's requirements and expectations are in order to

service the market well. There is a lot of competition amongst suppliers, however many end up going out of business. A lot of suppliers will either grow out of model-making and prototyping or get burnt out and move on to other things.

To be successful as a supplier, you must be passionate about the business and stay within that mind set. You are not going to get rich quick due to the small profit margins of the projects, but the rewards, because it is a challenging business to be involved in, can be priceless.

**The Building Blocks of a Successful
Business**

The building blocks of a business are the basic fundamentals that allow a business to effectively service their customers. Without these building blocks in place, the supplier cannot expect that their business is going to be able to meet and exceed their customer's requirements and expectations. These building blocks form a pyramid to customer service, as illustrated below in figure 1.



Business Plan

Having a business plan is the first building block in the pyramid. Your business plan is the foundation of your

business. It includes the vision, direction, and focus of your company. It should also include your marketing plan, financial plan and structure of your company.

Creating a business plan can be challenging. To help you get started, take advantage of all the resources available to you. At your local library you should be able to locate several sources on how to create a business plan and what a business plan should include. Another source, that you can gain some expertise at an affordable price, would be the Chamber of Commerce, a Small Business Development Center, a University, or College, in your area that may offer a course, seminar, or workshop at a low cost. The other route is to hire a consultant that would work along with you to create your business plan, which can be beneficial, but also very costly.

Creating the business plan is one thing, but another is actually carrying out that plan. Carrying out your business plan means involving your employees to understand the plan and to also act and react according to its structure to serve your customers well. If your employees are not aware of your vision, direction, and focus for your company they certainly are not going to work towards that and relay that strong business element to your customers. If your customers have a question in regards to why you

make certain business decisions, your employees are open to give too many answers. This could possibly ruin your relationship with your customers if you are not careful. It is your responsibility as owner and president of the company to always provide the strategic moves, focus, direction, and vision of your company to your employees who then relay that onto your customer.

There is a continuous development process to any business plan. As a business you are going to change, evolve, and grow. Your business plan once created cannot be the same once you have gone through those changes and have made those evolutions. The process must be to first create your business plan, then to carry out that plan with your employees in order to help service your customers well. Updates to your existing plan will occur when you have made a change or evolution in your business. It is a continuous cycle to create, carry out, and update.

Internal Structure

The second building block of the pyramid is your internal structure. This includes two elements: people and equipment. These elements make up the structure of your company, without them, you cannot service your customer.

People

Having the right people in place is one of the most important aspects of business. Their ability to communicate effectively, evoke professionalism and organization, project manage, and carry with them a technical background of diverse skills, talents, and abilities, will provide your organization with the necessary components to service your customer effectively. Hiring model makers with the profile listed above is going to help you to grow your business and feed your customers. Without that profile your customers will constantly be hungry for information or wanting what you are unable to provide. You will always be working harder than needed, because you are constantly putting out fires instead of being able to put things behind you and move your business forward. Hire the right people, even though it may cost more for better resources, you owe it to the survival of your business.

The people in your company are going to be representing what your business is all about. They are the front line to your customer, and without them, the work cannot be completed and your business does not operate (Sargent, D., Sargent, M., & Wold, 2000). As a business owner your people need to come before the customer. If

they do not come first, you will have a difficult time making the next step in your business, because they are the ones that make the leaps into the future for you. Their knowledge about your business is critical, because it is directly and indirectly communicated to your customers. To ensure that you are able to get the best deliverable customer service possible from your employees here are some pointers to keep in mind:

- **Define Job Responsibilities and Your Expectations:**

If Job Responsibilities are not defined the employee has no sense of direction or feeling of accomplishment. If they do not understand or know what your expectations are, how are they supposed to meet and exceed them?

- **Pay attention to the key players needed in running a**

business: As a supplier, the size of your company is generally small, and you need to have your employees wear several "hats." Remember that there are still full time responsibilities that every business needs to meet. If you are missing some of those required responsibilities you could be sacrificing customer service.

- **Put together a chain of command:** This establishes respect amongst employees, establishes boundaries,

and reinforces that they are a key player in the team effort it takes to deliver customer service. This will also help to improve efficiency and reveal where your strengths and weaknesses lie.

- **Schedule regular team meetings:** Build an environment where employees not only get to express their ideas, but where those ideas can be discussed, evaluated, and followed.
- **Give Periodic Reviews and Evaluations:** As an employer, you are able to meet one-on-one with each employee to give and receive feedback in all areas that effect the performance of the individual. Meeting individually with each team member will reinforce how important their role is to the success of the company. An evaluation can also raise red flags or bring up areas in need of improvement. Since specific areas have been looked at and have been discussed with the employee, you are able to evaluate progress over time. Meeting with your employees to periodically evaluate their role will help continually improve your business.
- **Offer opportunities and further employee training:** Your employees need the reinforcement of knowing that there is not a 'glass ceiling' in your

business. They need to know how they can reach the next level, if they choose. Offer ways to improve their performance in their current job through workshops, seminars, and classes. Pay attention to the direction they would like to head, you may have a future manager staring at you and you wouldn't even know it if you didn't give them the opportunity to advance themselves. This increases the experience and knowledge of your employees, and in turn increases the experience and knowledge of your company.

- **Develop an employee handbook and distribute to your employees:** Included in the handbook should be areas such as benefits offered, vacation time, and policies and procedures to follow. If your employees don't know the rules or boundaries of the organization they can start to take advantage of them. It is your responsibility as the employer to set up those boundaries and educate your employees on them. You cannot expect that the employees of your business will have a universal knowledge of procedures and policies, if they are not clearly defined. When those procedures and policies are not

clearly defined you can expect to have inefficiencies within your business.

Equipment & Tools

The second element in setting up your internal structure is equipment. Together the people you have in place, their experience, and capabilities, along with your equipment and tools are going to provide your services to your customer. Choosing the right equipment becomes a challenge in order to offer a model-making or prototyping service.

As was previously mentioned in the first section on the nature of the industry, the supplier will generally take one of two directions, servicing the customer in the design phase or in the engineering phase.

The design phase requires a lot of form factor developments, quick mock-ups, and towards the end of the phase will generally require an appearance model to convey a more finalized conceptual idea. The equipment and tools that are needed are more traditional equipment including manual machines, a table saw, band saw, disc sanders, drill press, hand tools, and etc., to generate the beginning form factors. Towards the end of the design phase, where the concept is more developed and generally will be associated with Computer Aided Design Data, you are able to Computer

Numerically Control (CNC) Machine or use other rapid prototyping processes to build and generate parts off of the data. With the evolution of products, the use of new and unique materials are being introduced, this is where RTV molding and casting capabilities come into play in order to simulate the production product. This is helpful to use if multiple quantities are needed, before prototype tooling is finished. You are able to cast urethane parts which simulate the properties of the intended production material. A urethane casting system, a silicone mixing machine, pressure pots, and ovens could be amongst your equipment added to support the molding and casting process. Representing the product in an appearance model generally calls for some functionality, use of graphics, color variations, weight representation, etc. A spray booth, spray finishing guns, a mixing center, a computer aided color matching system, and possibly a pad printer will aid in producing appearance models.

Generally model-making and prototyping for engineering testing will require modifications, removing and adding material, the introduction of mechanical solutions to the functionality of the prototype, and possible electronics installation. Equipment required for this stage of prototyping still calls for the traditional kinds of

equipment listed above, and the use of more CNC machining and rapid prototyping processes for additional changes to the Computer Aided Design Data and as the product is pushed through the different stages of the development cycle.

Processes & Systems

The third and final building block in order to reach customer service, are the processes & systems that you use to run your business. When your internal systems are efficient your customer is going to receive information more efficiently and their concerns are going to be addressed and taken care of right away. Communication is the number one issue in the model-making and prototyping business. If you do not have a good system in house to respond to your customer or a way to track down information, you will lose that confidence in your customer of being able to deliver. All the processes that a job needs to go through from coming in the door to reaching the customer, is in direct relationship with your ability to deliver on time, with high quality parts, at a reasonable cost. If you are able to master an efficient system, you will notice the effect it has on your timing, quality, cost, and your relationship with your customers. You will be able to deliver the best possible customer service with

little or no effort, because the system will do the work
for you.

Getting Your Foot in the Door

Getting your foot in the door as a supplier begins with marketing your company, utilizing effective selling techniques, and understanding the supplier selection process in order to begin a relationship with your customer.

Marketing Your Company

Marketing is the process of finding the best and right customers that need or want your products or services in order to make your business successful and profitable (M. Allister, personal communication, February 12, 2002). To successfully market your company, you need to develop a marketing plan, which is part of your business plan. Putting together a marketing plan requires you to first analyze your business, your customers, and your competition.

Analyzing Your Business

When you fail to analyze your business, you are building a wall between you and your potential customer. Analyzing your business is key to determining your Strengths, Weaknesses, Opportunities, and Threats, termed the S.W.O.T. analysis. The analysis will allow you to know your business better and help you to identify areas in need of improvement. It could also be used to help you determine

the key features and benefits you offer to your potential clients, that could be used in your marketing campaign. Look at certain factors such as location, quality, reputation, customer service, technology, communication, equipment and tools, expertise of staff, etc., when conducting the survey. To get a wide range of perspectives and a more accurate analysis, have all of your employees complete the S.W.O.T. analysis on your company, as well as a few current customers that you have a good relationship with, who will be honest in their evaluation.

Analyzing Your Customers

Who are your customers? Taking a closer look at your potential customer's profile will tell you why they need your service, where geographically they are found, how they purchase your service, their purchasing habits, and how your customers pay for your service.

In the model-making and prototyping service, your potential target market is very specialized. There is a specific profile to your customers. They are, as earlier mentioned, other model makers, designers, or engineers within larger product development corporations. They purchase your service through the use of a RFP (Request for Proposal). Cost of the service provided is based on an hourly rate. For higher volume models and prototypes

produced, generally a piece price is determined and charged instead of an hourly rate. Your customer will more than likely issue you a P.O. (purchase order) number for you to use when invoicing. This can be a challenge for smaller shops, because you could complete the work and not see the return from your customer until 3 months later! This is typical, when your customer is a larger corporation. All purchases are handled by a purchasing department who are in charge of issuing all of the checks. Pay attention to the P.O. from your customer, that will indicate when they will issue you payment. Be careful, this is what will turn your business upside-down. Be aware of it, and try to work something out with your customer in order to receive the return faster. Planning is critical, always remain on top of your invoicing. If you do not bill a customer, you will not see the return. Other methods of payment your customer could use, would be a department credit card, where you could see the return in a very short period of time.

The more you know and understand about your customer the more your relationship will grow. You will be able to find ways to continually improve and grow your company along with providing a better service to your customers.

Analyzing Your Competition

Who are your competitors? Can you identify who they are? Perform the same S.W.O.T. analysis on your competitors as you performed on your own business. Use the same factors that you used to evaluate your business and compare the results between you and your competitors. Do you come out on top? Knowing your competitors will allow you find and gain that edge in your market.

Buyers are always looking for new suppliers. This of course is to your advantage, but it also tells you, it doesn't make you any different than your competition. The only way you stand out, as several marketing experts will tell you, is if you are able to differentiate yourself from your competition. It seems like a simple concept, but it really isn't. Outstanding quality, early delivery, and competitive prices are phrases you can no longer use for your advertising and marketing campaign. This is what is expected and is not considered extra benefits to your customer. Find out what it is that differentiates you from your competition and use that to help you market your company.

Components of a Successful Marketing Plan

The following is a list of components that should be included in your marketing plan, provided by Mary Ann

Alliston, Development Specialist, from the Grand Rapids,
Michigan Chamber of Commerce:

1. Mission statement-from your business plan. Your marketing plan should support the mission of your company.
2. Marketing objectives for one, two, and three years.
3. Sales and profit goals for one, two, and three years.
4. Define target markets.
5. Identify products or services to be offered.
6. How will you achieve your goals:
 - A. Overall Strategy
 - B. Competitive Strategy
 - C. Promotional Strategy
 - D. Pricing, Place, Sales Strategies
 - E. Marketing and Advertising Budgets
7. Identify potential problems and proposed solutions.
8. Develop implementation of schedules and benchmarks.
9. Record best practices of your plans.
10. Evaluation- how did your plan do.

Utilizing Effective Selling Techniques

After you have built your marketing plan, you should know what methods you are going to use to reach your customer.

The first step in effective selling is to be proactive. The proactive selling method includes investigating your potential customer, introducing your company and service offerings, establishing what their needs are, offering them a solution giving features and benefits, and ends with asking for the sale.

Identifying your target customers it is part of your marketing plan, but is the active part of effective selling. In order to be successful at selling to your customers you need to first investigate and identify who your customers are to establish your target and focus for selling. This can be accomplished by utilizing business directories and all available resources such as printed materials and internet research. Involve yourself in networking activities, locally and nationally, to find your potential customers. Join professional organizations such as the chamber of commerce in your area, the Association of Professional Model Makers (APMM), or other organizations related to the specific industries which you are going to service. Other networking opportunities would include

participation in trade shows, conferences, conventions, and buyer/supplier luncheons and dinners.

The next step after identifying the customers you want to target is to determine how you are going to approach your customer to introduce your company and services. Through networking opportunities you could have already approached your potential customers, but you still need to follow-up with them to show your continued interest.

There are several ways to approach your customers. Investigative calling, sending introductory letters with some of your company literature, or having an open house, are all proactive introductory selling techniques. A big part of introducing yourself to your customer is being prepared. Successful selling is knowing your business, your customers, and your competition. You are going to look more attractive to your customers if you are able to answer questions effectively or know where you can find the answers.

Your goal as a supplier is to be able to offer your potential customers a solution with features and benefits. If you cannot, this customer may not be the right fit for your business. If there is a possibility you will have to change your service offering in order to do business with

this customer, you need to reevaluate how important their business is to you.

Once you have established a fit between you as a supplier and your potential customer, it is up to you to ask for the sale. There is no harm in asking for an opportunity to quote. Buyers are always looking for new suppliers, and it is an excellent opportunity for them to find out how you do business. If you never ask for the sale, you cannot expect to ever get that sale.

Supplier Selection

In the beginning of a relationship with a buyer, you must first understand the process they use in selecting suppliers, as well as their requirements and expectations. If you do not know what they are looking for or what their needs are, you will have a hard time forming a relationship with them.

When it comes to finding a supplier for specialized areas of model-making and prototyping, the buyers choices are limited. Buyers are not able to set their requirements too high, because there may not be a lot of model or prototype shops to choose from in their area. At the corporate level, the purchasing departments focus more on cost, specifically for production contracts, but in prototyping the focus is timing. When the buyer is limited

by timing, location of the supplier is the most important factor. Timing and location limit which suppliers are utilized.

When a buyer is presented with a new supplier, the first stage of the selection process is to visit their shop or facility. Depending upon the reputation of the supplier or the type of work, there may not be a need to visit the facility, but in most cases this is the first stage of the process. This is a very important part of investigation for the supplier and buyer. As the supplier, you need to understand that you look at your business very differently than the buyer will look at your business. Know and understand how perceptions are formed. Tellin' ain't sellin', (L. Freshour, personal communications, February 19, 2002). As a supplier, you need to be confident about your business, but you also cannot be blind. For example if you are telling your customer that you stand for quality service and they walk through your shop and it is unorganized and dirty their perceptions will lead them to believe that you are not able to deliver quality parts. Jacques Horovitz(2000) explains how physical filters impact your customer:

Each time you appeal to the five senses to reinforce your offer, you strengthen a positive perception of

its quality and capacity to fulfill needs. Those 'physical clues' can lead a customer in the wrong direction if you get it wrong. A dirty exterior in a restaurant speaks ill of its kitchen and cooking. A new tire on a car will not be perceived as such unless the wheel is clean. The use of glossy, four-color brochures to state that your offer is cheap sends the wrong signals.

Immediately after the visit to the supplier's facility the buyer will place the supplier into a category of model-making or prototyping that matches what the buyer feels are the strong points of their service offering. Such as, if the buyer is a prototype development department and their need is an outsource for engineering changes, high end show properties, or other specialized services, they are going to throw the supplier into one of the above categories (C. Pearson, personal communication, March 26, 2002).

After the buyer has placed you into a category of the kind of model-making and prototyping work they feel you would best be able to service them with, they will generally test you with a project of that kind.

Within the test project, the supplier's ability to meet the buyer's requirements and expectations will be

Maintaining Your Relationship

Maintaining a relationship is being receptive to your customer's needs, continually performing to meet and exceed your customer's requirements and expectations today, and evolving with them to meet their needs in the future.

Being Receptive

The bottom line is to know your customers well. You need to be receptive and reactive to your customer's feedback. Most of your customers will always let you know how you are doing, or give you warning signs for certain areas they see are in need of improvement. Be proactive and ask! They will provide you the information. When your customer is providing an evaluation, formal or informal, have them use specific examples. Listen to what they have to say, they will not only let you know what the issue is, but they will let you know how they would like to see you resolve the issue, to help you improve yourself and your performance (J. Truttman, personal communication, March 26, 2002).

The biggest mistake supplier's make in this area, is avoidance of their customer's feedback. Supplier's often become too defensive, and shrug that information to the side. Do your customers run your business or do you run your business? Remember how we talked about perceptions in the last section? If you appear to be disinterested in

your customer's feedback, or show concern and do nothing to resolve the issue, your customer's perceptions lead them to believe you don't want to continue a relationship with them. They receive feedback telling them that they are not important to your business.

Continuous Performance

Meeting and exceeding your customer's requirements and expectations by continually performing, is not enough.

Keep in mind that just being able to deliver your product and service, is not all that your customer is requiring of you. If you cannot deliver on time, with high quality parts, at a decent cost, and with effective communication, you will not be able to provide your customer with the basics and certainly not with any added benefits.

Communication, quality, time, and cost are the basics of continuous performance, but they do not differentiate you from your competition.

Evolving with Your Customer

Change. We tend to avoid this word, why? It means challenge, more work, more cost, and no guaranteed returns. The fact is, change is good, it allows us to grow and to stay on top. Change, or evolution, is part of developing a strong business. It means continually improving. It means

taking a "hit" or loss in order to make things better. If you can't afford to change and evolve, you can't afford to stay in business. If you do not believe in change or the evolution of your business, you will never be truly successful.

It is important to evolve with your customer, if you don't, you may be left behind. The trends in technology and the changing processes your customers will evolve to, will effect how you are able to service your customer. Often we forget that even though there is an established need for our services today, tomorrow that need may be extinguished or lessened greatly. Work with your customer to develop your business. They may have suggestions that could help you diversify your business, such as introducing a new piece of equipment that could provide more opportunity to further deepen your existing relationship with them. This expansion may provide another avenue for your business to grow, on top of what you currently offer.

Bibliography

- Aljian G. W., & Farrell, P. V. (Eds.). (1958-1982) Aljian's Purchasing HandBook (Fourth Edition). New York, NY: McGraw-Hill Book Company.
- Allen, D., & Monroe, R. (2002, Spring). Navigating the Road to Casting Supplier Selection. Engineered Casting Solutions, pp. 18-20.
- Burt, D. N., & Pinkerton, R. L. (1996). A Purchasing Manager's Guide To Strategic Proactive Procurement. New York, NY: Amacom.
- Burke, J. (1997). Creating Customer Connections How To Make Customer Service A Profit Center For Your Company. Santa Monica, CA: Merritt Publishing.
- Giel, K., & Naumann, E. (1995). Customer Satisfaction Measurement and Management. Cincinnati, OH: Thomson Executive Press.
- Gitomer, J. (1998). Customer Satisfaction Is Worthless Customer Loyalty is Priceless. Austin, TX: Bard Press.
- Griffin, J. (1995). Customer Loyalty How to Earn It, How to Keep It. New York, NY: Lexington Books.
- Gustafsson, A., & Johnson M. D. (2000). Improving Customer Satisfaction, Loyalty, and Profit. San Francisco, CA: Jossey-Bass a Wiley Company.
- Gutek, B. A., & Welsh, T. (2000). The Brave New Service Strategy. New York, NY: Amacom.
- Hiebeler, R., Kelly, T. B., & Ketteman C. (1998). Best Practices Building Your Business With Customer-Focused Solutions. New York, NY: Simon & Schuster.
- Horovitz, J. (2000). The Seven Secrets of Service Strategy. Harlow, England: Financial Times Prentice Hall.
- Petroski, H. (1996). Invention By Design How Engineers Get From Thought to Thing. Cambridge, MA: Harvard University Press.
- Reinertsen, D. G., & Smith, P. G. (1998). Developing Products In Half The Time. New York, NY: John Wiley & Sons, Inc.

Sargent, D., Sargent, M., & Wold, D. P. (2000). NxLevel Guide for Entrepreneurs.

Retrieved August 3, 2001, from
<http://www.nxlevel.org/entrep.html>.

Schmit, M. L. (1997). Functions Performed By Entry Level Model Makers And Their Importance. Unpublished Doctor of Education Thesis, Univerity of Minnesota, Minneapolis.

Seybold, P. B., Marshak, R. T., & Lewis, J. M. (2001). The Customer Revolution. New York, NY: Crown Business.

Weinstein, A. (1998). Defining Your Market Winning Strategies for High-Tech, Industrial, and Service Firms. New York, NY: The Haworth Press.

Dr. Mark Schmit, Industrial Technology Department
Model Making/ Design/ Material & Processes
Bemidji State University
226 Bridgeman Hall
1500 Birchmont Drive Northeast
Bemidji, Minnesota 56601

Chris Pearson, Lead Modeler Product Development
Johnson Controls Interiors, Inc.
915 East 32nd Street
Holland, Michigan 49423

Jeff Price, Lead Modeler Product Development
Johnson Controls Interiors, Inc.
915 East 32nd Street
Holland, Michigan 49423

Jay Truttman, Lead Modeler Product Development
Johnson Controls Interiors, Inc.
915 East 32nd Street
Holland, Michigan 49423

Anthony Ho, President
Lotus Corporation
13030 Ransom Street
Holland, Michigan 49424

Nicole Asher, Product Planning
IDEN Subscriber Division
Motorola
8000 West Sunrise Boulevard
Fort Lauderdale, Florida 33322

Theophilos Antoniou, Consumer Products Division
Motorola
8000 West Sunrise Boulevard
Fort Lauderdale, Florida 33322

Dell Barton, Strategic Research Manager
Motorola
8000 West Sunrise Boulevard
Fort Lauderdale, Florida 33322

Kyle Beeck, Industrial Design Engineer
Motorola
8000 West Sunrise Boulevard
Fort Lauderdale, Florida 33322

Jaime Borrás, Vice President of the Technical Staff and
Director of Technology
IDEN Subscriber Group
Motorola
8000 West Sunrise Boulevard
Fort Lauderdale, Florida 33322

Anthony Davies, Physical Prototyping & Tooling Center
Motorola
8000 West Sunrise Boulevard
Fort Lauderdale, Florida 33322

Rich DeCicca, Mechanical Engineer
Motorola
8000 West Sunrise Boulevard
Fort Lauderdale, Florida 33322

Jim Dempsey, Physical Prototyping & Tooling Center
Motorola
8000 West Sunrise Boulevard
Fort Lauderdale, Florida 33322

Clark Everest, Senior Staff Designer
Motorola
8000 West Sunrise Boulevard
Fort Lauderdale, Florida 33322

Chris Franck, Mechanical Engineer
Motorola
8000 West Sunrise Boulevard
Fort Lauderdale, Florida 33322

Ryan Froyd, Industrial Design Engineer
Motorola
8000 West Sunrise Boulevard
Fort Lauderdale, Florida 33322

Bert Garcia, Electrical Engineer
Motorola
8000 West Sunrise Boulevard
Fort Lauderdale, Florida 33322

Pat Gillon
Industrial Design Engineer
Motorola
8000 West Sunrise Boulevard
Fort Lauderdale, Florida 33322

Andy Haase, Lead Industrial Designer
Motorola
8000 West Sunrise Boulevard
Fort Lauderdale, Florida 33322

Kevin Harding, Senior Global Product Planner
Motorola
8000 West Sunrise Boulevard
Fort Lauderdale, Florida 33322

Jari Jarvinen, Human Factors Engineer
Motorola
8000 West Sunrise Boulevard
Fort Lauderdale, Florida 33322

Willie Kottke, Mechanical Engineer
IDEN Subscriber Division
Motorola
8000 West Sunrise Boulevard
Fort Lauderdale, Florida 33322

Paul Lieb, Engineering Program Manager
Motorola
8000 West Sunrise Boulevard
Fort Lauderdale, Florida 33322

Mark Noordmans, Industrial Design Engineer
Motorola
8000 West Sunrise Boulevard
Fort Lauderdale, Florida 33322

Kevin Page, Senior Staff Mechanical Designer
Motorola
8000 West Sunrise Boulevard
Fort Lauderdale, Florida 33322

Randy Pagulayan, Human Factors Engineer
Motorola
8000 West Sunrise Boulevard
Fort Lauderdale, Florida 33322

Jenni Sharf, Senior Interaction Designer
Motorola
8000 West Sunrise Boulevard
Fort Lauderdale, Florida 33322

Mike Slipy, Senior Mechanical Engineer
Motorola
8000 West Sunrise Boulevard
Fort Lauderdale, Florida 33322

Adam Stack, Senior Program Manager
iDEN Subscriber Division
Motorola
8000 West Sunrise Boulevard
Fort Lauderdale, Florida 33322

Luz Valencia, Mechanical Engineer
Motorola
8000 West Sunrise Boulevard
Fort Lauderdale, Florida 33322

Mary Ann Alliston, Development Specialist
Neighborhood Business Specialist Program
Grand Rapids Area Chamber of Commerce
111 Pearl Street Northwest
Grand Rapids, Michigan 49503

Laurie Freshour, Sales Consultant
Selling Edge Strategies, L.L.C.
2111 South Eventide Drive Northeast Suite B
Grand Rapids, Michigan 49505-5727

Dale Stubbs, Supervisor Model Shop
Steelcase Inc.
6100 East Paris Avenue
Caledonia, Michigan 49316