OUTSOURCING SOFTWARE: SUPPLIER/VENDOR PERSPECTIVE OF JOINT RELATIONSHIP

THESIS

Presented to the Graduate Council
of Texas State University-San Marcos
in Partial Fulfillment
of the Requirements

for the Degree

Master of BUSINESS ADMINISTRATION

by

Tracy L. Perkins, B.B.A

San Marcos, Texas
May 2005

ACKNOWLEDGEMENTS

For this research opportunity, I would like to thank my thesis committee chair, Dr. Cecilia Temponi, for her enduring support and guidance during this effort. Your encouragement, advice, and patience are priceless. In addition, I would like to express gratitude toward Dr. Jessica Cui and Dr. Marcos Sivitanides for being on my thesis committee. I appreciate both of you volunteering your time to guide me in this endeavor. Also, I would like to thank Department of Veterans Affairs, Austin Automation Center for providing the opportunity for me to fulfill graduate coursework and bestowing a business environment that supports further education of their employees.

This manuscript was submitted on March 25, 2005.

TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS	iv
CHAPTER 1: INTRODUCTION	1
1.1 Research Objectives	2
1.2 Importance and Benefits of Study	3
1.3 Thesis Organization	3
CHAPTER 2: REVIEW OF LITERATURE AND RELATED DATA	5
2.1 Outsourcing and the Client/Vendor Relationship	5
2.2 Outsourcing Contracts	7
2.3 Outsourcing Spending Forecast	8
2.4 Supply and Demand, Benchmarking, and Value Proposition	10
2.5 Critical Success Factors when Outsourcing	12
2.6 Project Management	14
2.7 Common Problems in Project Management Arising in the Customer Relation	16
CHAPTER 3: METHODOLOGY	18
3.1 Analysis Objectives	18
3.1.1 Public and Private Vendors	18
3.1.2 Customer Relationship	19
3.1.3 Project Management	19

	Page
3.1.4 Project Management Style and Customer Relationship	19
3.1.5 Resolving Customer Problems	19
3.1.6 Reducing Problems in the Customer Relationship	20
3.1.7 Vendor Perspective in Outsourcing Software	20
3.2 Data Collection	20
3.3 Data Analysis	22
CHAPTER 4: RESULTS	23
4.1 Public and Private Vendors	23
4.2 Customer Relationship	27
4.3 Project Management	30
4.4 Project Management Style and Customer Relationship	33
4.5 Resolving Customer Problems	38
4.6 Reducing Problems in the Customer Relationship	40
4.7 Vendor Perspective in Outsourcing Software	44
4.8 Study Limitations	48
CHAPTER 5: CONCLUSIONS	49
5.1 Proposed Resolutions	49
5.2 Summary	50
5.3 Future Directions of Study	51
APPENDICES	52
REFERENCES	57

CHAPTER I

INTRODUCTION

Outsourcing software is a business procedure which, whether for a small or large company, is becoming extremely common. From the airline industry to the Department of Veterans Affairs, both public and private organizations are taking advantage of the outsourcing opportunity. With technology constantly becoming more efficient, businesses and agencies are seeking to outsource software to be able to concentrate on their own needs. In some cases, the suppliers themselves are either contracting the work to another contractor or outsourcing an application specifically for that vendor. Outsourcing is also an option for clients who are seeking to become cost effective due to globalization and decreasing information technology costs. Whatever the case, outsourcing software is a growing market and seems to be an increasing choice amongst entities. The following research will take a look at the supplier's perspective and will develop several key characteristics in their customer relationships. In addition, we will take a deeper look at how the project management style plays a role in successful projects and how the type of style determines the type of quality of work.

1.1 Research Objectives

The purpose of this study is to explore the vendor's perspective by reviewing problems which can arise in their relationship with a customer. Furthermore, this study will provide more insight as to how important the project management style is in predetermining the success or failure of outsourcing information systems.

This research develops further the thesis, Managing Outsourcing in a Joint Development Environment: Impact on Innovation and New Product Development Process by Timothy Lambert (2002). His work focuses on the elements in a joint development environment, the effect of innovation, and new product development. One of his future directions of study is investigating the supplier/vendor side of the joint relationship. The focus of my research develops this study recommendation. Since there are few studies in this area, there was an even greater interest to do research on vendors, provide analysis from their perspective, and discover whether or not their problems are unique or common.

Over the past couple of years, the latest trend amongst project managers is to become certified as a Project Management Professional (PMP). This hot certification, PMP, is a must have in the technology field. Because of this craze, research was performed to find out if problems exist in the type of project management style when outsourcing software. Together, these two topics, the supplier/vendor position in a joint relationship and the project management style, has lead to the following research questions:

1. Do problems exist on the supplier/vendor perspective in a joint relationship with a host company?

2. If problems exist, what are the problems and are they unique or common amongst vendors?
3. Do problems exist in the type of project management style when outsourcing software?
4. If these problems exist, what are the problems and are they unique or common amongst vendors?

1.2 Importance and Benefits of Study

Since the late 1990s, outsourcing information technology has been a viable option for large organizations seeking to acquire the latest technology resources. This trend has grown due to the cost effectiveness of globalization. Today, both private and public sector organizations are seeking to outsource software to ultimately improve the efficiency of their business. The purpose of this study is to explore the vendor's perspective and gather common and unique characteristics. This can include researching the customer/vendor relationship and discovering the importance of the project management style is in determining a successful project. The analysis of both common and unique problems among vendors will benefit suppliers/vendors by creating awareness of these occurrences. In addition, this analysis could possibly allow for further research in these areas.

1.3 Thesis Organization

Chapter 1 provides a brief overview of the topic and the subsequent research questions. Chapter 2 reviews literature and related data that correspond to the topic and

the research questions. Methodology is then discussed in Chapter 3 followed by a review of the survey results in Chapter 4. Finally, Chapter 5 will review all conclusions related to this study.

CHAPTER II

REVIEW OF LITERATURE AND RELATED DATA

In this section, several concepts from the supplier and vendor side are introduced. These concepts include the following: Outsourcing and the Client/Vendor Relationship, Contracts, Spending Forecast, Supply and Demand, Benchmarking and Value Proposition, Critical Success Factors of Outsourcing; Project Management and Common Problems in Project Management Arising in the Customer Relation.

2.1 Outsourcing and the Client/Vendor Relationship

Outsourcing is a process by which one seeks an external organization for a product or service. In this situation, the client or customer consumes or benefits from the product or service being offered (Client, 2005). The vendor, on the other hand, is the one who is trying to sell something (Vendor, 2005). The vendor can be thought of as being identical to a merchant or service seller. Together, the client and vendor form a business relationship: one providing the service and one receiving it.

When looking at the client/vendor relationship from a technology standpoint, outsourcing software is made possible by "the availability of high-speed, low-cost

networks and massive storage and computing power, together with software that makes it easy to manage systems from remote locations" (Marron, 2003, September 26).

Outsourcing software is made achievable due to the state of technology and the capability to maximize this resource. Without the above means, outsourcing software would be less feasible for clients to use and more difficult for vendors to provide.

By developing internal and external relationships, businesses perform at a higher rate than those with no deep and collaborative associations. In order for a vendor to improve client relationships and succeed in a competitive environment, vendors should be "relationship centric" while emphasizing growth opportunities and adapting to a changing marketplace (Strategic Direction, 2002). Analysis on top performers shows that:

- 78% Partner with customers in the product development process.
- 66% Extend the longevity of their relationships with customers.
- 91% Place more ongoing focus on meeting customer expectations.
- 57% Demonstrate more concern about future government regulation.

In addition to vendors building a strong relationship with the client, additional focus should be put on creating a strong relationship with their suppliers (Strategic Direction, 2002). Furthermore, vendors need to have strong internal communication processes among business units. This assists in sharing overall goals, management values, and best practices across divisions. Vendors should develop "great expertise and elaborate processes around managing physical assets" and use these to also manage their customer relationships (Strategic Direction, 2002).

2.2 Outsourcing Contracts

An outsourcing contract is an important agreement which binds and guides the client and vendor through particular objectives. Besides common elements like cost and requirements statement, the length of the contract is becoming an essential factor in whether or not the project will be successful. According to Nolan (2003), two out of three outsourcing contracts fail due to bad planning. In addition, technology departments lack the skills to properly manage these contracts to ensure a positive outcome (Jones, 2003). Another key element within contracts is the service level agreement. A service level agreement, or SLA, is a formal written agreement made between two parties: the service provider (vendor) and the service recipient (client) (Service Level Agreement, 2005). The SLA itself defines the basis of understanding between the two parties for delivery of the service itself. The goal of a SLA is to provide the details in which the vendor(s) will work together in providing a particular service (Morgan & Yallof, 2003). The use of SLAs is on the rise from 20% in 2001 to an estimated 50% in 2005 (PR Newswire, 2003). This is in part because contracts do not build partnerships; but instead, use service level agreements which intern create partnerships (Morgan & Yallof, 2003). The following are examples of several crucial SLAs:

- Statement of Business Objectives and Scope
- Levels of Service
- Expected Demand
- Performance Metrics and Reporting
- Fees and Billing Procedures
- Service-Level Penalties and Incentives

- Issue Management
- Quality Improvement Targets

In addition to SLAs, one needs to know the scope of the project and how to change scope (Morgan & Yallof, 2003). Simply put, the more the scope of the service is defined, the easier it will be to identify changes in scope. These changes should be distinct and follow a formal process. Furthermore, one needs to make periodic service review meetings a priority for the host, vendor, and team involved (Morgan & Yallof, 2003). These meetings allow teams from both the host and vendor to discuss lessons learned, plan for upcoming efforts, and allow for the development of quantitative and qualitative components.

Overall, one should focus on the performance aspects that are the most important to the organziation. Mutual expectations are needed of the scope and quality of services to be delivered (Morgan & Yallof, 2003). Firms who outsource significant information technology (IT) activities will require more sophisticated contract management capabilities, the success of their outsourcing will depend on the degree to which contracts and the performances levels are specified and monitored (King, 2003).

2.3 Outsourcing Spending Forecast

Information systems (IS) outsourcing has the possibility of enormous growth with major businesses focusing on cutting costs. A few of the multiple high-profile multibillion-dollar outsourcing deals include Boeing, Bank One, and Xerox (Chung & Kim, 2003). Not only is the use of IS outsourcing set to continue, but International Data Corporation (IDC) predicted that worldwide outsourcing market would increase from

$100 billion in 1998 to $151 billion in 2003 (Chung & Kim, 2003). During 2002, the worldwide spending on IS outsourcing reached $68 billion with revenues reaching $110 billion (Marron, 2003, September 30). For 2006, more than 50 percent of firms are expected to use IT outsourcing (King, 2003). In fact, the sourcing issue is among the top five agenda items for IT executives due to the growth of outsourcing and the impact it has on companies and nations.

From an academic perspective, outsourcers would not have been able to reach these goals without overcoming a few obstacles. With the current economic state, outsourcers of technology are feeling the growing pains within the industry as the number of providers starts to dwindle (Smith & Rupp, 2003). Therefore, a reduction in cost and change in production methods are needed to stay competitive. By searching for materials or supplies at a lower cost than their own, outsourcers can stay competitive as a result of positioning themselves differently within the market (Smith & Rupp, 2003). Also, outsourcers may want to review clustering in areas with competitors to diffuse the latest technology trends more quickly while working close with suppliers (Smith & Rupp, 2003).

However, this may not be true for large complex systems. Costs related to technical expertise, infrastructure, and maintenance has increased as companies try to develop difficult systems within the organization (Sommer, 2003). Due to these rising costs, organizations are seeking to outsource the intricate projects as they try to invest in "business service innovation" and not "technology development or infrastructure maintenance." In the end, it is the high cost of maintaining these systems that is driving

companies to outsource the technology, allowing for an increase in demand for outsourcing services.

With software outsourcing, there are a variety of market areas for vendors to participate: government, financial, education, health, etc. Currently, the largest consumers of information technology outsourcing are large manufacturers and government organizations (PR Newswire, 2003, November 13). Over the next five years, manufactures and government will be joined by financial institutions in leading growing markets and allowing for opportunities in software outsourcing. The impact of outsourcing trends will affect the type of services needed. Expected employment for non-IT firms will be mainly focused in three areas: Software Interfacing, Contract management, and Strategic Technology Assessment (King, 2004).

2.4 Supply and Demand, Benchmarking, and Value Proposition

Supply and demand is a unique multi-stage chain, which contains great uncertainty. This uncertainty can either make or break a company. In technology, supply and demand is dependant on product process that determines the level of integration (Kouvelis & Milner, 2002). When there are few qualified suppliers and great uncertainty, a greater degree of integration is needed. However, when the transformation of the product process is quick, this causes a lower demand for any given product generation and a greater need of outsourcing (Kouvelis & Milner, 2002). The more complex the technology process, the greater the uncertainty, and the greater degree of integration required.

In computing, a benchmark is the result of running a computer program, or a set of programs, in order to assess the relative performance of an object, by running a number of standard tests and trials against it (Benchmark, 2005). Benchmarking is usually associated with assessing performance characteristics of computer hardware, e.g., the floating point operation performance of a CPU, but there are circumstances when the technique is also applicable to software (Benchmark, 2005).

Software benchmarks are, for example, run against compilers or database management systems. Because it is difficult to conduct a successful benchmarking exerciese, it is recommended that organziations use well-defined objectives, careful planning, and cautious interpretations (Card & Zubrow, 2001). In addition, the data being collected should be in a tool in which other companies are also benchmarking (Maxwell, 2005). When collecting this data, one should verify that the benchmarking database contains projects that the data collector has carefully validiated (Maxwell, 2005). One cannot benchmark software development productivity if size and effort data have not been collected (Maxwell, 2005). Since producitivity rates are highly variable across the software development process, it is not enough to measure a project's size and effor and compare it with a large database average productivity. Therefore, one must benchmark against similar projects (Maxwell, 2005).

When it comes to benchmarking the outsourcing process, Franceshini (2003) proposed a model that involves four major steps: internal benchmarking analysis, external benchmarking analysis, contract negotiation, and outsourcing management. The first step, internal benchmarking, focuses on analyzing transaction and production costs with the goal of finding the best management or production activity and efficiency. Next,

external benchmarking analysis looks at the supplier and whether or not single, multiple, or integrated suppliers would be of the most benefit. Step three, contract negotiation, formulates the relationship amongst the "outsourced" and "outsourcer." The key in this step is to not only to create a good relationship but also review time development, expected targets, evaluation criteria, and the way to address controversy. The last step, managing the outsourcing process, monitors SLA indexes and analyze interruptions between objective and realized curves. Together, these four steps can assist in the outsourcing process by improving upon organizational areas and procedure definition.

A vendor's outsourcing strategy is key for long-term growth. This strategy can also add value to clients. By developing a set of experience based core competencies, vendor's can achieve this goal (Levina & Ross, 2003). These competencies include (1) address client needs and market conditions, (2) exhibit complementarities that result inefficient service delivery, and (3) depend on vendor's control over decision rights on a large number or projects from multiple clients. These competencies will result with a strong value proposition of the client's core business and efficiency will be gained by vendors.

2.5 Critical Success Factors when Outsourcing

In IS outsourcing, the relationship between a client and vendor is a unique partnership which can be described as being an interorganizational relationship or IOR (Chung & Kim, 2003). Because these two separate organizations are now working together, there are numerous opportunities where this relationship can turn out to be negative. In order to keep this from occurring, the relationship must be based on

solidarity which is the holding of exchanges between each other. Another solid characteristic for successful outsourcing is flexibility. Flexibility allows for the unpredictable conditions and allows for a smooth transition to practices and policies. In the execution of the agreement, monitoring of the vendor by the client must be undertaken to guarantee satisfactory performance. However, role integrity and asset specificity have been found to cause a negative impact on outsourcing.

Even though the above focuses on how to create a successful relationship between a client and a vendor, additional analysis needs to be done in the area of product development. In the development of high tech products, the relationship of the client and vendor can be described as a joint product development. Joint product development (JPD) is where two companies agree to commit resources to a common project with both parties benefiting from the creation and production of the new product (Temponi & Lambert, 2002). The following lists several factors to secure a smooth joint product development:

- Use of primarily industry-standard components greatly eases the development process and reduces schedule risk.
- Schedule of JPD must be flexible and have room to move.
- Mandate a minimum of weekly conference calls for long-term projects with written communication detailing action items.
- Maintain all of the appropriate contacts on email threads but exclude those not needing to know a particular issue.
- Understand the differences in corporate culture.

- Complicated multi-way relationships with partners, sub-component vendors, and suppliers induce a time lag in information transfer.
- Vendors may need to be aggressively managed with frequent conveyance of priorities.
- Companies in the Far East are traditionally more efficient at implementing current technologies versus emerging technologies.
- Use of secure, shared web-based defect tacking system with access to only the relevant parties is recommended.
- All relevant design and project data should be kept on a secure, backed-up server that guarantees continuous access to only the relevant parties.

2.6 Project Management

Project management is the ensemble of activities (such as tasks) concerned with successfully achieving a set of goals (Project Management, 2005). This includes planning, scheduling and maintaining progress of the activities that comprise the project. Reduced to its simplest, project management is the discipline of maintaining the risk of failure at as low a value as necessary over the lifetime of the project. Risk of failure arises primarily from the presence of uncertainty at all stages of a project. When looking at the field of project management, this topic can be divided into three complementary categories: central themes such as the Project Management Body Of Knowledge (PMBOK) guide, activity sectors such as construction, computer science, and civil engineering, and project fields such as computers, construction and research and development (Urli & Urli, 2000).

Within an organization, information systems (IS) projects can be of different sizes and of technical difficulty (Martin, Pearson, & Furumo, 2005). Guaranteeing the success of these project is a strong concern for both firm leaders and IS project managers. Research shows that a large percentage of IS projects encounter problems which may require additional time and/or financial and human resources (Martin, Pearson, & Furumo, 2005). In 1998, the Standish Group International, Inc., surveyed executives and found that American companies spent and estimated $22 billion in IS project overruns and $75 billion on software projects that were eventually cancelled (T.S.G International, 1999).

As one can see, it is important for organizations implementing project management need to establish a shared set of values and beliefs (a project management culture) that aligns with the social and technical aspects of project management to achieve the organization's business objectives (Kendra & Taplin, 2004). For instance, organizations can develop a project management culture based on shared cultural values of the organization's members that support adoption of project management (Kendra & Taplin, 2004). This can also lead to restructuring the organization around projects by developing an enterprise wide work break down structure and developing project manager career positioning and training (Kendra & Taplin, 2004).

When it comes to project managers managing projects, organizations should involve their information systems (IS) project managers in the project as early as possible (Jiang, 2001). In addition, upper management should develop an environment that allows project managers to adopt needed methods effectively. Successful IS projects require

policy and methodology and also the means, the support, and the confidence for project teams to attain the project goals (Jiang, 2001).

2.7 Common Problems in Project Management Arising in the Customer Relation

While some software projects are completed with the functionality, performance, budget, and deadline as requested, a number of systems fail to deliver as promised (Wallace & Keil, 2004). When managing a project for a customer, a project manager can experience customer problem factors such as lack of top management commitment and inadequate user involvement (Wallace & Keil, 2004).

When outsourcing software, practice and performance go hand in hand. This becomes even more critical for a project manager when working with customer. For example, it has been found that developers write more code per day when having a complete functional specification (Cusumano, 2003). In the end, having a complete design before coding correlates with fewer software defects.

According to Farley and Willshire (2003), other areas in which problems can arise when outsourcing software include:

- Excessive Schedule Pressure
- Changing Needs of Customer
- Lack of Technical Specifications
- Lack of Documented Project Plan
- Excessive Innovations
- Secondary Innovations
- Requirements Creep

- Lack of Scientific methods
- Ignoring the Obvious
- Unethical Behavior

Because a project can be subject to many variables, there seems to be the potential for a large number of problems to occur. A few other examples include communication, project size and complexity, new or unfamiliar contractors, educational standards for project team, and overall project management must be flexible (Rob, 2003).

CHAPTER III

METHODOLOGY

3.1 Analysis Objectives

This research attempts to study the observations derived from literature reviews mentioned in Chapter 2. These quantitative portions also compare the beliefs of public and private organizations and the issues pertaining to customer relationship and project management style. In this section, the following topics are explored through a survey for project managers, developers, and other job descriptions in software organizations that are vendors. For details on the specific areas, see the survey in Appendix C.

3.1.1 Public and Private Vendors

Explore whether public and private organizations coexist in providing technology services for other organizations. If so, research into the specific problems each type of organization is having if differences exist.

3.1.2 Customer Relationship

Research if organizations experience customer relationship problems. If these problems exist, inquire as to what is driving these problems. Examine if these problems are unique or common amongst public and private organizations.

3.1.3 Project Management

Study if the project management style must follow industry standards in order to have a successful project. Some organizations feel that they must follow industry standards in order to have a successful project, but this investigates whether his is true or not. Examine if these problems are unique or common amongst public and private organizations.

3.1.4 Project Management Style and Customer Relationship

Investigate the common problems in project management arising in the customer relation while working with clients. This topic focuses on how the customer can affect the project and project management when supplying a service. Examine if these problems are unique or common amongst public and private organizations.

3.1.5 Resolving Customer Problems

Look into how an organization tries to solve a problem with a customer when managing a project. Examine their tactic in trying to resolve the issue. Examine if solving these problems are unique or common amongst public and private organizations.

3.1.6 Reducing Problems in the Customer Relationship

Discover how an organization attempts to reduce problems in the customer relationship. Identify the areas that help the organization gain insight in reducing customer concerns. Examine if reducing these problems are unique or common amongst public and private organizations.

3.1.7 Vendor Perspective in Outsourcing Software

Among vendors, research what they think is the most important when outsourcing software. Recognize the areas that are important and gain insight on where vendors should focus efforts in order to increase customer satisfaction. Examine if the vendor perspective is unique or common amongst public and private organizations.

3.2 Data Collection

A survey was used to collect primary data. This survey allowed for quantitative data to be obtained from individuals in the high tech industry. In addition, the survey permitted analysis on the following research questions:

1. Do problems exist on the supplier/vendor side in a joint relationship with a host company?
2. If problems exist, what are the problems and are they unique or common amongst vendors?
3. Do problems exist in the type of project management style when outsourcing software?

4. If these problems exist, what are the problems and are they unique or common amongst vendors?

The recipients of the survey were primarily based in the Austin, Texas area. Overall, the sample population consisted of employees in the areas of project management, procurement, engineering management, development, marketing, and sales/account management. Located in Appendix C, the survey was organized to dive into the various problem areas of a customer relationship, project management style, and both customer relationship and project management style.

From the time that they received the initiating email, those surveyed had one week to respond. A primary email was sent out describing the purpose of the survey (Appendix B) and included a link to a web address where the survey resided, and upon completion of the survey, respondents clicked the submit button. To assist in data analysis, the data was formatted and emailed in a arrangement that could be assembled in a spreadsheet.

Because of the initial email format, the original sample of surveys went to 62 professionals who work for vendors (organizations that provide technology services for other organizations). The exact number of survey recipients is unknown due to the survey being electronic and administered though a link to a website. In addition, respondents were encouraged to forward the invitation email to colleagues, friends, and managers that they felt could provide additional useful information. Therefore, the response rate for this survey is estimated. A total of 39 responses were received and recorded within the one-week allocation period.

3.3 Data Analysis

All of the survey results were incorporated into a Microsoft Excel spreadsheet. This allowed frequency distributions and descriptive statistics to be performed and used to plot and correlate the data. Once all computations were performed, a review of the results enabled meaningful trends and cross question relationships to be drawn out.

CHAPTER IV

RESULTS

The survey respondents were professionals who work in the information technology area and work for organizations that are vendors (provide technology services for other organizations). These respondents included 62% of the total sample. In Figure 1, the graph shows that 51% were involved in Project Management, 5% worked in the area of Engineering Management, 23% surveyed worked in area Other, 3% were in involved in Sales or Account Management, 3% in Procurement, .001% were from Marketing, and 15% worked in Engineering/Development.

4.1 Public and Private Vendors

Of the vendor organizations providing a technology service, 90% worked for organizations supplying software/hardware for other organizations (see Figure 2). Only 10% of the respondents did not work for organizations supplying software/hardware. On public and private organizations, Figure 3 shows 72% of respondents worked for public organizations while 28% worked for private organizations.

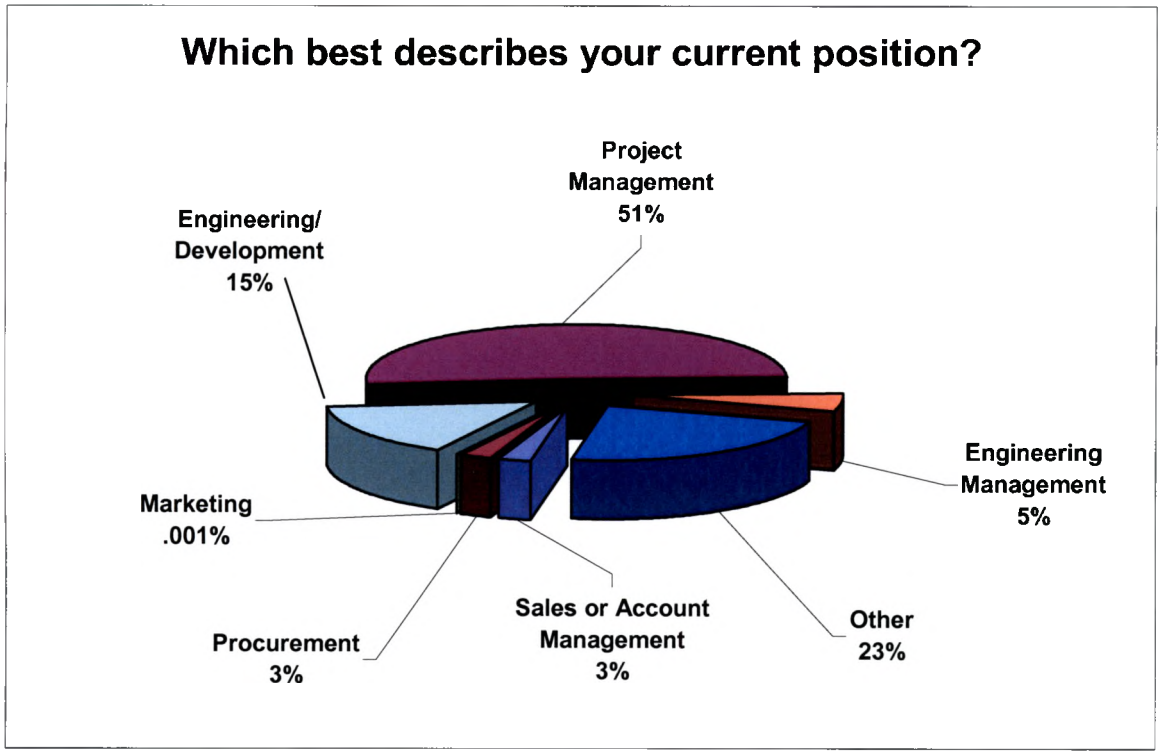

Figure 1. Survey Respondent Job Position Distribution.

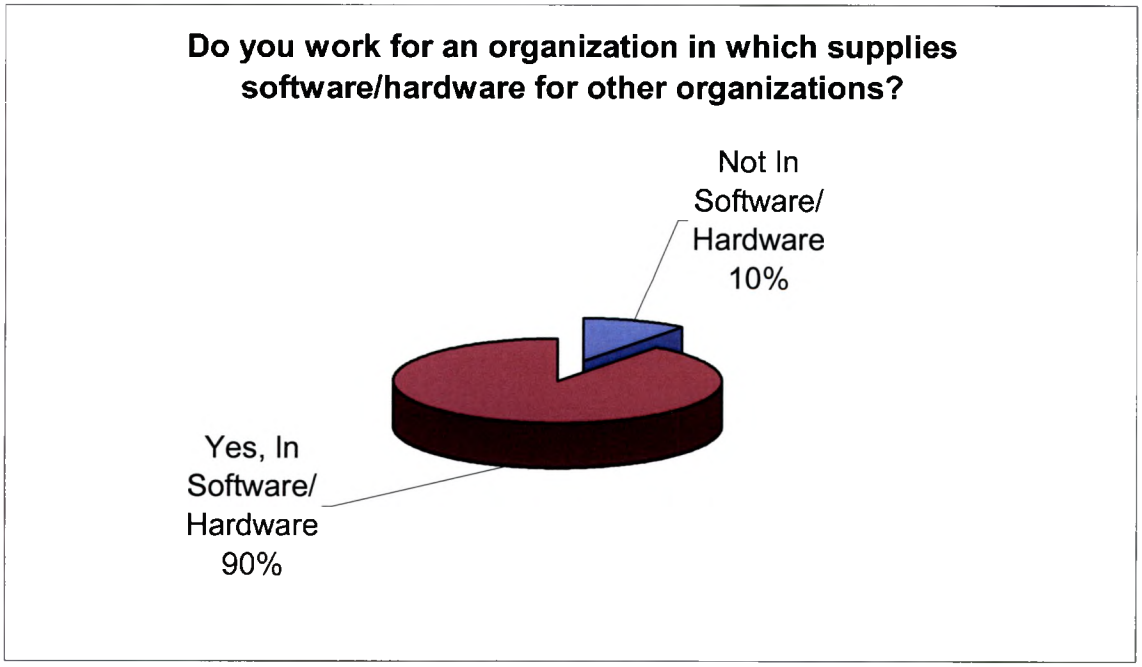

Figure 2. Software/Hardware Organizations.

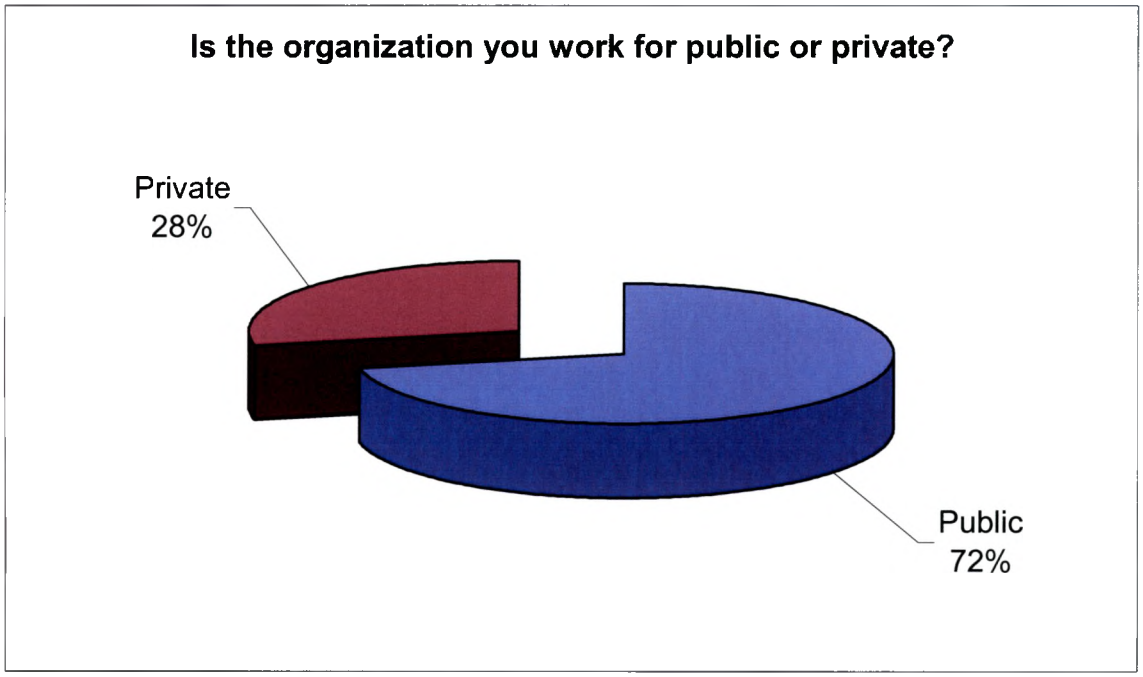

Figure 3. Public and Private Organizations.

For public, 89% of respondents worked for a public organization supplying software/hardware and only 11% were public respondents who did not work for a software/hardware organization (see Figure 4). On private, 91% worked for a software/hardware organization while 9% of private did not work for a software/hardware organization (see Figure 5). Figures 4 and 5 confirm both public and private vendor organizations do coexist in providing technology services for other organizations.

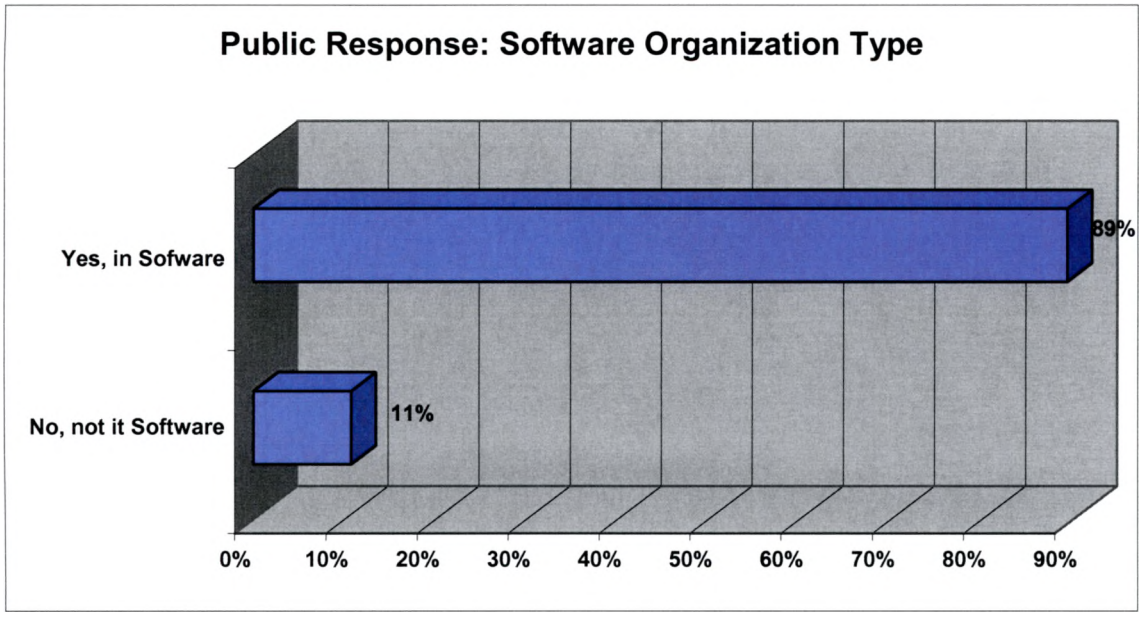

Figure 4. Public Response: Software/Hardware Organizations.

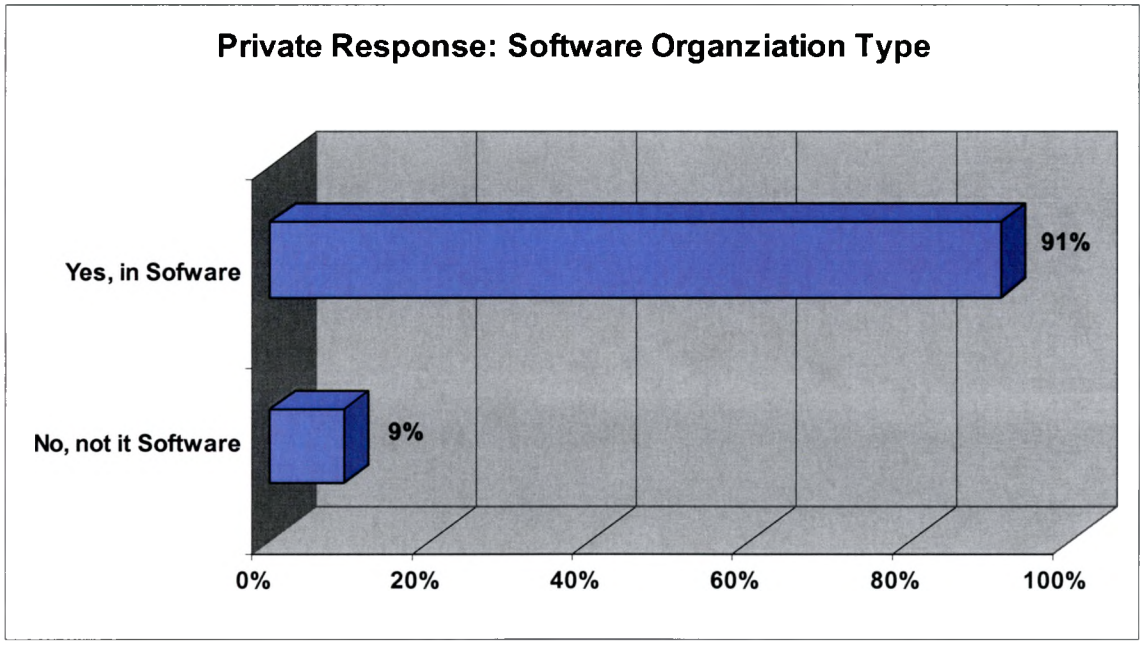

Figure 5. Private Response: Software/Hardware Organizations.

4.2 Customer Relationship

The results in Figure 6 assist in affirming that organizations do encounter problems in the customer relationship area. These problems consist of the following drivers: Communication was chosen 34 times, Project Management Style 11 times, Contract 5 times, Product 4 times, and Do not Experience Problems (Not Applicable) 1 time.

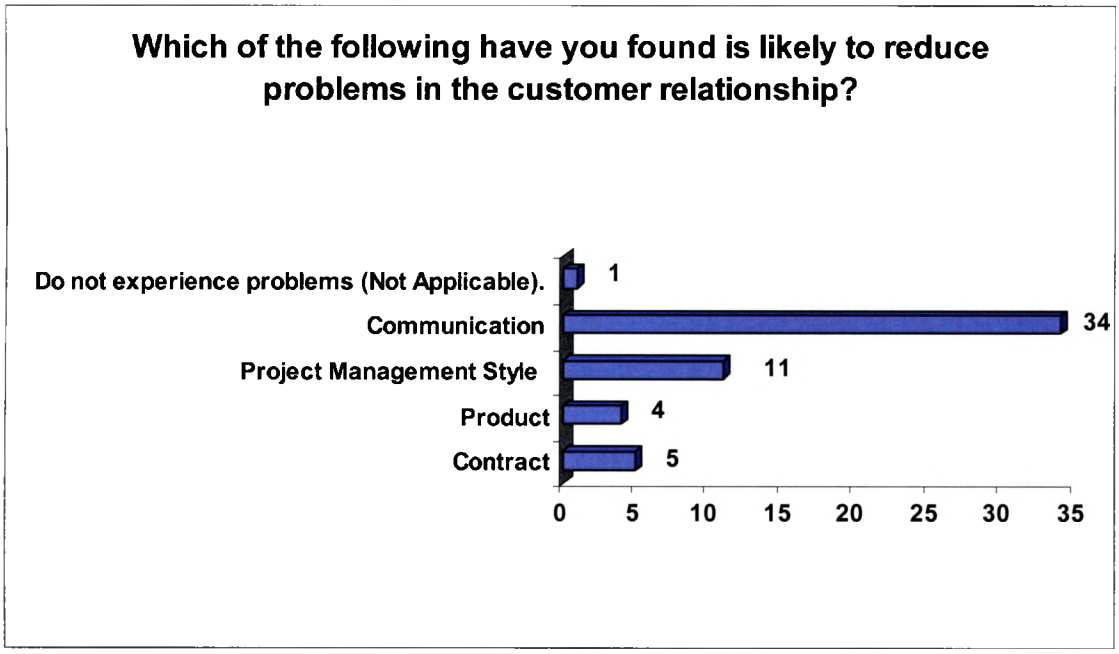

Figure 6. Drivers in Customer Relationship Problems.

When these responses are broken out by public and private, the answers are fairly similar. From the Public perspective, Figure 7 shows 59% chose Communication, 17% Project Management, 13% Contract, 8% Product, and 3% Do not Experience Problems (Not Applicable). For Private, Figure 8 shows 67% Communication, 25% Project Management, 8% Product, and .001% selected Contract or Do not Experience problems (Not Applicable). Therefore, public and private organizations do encounter some of the same drivers in customer problems

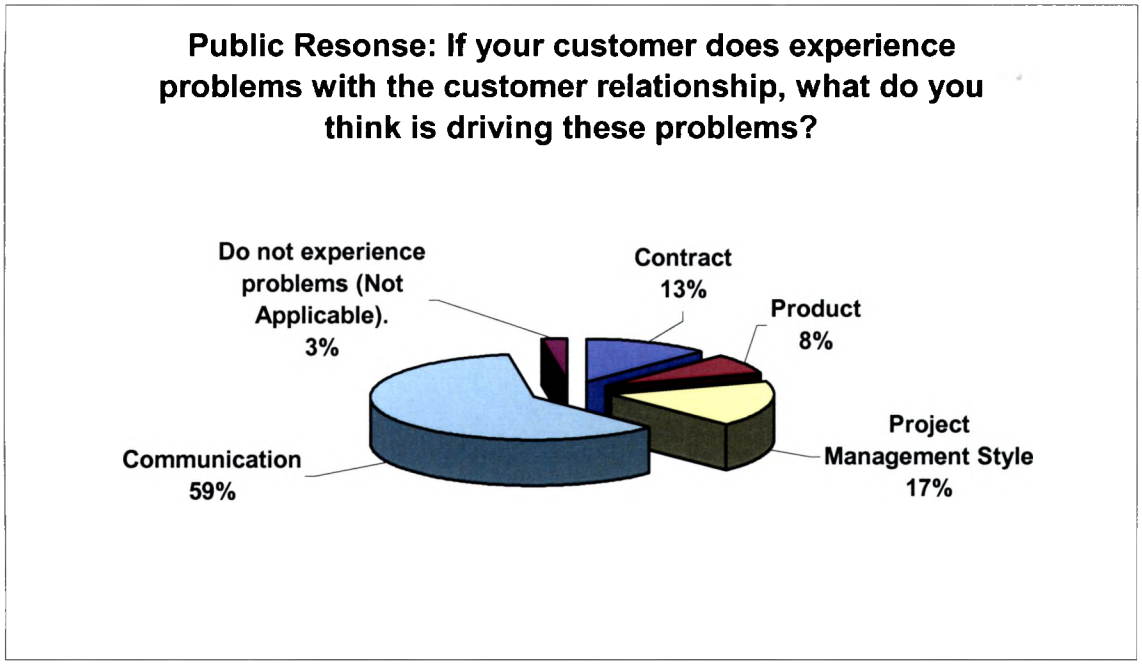

Figure 7. Public: Drivers in Customer Relationship Problems.

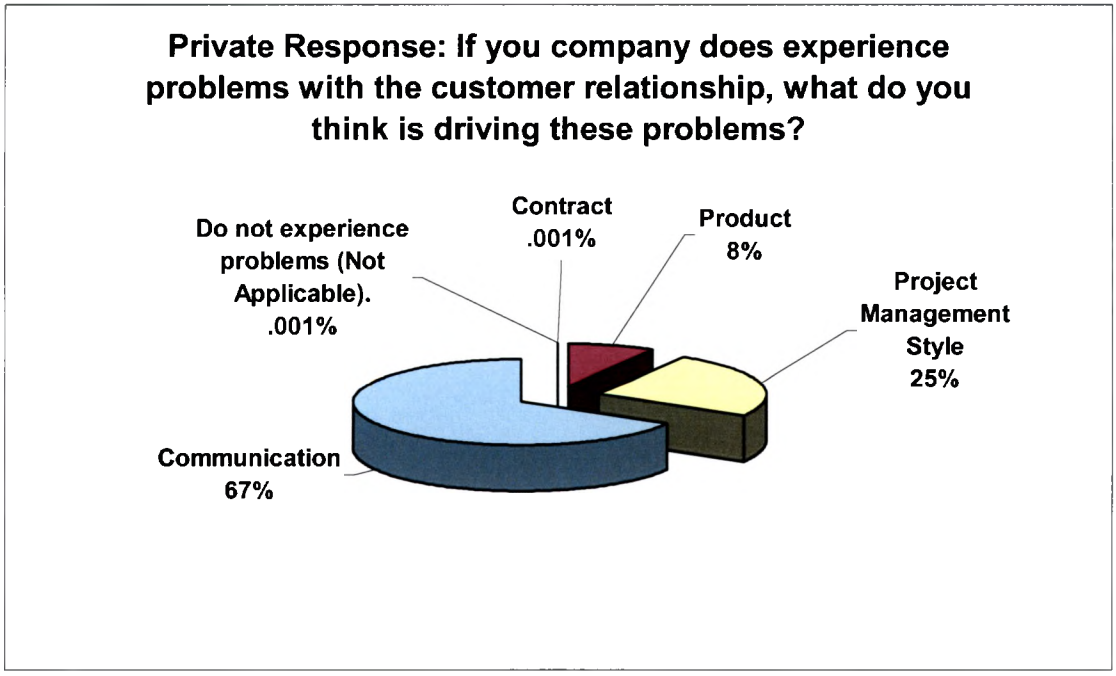

Figure 8. Private: Drivers in Customer Relationship Problems.

Analysis of commonalities in the public and private responses indicated several problems across the organizations. These problems are presented in Table 1.

Table 1

Common Problems in Public and Private Organizations

Problem	Industry (Unit)	
	Public	Private
Project Management and Communication Style	6	3
Project Management Style	1	1
Communication	12	6
Product and Communication	1	1

When looking at the problem Project Management and Communication Style, 6 public respondents and 3 private respondents selected project Management and Communication Style as drivers in customer relationship problems. 1 public respondent and 1 private respondent selected project management style as the driver in customer relationship problems. 12 public respondents and 6 private respondents selected communication as the driver in customer relationship problems. 1 public respondent and 1 private respondent selected Product and Communication as drivers in customer relationship problems. This reinitiates that both public and private vendors of software/hardware do experience some of the same drivers in customer relationship problems.

4.3 Project Management

When asked whether companies must follow industry standards in order to have a successful project, Figure 9 shows 35% felt that it was very important, and 21% felt that it was somewhat important. 15% felt this varied depending on the project, and around 13% were neutral. 8% did not feel this was applicable and another 8% did not select an answer.

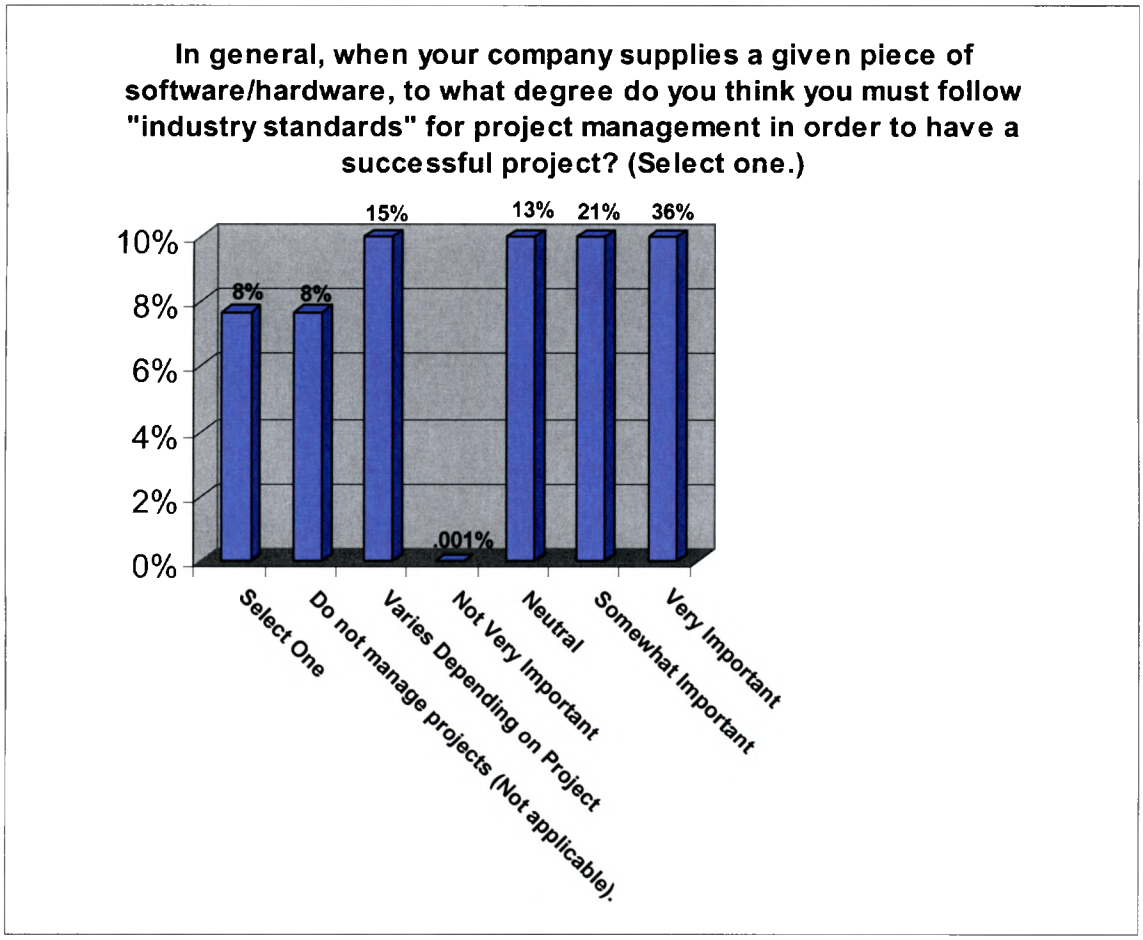

Figure 9. Follow Industry Standards For Project Management.

When examining the "industry standards" in project management by organization type, Figure 10 shows that of the public respondents 35% thought this was very important, 21% somewhat important, 13% neutral, and 15% varies depending on project.

For the rest of the public responses, 8% felt that this was not applicable, 8% did not select an answer, and 0% felt that this was not very important.

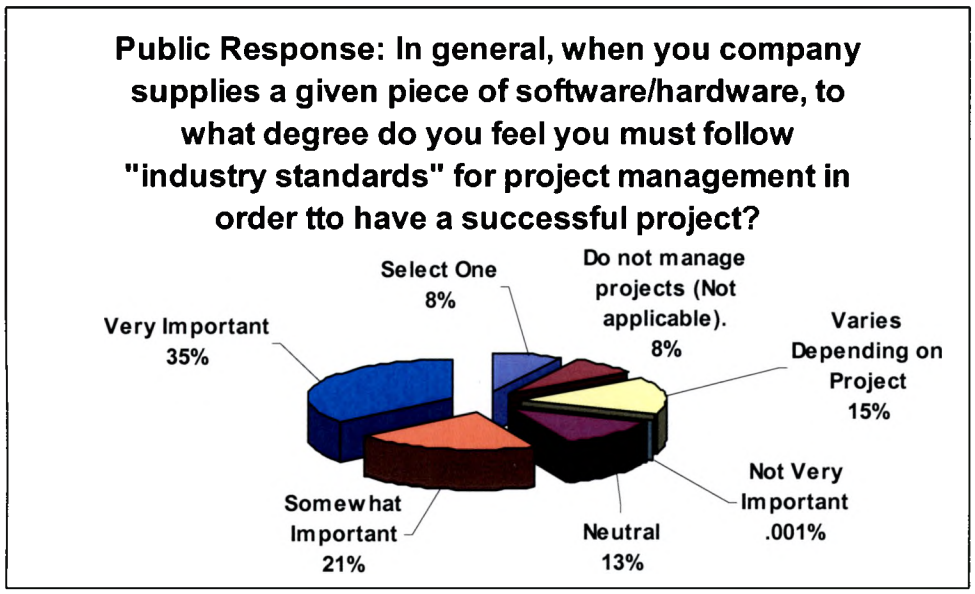

Figure 10. Public Response: Industry Standards For Project Management.

When looking from the private perspective on "industry standards" in project management, 10% felt it was very important and 13% though it was somewhat important. 3% felt the standards depended on the project and another 3% did not answer the question (see Figure 11). None of the private respondents selected not very important or not applicable. This assists in finding that both public and private organizations do feel that industry standards are important to follow when managing a project.

Overall, the Chi Square for examining industry standards in project management is 8.2237. However, the Chi Square is not applicable due to responses being less than five for several answer selections (Simon, 2005). Instead, the Fisher's Exact test should be used. The Fisher's Exact test is a procedure where data can be organized in a two by two contingency table and is based on exact probabilities from a specific distribution (Simon, 2005). Table 2 displays the results of the Fisher's Exact test.

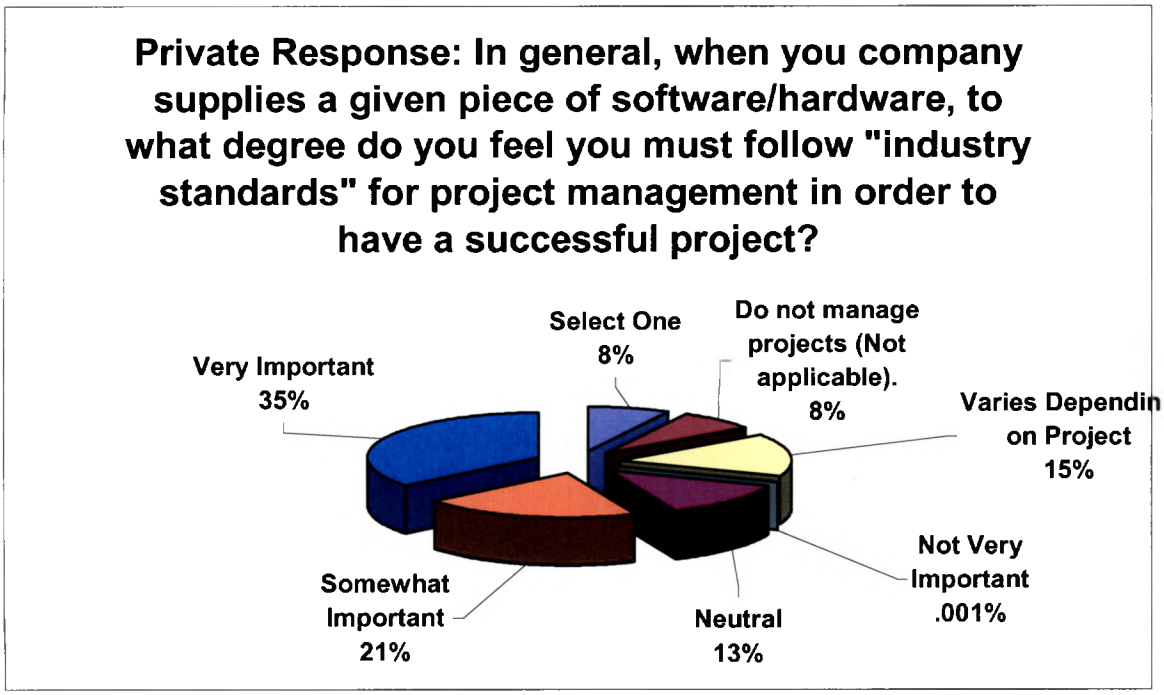

Figure 11. Private Response: Industry Standards For Project Management.

Table 2

Fisher's Exact Test on Industry Standards

Industry Standard	Fisher's Exact Test	
	Public	Private
Varies Depending on Project	.358	.171
Not Very Important	.447	.028
Neutral	.0665	.0665
Somewhat Important	.624	.008
Very Important	.485	.485

For Select One, both public and private Fisher's Exact Tests are greater than .05. Therefore, there is no evidence that Select One is an "industry standard" for project management. Varies Depending on Project had Fisher's Exact Tests greater than .05 for both public and private responses. Therefore, there is no evidence that industry standards vary depending on project. Not very Important had a Fisher's Exact Test greater than .05 for public, but less than .05 for private. Therefore, for public, there is no evidence that Not Very Important is not significant. However, for private, there is evidence that Not Very Important is a private perspective on "industry standards". For Neutral, both Fisher's Exact Tests are greater than .05 and is therefore not a significant view on "industry standards". For Somewhat Important, the Fisher's Exact Test is greater than .05 for public, but less than .05 for private. Therefore, "industry standards" are somewhat important for private organizations. For Very Important, both public and private Fisher's Exact Tests are greater than .05 and is therefore not significant for "industry standards".

4.4 Project Management Style and Customer Relationship

When evaluating common problems in project management arising in the customer relation, Figure 12 shows 11% selected excessive schedule, 19% changing needs of customer, 13% lack of technical specifications, 10% lack of documented project plan, 16% requirements creep, and 5% lack of communication. 2% selected lack of scientific methods and 4% ignoring the obvious. 1% selected excessive innovations, unethical behavior, education standards for project team, new or unfamiliar contractors,

and not applicable. .001% was the result for secondary innovations or lack of flexibility in project management. This then clarifies the types of problems that can arise in the customer relationship.

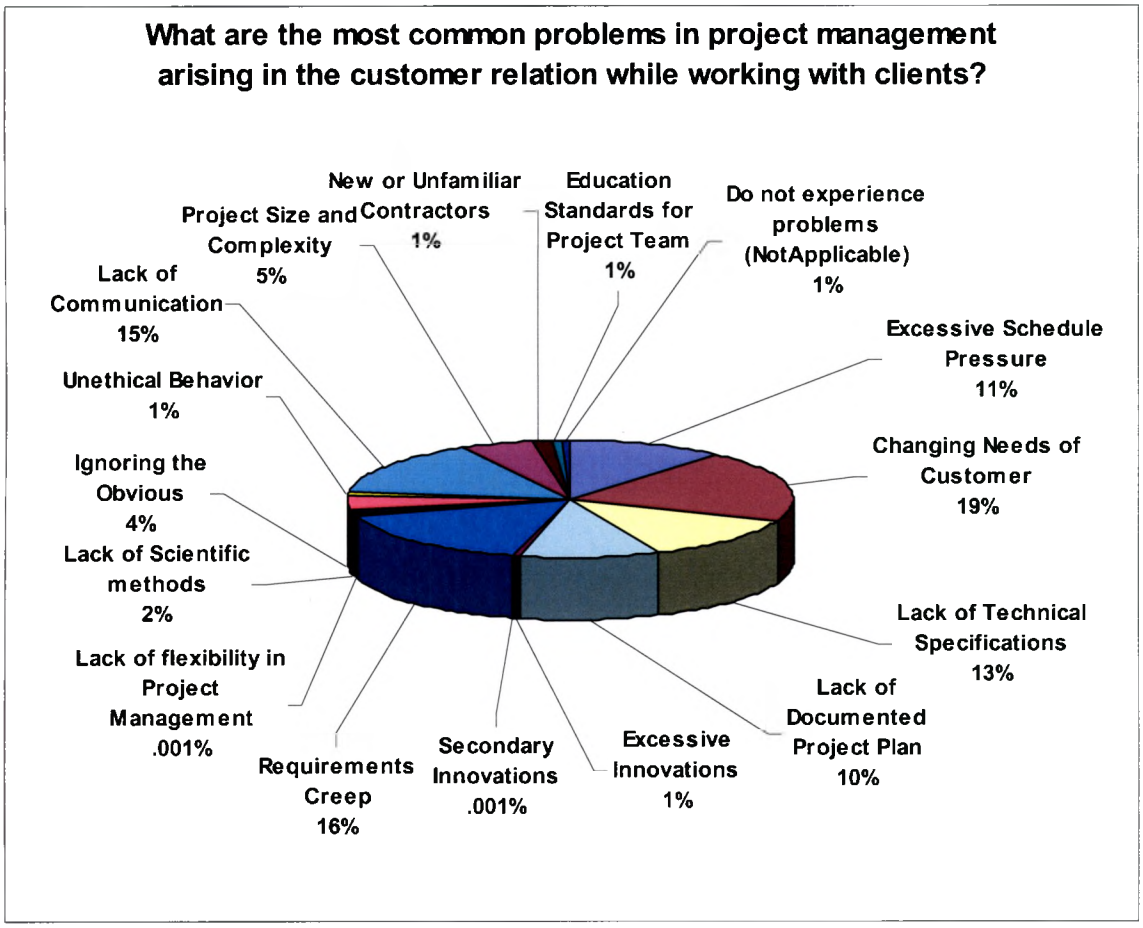

Figure 12. Common Problems in Project Management Arising from the Customer.

When examining project management and customer relation, the following in Figure 13 are the problems broken out by public organizations. From the public perspective, 5% project complexity, 1% new or unfamiliar contractors, 1% education standards for project team, 1% do not experience problems, 10% excessive schedule pressure, 17% changing needs of customer, 14% lack of technical specifications, 12% lack of documented project plan, 1% excessive innovations, .001% secondary

innovations, 15% requirements creep, .001% lack of flexibility in project management, 3% lack of scientific methods, 5% ignoring the obvious, 1% unethical behavior, and 14% lack of communication.

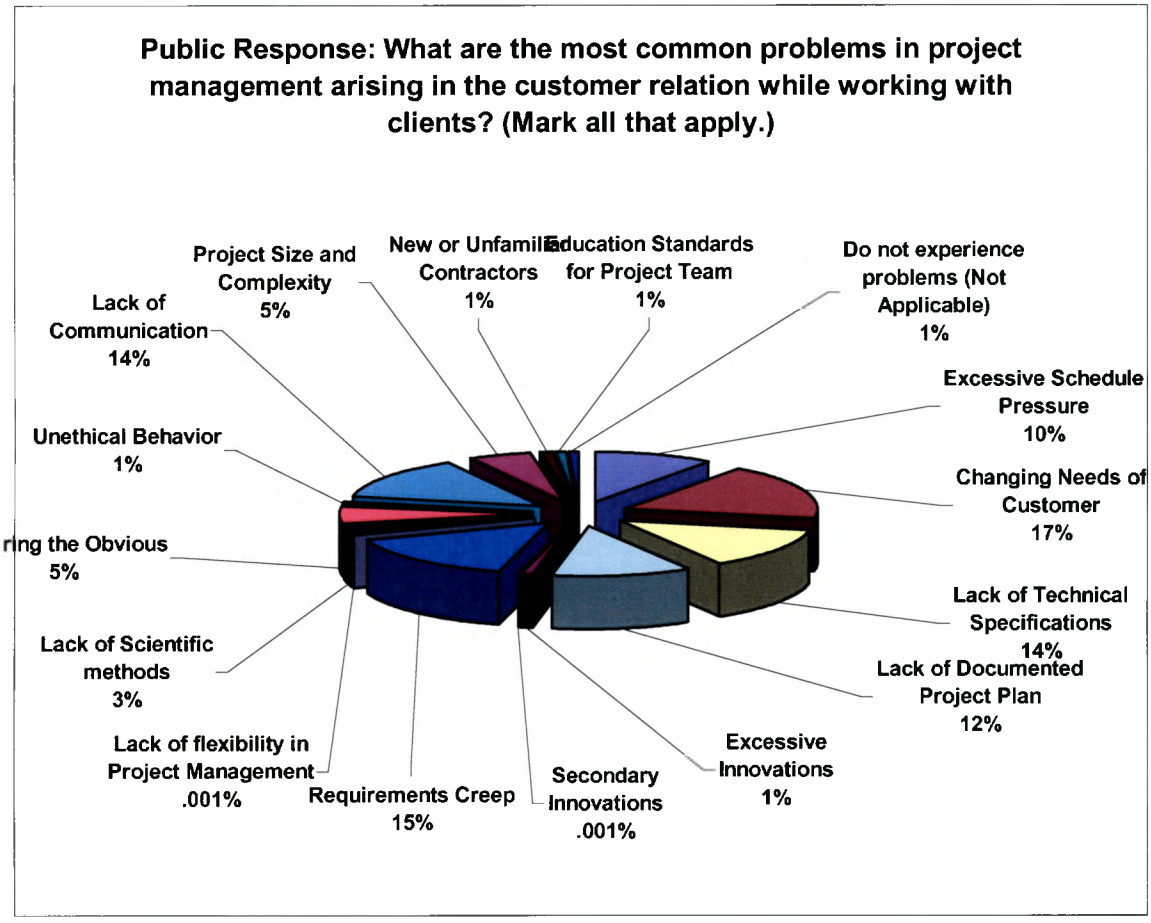

Figure 13. Public Response: Project Management Customer Relation Problems.

From the private perspective, Figure 14 shows 5% project complexity, 3% new or unfamiliar contractors, .001% education standards for project team, .001% do not experience problems, 15% excessive schedule pressure, 24% changing needs of customer, 10% lack of technical specifications, 5% lack of documented project plan, .001% secondary innovations, 001% excessive innovations, 18% requirements creep,

.001% unethical behavior, .001% ignoring the obvious, 001% lack of flexibility in project management, .001% lack of scientific methods, and 20% lack of communication.

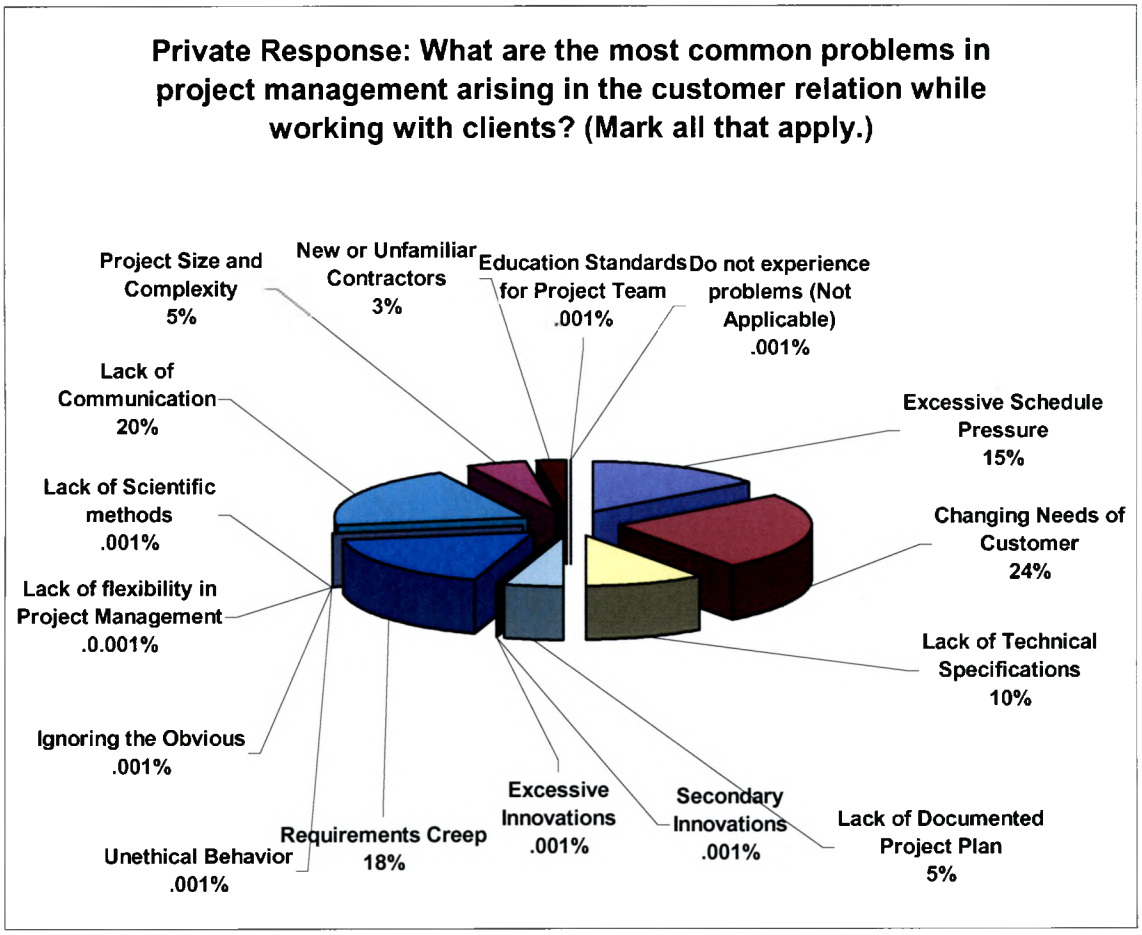

Figure 14. Public Response: Project Management Customer Relation Problems.

Analysis of commonalities in the public and private responses indicates problems across the organizations. These problems are presented in Table 3.

Table 3

Common Project Management Customer Relationship Problems

Problem	Industry (Unit)	
	Public	Private
Excessive Schedule Pressure, Changing Needs of Customer, and Requirements Creep	1	1
Excessive Schedule Pressure and Changing Needs of Customer	1	1
Changing Needs of Customer, Requirements Creep, Lack of Communication	1	1

When looking at the problem Project Management Customer Relation Problems, 1 public respondent and 1 private respondent selected excessive schedule pressure, changing needs of customer, and requirements creep as a driver in project management customer relationship problems. Furthermore, 1 public respondent and 1 private respondent selected excessive schedule pressure and changing needs of customer as the driver in project management customer relationship problems. 1 public respondent and 1 private respondent selected changing needs of customer, requirements creep, and lack of communication as the driver in customer relationship problems. Therefore, public and private organizations do encounter some of the same problems in project management that can arise in the customer relation.

4.5 Resolving Customer Problems

When looking into how an organization tries to solve a problem with a customer when managing a project, an overwhelming 54% try to negotiate the issue, 15% submit to the customer's request, and 18% mediate (see Figure 15). 13% of the respondents selected not applicable. From the public perspective, Figure 16 shows 13% mediate, 38% negotiate, 8% submit to customer's request, and 13% chose not applicable. When looking from the private perspective, Figure 17 shows 5% mediate, 15% negotiate, 8% submit to customer's request, and .001% chose Not Applicable. This then clarifies both public and private vendors do attempt to solve customer problems in the same manner.

When looking at the Chi Square for resolving customer relationship issues, the result is 3.3736. However, the Chi Square is not applicable due to responses being less than five for several answer selections. Instead, the Fisher's Exact Test should be used. Table 4 displays the results of the Fisher's Exact Test.

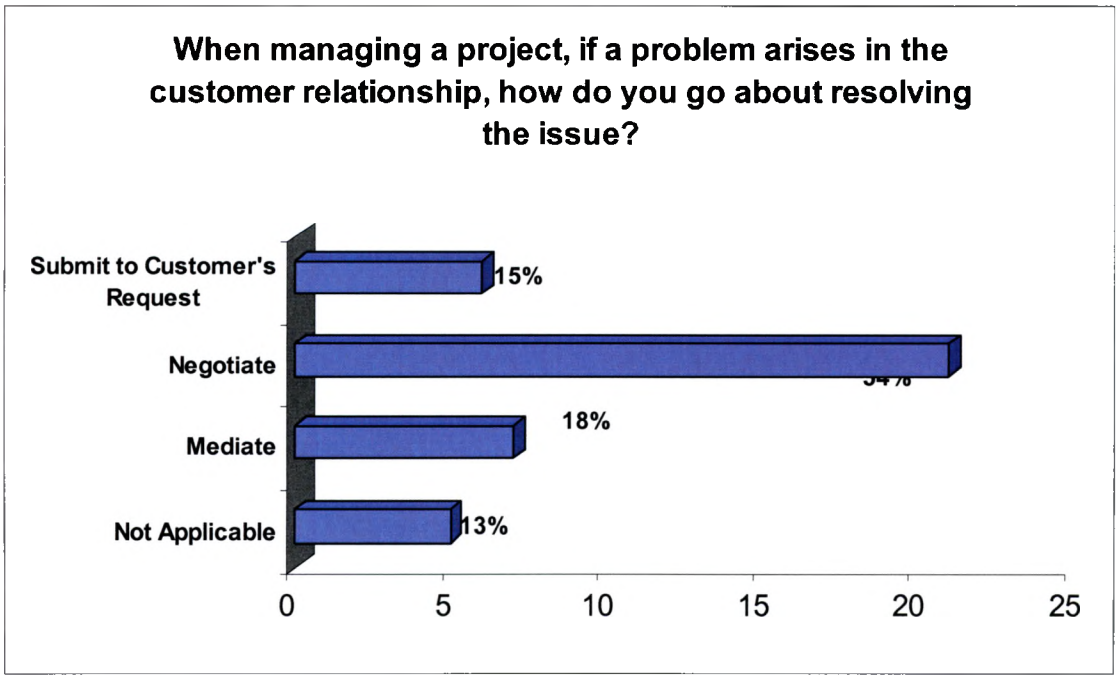

Figure 15. Resolving Customer Relationship Issues.

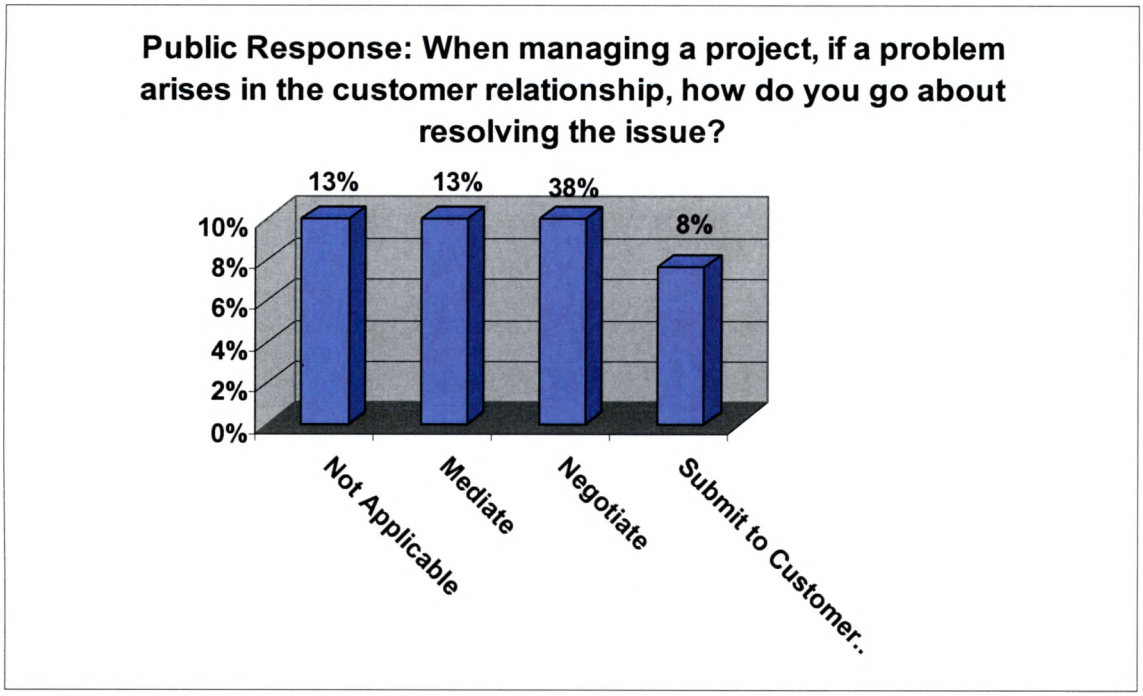

Figure 16. Public Response: Resolving Customer Relationship Issues.

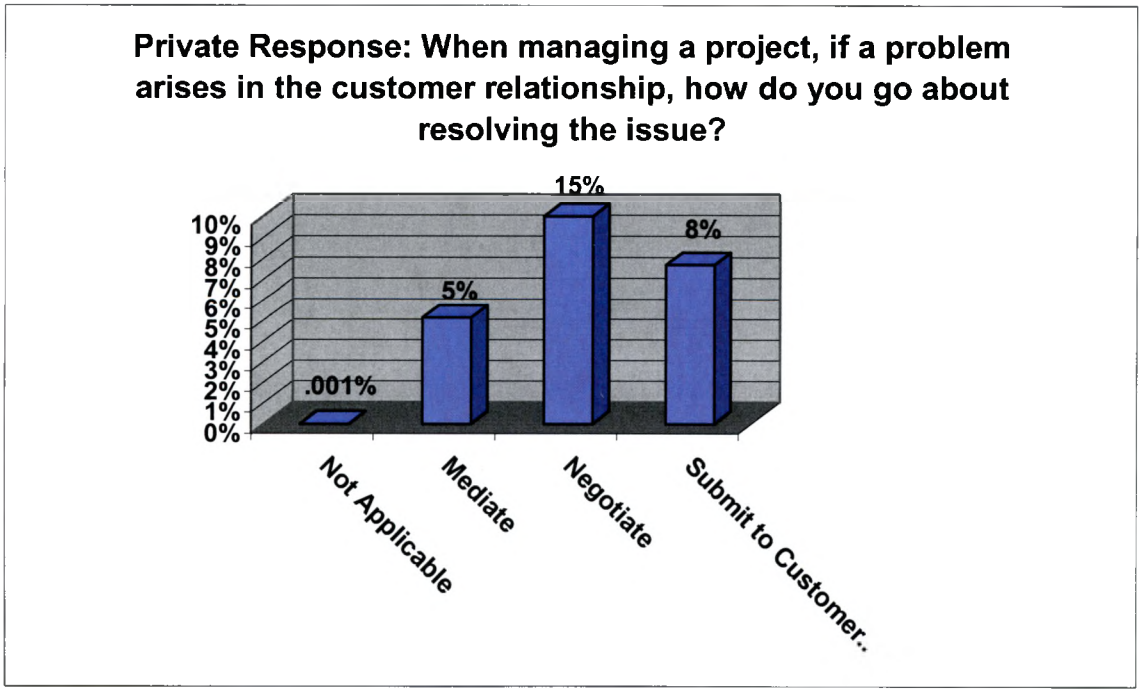

Figure 17. Private Response: Resolving Customer Relationship Issues.

Table 4

Fisher's Exact Test on Customer Relationship Issues

Resolving Method	Fisher's Exact Test	
	Public	Private
Not Applicable	.171	.171
Mediate	.654	.654
Negotiate	.620	.620
Submit to Customer's Request	.208	. 208

For Not Applicable, both public and private Fisher's Exact Tests are greater than .05. Therefore, there is no evidence that Not Applicable is a solution for resolving customer relationship problems. Mediate had Fisher's Exact Tests greater than .05 for both public and private responses. Therefore, there is no evidence that this is a tactic for resolving customer relationship problems. Negotiate had a Fisher's Exact Test greater than .05 for public and private. Therefore, there is no evidence that negotiation is a tactic used for resolving customer relationship problems. For Submit to Customer's Request, both Fisher's Exact Tests are greater than .05 and is therefore not a significant way to resolve customer relationship problems.

4.6 Reducing Problems in the Customer Relationship

As seen in Figure 18, the vendor organizations selected the following as likely to reduce problems in the customer relationship: 21% conference calls, 16% industry standard components, 14% design and project data, 12% email threads, 10% corporate

culture, 9% vendors managed, 7% share web, 4% multi-way relationships, 4% not applicable, 3% JPD, and zero selected far east.

When the responses are broken out by public and private organizations, Figure 19 displays the respondents' selections. When viewing the data below, keep in mind that more than item could be selected. When looking from the public perspective, Figure 9 shows 7% not applicable, 11% design project data, 7% share web, .001% far east, 5% vendors managed, 4% multi-way relationships, 12% corporate culture, 11% email threads, 22% conference calls, 3% JPD, and 18% chose industry standard components.

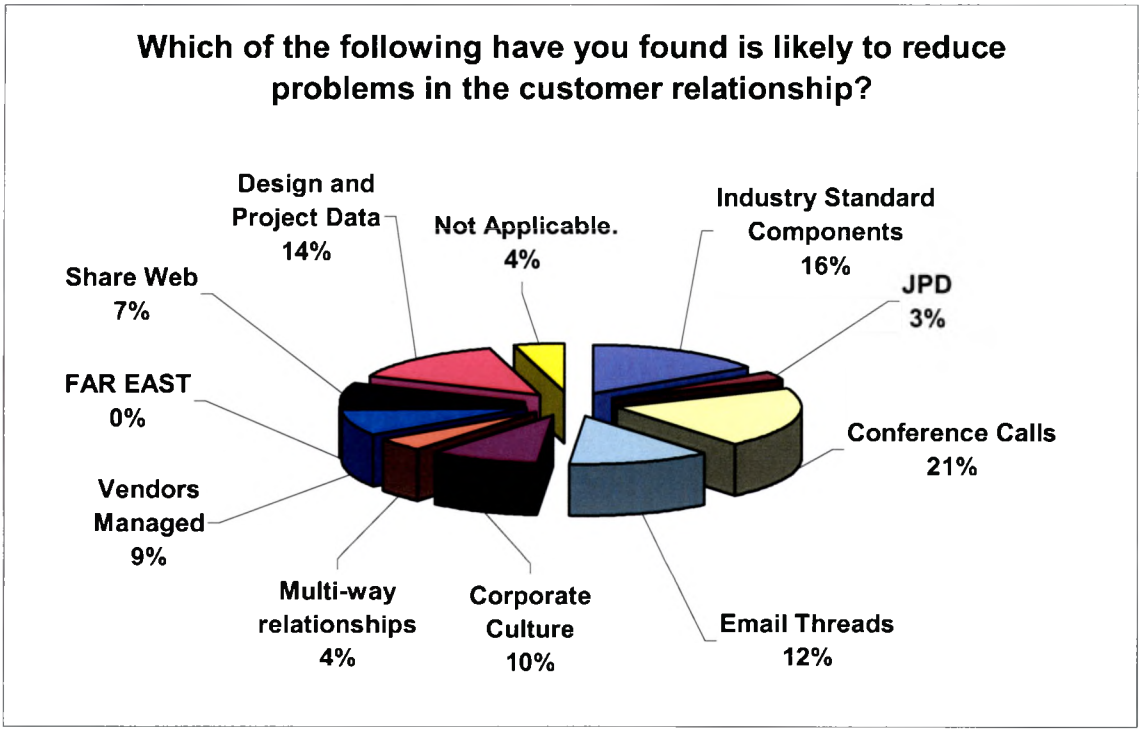

Figure 18. Reducing Problems in the Customer Relationship.

From the private perspective, Figure 20 shows .001% not applicable, 20% design project data, 8% share web, .001% far east, 15% vendors managed, 5% multi-way

relationships, 5% corporate culture, 15% email threads, 18% conference calls, 3% JPD, and 13% chose industry standard components.

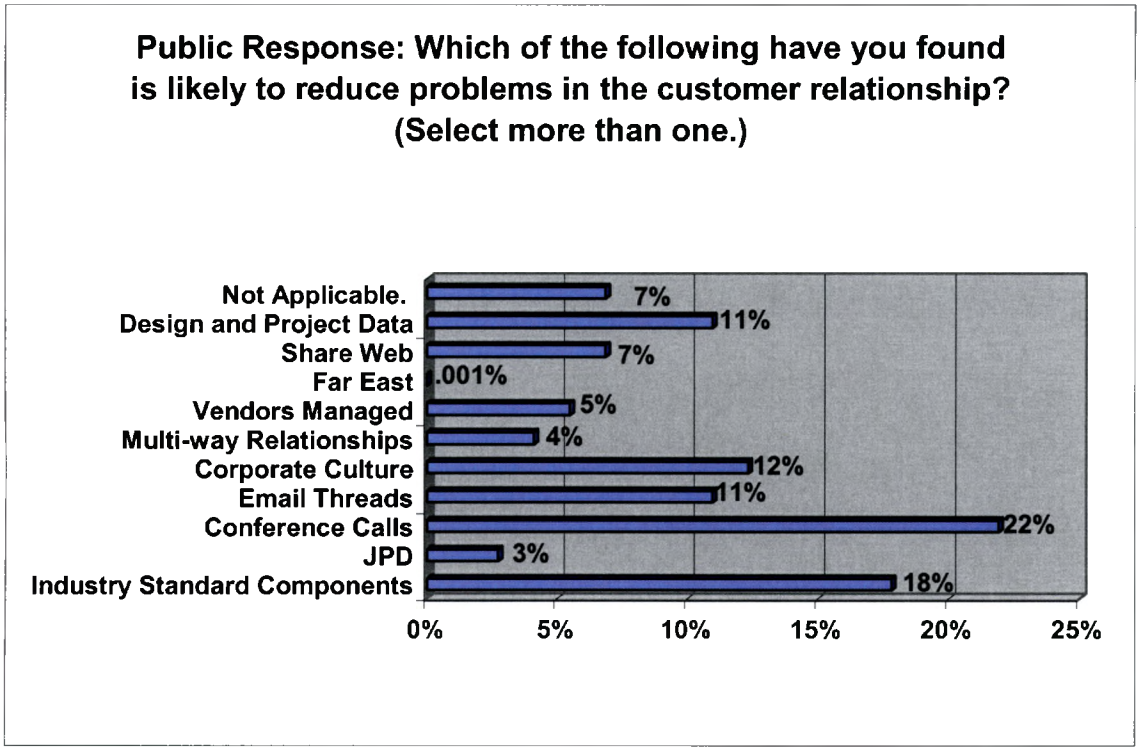

Figure 19. Public Response: Reducing Problems in the Customer Relationship.

Analysis of commonalities in the public and private responses indicates a method to reduce problems in the customer relationship across the organizations. When looking ways to reduce problems in the customer relationship, 1 public respondent and 1 private respondent selected conference calls as a driver in reducing problems in the customer relationship. Therefore, public and private organizations do attempt to reduce customer problems in a similar manner.

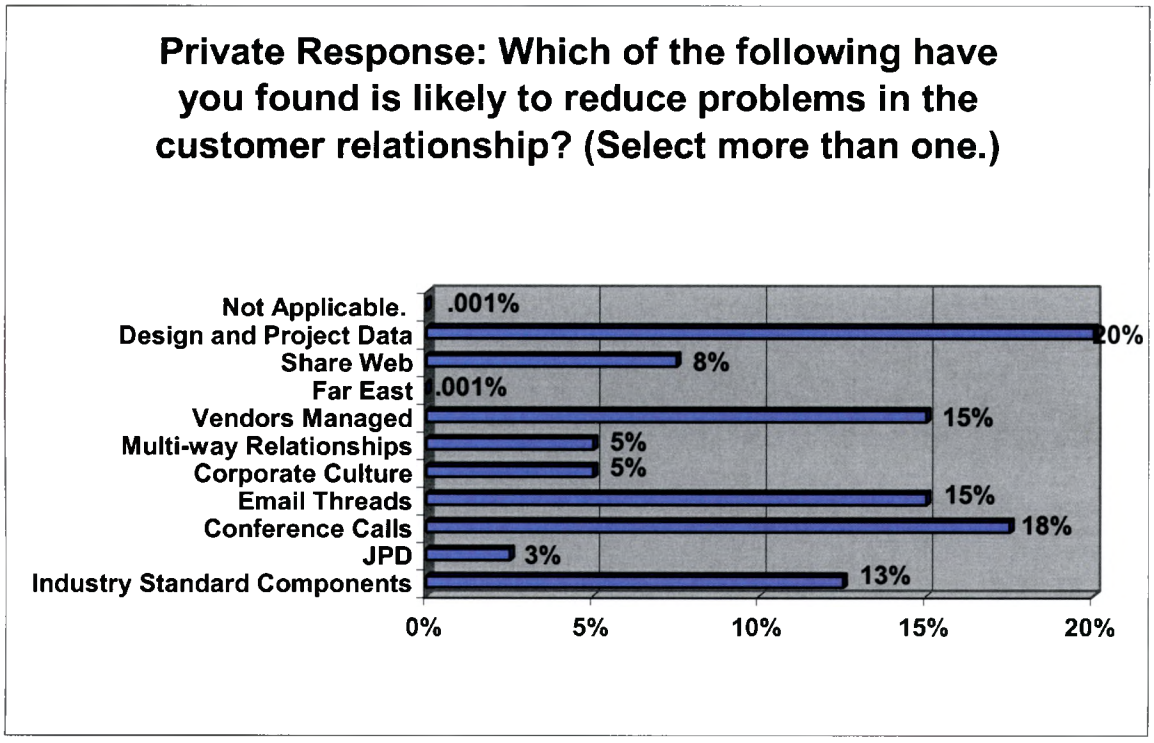

Figure 20. Private Response: Reducing Problems in the Customer Relationship.

4.7 Vendor Perspective in Outsourcing Software

The results in Figure 21 help confirm what is most important when outsourcing software. Overall, 38% indicated partnering with customers in the product development process is most important with 33% indicating placing more ongoing focus on meeting customer expectations is the best option. 21% selected not applicable while 8% chose extending the longevity of their relationships with customers is most important.

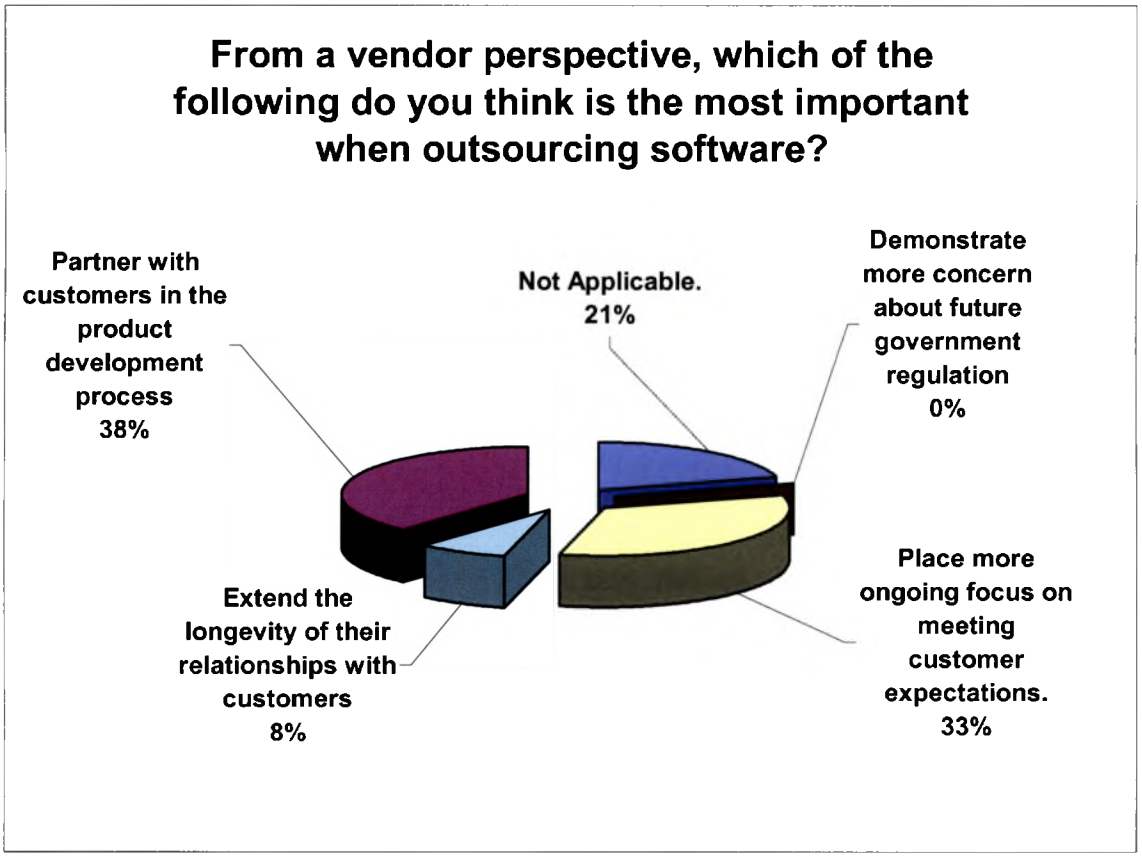

Figure 21. Importance When Outsourcing Software.

Figure 22 shows both public and private responses broken out by percentage. When looking from the public perspective, 36% partner with customers in the product development process, 32% place importance on ongoing focus on meeting customer

expectations, 21% not applicable, 11% extend the longevity of their relationships, and .001% demonstrate concern on future government regulation.

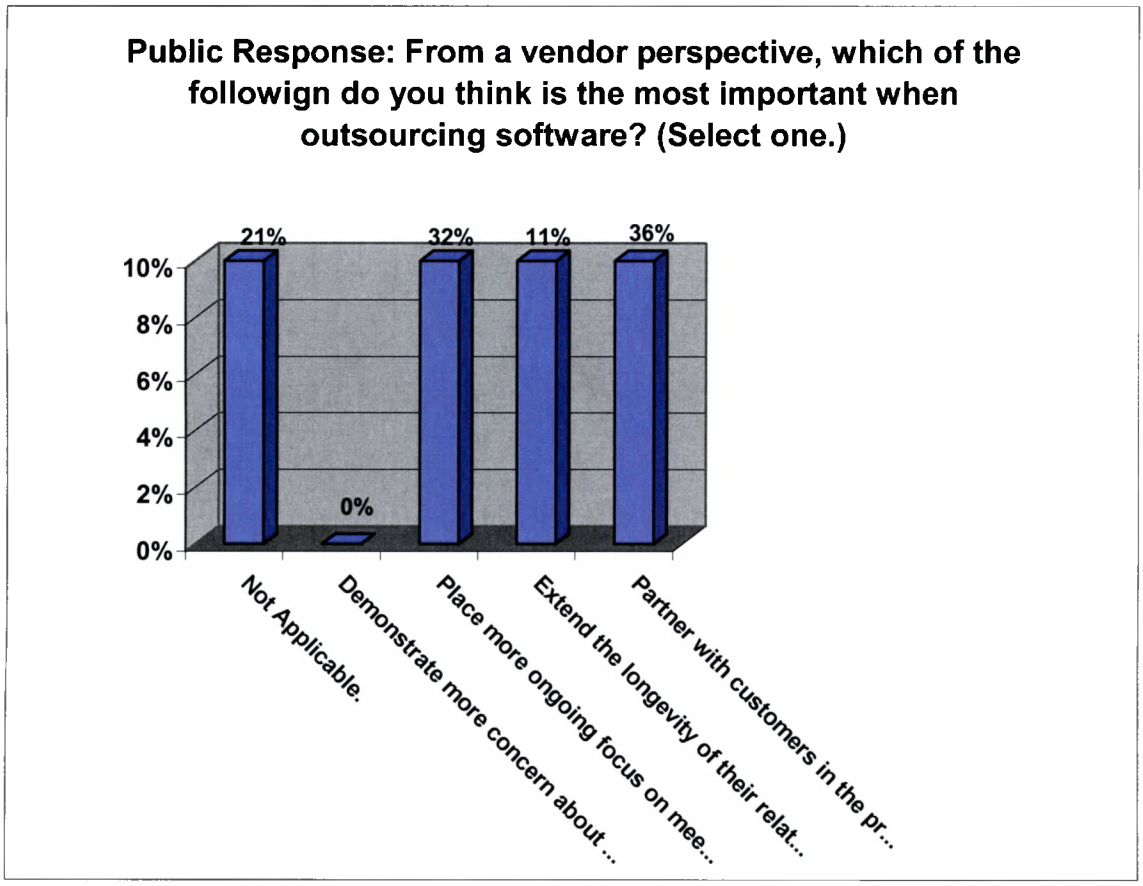

Figure 22. Public Response: Importance When Outsourcing Software

On the private side, 45% partner with customers in the product development process, 36% place more ongoing focus on meeting customer expectations, 18% not applicable, while .001% demonstrate more concern about future government regulation or extend the longevity of customer relationships (see Figure 23). This then clarifies both public and private vendors do think in a similar manner when it comes to important issues when outsourcing software.

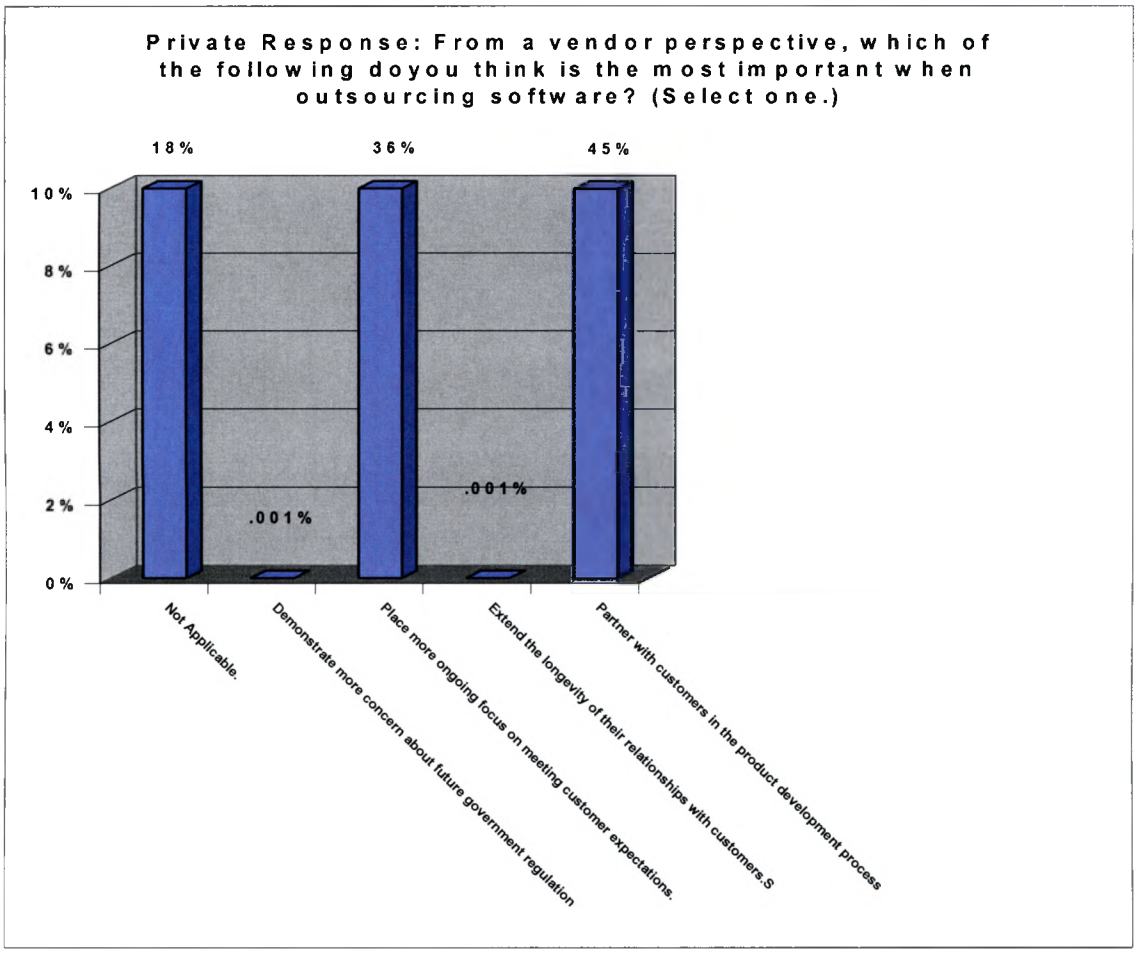

Figure 23. Private Response: Importance When Outsourcing Software.

When looking at the Chi Square for a vendor's perspective on outsourcing, the result is 1.5894. However, the Chi Square is not applicable due to responses being less than five for several answer selections. Instead, the Fisher's Exact Test should be used. Table 6 displays the results of the Fisher's Exact Test.

For Partnering with Customers, both public and private Fisher's Exact Tests are greater than .05. There is no evidence that Partnering with Customers is important when outsourcing software. Extending the longevity in customer relationships had Fisher's Exact Tests greater than .05 for both public and private responses. Therefore, there is no

evidence that extending the longevity of customer relationships is important when outsourcing software. Meeting Customer Expectations had a Fisher's Exact Test greater than .05 for public and private. There is no evidence that focusing on meeting customer expectations is important when outsourcing software. For Neutral, survey respondents did not select this. For Future Government Regulation, the Fisher's Exact Test is greater than .05 for public and private organizations. Therefore, there is no evidence that Future Government Regulation is important when outsourcing software. For Not Applicable, both public and private Fisher's Exact Tests are greater than .05 and is therefore is not evidence that this is important when outsourcing software.

Table 6

Fisher's Exact Test on Importance When Outsourcing Software

Importance	**Fisher's Exact Test**	
	Public	**Private**
Partner with customers in the product development process.	.287	.418
Extend the longevity of their relationships with customers.	.418	.129
Place more ongoing focus on meeting customer expectations.	.4005	.4005
Neutral		
Demonstrate more concern about future government regulation.	Constant	Constant
Not Applicable.	.393	.2725

4.8 Study Limitations

Out of 63 potential respondents, 39 took the survey causing a 62% response rate. However, the overall sample size could have been larger to gain more statistical inference and significance. This is due to time constraints and the lack of access to additional emails addresses of people in the outsourcing technology area. By increasing the sample size, more detailed qualitative analysis could have been performed since a few of the multiple choice responses had been selected less than 5 times – limiting the statistics that could be used. In this case, instead of Chi Square, Fisher's's Exact Test needs to be used. Additionally, a couple of the survey questions were phrased to select more than one answer verses a multiple-choice format of selecting one. For the questions in which respondents could select more than one answer, this limited the qualitative analysis that could be performed on the resulting data since the total number of possible answers was greater than the number of actual survey respondents.

CHAPTER V

CONCLUSIONS

5.1 Proposed Resolutions

When investigating problems on the supplier/vendor side in a joint relationship, the following lessons learned can be applied to both public and private vendors. These lessons learned also include items related to project management.

- Increase communication with customers to ease problems in the relationship. For example, schedule weekly conference calls to review problems related to service or project.
- Use of an agreed upon project management style by vendor and customer to reduce problems in relationship. For instance, include the project management style/approach in the contract or service level agreement.
- Use of "industry standards" for project management to reduce problems with customer and have a successful project. For example, using PMI's PMBOK as an agreed upon method between project manager and customer to manage a project.
- Understand and have clarity in all customer requirements from the beginning to limit the changing needs of a customer. For example, have customer include all requirements in a statement of work. At the same time, the

vendors should incorporate a cut-off date of changes made to this statement of work.

- Schedule must limit requirements creep. Items that might push out a project need to be approved by vendor and customer. This may require a contract adjustment if it surpasses a cut-off date.
- Understand technical specifications before project begins to reduce customer relationship problems when managing a project. For example, before the project starts, technical specifications should take into account requirements creep, customer requirements, and/or further communication of needs from customer.
- Use of negotiation to resolve a customer problem. Seek a resolution as quickly as possible to limit project delays. This can include placing ongoing focus on meeting customer expectations. For instance, set time aside for problem resolutions during weekly conference calls.
- Partner with customers in the product development process. For example, this can include requirements gathering, project plan and schedule, testing, and implementation.

5.2 Summary

An organization providing outsourcing services is able to take advantage of internal resources and capital in completing a job. However, these vendors do encounter several problems that can exist in the joint relationship a customer and project management style.

Via literature reviews and data analysis, the results contained in this report assist in confirming on whether problems exist on the supplier/vendor side in a joint relationship with a host company. Both pubic and private vendors repeatedly encounter many unique problems. Further research has been done as to how the customer relationship plays as role with these problems. Vendors are seeking to improve upon these weaknesses in order to continue relationships with customers.

5.3 Future Directions of Study

Within this report, the results and conclusions are not intended to be a comprehensive analysis of problems vendors encounter in a joint relationship and project management style. This study is a brief analysis for validating whether unique problems exist. Further research would be beneficial in the following areas:

- Researching further in the type of project management styles vendors' use.
- Continue to explore customer relationship issues and methods to resolve problems.
- Studying further on public and private vendors and the economic impact of type of project management styles performed.
- Investigate if a particular industry standard, like being Project Management Professional (PMP) certified and/or PMI standards, really affect the outcome of a project.

APPENDICES

Appendix A

To Whom It May Concern:

Survey on Outsourcing Software and the Supplier Vendor Perspective

Purpose
The following is a short survey for the purpose of a graduate thesis research project by a Texas State University MBA student looking at outsourcing software from the vendor's perspective.

Survey Location
http://www.txstate.edu/~tp1053/
Total completion time should be less than 2 minutes.

Your participation is a result of being identified as a professional directly or indirectly involved as vendor outsourcing software.

Your participation in this survey is important to this research and your time and effort are greatly appreciated.

Please feel free to forward this email to others that you feel could provide additional insight.

Consent
Information provided will be completely anonymous. Specific companies or individuals will not be revealed. Final study results will be compiled into a research report presented to the Texas State Graduate School and will be generally available through subsequent publication.

Contact Information

Thank you for taking the time to take this survey. Your input is very important to this educational study. For any questions, please contact Tracy Perkins at tracyperkins@txstate.edu or my supervising professor Dr. Cecilia Temponi at ct01@txstate.edu

Appendix B

Survey: Outsourcing Software and the Vendor's Perspective

Note: **This survey will be treated as anonymous and no persons' name or company's names will be disclosed. Official Texas State Disclaimer.**

Please answer the questions below and click submit.

---

1. Do you work for an organization that supplies software/hardware for other organizations? [Select One]

---

2. Is the organization you work for public or private? [Select One]

---

3. What are the most common problems in project management arising in the customer relation while working with clients? (Mark all that apply.)

- ☐ Excessive Schedule Pressure
- ☐ Changing Needs of Customer
- ☐ Lack of Technical Specifications
- ☐ Lack of Documented Project Plan
- ☐ Excessive Innovations
- ☐ Secondary Innovations
- ☐ Requirements Creep
- ☐ Lack of flexibility in Project Management
- ☐ Lack of Scientific methods
- ☐ Ignoring the Obvious
- ☐ Unethical Behavior
- ☐ Lack of Communication
- ☐ Project Size and Complexity
- ☐ New or Unfamiliar Contractors
- ☐ Education Standards for Project Team
- ☐ Do not experience problems (Not Applicable)

---

4. If your company does experience problems with customer

- ☐ Contract
- ☐ Communication

relationships, what do you think is driving these problems? (Mark all that apply.)

- ☐ Product
- ☐ Project Management Style
- ☐ Do not experience problems (Not Applicable).

---

5. In general, when your company supplies a given piece of software/hardware, to what degree do you think you must follow "industry standards" for project management in order to have a successful project? (Select one.)

[Select One]

---

6. When managing a project, if a problem arises in the customer relationship, how do you go about resolving the issue?

[Select One]

---

7. Which of the following have you found is likely to reduce problems in the customer relationship? Able to select more than one. (Mark all that apply.)

- ☐ Use of primarily industry-standard components greatly eases the development process and reduces schedule risk.
- ☐ Schedule of JPD must be flexible and have room to move.
- ☐ Mandate a minimum of weekly conference calls for long-term projects with written communication detailing action items.
- ☐ Maintain all of the appropriate contacts on email threads but exclude those not needing to know a particular issue.
- ☐ Understand the differences in corporate culture.
- ☐ Complicated multi-way relationships with partners, sub-component vendors, and suppliers induce a time lag in information transfer.

- ☐ Vendors may need to be aggressively managed with frequent conveyance of priorities.
- ☐ Companies in the Far East are traditionally more efficient at implementing current technologies versus emerging technologies.
- ☐ Use of secure, shared web-based defect tacking system with access to only the relevant parties is recommended.
- ☐ All relevant design and project data should be kept on a secure, backed-up server that guarantees continuous access to only the relevant parties.
- ☐ Not Applicable.

---

8. From a vendor perspective, which of the following do you think is the most important when outsourcing software? (Select One.)

[Select One]

---

9. Which best describes your current position?

[Select One]

Thank you for taking the time to take this survey. Your input is very important to this educational study.

For any questions, please contact Tracy Perkins at tracyperkins@txstate.edu, or my supervising professor Dr. Cecilia Temponi at ct01@txstate.edu.

Submit Reset

REFERENCES

Benchmark. (2005, March 1). Retrieved April 10, 2005 from http://en.wikipedia.org/wiki/Benchmark.

Card, D., & Zubrow, D. (2001, September/October). Benchmarking Software Organizations. *IEEE Software*, 16-17.

Chung, Y., & Kim, S. (2003, Summer). Critical Success Factors for IS Outsourcing Implementation from an Interorganizational Relationship Perspective. *Journal of Computer Information Systems*, 81-90.

Client. (2005, January 25). Retrieved April 10, 2005, from http://en.wikipedia.org/wiki/Client.

Cusumano, M., MacCormack, A., Kenerer, C., Crandall, B. (November/December 2003). Software Development Worldwide: The State of Practice. *IEEE Software*, 28-38.

Farley, R. & Willshire, M. (March/April 2003). Why the Vasa Sank: 10 Problems and Some Antidotes for Software Projects. *IEEE Software*, 18-25.

Franceschini, F., Galetto, M., Pignatelli, A., & Varetto. (2003). Outsourcing: Guidelines For a Structured Approach. *Benchmarking: An International Journal*, 10, 246-260.

Jiang, J., Klein, G., & Chen, H. (2001, September). The Relative Influence of IS project Implementation Policies and project Leadership on Eventual Outcomes. *Project Management Journal*, 49-53.

Jones, R. (2003, May). Insight – Outsourcing – The source of IT Success. *Accounting Age*, 20.

Kendra, K. & Taplin, L. (2004, April). Project Success: A Cultural Framework. *Project Management Journal*, 30-60.

King, W. (Fall 2004). Outsourcing and the Future of IT. *Information Systems Management*, 83-84.

Kouvelis, P. & Milner, J. (2002, August). Supply Chain Capacity and Outsourcing Decisions: The Dynamic Interplay of Demand and Supply Uncertainty. *IIE Transactions*, 34, 717-728.

Levina, N. & Ross, J. (2003, September). From the Vendor's Perspective: Exploring the Value Proposition in Information Technology Outsourcing. *MIS Quarterly*, 27, 331-364.

Marron, K. (2003, September 30). Outsourcing by the numbers. *The Globe and Mail.*

Marron, K. (2003, September 26). Outsourcing takes over; High-speed networks, massive storage and new software are enabling companies to transfer non-core activities to external specialist. *The Globe and Mail*, 103.

Martin, N., Pearson, J., & Furumo, K. (2005). IS Project Management: Size, Complexity, Practices and the Project Management Office. *IEEE*, 1-10.

Maxwell, K. (2001, September/October). Collecting Data for Comparability: Benchmarking Software Development Productivity. *IEEE Software*, 22-25.

Morgan, C. & Yallof, J. (2003, Third Quarter). Beyond Performance Standards: How to Get the Most From Your Outsourcing Relationship. *Benefits Quarterly*, 19, 17-22.

Nolan, S. (2003, August). Calculating Costs of Developing an Insourcing Strategy; Outsourcer got you down? Use this three-step planner to take back control of your information systems and staff. *Baseline*, 19.

PR Newswire. (2003, November 4). 50% of Outsourcing Contracts Include Service Level Agreements. PR Newswire.

PR Newswire (2003, November 13) IDC Reveals Fastest Growth for IT Outsourcing Services Will Be in Government, Financial Markets, Services, and Discrete Manufacturing. PR Newswire.

Project Management. (2005, April 7). Retrieved April 10, 2005 from http://en.wikipedia.org/wiki/Project_Management.

Rob, M. (November/Dece4mber 2003). Project Failures in Small Companies. *IEEE Software*, 94-95.

Service Level Agreement. (2005, March 17). Retrieved April 10, 2005 from http://en.wikipedia.org/wiki/Service_Level_Agreement.

Simon, S. (2005, March 3). Fisher's Exact Test: Dear Professor Mean, what is the Fisher's Exact Test and when should it be used. Retrieved March 12, 2005 from http://www.cmh.edu/stats/ask/fishers.asp

Smith, A. & Rupp, T. (2003). Application Service Providers: An Application of the Transaction Cost Model. *Information Management & Computer Security*, 11, 11-18.

Sommer, R. (2003). Business Process Flexibility: A Driver for Outsourcing. *Industrial Management & Data Systems*, 103, 177-183.

Strategic Direction. (2002, June). Organizing for Success. *Strategic Direction*, 18, 31-33.

Temponi, C. & Lambert, T. (2002, August). Joint Product Development Implementation: An Empirical Study. Proceedings of 2002 IEEE International Engineering Management Conference, 153-159.

T.S.G. International. (1999). Chaos: A recipe for Success. *The Standish Group International, Inc.*

Urli, B. & Urli, D. (2000, September). Project Management in North America, Stability of the Concepts. *Project Management Journal*, 33-43.

Vendor. (2005, March 11). Retrieved April 10, 2005, from http://en.wikipedia.org/wiki/Vendor.

Wallace, L. & Keil, M. (2004, April). Software Project Risks and Their Effect On Outcomes. *Communications of the ACM*, 68-70.

VITA

Tracy L. Perkins was born in Longview, Texas, on September 7, 1978, the daughter of Robert and Sharron Perkins. After graduating from Union Grove High School, Gladewater, Texas, in 1997, she entered The University of Texas at Austin. In May 2001, Ms. Perkins earned a Bachelor's degree in Management Information Systems. Since earning her undergraduate degree, she has been working for Department of Veterans Affairs, Austin Automation Center. She is currently a project manager and an administrator to their project management system. Tracy L. Perkins will be earning an M.B.A. from Texas State University-San Marcos in May 2005.

Permanent Address: 1502 Kinney Avenue
Austin, Texas 78704

This thesis was typed by Tracy Lynn Perkins.