THE IMPACT FROM INSOURCING AND OUTSOURCING ON THE AEROSPACE INDUSTRY OF OKLAHOMA
A MIXED METHOD STUDY

By

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Submitted to the Faculty of the
Graduate College of the
Oklahoma State University
In partial fulfillment of
The requirements for
The Degree of
DOCTOR OF EDUCATION
May 2012

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INTRODUCTION

Executive Summary

The U.S. aerospace manufacturing industry, such as Boeing and Lockheed Martin, continue to outsource major aircraft assembly components and parts supply to foreign companies. As a result, a negative economic effect on work force retention and stability may result. Aerospace companies located in Oklahoma must measure and resolve the continual loss of aerospace manufacturing capability. As aerospace companies continue to outsource, the question that needs to be addressed is; “what is the long term effect and what is being affected?” within Oklahoma.

It is vital to understand the impact of outsourcing on the Oklahoma aerospace industry. This study is needed to understand and quantify the interrelationships of the lost economics, human factors, and manufacturing capabilities because of outsourcing in the aerospace industry in

Oklahoma. Most of the prior research related to outsourcing is generally related to information services and customer service. Little or no research has been identified specifically to the Oklahoma aerospace industry and the research questions identified below.

Statement of the Problem

Outsourcing is becoming a new trend in the aerospace industry. However, there has been a lack of research into the outsourcing impacts to the State of Oklahoma, both financially and technologically. This study focused on addressing those issues and presenting meaningful conclusions. To accomplish this aim, this research study has identified multiple areas within the five research questions that need to be researched and analyzed.

The audience to profit from the study is the aerospace industry in Oklahoma, the Oklahoma Department of Commerce, local governments, and the State of Oklahoma Executive and Legislative Branches. The findings of the study may also provide valuable insight for other states grappling with the impact of outsourcing.

Purpose of the Study

This mixed methods study addressed the perceptions of the economic impact from insourcing and outsourcing on the Aerospace Industry in Oklahoma. A triangulation mixed methods design was used; a type of design in which different but complementary data is collected on the sample topic. In this study, quantitative data from a variety of economic sources were analyzed, compiled, and summarized. Specific historical and current trends were projected. Quantifiable data was obtained from public documents, including: (a) Security Exchange Commission filings, (b) industry financial statements, (c) industry journals, (d) State and Federal Department of Commerce records, and (g) Budget Appropriations Committees. Statistical trends of industry insourcing and outsourcing in terms of quantity and type were compared providing supporting data of the perceived trends both economically and socially.

The reliability and quality of outsourcing providers were evaluated concerning our dependence on them. Transfer and loss of Oklahoma aerospace capability was quantified. Impacted Oklahoma financial opportunities and local economic ramifications were measured and projected for analysis purposes. Concurrent with this data collection,

qualitative data was collected through formal questions and interviews of Oklahoma aerospace senior executives. The reason for collecting both quantitative and qualitative data was to bring together the strengths of both forms of research to corroborate results. It was the intent of this study to draw meaningful conclusions and recommendations to the insourcing and outsourcing issues of the aerospace industry in Oklahoma.

Research Questions

By doing so, an overarching research question was addressed based on responses to four sub questions.

What is the perception of the Oklahoma economic influence directly related to insourcing and or outsourcing in the Aerospace industry?

1) Is outsourcing of the Oklahoma Aerospace capability jeopardizing Oklahoma’s capacity to maintain an aerospace industry?

2) Has there been a technology loss in Oklahoma due to outsourcing?

3) To what degree has insourcing and outsourcing been an “adverse” effect to the state, and local government’s ability to generate revenue?

4) What trends are occurring in terms of corporations re-training the Oklahoma Aerospace workforce?

Semi structured interviews with aerospace executives were focused on their perceptions and experience.

Mixed method research analysis and techniques were performed to determine to what extent the qualitative senior executive interview results converged and/or supported the quantitative statistical data?

Assumptions and Limitations

The assumptions that presented themselves in this study were that the participants being surveyed or interviewed were knowledgeable enough to correctly and accurately portray their answers. There was enough information gathered to accurately project recommendations and reach a valid conclusion.

For the purpose of this study, the following assumptions and limitations were made and accepted:

- Data was based on self administered surveys and interviews; the accuracy of answers from both must be taken into consideration when evaluating the results.

- The study was conducted in Oklahoma only. The majority of data came from areas surrounding Oklahoma City; however the survey was available on a web site for the Oklahoma Aerospace Alliance. Although locations of the respondents to the survey were not identified, it is likely some respondents where located outside the Oklahoma City area as this.web site is available on the internet. The focus of the study was limited to primarily data derived from the area in proximity to Oklahoma City, particularly the knowledge and recommendations of aerospace companies and executive interviewed.

- Although there was a small number of overall participants and respondents, the reader should feel free to apply or use the findings and conclusions of this study to their own organization but that the decision is up to them

- The nature of the internet survey and the access to executives created no issues or constraints on the participants.

Philosophical Foundations

A phenomenological paradigm was selected as the philosophy for this research. As an inquiry paradigm, logical positivism seeks to test theoretical generalizations through quantitative and experimental methods (Patton, 1990). Such an approach relies on pre-identified variables from tightly defined populations, attempting to fit individual experiences and perspectives into "predetermined response categories" (Patton, 1990, p. 14), allowing no room for research objects or variables to help define the direction of the research. This approach worked well with the research questions, interviews, and questionnaires and tied directly into the study's methodology design.

Definition of Terms

The following definitions were applied in this study to provide, as nearly as possible, clear and concise meanings of terms:

- Aerospace Industry - any aviation or space related business and/or organization.
- Aircraft Sustainment - the supportability of fielded systems and their subsequent life cycle product support from initial procurement to supply chain management to disposal. Sustainment includes assessment, execution and oversight of performance based logistics initiatives, including management of performance agreements and oversight of support systems integration strategies.
- Engineering Tax Credit - Tax credits to Oklahoma aerospace companies that hire engineers. A larger tax credit is offered for graduates of Oklahoma institutions. (10% of the qualified wage cost for the 1-5 years of employment from an Oklahoma institution or 5% of the qualified wage cost for the 1-5 years of employment from a non-Oklahoma institution)
- Engineering Services – primarily engaged in applying physical laws and principles of engineering in the design, development, and utilization of aerospace equipment, components, instruments, structures, processes, and systems.

- Executive – senior level personnel with significant company decision making ability affecting the entire organization.
- First Level Manager – day to day manager of small non-management groups specializing in certain technical and functional areas; limited ability to provide vision of the company.
- Outsourcing – in this study outsourcing is defined as an existing aerospace job currently being performed in Oklahoma moving out of state.
- Incentives – legislative payment programs to attract and retain aerospace employees to the state of Oklahoma.
- Insourcing – for purposes of this study insourcing is defined as an existing aerospace job currently being performed outside the state of Oklahoma moving into the state.
- Logistics - The process of planning, implementing, and controlling the efficient, cost effective flow and storage of raw materials, in-process inventory, finished goods and related information from point of origin to point of consumption for the purpose of meeting customer requirements.

- Aerospace Maintenance - a branch of aerospace aviation involving the repair and maintenance to the airframe, power plant and avionics of aircraft. Definition includes unscheduled, casual, preventive maintenance.
- Non-Management – employees providing specialized skills in certain technical and functional areas; no ability to provide vision for the company.
- Organization – division or sub division of a company; usually a financially reporting segment.
- Original Equipment Manufacturer (OEM) - refers to the manufacturers of complete aircraft or aircraft parts, or heavy-duty engines, as contrasted with remanufacturers, converters, retrofitters, up-fitters, and repowering or rebuilding contractors who are overhauling engines, adapting or converting vehicles or engines obtained from the OEMs, or exchanging or rebuilding engines in existing aircraft and aircraft parts.
- Quality Jobs Incentive – this State program gives qualifying enrolled Oklahoma companies quarterly cash rebates of up to five percent (5%) of taxable wages for up to 10 years

- Prime Win Incentive - offers federal prime contractors a cash rebate of up to 2% of the Oklahoma workforce loaded labor cost.
- Reduced Labor Cost – competitive average labor and fringe benefit costs moving from a higher cost of living area to a lower cost of living area.
- Revenue – contractual sales to non-company buyers of goods or services
- Supplier Component Minor – subcontractors providing a variety of sub components of a major integrated assembly.
- Supplier Component Major - subcontractors providing a variety of significant or major components of a major integrated assembly. In most cases this is the original equipment manufacturer (OEM).
- 21st Quality Jobs Incentive - Qualifying companies may be eligible for up to twice the Net Benefit rate of the Quality Jobs program, or 10% of the taxable payroll of these new jobs.
- Touch Labor – employees that actually are involved with “wrench” turning aspects of the work.
- Training Programs – refers to the programs that re-train workers to a new skill required in the

organization. This may be the results of outsourcing current skills but provides a resource for new requirements.

- Workforce - workers employed in a specific project or activity. All the people working or available for work, as in a nation, company, industry, or on a project.

Scope and Significance of the Study

This study is significant in that it provides insight to Oklahoma aerospace company perceptions of insourcing and outsourcing strategies. It identifies attitudes and perceptions of both the company and aerospace workers understanding business strategies and the need for better communication throughout the organization and industry. Suggestions regarding actions and the need for them play a necessary role in a better understanding of the issues and for the continued growth and well-being of the aerospace industry in the State of Oklahoma. The findings could be used to implement changes that could keep Oklahoma competitive in the aerospace industry.

Although the scope of the study addressed was limited to the specific issue of insourcing and outsourcing of the Oklahoma aerospace industry, the participants selected for the study provided a meaningful source of data with respect to the aerospace industry. Their expertise and willingness to participate allowed a meaningful study to be compiled that could surface the need for and provide a foundation for subsequent research of a larger population.

CHAPTER II

REVIEW OF LITERATURE

Introduction

The majority of the research literature related to outsourcing focused on manufacturing, information systems, and health care. The aerospace industry in the State of Oklahoma has received little or no attention in the professional literature. In view of this void in literature there appears to be a real need to study the effects within Oklahoma of aerospace outsourcing. Understanding the effects of aerospace capability related to insourcing and/or outsourcing on Oklahoma is critical due to its high strategic importance and financial impact. Aerospace insourcing and/or outsourcing can be considered as a strategic option to sustain a company's competitiveness. However, there is a lack of research in Oklahoma aerospace insourcing and outsourcing particularly in the area of services.

In addition to identifying the research gap, the literature review was used to construct the theoretical background of the Oklahoma aerospace industry. Theories of work force perceptions, financial impact, and legislative actions were included in the review. In all cases it was evident that additional qualitative and quantifiable research data was needed to more clearly understand this aspect in the industry.

The continuously growing competitiveness and rapid technology innovation have placed tremendous pressure on companies to embrace insourcing and outsourcing as a corporate business strategy. A survey, which was conducted by Bain & Company, a business consultant firm, reports that 77% of large companies in Europe, Asia, North America and Latin America have outsourcing arrangements of some kind. These companies initiated outsourcing projects to support functions such as cleaning and catering, focusing primarily on cost reduction. They realized that the non-core functions can be outsourced to leverage the wide variety of knowledge and expertise available in the industry and enhance their own core competencies (Sakburanapech, 2008).

A company pursues insourcing and outsourcing as a competitive strategy to leverage its scarce resources for improving its core competencies. To gain these desired

benefits, the company is required to develop its collaborative relationships with its providers. Although the management of the relationships between customers and providers is considered to be the critical success factor of insourcing and outsourcing, it has not received sufficient attention from both practitioners and researchers. In particular, the relationship management has with its workforce is a substantial contributing factor to the success of insourcing and or outsourcing. This relationship, success or failure, is of high strategic importance and may result in significant financial and productivity impacts (Sakburanapech, 2008). Further, Greaver (1999) indicates that outsourcing, which is based on the service and knowledge model of the business; indicates that you contract with the best and fastest sources of production. Employees misunderstand outsourcing. They hate it and fear a loss of jobs. Managers question it, fearing a loss of control and budget dollars. Executives worry that it will lock companies into inflexible contracts.

According to Hensel (2008), the growth in the global economy and the trend toward outsourcing have given rise to concerns over the composition and strength of the U.S. industrial base, as well as the degree to which the United

States is dependent on other countries for certain goods and commodities. These concerns have appeared across a variety of industries in the dialogue between members of the House of Representatives and the Senate and their constituents, between companies and their employees, and among policymaking representatives of different nations. The dialogue becomes particularly heated when the industries involved are deemed important to national security and to the U.S. defense sector (Hensel, 2008).

Hensel (2008) goes on to conclude that the National defense outlays are a significant component of the U.S. economy, so it is not surprising that concerns exist over the degree to which those outlays support U.S. firms relative to foreign firms and whether, consequently, the U.S. defense industrial base is shrinking. The defense industrial base in the United States spans a number of industries, including transportation, steel, oil, and semiconductors, as well as military equipment. Nevertheless, despite the trade deficit in other sectors, the United States exports more than it imports in the aerospace sector, suggesting that it is not dependent on foreign countries, nor has its independence declined. Furthermore, the United States, across all weapons systems

categories, imports only a small percentage from overseas, and the percentage is stable or declining (Hensel, 2008).

In a study of, “Sustaining a Competitive Presence in the Commercial Class Aircraft Industry” Golich (1994) recommends that the U.S. government be proactive in three key areas to enhance the competitiveness of its high technology firms, hence its national competitiveness. The first is to acknowledge that the US has an industrial policy, even though in its current form it is ad hoc, sometimes incoherent and certainly not coordinated. Government policies do help to shape market conditions. U.S. policy should build on the reality by providing research and development subsidies for both basic and applied research aimed at creating high quality differentiated commercial products (Golich, 1994).

Golich’s second conclusion was to promote, rather than inhibit, flexible transnational joint ventures-something like a global group structure where members are “free” to partner with others when the market indicates that would be a strategic move. A final strategy lies in continuing to develop a set of rules and decision making procedures-such as those negotiated by the U.S. and Europe with respect to commercial class aircraft manufacturing-that can alleviate conflict and encourage positive competition. International

rules can moderate trade conflict when the parties to the conflict can find common ground or mutual interest, but they cannot eliminate conflict when the interests of the parties are fundamentally antagonistic (Golich, 1994).

Historical Perspective of the Aerospace Industry Oklahoma

The aerospace industry is one of three leading industries in the state of Oklahoma, employing over 143,000 jobs. One in ten Oklahomans derive their income from this thriving industry. Statewide direct and indirect gross output from Oklahoma's commercial aviation industry was estimated to be $12.4 billion in 2004, accounting for just over 10% of Oklahoma's industrial output according to the Oklahoma's Aerospace Industry Workforce Report (2007, p.5). Along with this growth comes a responsibility for development of talented and educated personnel to support the industry. Industry-academia collaborative efforts can help mold the future of aerospace in Oklahoma by partnering and addressing the needs of the aerospace industry for intellectual capital.

The Maintenance, Repair, and Overhaul (MRO) of aircraft are Oklahoma's primary role within the aerospace industry. Oklahoma is one of the six centers in the world

for MRO work. The majority of these aerospace companies perform some type of MRO work. In 2007 it was reported that the commercial MRO industry was a $41 billion dollar worldwide market. By 2012, this value is said to be nearly $51 billion dollars and by 2017, nearly $63 billion dollars. Engine MRO work represents, by far, the largest portion of the MRO market, accounting roughly 42 percent, of the total spent in 2007 (Jackman, 2007, p. 47).

With companies such as American Airlines, in Tulsa, Oklahoma holding the title of the largest commercial MRO facility in the world and Tinker Air Force Base employing the state's largest number of Oklahomans, and not to mention the largest Department of Defense MRO facility, the state is positioned to be the leader in aircraft sustainment. Although the implications that MRO companies require mostly touch labor, the administrative process requires a professional cadre of engineers, logisticians, safety and security experts, marketing analysts, consultants, and aerospace industry executives/managers.

This is particularly important since the industry is facing an aging aircraft problem along with the need to keep aircraft flying longer. Among the 400 plus companies in the state, Oklahoma has one of the highest concentrations of aviation maintenance workers and aircraft

repair facilities in the world. “It is one of the six centers for aircraft sustainment.” (Oklahoma’s Aerospace Industry Workforce Report, 2007, p.5).

The economics and demographics of Oklahoma’s aerospace workforce are experiencing major shifts due to aging and pending retirement of experienced personnel, increased diversity, changing technology, skill obsolescence, and an ever-increasing need for intellectual capital. Information, analysis, and trend identification will be essential for effective workforce development in this rapidly changing environment.

Aerospace companies in Oklahoma have expressed frustration with the shortage of intellectual capital necessary to maintain and grow the industry. These companies have often been required to take on the role of the educational institution to adequately educate their own personnel; only to have them leave for greener pastures because of the highly competitive nature of the business.

To create a competitive advantage in a global economy, Oklahoma must have an aggressive and forward-thinking plan that integrates education and economic development efforts within the aerospace industry. Innovative thinking, increased collaboration, and more integrated processes and systems are required to position Oklahoma competitively for

future growth and prosperity. According to Power, Desouza, and Kogan, (2006), identify your core competencies, select activities that are amenable to (insourcing) outsourcing, because some processes are not appropriate. This competitive advantage will enable Oklahoma to attract new business from within the aerospace industry and create quality career opportunities. By closely linking education, economic development, and professional systems, Oklahoma has the opportunity to be a leader in aerospace.

The $41 billion worldwide market for the maintenance, repair and overhaul of commercially operated jet transports will expand at a compound annual growth rate of 4.8 percent over the next five years and then will taper off to 4.0 percent compound annual growth rate from 2012 to 2017, according to Overhaul and Maintenance Magazine's annual 2007 report (MRO Market is Up and Down, 2007). This market is a staple in Oklahoma, with the majority of its business in the Tulsa and Oklahoma City area. The state is one of the six global hubs for MRO services. According to the Oklahoma Department of Commerce, "the aerospace industry in Oklahoma accounts for over 72,000 jobs with an average wage well above the state's average wage "(Strategic Plan for the Growth of Oklahoma's Aerospace Industry, 2009, p.5).

Just as the global and national markets are experiencing shifts in growth and educational requirements, the economics and demographics of Oklahoma's aerospace workforce are experiencing major shifts due to aging and pending retirement of experienced personnel, increased diversity, changing technology and skill obsolescence, and an ever-increasing need for intellectual capital. These statistics reflect a legitimate concern about the loss of intellectual capital in the aerospace industry. There is strong evidence that the aerospace industry is at the beginning stages of a skills shift that will significantly impact the basic skills required within the industry. According to the 2007 Oklahoma's Aerospace Industry Workforce Report (p.5), "a series of surveys were conducted to evaluate Oklahoma's current and future workforce needs and identify patterns of supply and demand as it pertains to the aerospace industry."

> Based on the analysis, it is estimated that Oklahoma will likely experience shortages of approximately 200 Aerospace Engineers and 400 Electrical Engineers by 2014, with shortages of additional engineering specialties possible in that same time frame. Currently not quantifiable but potentially more

> significant are pending skills gaps within Oklahoma's aerospace workforce (Oklahoma's Aerospace Industry Workforce Report, 2007, p.5)

Capabilities in the Aerospace Industry

Oklahoma has significant assets in the aerospace industry. Both government installations and private sector companies have developed an extended value chain of suppliers, producers and customers for aerospace sectors. Exciting new initiatives complement the already strong MRO and OEM activities in Oklahoma's aerospace landscape, including the University Multispectral Lab and the UAV/UAS test range. Highlights of assets include: 1)Federal government installations such as Tinker Air Force Base, Federal Aviation Administration; 2)(FAA) Mike Monroney Aeronautical Center, Altus Air Force Base, and Vance Air Force Base; 3) major private sector aerospace companies including American Airlines, Nordam, Spirit, Boeing, Northrop Grumman and Pratt & Whitney; and 4) University research capabilities in aerospace design, composites and advanced materials, sensors, advanced controls, advanced processing and heat transfer, as well as newer applications related to vehicle dynamics, controls, robotics, and

intelligent systems, the design of long-endurance UAVs, micro air vehicles (MAVs), and nano air vehicles (NAVs).

Oklahoma's aerospace industry has three sectors which comprise the majority of the state's current industry: maintenance, repair, and overhaul (MRO); original equipment manufacturing (OEM); and air transportation with related training services. In addition to expansion possibilities in existing sectors, the state is also poised to take advantage of emerging aerospace markets (Strategic Plan for the Growth of Oklahoma's Aerospace Industry, 2009, p 5).

Emerging Capabilities in the Aerospace Industry

In spite of the economic slump, some areas in the aerospace industry did experience growth in 2009. According to the Department of Labor, the Aerospace Industry will add 10% to the workforce between 2008 and 2010. Seventy percent (70%) of the jobs in aerospace relate to research and development, production and maintenance operations, and new designs for commercial and military aircraft. In Oklahoma private industry alone, Boeing, announced that it plans to move its C-130 Avionics Modernization and B-1 programs from California to Oklahoma and with this, 550 jobs will be relocated to Oklahoma.

FlightSafety initiated building efforts and as a result, Oklahoma can expect up to 300 jobs in the near future. Spirit Aerosystems anticipates bringing 400 new jobs to Oklahoma, while UML opened a new Unmanned Aerial System (UAS) test facility in Lawton, Oklahoma. Tinker AFB filled 1200 positions in 2009 and 2010 and expects to hire more (Voices of the Oklahoma Aerospace Leaders, 2010, p.42)

Social Effects on the Oklahoma Economy

There are many existing social effects of outsourcing in a national and state economy. Additionally there are implications on the aerospace industry as a whole along with many personal ramifications. Today's aerospace industry is linked globally to what other countries are doing to establish and grow their aerospace programs. One observation according to the Voices of the Oklahoma Aerospace Leaders (2010, p.42) is that with all the military and space initiatives concerning downsizing, if we continue on the path we are currently taking, the aerospace industry in the United States will become a "maintenance service" rather than a "design and build" industry. This is vitally important to our Oklahoma aerospace industry and our economy because we may be in for a fight to train and

retain our highly skilled workforce in the near future. For competitiveness and to maintain capabilities there is a need to maintain our high quality aerospace workforce.

Financial Impact to Oklahoma’s Economy

Quality Jobs Incentive Program

Oklahoma's Quality Jobs Program cash back incentive has placed the State at the forefront as a location for new or expanding businesses. The business incentive gives qualifying enrolled companies quarterly cash rebates, of up to five percent of newly created taxable payroll, for ten (10) years. Since inception, the State has enrolled over six hundred thirty (630) companies that have received over seven hundred seventy five million dollars ($775M) in wage rebates. The program targeted manufacturers and certain service companies, particularity aerospace companies that project having a new payroll investment of two million five hundred thousand dollars ($2.5 M) or more. This incentive specifically targets improving a company’s bottom line and a primary reason why Oklahoma ranks high in incentives nationally (Oklahoma Department of Commerce, Guidelines Quality Jobs Program Management, 2012).

This innovative program gives qualifying enrolled companies quarterly cash rebates of up to five percent (5%) of taxable wages for up to ten (10) years. New legislation in 2005 allows companies in the program who expand again to receive up to 6% wage rebates based on meeting certain criteria (Oklahoma Department of Commerce, Guidelines Quality Jobs Program Management, 2012).

21st Century Quality Jobs Incentive Program

This State incentive was created to attract growth industries and sectors to Oklahoma in the 21st Century through a policy of rewarding businesses with a highly skilled, knowledge-based workforce. The intended purpose of the program is to promote indisputably impactful high wage jobs without competing with existing incentives. The framework of this program is based on the popular Quality Jobs Program developed in 1993. The legislation for this program was passed in the spring of 2009, and became effective November 1, 2009. The intent is for existing or new companies locating to the state to create or bring a new piece of business in one of these identified industries. Qualifying companies may be eligible for up to twice the Net Benefit rate of the Quality Jobs program, or

ten percent (10%) of the taxable payroll of these new jobs, to be paid in cash on a quarterly basis. The program lasts for up to 10 years (Oklahoma Department of Commerce, Guidelines 21st Century Quality Jobs Program, 2012).

Prime Win Incentive Program

Prime WIN provides a cash benefit and a certified subcontractor base for federal prime contractors. Prime WIN is a performance-based program that requires subcontracting with an Oklahoma workforce. Prime WIN offers federal prime contractors a cash rebate of up to 2% of the Oklahoma workforce loaded labor cost. Cash incentives are paid quarterly for a maximum of 10 years by the Oklahoma Tax Commission. Prime WIN provides contractors with an easy-to-access conduit to hundreds of pre-certified subcontractors assuring productivity and quality while meeting schedule demands. Several key needs are met by improving prime contractors competitiveness, profit margins, access to pre-qualified subcontractors, and risk mitigation (Oklahoma Department of Commerce, Guidelines Quality Jobs, Prime Win Program, 2012.)

Engineering Tax Credit Program

The Engineering Tax Credit Program emphasizes the need to retain and attract aerospace engineers to meet the ever-increasing demands of Oklahoma's thriving aerospace industry. Workforce retention is key with tax credits available to aerospace companies that hire engineers. A larger tax credit is offered for graduates of Oklahoma institutions, ten percent (10%) of the qualified wage cost for the one to five (1-5) years of employment from an Oklahoma institution or five percent (5%) of the qualified wage cost for the one to five (1-5) years of employment from a non- Oklahoma institution) The workforce attraction is for tax credits to engineering graduates who agree to work for an Oklahoma aerospace company, not to exceed five thousand dollars ($5,000) per year for the first one to five (1-5 years) of employment. An additional employer tax credit of fifty percent (50%) of tuition reimbursed to a new engineer graduate, based on the average tuition at an Oklahoma public college or university, for the first through fourth (1-4) years of employment (Oklahoma Tax Commission Rules, Chapter 50 Credit for Employers in Aerospace, 2012).

Trends in the Aerospace Industry in Oklahoma

There is no doubt that the aerospace industry has greatly impacted the American economy; and national security leaders throughout the United States are strategizing to develop a skilled workforce of scientists, engineers and technicians to ensure that the nation's aerospace industry remains viable. However, the nation's intellectual capital continues to decrease while demands for innovation and usable technology increase.

The jobs provided by the aerospace industry span multiple skill sets and levels. They consist primarily of engineers, business and program managers, and manual "touch labor." The once revered U.S. educational system continues to show signs of weakness and decline. Of 270,000 freshmen entering college in the U.S., only 7.5% are intended majors in engineering, the lowest level since 1970.

Between 2009 and 2014, the ten fastest-growing aerospace occupations are: machinists, aircraft mechanics/service technicians, computer-controlled machine tool operators, industrial engineers, computer software engineers, business operation specialists, aerospace engineers, and engineering and other managers. A bachelor's degree is required for six of the ten

occupations, with the remaining four occupations requiring work experience, on-the-job training or a vocational training certificate.

The Bureau of Labor Statistics reported in 2007 that over 2.5 million workers would be needed to fill aerospace-related job vacancies across the nation. Unfortunately, glaring challenges confront the U.S., making it difficult to meet the ensuing demands of our future nation's workforce. Three of the many prominent challenges are: 1) the aging workforce, 2) the lack of skilled workers to replace them, and 3) a fractured pipeline of ill-equipped workers coming in from the educational system.

The aging workforce challenge is further highlighted in reports that indicate that over 58 percent of the national workforce is over the age of 50 suggesting that a large majority will be eligible for retirement, while only 22 percent of the workforce is age 35 and younger. The nation must aggressively explore different avenues to populate its workforce pipeline to meet the expected demands. "These specific issues threaten to devastate U.S. competitiveness, health and economic strength nationally and globally. The current economic downturn has further aggravated these issues as well." (Voices of the Oklahoma Aerospace Leaders, 2010, p 4).

Summary of Significant Literature

The aerospace industry is one of staples of the Oklahoma economy. It is expected to expand, bringing in new capabilities through the next several years. The industry state must be in a position to supply contractor's requirements with qualified and well trained personnel. A robust training program must be implemented to meet the future needs. The State has taken a very pro-active approach to incentives to attract work. These incentives are generally enough to offset any investment and or relocation costs. The Oklahoma aerospace industry is projected to thrive for both the short and long term. As an example The Boeing Company has recently announced the closure of its Wichita site with intentions to move the work and the work force of approximately five hundred to one thousand (500-1,000) to Oklahoma. Through discussions with the Commerce Department of Oklahoma the incentive programs participation is quit wide spread among the Oklahoma aerospace industry.

CHAPTER III

METHODOLOGY

Purpose

Mixed method research is a research design with philosophical assumptions as well as methods of inquiry. As a methodology, it involves philosophical assumptions that guide the direction of the collection and analysis of data and the mixture of qualitative and quantitative approached in many phases in the research process. “As a method, it focuses on collecting, analyzing, and mixing both quantitative and qualitative data in a single study. Its central premise is that the use of qualitative and quantitative approaches in combination provides a better understanding of research of the problems than either approach alone” (Creswell & Plano Clark, 2007, p.5).

Theoretical Perspective

A triangulation design with the convergence model has been used for this study. According to Creswell, (1998), this is the most common and well known approach to mixing methods. The purpose of this design is to bring together the qualitative data from the interviews and questionnaires and the quantitative data obtained by research methods. By bringing together different data types, the study will be strengthened by comparing, contrasting, and merging the data, forming conclusions individually and collectively.

The quantitative data generally consists of sample sizes that indicate trends when analyzed and qualitative data that is generally derived from smaller sample size with in-depth details. The triangulation design is a one-phase design in which one implements methods during the same time frame and with equal weight. The researcher attempts to merge the two data sets into one analysis. Timing is often discussed in relation to the time the data sets are collected and referred to as concurrent or sequential data collection.

General Approach

A concurrent design was used; meaning that the quantitative and qualitative data were collected, analyzed and interpreted at approximately the same time. The relative importance of the data in this study or weighting between the quantitative and qualitative data was equal in this single phase study. In terms of mixing the data in this study, data has been merged during the interpretation or analysis aspect of the study. It is the intent of this study to draw meaningful conclusions and recommendations to the outsourcing and insourcing issues of the aerospace industry in Oklahoma. Using a converged triangulation model, a single phase approach was used to obtain data from interviews and surveys. This design is most appropriate when evaluating data from a large number of metrics and statistics along with individual conclusions.

Although the triangulation design is the most popular mixed method design, it also is the most challenging, reference Figure 1. A great deal of expertise and effort is required because of the concurrent data collection and the equal weighting assumption that is generally applied. Using well-qualified teams/advisors in quantitative and qualitative research usually assists in helping with this

problem. A second potential problem may arise when the qualitative and quantitative data do not agree. The solution many times is to seek additional data. Additional issues arise with the convergence model. Varying sample sizes being collected for different purposes must be addressed. Comparisons of data results must be relevant to the conclusions being drawn.

Population and Sample

Participants for interview and survey were selected from specific organizations within the Oklahoma City aerospace population or associated with the aerospace industry within Oklahoma. The selections of participants of both populations were based on their expertise related to the needs of small, medium and large aerospace companies. (Reference Table 1) The quality of participant background and experience is directly related to the ability to obtain meaningful data.

This interview and survey sample consisted of company executives and individuals associated directly with the aerospace industry within the state of Oklahoma. Executives were purposively chosen because they were believed to be a high value source of data for identifying insight to their respective company’s insourcing and

outsourcing decision making strategies. In *Handbook of Qualitative Research*, Denzin and Lincoln (1994, p. 225) described the sample size of qualitative research as dependent upon the saturation of data. Saturation occurs when repetition of the data from multiple sources of data becomes apparent with repetition in the information obtained and with confirmation of previously collected data. The three participants interviewed provided the level of repetition, general awareness, and context necessary to adequately address the research questions. This data was compared to data obtained through the survey data in a triangulation methodology contained in the study.

Instrumentation

An Interview Guide containing open-ended questions was used to gather information regarding Oklahoma's aerospace executives. In addition, a survey was constructed with multiple quantitative questions specifically focused on aerospace workers within the industry in Oklahoma. Questions on the Interview Guide were reviewed by a number of aerospace executives, managers, and graduate students prior to the interviews.

Procedures

A series of analytical tools have been used for determining the relationships in the underlying data. An ANOVA variance analysis, visual graphs, trends, comparisons, means, and a variety of other statistical tools have all been included in this study. In addition, qualitative interviews and questionnaires have been used to correlate the data in a mixed methods approach.

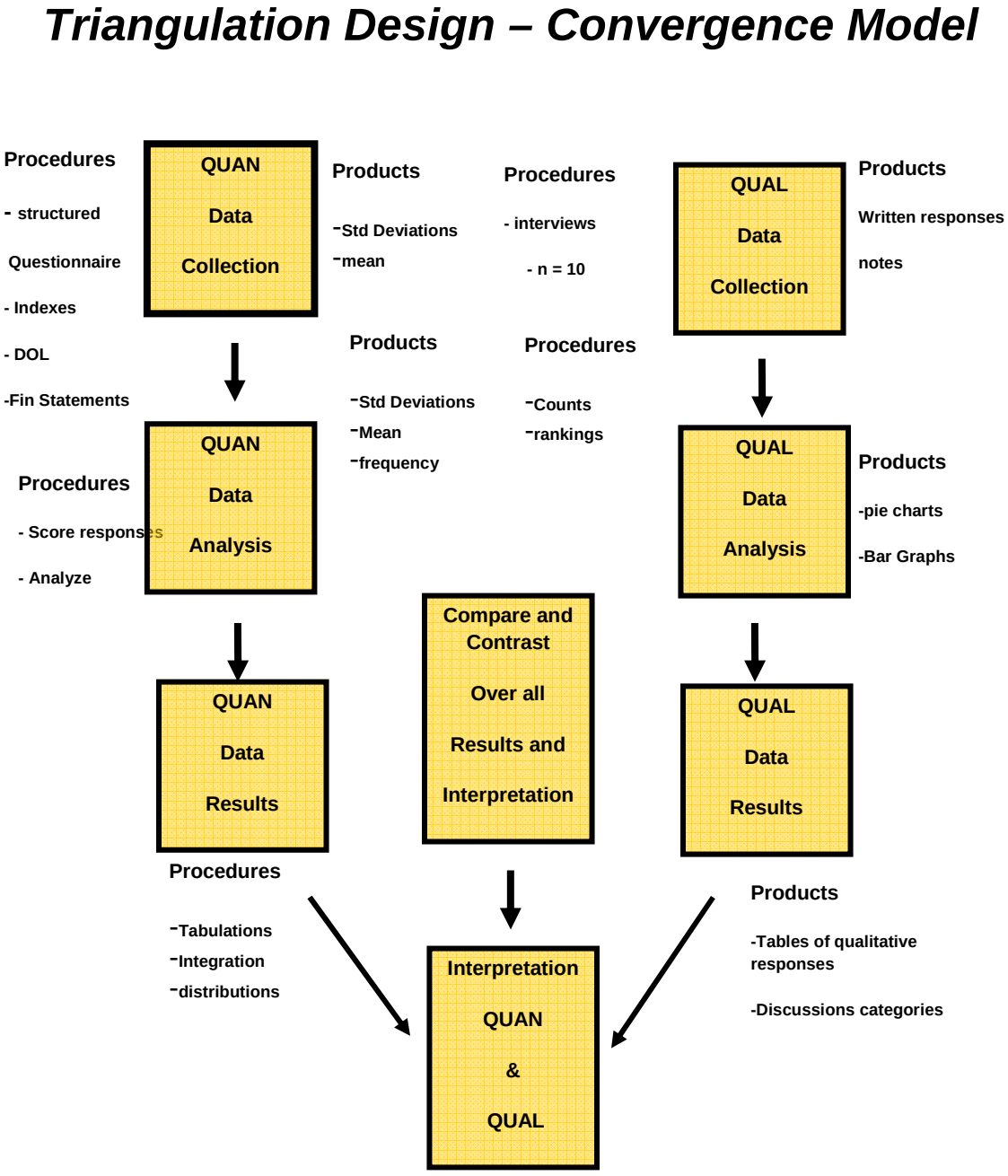
Data Analysis

Data has been collected both quantitatively and qualitatively. Data analysis was conducted independently for both the quantitative and qualitative approaches. A convergence of the data was then analyzed. Additional quantitative data outside the survey was collected through public resources and available published statistical sources for comparative purposes. Trend analysis and relationship models have been included along with recommendations and conclusions garnered. Three year historical perspectives of the data were the basis of trends, analysis, and conclusions.

The qualitative data was collected during the questionnaire and interview process. Specific questions

were designed to ascertain the participant’s perceptions and personal observations related to insourcing and outsourcing in the aerospace industry within the state of Oklahoma. The convergence of the results of factual analytical data (quantifiable) with the much more subjective data obtained through the question and answers during the interview phase of the study has been analyzed. Reliability was assessed through the use of triangulation methods.

Figure 1: Study Design Diagram



Timeline for Conducting the Study

The initial contact to aerospace companies and aerospace executives with the intent of seeking approval to conduct an interview took three weeks and was completed by December of 2011. The face to face interviews and transcriptions and analysis of the data were completed in early 2012. The survey was made available through the Oklahoma Aerospace Alliance web site.

The study was completed in December 2011 with questionnaires and interviews being conducted during the summer of 2011. The established IRB process was followed. Collected data from interviews and questionnaires were protected and secured in accordance with IRB requirements. Confidentiality issues were maintained and were held strictly confidential by utilizing codes and number IDs. All information was stored in a secured area under locked file at my home. The research data will be destroyed immediately the year after the researcher’s doctoral completion.

Validity and Reliability of the Study

It was important to ensure the validity and reliability of this research related to Oklahoma aerospace requirements because the findings could be used as a model of the impact of insourcing and outsourcing perceptions in Oklahoma aerospace. That model must be based on valid and reliable research methods.

Validity in research addresses the issue of whether or not the research actually answers the question it was designed to answer. Reliability in research addresses consistency and repeatability. Both quantitative and qualitative research validity is especially important. The importance of reliability in qualitative research is somewhat controversial in research literature. L. R. Gay (1996) believed that both concepts are relevant in qualitative research but reliability is a consequence of validity and both concepts are correlated with the competence, experience, and dedication of the person conducting the interviews. According to Gay, validity can be attained by: (a) triangulation or use of multiple methods, data sources, or data collection strategies; (b) consistency across observations over time; (c) consistency of interview data among persons interviewed as well as

consistency of interview data for the same person(s);(d) consistency of researcher data and impressions; (e) use of multiple methods (triangulation) of data collection strategies and data sources; (f) or use of recording data (p. 242). In this study, triangulation of data involved obtaining the opinions of participants in a variety of aerospace organizations to assess the similarities and consistencies across the industry. Consistency of interview data among persons interviewed as well as consistency for the same person was considered.

Rubin and Rubin (1995, p. 85-92) suggested that validity and reliability do not fit qualitative research and that trying to fit the two quantitative indicators of validity and reliability to qualitative research distracts more than it clarifies. They viewed transparency, consistency-coherence, and communicability as the standard for qualitative interviewing.

From their perspective transparency allows the reader to assess the interviewer's biases, conscientiousness, and strengths and weaknesses, how they organized and analyzed the transcripts and how they maintained careful records. Consistency-coherence *involved* comparing themes in one interview with others, checking out inconsistencies and

exploring contradictions. “Communicability involves quality of detail, abundance of evidence, and vividness of the text with a description of how each major theme was tested and retested under different questions or conditions until it was accepted. The researcher should make sure those being interviewed speak about their first-hand experiences; the experience of the interviewees gives legitimacy to the argument” (Rubin & Rubin, 1995, p. 91).

Using the standards identified in Rubin & Rubin (1995), as the standard for quality of this research study, careful attention was given to transparency and how the interviews and data were organized and how the records were analyzed and maintained. Consistency-coherence involved comparing themes across all of the interviews and checking and cross-checking for potential discrepancies. Communicability was achieved by encouraging interview participants to speak about their first-hand experiences within their organizations and how those experiences affected their analysis of insourcing and outsourcing perceptions that impacts the aerospace industry in Oklahoma.

CHAPTER IV

FINDINGS

Introduction

The purpose of this mixed method; qualitative and quantitative study, was to explore the perceptions of aerospace industry executives and employees in Oklahoma regarding the perceptions of insourcing and outsourcing the aerospace industry within the state of Oklahoma. It was believed that the participants could provide valuable insight and make recommendations for future actions related to the industry's direction.

The first phase of the study evaluated empirical responses to a survey that was distributed to aerospace employees throughout the state of Oklahoma. A multiple question survey was sent out individually and made available on the Oklahoma Aerospace Alliance web page for respondents. A triangular two phase concurrent approach was used to evaluate and analyze the data.

The second phase of the analysis provided detailed personal interviews that were conducted with aerospace industry executives from private industry. The three participants interviewed for this study were selected from specific organizations within the Oklahoma aerospace industry in a variety of aerospace companies with capabilities ranging from manufacturing; repair & overhaul; engineering services; and training.

Participants selected for interview were believed to be a rich source of data in defining insourcing and outsourcing strategies in the Oklahoma aerospace industry. The data compiled in the qualitative interviewing is directly related to the expertise of the participants in their field of expertise.

Phase I

Analysis of the Questionnaire

A survey was chosen as the research instrument for this phase of the study to test the perceptions and attitudes of different organizational levels and job classification of employees towards insourcing and

outsourcing within the aerospace industry of Oklahoma. Respondents addressed a series of questions identifying the respondent demographics and the company demographics.

The survey contained 13 questions grouped by: definitive definitions of respondents, Questions 1 through 4; and fact based perception, and/or opinion Questions 5 through 13. Specific questions on the survey can be referenced both in Table 4-0 and Appendix E.

Selection Method

The first phase, the survey, was through convenience sampling. Convenience sampling is used in exploratory research where the researcher is interested in a gross estimate of the results, without incurring the cost or time required to select a random sample. In this study access to the potential population was provided by the researchers, work, position, academic affiliations, and outside organizations related to the aerospace industry. This nonprobability- method is often used during preliminary research efforts. Submitted responses to the survey were accumulated an analyzed. Respondents were contacted for a response by e-mail directly or had access to the Oklahoma Aerospace Alliance web site which notifies

them of updated stories or information. Phase II consisted of well known aerospace leaders and executives for interview and discussion purposes.

Survey Demographics

The demographics can be clearly identified in Table 1; which indicate three (3) respondents representing a frequency of one point nine percent (1.9%) of the total number of respondents were executives. Two (2) or one point three percent (1.3%) first line managers, and one hundred fifty four or ninety six point nine percent (96.9%) non-management. Further, of all the respondents to the survey, seven point five percent (7.5%) were program managers, forty five point nine percent (45.9%) were technical, three point one percent (3.1%) manufacturing, and forty three point four percent (43.4%) were support functions. Distribution of company size in terms of work force and annual revenue were also identified in the demographic data; reference Table 1. There were sixteen respondents that did not respond to question four (4) relating to company size in terms of annual revenue. However, significant relevant information was garnered from the

survey questions they did respond to in the convenience sample.

Table 1: Distribution of Personal Demographic Variables

Survey Question	Frequency	Percentage
1) Please indicate which classification best describes your current position.		
Executive	3	1.9%
First Level Manager	2	1.3%
Non-Management	154	96.9%
Total	159	100.0%
2) Please indicate which job classification below most closely represents your current position.		
Program Management	12	7.5%
Manufacturing	5	3.1%
Technical	73	45.9%
Support Function	69	43.4%
Total	159	100.0%
3) Approximately how many employees are in your organization or business unit?		
Less than 300	61	38.4%
301-600	21	13.2%
601-1,000	26	16.4%
1,001-1,500	9	5.7%
1,501-3,000	13	8.2%
Greater than 3,000	25	15.7%
No Response	4	2.5%
Total	159	100.0%
4) Approximately how much annual revenue does your Division or Business Unit generate? (in house labor, subcontracts, and material)?		
$0-$250M	62	39.0%
$251-$500M	25	15.7%
$501M-$750M	21	13.2%
$750-$1,000M	7	4.4%
Greater than $1,000M	28	17.6%
No Response	16	10.1%
Grand Total	159	100.0%

Table 2: Survey Questions - Statistical Mean, Median, Std. Dev;

Questions	# of Responses	Mean	Median	Std Dev
1) Please indicate which classification best describes your current position.	159	Reference Demographic Table 1		
2) Please indicate which job classification below most closely represents your current position.	159	Reference Demographic Table 1		
3) Approximately how many employees are in your organization or business unit?	155	Reference Demographic Table 1		
4) Approximately how much annual revenue does your Division or Business Unit generate? (in house labor, subcontracts, and material)?	143	Reference Demographic Table 1		
5) Does your company have specific strategic goals and targets related to outsourcing?	158	2.2658	3.0000	0.9198
6) What type skills do you outsource today?	N/A	Reference Table 12		
7) What is your best estimate of the approximate percentage of the above skills that your company outsources today?	151	2.3179	2.0000	1.0157
8) Please rank your assessment of the "most" motivating factor from your company's position related to outsourcing. Rank in order from 1 to 5 with 1 being the most important and 5 the least important of the 5 factors.	147	Reference Table 14		
9) To what degree do you believe that your company's outsourcing strategy has an "adverse" effect on the local and state economies?	154	3.0844	3.0000	1.1258
10) How much adverse effect do you think your company's outsourcing strategy has on the State of Oklahoma's core aerospace capabilities?	153	3.1895	3.0000	1.1283
11) Does your company have a formal re-training program for personnel whose jobs have been outsourced?	147	1.7075	2.0000	0.4565
12) As an employee/leader for your company, how much outsourcing do you you personally believe is critical to the long term success of your company?	151	3.4834	3.0000	3.0000
13) Has your company taken advantage of any Oklahoma legislative incentives? If so, please identify all that apply.	N/A	Reference Table 20		

Response to Survey Questions

One-way ANOVA was performed to examine the survey questions answered by respondents from the aerospace community surveyed. The answers from the various questions were analyzed individually and combined to ascertain meaningful correlation between demographics within the questions. A total of thirteen (13) questions were included in the survey. Table 1 addresses the survey demographics and Table 2 outlines the questions, means, median, and standard deviation of question five (5) through thirteen (13) each of the questions summarizing the cumulative respondents who completed the survey questionnaire.

Survey Question 1

The first (1^{st}) question in the survey asked the respondents how they classified their job level within their organization. A total of 159 aerospace employees responded to the question. Of the response to Survey Question 1, one point nine percent (1.9%) of the responses indicated that they were of an executive level within their organization. One point three percent (1.3%) classified themselves as first line managers. Finally, ninety six point nine percent (96.9%) responded as non-management.

Table 3: summarizes the frequency of the different groups within Survey Question 1.

Table 3: Frequency - Employee Organizational Level

Level	Frequency	Percent	Valid Percent	Cumulative Percent
Executive	3	1.9	1.9	1.9
First Level Manager	2	1.3	1.3	3.1
Non-Management	154	96.9	96.9	100.0
Total	159	100.0	100.0	

Analysis of Variance (ANOVA) Survey Question 1

Analysis of variance (ANOVA) was used to investigate the first survey question that addressed the relationship of the participant's demographic organizational level to the survey questions related to the participant's insourcing and outsourcing perception variables. Analysis of variance is one of the most widely used statistical tests in educational research. It is used when testing the differences of two or more means at a selected probably level (Gay & Airasian, 2000, p. 491).

The concept underlying ANOVA is that the total variation, or variance, of scores can be divided into two sources—treatment variance (variance between groups, caused by the treatment groups) and error variance (variance

within groups). A ratio is formed (the F ratio) with treatment variance as the numerator and error variance in the denominator (Gay & Airasian, 2000, p. 491). The accuracy of the F score is based on statistical assumptions of distribution related to normality, equal variances, and random sampling. Thus, with ANOVA the sample is divided into groups, and the means of the groups are tested to determine "whether the differences among the means represent true, significant differences or chance differences due to sampling error" (Gay & Airasian, 2000, p. 491).

For each of these analyses, the participants were grouped on a demographic variable to see if the group means differed on the variables being tested. Using a criterion level of .05, no significant difference was found for the rational scale of the ten (10) variables (see Table 4). "The fact that results are statistically significant does not automatically mean that they are of any educational value (i.e., that they have practical significance)" (Gay & Airasian, 2000, p. 522). The statistical significance indicates that the results did not likely occur by chance and that the observed relationship is probably a real one (p. 522). Significant differences are "largely a function

of sample size, significance level, and a valid research design” (p. 522). Large sample sizes with very small mean differences can produce significant differences (p. 522). Consequently, one should “always consider the practical significance of statistically significant differences” (p. 522).

No significant difference was identified between groups when analyzing the ANOVA results of Survey Question 1 as summarized on Table 4. The organizational level groupings (dependent variable) measured in this ANOVA were the self-identified organizational level of executives, middle managers, first level managers, and non-management.

Table 4: ANOVA – Employee Organizational Level

Employee Organizational Level (dependent variable)		Sum of Squares	df	Mean Square	F	Sig.
Awarness of insourcing /outsourcing stratedgy	Between Groups	1.254	2	.627	.738	.480
	Within Groups	131.582	155	.849		
	Total	132.835	157			
Percentage (%) outsourced	Between Groups	.372	2	.186	.178	.837
	Within Groups	154.370	148	1.043		
	Total	154.742	150			
Reduced labor costs	Between Groups	6.199	2	3.100	.174	.840
	Within Groups	2564.413	144	17.808		
	Total	2570.612	146			
Improved supplier quality	Between Groups	3.012	2	1.506	1.035	.358
	Within Groups	205.147	141	1.455		
	Total	208.160	143			
Strategic partnering for growth	Between Groups	4.700	2	2.350	.176	.839
	Within Groups	1880.606	141	13.338		
	Total	1885.306	143			
Concentration on core capabilities	Between Groups	3.708	2	1.854	1.112	.332
	Within Groups	236.802	142	1.668		
	Total	240.510	144			
Improved competitiveness	Between Groups	.964	2	.482	.308	.736
	Within Groups	222.388	142	1.566		
	Total	223.352	144			
Adverse effect on local and state economy	Between Groups	4.780	2	2.390	1.908	.152
	Within Groups	189.123	151	1.252		
	Total	193.903	153			
Adverse effect on aerospace capabilities	Between Groups	6.911	2	3.455	2.778	.065
	Within Groups	186.592	150	1.244		
	Total	193.503	152			
Retraining progrm	Between Groups	.344	2	.172	.824	.441
	Within Groups	30.077	144	.209		
	Total	30.422	146			
Use of legislative incentive programs	Between Groups	2.042	2	1.021	1.403	.249
	Within Groups	107.667	148	.727		
	Total	109.709	150			

Survey Question 2

The second question in the survey concerned itself with type of labor classification the respondent considered herself/himself to be within the aerospace organization; program management, technical, manufacturing, and support functions. A total of 159 aerospace employees responded to the question. Of the responses to Question 2 of the survey, seven point five percent (7.5%) percent of the responses indicated they considered themselves program management. Nearly one half of the respondents or forty five point nine percent (45.9%) considered themselves of a technical nature. The smallest classification at three point one percent (3.1%) was related to the manufacturing classification. Finally another broad category with a significant response percentage was the support function at forty three point four percent (43.4%). Table 5: summarizes the frequency of the different groups within survey Question 2.

Table 5: Frequency - Employee Labor Classification

	Frequency	Percent	Valid Percent	Cumulative Percent
Program Management	12	7.5	7.5	7.5
Technical	73	45.9	45.9	53.5
Manufacturing	5	3.1	3.1	56.6
Support	69	43.4	43.4	100.0
Total	159	100.0	100.0	

ANOVA Analysis of Survey Question 2

One significant difference was identified between groups when analyzing the ANOVA results of Question 2 of the survey as summarized on Table 6. The significance factor of 1.1% related to the awareness of a insourcing or outsourcing strategy within the job classification This difference can be traced to a lower than expected response in program management. The organizational level groupings (dependent variable) measured in this ANOVA was the self identified job classification of program managers, technical positions, manufacturing, and support functions such as Information Technology, Human Resources, and Finance.

Table 6: ANOVA – Employee Job Classification

Employee Job Classification (dependent		Sum of Squares	df	Mean Square	F	Sig.
Awarness of insourcing /outsourcing stratedgy	Between Groups	9.249	3	3.083	3.842	.011
	Within Groups	123.586	154	.803		
	Total	132.835	157			
Percentage (%) outsourced	Between Groups	2.279	3	.760	.732	.534
	Within Groups	152.463	147	1.037		
	Total	154.742	150			
Reduced labor costs	Between Groups	17.202	3	5.734	.321	.810
	Within Groups	2553.410	143	17.856		
	Total	2570.612	146			
Improved supplier quality	Between Groups	2.347	3	.782	.532	.661
	Within Groups	205.813	140	1.470		
	Total	208.160	143			
Strategic partnering for growth	Between Groups	6.283	3	2.094	.156	.926
	Within Groups	1879.022	140	13.422		
	Total	1885.306	143			
Concentration on core capabilities	Between Groups	10.992	3	3.664	2.251	.085
	Within Groups	229.518	141	1.628		
	Total	240.510	144			
Improved competitiveness	Between Groups	4.790	3	1.597	1.030	.381
	Within Groups	218.562	141	1.550		
	Total	223.352	144			
Adverse effect on local and state economy	Between Groups	2.429	3	.810	.634	.594
	Within Groups	191.474	150	1.276		
	Total	193.903	153			
Adverse effect on aerospace capabilities	Between Groups	2.480	3	.827	.645	.587
	Within Groups	191.023	149	1.282		
	Total	193.503	152			
Retraining progrm	Between Groups	5.440E-02	3	1.813E-02	.085	.968
	Within Groups	30.367	143	.212		
	Total	30.422	146			
Use of legislative incentive programs	Between Groups	3.394	3	1.131	1.564	.201
	Within Groups	106.314	147	.723		
	Total	109.709	150			

Survey Question 3

The third (3rd) question in the survey tried to triangulate on company size in terms of actual employees. A total of 155 aerospace employees responded to the question. Of the responses to Question 3 of the survey, thirty nine point four percent (39.4%) percent of the responses indicated they were employed by an aerospace company with less than three hundred (300) employees. Thirteen point five percent (13.5%) of the respondents indicated they worked for an aerospace company with employee's numbering between three hundred one (301) and six hundred (600). Sixteen point eight percent (16.8%) of the respondents indicated they worked for an aerospace company with annual sales between six hundred one (600) and one thousand (1,000) employees. Five point eight percent (5.8%) indicated they were employed by a company with a labor force of between one thousand and one (1,001) and one thousand five hundred (1,500). Eight point four percent (8.4%) indicated they were employed by a company with a labor force of between one thousand five hundred and one (1,501) and three thousand (3,000). Finally sixteen point one percent (16.1%) indicated they were employed by a large aerospace company with a labor force greater than three

thousand (3,000). Table 7: summarizes the frequency of the different groups within Survey Question 3.

Table 7: Frequency – Company Size by Workforce

	Frequency	Percent	Valid Percent	Cumulative Percent
Less than 300	61	38.4	39.4	39.4
301 - 600	21	13.2	13.5	52.9
601 -1,000	26	16.4	16.8	69.7
1,001 -1,500	9	5.7	5.8	75.5
1,501 -3,000	13	8.2	8.4	83.9
Over 3,000	25	15.7	16.1	100.0
Total	155	97.5	100.0	
No Response	4	2.5		
Total	159	100.0		

ANOVA Analysis of Survey Question 3

No significant difference was identified between groups when analyzing the ANOVA results of Survey Question 3 as summarized on Table 7. The company size as measured by the number of employee groupings (dependent variable) measured in this ANOVA was the self identified organizational employee size range of less than three hundred (300) to over three thousand (3,000). There were no responses by four (4) respondents.

Table 8: ANOVA – Number of Company Employees

Number of employees (dependent variable)		Sum of Squares	df	Mean Square	F	Sig.
Awarness of insourcing /outsourcing stratedgy	Between Groups	3.599	5	.720	.846	.520
	Within Groups	126.011	148	.851		
	Total	129.610	153			
Percentage (%) outsourced	Between Groups	3.249	5	.650	.630	.677
	Within Groups	146.454	142	1.031		
	Total	149.703	147			
Reduced labor costs	Between Groups	50.562	5	10.112	.556	.733
	Within Groups	2509.327	138	18.184		
	Total	2559.889	143			
Improved supplier quality	Between Groups	18.756	5	3.751	2.719	.022
	Within Groups	186.223	135	1.379		
	Total	204.979	140			
Strategic partnering for growth	Between Groups	9.425	5	1.885	.136	.984
	Within Groups	1875.043	135	13.889		
	Total	1884.468	140			
Concentration on core capabilities	Between Groups	10.174	5	2.035	1.213	.306
	Within Groups	228.115	136	1.677		
	Total	238.289	141			
Improved competitiveness	Between Groups	4.922	5	.984	.619	.686
	Within Groups	216.352	136	1.591		
	Total	221.275	141			
Adverse effect on local and state economy	Between Groups	2.323	5	.465	.361	.874
	Within Groups	185.177	144	1.286		
	Total	187.500	149			
Adverse effect on aerospace capabilities	Between Groups	1.508	5	.302	.233	.947
	Within Groups	185.043	143	1.294		
	Total	186.550	148			
Retraining progrm	Between Groups	.869	5	.174	.831	.530
	Within Groups	28.881	138	.209		
	Total	29.750	143			
Use of legislative incentive programs	Between Groups	3.164	5	.633	.883	.494
	Within Groups	101.809	142	.717		
	Total	104.973	147			

Survey Question 4

The fourth (4^{th}) question in the survey concerned itself with size of the company the respondent worked for in terms of annual sales. A total of 143 aerospace employees responded to the question. Of the responses to Question 4 of the survey, forty three point four percent (43.4%) percent of the responses indicated they were employed by an aerospace company with annual sales of less than two hundred fifty million ($250M) of annual sales. Seventeen point five percent (17.5%) of the respondents indicated they worked for an aerospace company with annual sales between two hundred fifty one million dollars (251M) and five hundred million ($500M) dollars annually. Fourteen point seven percent (14.7%) of the respondents indicated they worked for an aerospace company with annual sales between five hundred fifty one million ($501M) dollars and seven hundred fifty ($750M) million dollars annually. Four point nine percent (4.9%) of the respondents indicated they w0orked for an aerospace company with annual sales between seven hundred fifty one million ($751M) dollars and one billion ($1B) dollars annually. Finally, nearly twenty percent (20%) or nineteen point six percent (19.6%) of the respondents indicated they worked

for an aerospace company with annual sales greater than one billion ($1B) dollars annually. Table 9: summarizes the frequency of the different groups within Survey Question 4.

Table 9: Frequency – Company Size by Annual Revenue

	Frequency	Percent	Valid Percent	Cumulative Percent
$0-$250M	62	39.0	43.4	43.4
$251M-$500M	25	15.7	17.5	60.8
$501M-$750M	21	13.2	14.7	75.5
$751M-$1,000M	7	4.4	4.9	80.4
Over $1,000M	28	17.6	19.6	100.0
Total	143	89.9	100.0	
No Response	16	10.1		
Total	159	100.0		

ANOVA Analysis of Survey Question 4

No significant difference was identified between groups when analyzing the ANOVA results of Survey Question 4 as summarized on Table 10. The company size of annual revenue groupings (dependent variable) measured in this ANOVA was the self identified company size measured by annual revenue ranging between two hundred fifty million dollars ($250M) to over one billion dollars ($1B). There were sixteen respondents that did not respond to question four (4) relating to company size in terms of annual revenue. However, significant relevant information was

garnered from the survey questions they did respond to in the convenience sample.

Table 10: ANOVA – Company Annual Revenue

Annual Revenue (dependent variable)		Sum of Squares	df	Mean Square	F	Sig.
Awarness of insourcing /outsourcing stratedgy	Between Groups	2.105	4	.526	.608	.658
	Within Groups	118.683	137	.866		
	Total	120.789	141			
Percentage (%) outsourced	Between Groups	3.593	4	.898	.871	.483
	Within Groups	138.105	134	1.031		
	Total	141.698	138			
Reduced labor costs	Between Groups	26.718	4	6.680	.345	.847
	Within Groups	2516.941	130	19.361		
	Total	2543.659	134			
Improved supplier quality	Between Groups	10.810	4	2.703	1.835	.126
	Within Groups	187.069	127	1.473		
	Total	197.879	131			
Strategic partnering for growth	Between Groups	18.518	4	4.629	.317	.866
	Within Groups	1853.565	127	14.595		
	Total	1872.083	131			
Concentration on core capabilities	Between Groups	13.151	4	3.288	1.971	.103
	Within Groups	213.556	128	1.668		
	Total	226.707	132			
Improved competitiveness	Between Groups	2.760	4	.690	.407	.804
	Within Groups	215.573	127	1.697		
	Total	218.333	131			
Adverse effect on local and state economy	Between Groups	6.724	4	1.681	1.356	.253
	Within Groups	167.412	135	1.240		
	Total	174.136	139			
Adverse effect on aerospace capabilities	Between Groups	4.399	4	1.100	.889	.472
	Within Groups	164.507	133	1.237		
	Total	168.906	137			
Retraining progrm	Between Groups	.915	4	.229	1.076	.371
	Within Groups	27.633	130	.213		
	Total	28.548	134			
Use of legislative incentive programs	Between Groups	2.302	4	.575	.780	.540
	Within Groups	98.133	133	.738		
	Total	100.435	137			

Survey Question 5

The fifth (5^{th}) question in the survey concerned itself whether or not the respondent was aware of a company outsourcing strategy with related goals and targets. A total of 158 aerospace employees responded to the question. The mean of Survey Question 5 was 2.2658 while the median was 3.0. In total, the standard deviation was .9198. Of the responses to Question 5 of the survey, thirty two point three percent (32.3%) percent of the responses indicated that their company had such outsourcing strategies and targets. Eight point nine percent (8.9%) of the respondents indicated their company had no such outsourcing strategies. The vast majority of the respondents, fifty eight point nine percent (58.9%) indicated that they were unaware of any such company strategies and goals related to outsourcing. Table 11: summarizes the frequency of the different groups within Survey Question 5.

Table 11: Frequency of Respondent Awareness of Insourcing/Outsourcing Strategies

Response	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	51	32.1	32.3	32.3
No	14	8.8	8.9	41.1
Do not know	93	58.5	58.9	100.0
Total	158	99.4	100.0	
No Response	1	.6		
Total	159	100.0		

Survey Question 6

The sixth (6^{th}) question in the survey concerned itself with the type of labor skills that the respondent's company outsources. One hundred fifty nine (159) responses were received. Sixty two (62) respondents equating to thirty nine point zero percent (39.0%) indicated that hands on manufacturing or maintenance labor was type of labor classification that the company outsources. Ninety seven (97) respondents indicated that this was not an outsourced labor classification. (Reference Table 12) Eighty four (84) respondents equating to fifty two point eight percent (52.8%) indicated that minor component supply type activity; that is procurement of minor aerospace materials or maintenance supplies were the skills outsourced. Seventy five (75) respondents indicated that this was not

an outsourced labor classification. Seventy five (75) respondents equating to forty seven point two percent (47.2%) indicated that major component supply type activity; that is complex, highly technical procurement of major aerospace components skills outsourced. Eighty four (84) respondents indicated that this was not an outsourced labor classification. Eight five (85) respondents equating to fifty three point five percent (53.5%) indicated that Information technology type activity; that is software, hardware, and or systems, requiring highly technically skilled labor was outsourced. This was the highest positive percentage indicated of labor classification outsourced indicated by the survey results. Seventy four (74) respondents indicated that this was not an outsourced labor classification. Sixteen (16) respondents equating to ten point one percent (10.5%) indicated that Information system integration type activity; that is linking multiple complex systems together formulating integrated solutions requiring highly technically skilled labor was outsourced. One hundred forty three (143) respondents indicated that this was not an outsourced labor classification. Thirty nine (39) respondents equating to twenty four point five percent (24.5%) indicated that engineering type activity; that is system engineering, development engineering,

specialized engineering, and or sustainment engineering requiring highly educated and technically skilled labor was outsourced. One hundred twenty (120) respondents indicated that this was not an outsourced labor classification. Finally, thirty one (31) respondents equating to nineteen point five percent (19.5%) indicated that the above mentioned categories were not outsourced at all or were not applicable. One hundred twenty eight (128) respondents indicated that this was not an outsourced labor classification. Table 12: summarizes the frequency of the different groups within Survey Question 6.

Table 12: Frequency Classification of Labor Outsourced

6) What type skills does your company outsource today?	Hands on manufacturing/maintenance	Supplier (minor components)	Supplier (major components)	Information Technology (IT)	System integration	Engineering (Eng)	Not applicable
Types of Skills Outsourced	62	84	75	85	16	39	31
Types of Skills Not Outsourced	97	75	84	74	143	120	128
Total Respondents	159	159	159	159	159	159	159
Frequency - Positive	39.0%	52.8%	47.2%	53.5%	10.1%	24.5%	19.5%

Survey Question 7

The seventh (7^{th}) question in the survey was based upon the responses to Survey Question 7; “the type of labor skills your company outsources.” This question was structured to quantify the volume of outsourcing a company may incur or target. A total of 151 aerospace employees responded to the question. The mean of question number seven (7) was 2.3179 while the median was 2.0. In total, the standard deviation was 1.0157. Of the responses to Survey Question 7 asking what approximate percentage of the

company’s business is outsourced in the following labor categories; 1) hands on labor and maintenance, 2) minor supply components, major supply components, information technology, systems integration, and engineering the findings were as follows. Thirty (30) respondents or nineteen point nine percent (19.9%) indicated that their company outsourced between zero (0%) and five percent (5%). Sixty nine (69) respondents or forty five point seven percent (45.7%) indicated that their company outsourced between six percent (6%) and twenty five percent (25%). Thirty one (31) respondents or twenty point five percent (20.5%) indicated that their company outsourced between twenty six percent (26%) and fifty percent (50%). Sixteen (16) respondents or ten point six (10.6%) percent indicated that their company outsourced between fifty one percent (51%) and seventy five (75%). Five (5) respondents or three point three (3.3%) percent indicated that their company outsourced between seventy six percent (76%) and one hundred percent (100%). It is clear from the data that the most prevalent range for company outsourcing business volume was between six percent (6%) and twenty five percent (25%) percent. Table 13: summarizes the frequency of the different groups within survey question seven (7).

Table 13: Frequency Percentage of Labor Outsourced

Range	Frequency	Percent	Valid Percent	Cumulative Percent
0%-5%	30	18.9	19.9	19.9
6%-25%	69	43.4	45.7	65.6
26%-50%	31	19.5	20.5	86.1
51% - 75%	16	10.1	10.6	96.7
76% - 100%	5	3.1	3.3	100.0
Total	151	95.0	100.0	
No Response	8	5.0		
Total	159	100.0		

Survey Question 8

The eighth (8^{th}) question in the survey was based upon the respondent's perceptions or fact of the company reasons their individual company outsources portions of their business. A total of 147 aerospace employees responded to the question. The mean of Survey Question 8 was two point four six nine four (2.4694) while the median was two (2.0). In total, the standard deviation was four point one nine six one (4.1961). Of the responses to Question 8 of the survey asking to rank the most significant reasons for outsourcing, the most significant reasons in ranking order one (1) through five (5) with one (1) being the most significant. The most significant reasons ranked are indicated is 1) reduced cost, 2) improved supplier quality, 3) improved competitiveness, 4) strategic partnering, and

5) concentration of core capabilities. Table 14: summarizes the ranking of the different groups within survey question eight (8).

Table 14: Ranking of Most Significant Reasons for Outsourcing

Major Reason for Company Outsourcing	Survey Rank	Number of Respondents	Percentage of Respondents
Reduced labor costs	1	70	47.6
Improved supplier quality	2	34	23.1
Improved competitiveness	3	21	14.4
Strategic partnering for growth	4	13	8.8
Concentration on core capabilities	5	9	6.1
Total	n/a	147	100

Seventy (70) respondents or forty seven point six percent (47.6%) indicated that their company outsourced with motivation of reducing cost. This by far was the most significant finding. Thirty four (34) respondents or twenty three point one percent (23.1%) indicated that improved supplier quality was the prominent reason for outsourcing. Thirteen (13) respondents or eight point eight percent (8.8%) indicated that strategic partnering was their company's reason for outsourcing. Nine (9) respondents or improved competitiveness was the major motivating factor for outsourcing. Table 15: summarizes

the frequency of the different groups within survey question eight (8).

Table 15: Frequency Business Reason for Company Outsourcing

Reason	Frequency	Percent	Valid Percent	Cumulative Percent
Reduced Labor Cost	70	44.0	47.6	47.6
Improved Supplier Quality	34	21.4	23.1	70.7
Strategic partnering for Growth	13	8.2	8.8	79.6
Concentration on Core Capababilities	9	5.7	6.1	85.7
Improved Competitiveness	21	12.6	14.4	100.0
Total	147	92.5	100.0	
No Response	12	7.5		
Total	159	100.0		

Survey Question 9

The ninth (9^{th}) question in the survey concerned itself with degree in which the respondent believes that their companies outsourcing strategy has an "adverse" effect on the local and state economies. A total of one hundred fifty four (154) aerospace employees responded to this question. The mean of Survey Question 9 was 3.0844 while the median was 3.0000. In total, the standard deviation was 1.1258. Of the responses to Question 9 of the survey, twelve (12) respondents or seven point eight percent (7.8%) of the responses indicated that their company's outsourcing strategy had a very significant adverse effect on the state

and local economies. Thirty five (35) or twenty two point seven percent (22.7%) of the respondents believed there is significant adverse effect on the economy. Fifty five (55) or thirty five point seven percent (35.7%) responded that there is some effect on the local and state economies. When combined, sixty six point two percent (66.2%) of the responses believe there is an adverse impact to the local and state economies. Thirty two (32) or twenty point eight percent (20.8%) of the respondents believed there is marginal adverse effect on the local and state economy. Twenty (20) or thirteen point zero percent (13.0%) responded that there is no effect on the local and state economies. Table 16: summarizes the frequency of the different groups within Survey Question 9.

Table 16: Frequency Level of Adverse Effect from Outsourcing on the Local and State Economy

Adverse Level	Frequency	Percent	Valid Percent	Cumulative Percent
Very Significant	12	7.5	7.8	7.8
Significant	35	22.0	22.7	30.5
Some	55	34.6	35.7	66.2
Marginal	32	20.1	20.8	87.0
None	20	12.6	13.0	100.0
Total	154	96.9	100.0	
System	5	3.1		
Total	159	100.0		

Survey Question 10

The tenth (10^{th}) question in the survey asks the question if a company's outsourcing strategy has an adverse effect on the state of Oklahoma's core aerospace capabilities and if so to what degree. A total of one hundred fifty three (153) aerospace employees responded to this question. The mean of Survey Question 10 was 3.1895 while the median was 3.0. In total, the standard deviation was 1.1283. Of the responses to Question 10 of the survey, twelve (12) respondents or seven point eight percent (7.8%) of the responses indicated that their company's outsourcing strategy had a very significant adverse effect on the state and Oklahoma's aerospace capacities. Twenty nine (29) or nineteen point zero (19.0%) of the respondents believed there is significant adverse on the aerospace capabilities

in the state Oklahoma. Fifty (50) or thirty two point seven percent (32.7%) responded that there is some effect on the aerospace capabilities within the state of Oklahoma. When combined, fifty nine point five percent (59.4%) of the responses believe there is an adverse impact to the capabilities. Forty two (42) or twenty seven point five percent (27.5%) of the respondents believed there is marginal adverse effect on the state of Oklahoma's aerospace capabilities. Twenty (20) respondents or thirteen point one percent (13.1%) responded that they believed there was no effect on the aerospace capabilities within the state of Oklahoma. Table 17: summarizes the frequency of the different groups within Survey Question 10.

Table 17: Frequency Level of Adverse Effect from Outsourcing on the State of Oklahoma's Aerospace Capabilities

Adverse Level	Frequency	Percent	Valid Percent	Cumulative Percent
Very Significant	12	7.5	7.8	7.8
Significant	29	18.2	19.0	26.8
Some	50	31.4	32.7	59.5
Marginal	42	26.4	27.5	86.9
None	20	12.6	13.1	100.0
Total	153	96.2	100.0	
No Response	6	3.8		
Total	159	100.0		

Survey Question 11

The eleventh (11^{th}) question in the survey relates asks a very simple question. Does your company have a formal re-training program for personnel whose jobs have been outsourced? A total of one hundred forty seven (147) aerospace employees responded to this question. The mean of Survey Question 11 was 1.7075 while the median was 2.0. In total, the standard deviation was .4565. Of the responses to Question 11 of the survey, forty three (43) respondents or twenty nine point three percent (29.38%) of the responses indicated that their company did in fact have a re-training program for individuals that have been displaced by outsourcing. One hundred four (104) or seventy point seven (70.7%) of the respondents believed their company had no re-training program at all for displaced employees due to outsourcing. Table 18: summarizes the frequency of the different groups within Survey Question 11.

Table 18: Frequency Company Re-Training Program for Displaced Individuals Do to Outsourcing

Response	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	43	27.0	29.3	29.3
No	104	65.4	70.7	100.0
Total	147	92.5	100.0	
No Response	12	7.5		
Total	159	100.0		

Survey Question 12

The twelfth (12^{th}) question in the survey asks the question; “Do you personally believe that more or less outsourcing is critical to the long term success of your company?” and “if so, to what degree?” A total of one hundred fifty one (151) aerospace employees responded to this question. The mean of Survey Question 12 was 3.4834 while the median was 3.0. In total, the standard deviation was .8552. Of the responses to Question 12 of the survey, one (1) respondent or point seven percent (.7%) of the responses indicated that their company’s current level of outsourcing needed to significantly increase for the long term success of the company. Sixteen (16) or ten point six percent (10.6%) of the respondents believe more outsourcing is critical to the long term effect of their business. Sixty (60) or thirty nine point seven percent (39.7%) of

the respondents believe the current outsourcing level is about right in terms of long term effect to their business. Combined slightly more than one half of the respondents or fifty one (51.0%) percent responded that additional outsourcing was needed to protect the critical needs of the business. Fifty seven (57) or thirty seven point seven percent (37.7%) of the respondents believe the current outsourcing level should be less in terms of the long term effect to their business. Finally, seventeen (17) or eleven point three percent (11.3%) of the respondents believe that no level of outsourcing level is critical to the long term effect of their business. Table 19: summarizes the frequency of the different groups within Survey Question 12.

Table 19: Frequency Level of Change Needed in Outsourcing to Protect the Critical Long Term Company Business

	Frequency	Percent	Valid Percent	Cumulative Percent
Significantly more	1	.6	.7	.7
More	16	10.0	10.6	11.3
About right	60	37.7	39.7	51.0
Less	57	35.8	37.7	88.7
None	17	10.7	11.3	100.0
Total	151	95.0	100.0	
No Response	8	5.0		
Total	159	100.0		

Survey Question 13

The final and thirteenth (13th) question in the survey centers on the awareness and use of the state of Oklahoma's incentive programs to attract and retain new aerospace jobs to the state; specifically the Quality Jobs Program, Prime Win Program, 21st Century Quality Jobs Program, and the Oklahoma Engineer Tax Credit Program. These programs provide payments back to individual companies for increasing specific jobs to the Oklahoma work force. A total of forty seven (47) or twenty nine point six percent (29.6%) of the one hundred fifty nine (159) respondents indicated that their company takes advantage of the Quality Jobs Program. This was the highest positive response percentage of the programs measured. A total of twenty six (26) or sixteen point four percent (16.4%) of the one hundred fifty nine (159) respondents indicated that their company takes advantage of the Prime Win incentive program. A total of twenty five (25) or fifteen point seven percent (17.7%) of the one hundred fifty nine (159) respondents indicated that their company takes advantage of the 21st Century Quality Jobs Program. This was program was the least used incentive program. A total of one hundred eight (108) or sixty seven point nine percent (69.9%) of the one

hundred fifty nine (159) respondents indicated that their company takes advantage of the Oklahoma Engineer Tax Credit. This program was by far the most favorable response in terms of the program most used. Table 20: summarizes the participation percentage of each incentive program related to Survey Question 13. Table 21: summarizes the participation into multiple incentive programs.

Table 20: Oklahoma Incentive Program Participation

Oklahoma Incentive Program	Number of Respondents	Percentage of Respondents
Quality Jobs	47	29.6
Prime Win	26	16.4
21st Century Quality Jobs	25	15.7
Oklahoma Engineering Tax Credit	108	67.9
Total Positive Responsess	206	32.4
Toal Available Responses	636	100.0

Table 21: Multiple Participation in the Oklahoma Incentive Programs

Oklahoma Incentive Program	Number of Respondents	Percentage
Participating in 1 Program	70	44.0
Participating in 2 Programs	22	13.8
Participating in 3 Programs	12	7.5
Participating in 4 Programs	14	8.8
Participating in 0 Programs	118	25.9
Total	n/a	n/a

Phase II. Executive Interviews

Aerospace Executives were identified that have a variety of experiences, diverse backgrounds, and responsibilities within the aerospace industry. Valuable insight was obtained throughout our conversations which has shed light on many issues related to insourcing and outsourcing.

Executive 1

Executive 1 Interview Question 1

Interview 1 began with a question to the executive requesting a description of position title and responsibilities within the company. The job title for Executive 1 was described as the site director for a major aerospace company. Executive 1's job responsibilities were two-fold.

Executive 1's first responsibility centers on being site director, which is the executive representative of this world wide aerospace company. It is within the responsibility of that position to manage the Oklahoma site and to ensure that regulatory internal and external compliance is maintained and that the fiduciary responsibilities associated with running a business are carried out appropriately.

The second significant responsibility identified was the business lead for an aerospace division of the company. This responsibility was described as the development, growth and execution.

The relative business base of Executive 1's responsibility was approximately 680 personnel.

Approximate annual revenue in the long range business plan (LRBP) was reported to be approximately $300 million per year of prime revenue which excludes internal work. The number of sites and locations include – one major site; however, there are people throughout the world at multiple sites.

Executive 1 Interview Question 2

The second question of the interview was designed for Executive 1 to address specifically the company's major capabilities. Executive 1 indicated in the context of Oklahoma City, the major capabilities provided to customers were: engineering support, sustainment engineering, liaison engineering, and software engineering. Very little design engineering and or engineering development is accomplished in Oklahoma City. In terms of support functions, Oklahoma City has a strong capability in procurement, finance, contracting, and business management. Little or no manufacturing takes place in Executive 1's portfolio in Oklahoma City. Engineering services most closely summarized the capabilities under participant's responsibilities.

Executive 1 Interview Question 3

Question three (3) of the interview was a three part integrated question addressing if Executive 1's company had an insourcing and/or outsourcing strategy and if so: 1) identify the major factors that influence insourcing and or outsourcing decision; 2) capabilities that are insourced or outsourced, and 3) satisfaction with results. Executive 1 responded; "In the context of outsourcing work to other locations, I would say that at the executive level above mine there is a strategy." Executive 1 clarified that no specific strategy other than make/buy is consider at his level. "From an over-arching strategy it's pretty simple in that we look to where we can do work in the most cost competitive environment." A follow up clarification was asked if consideration was ever given to outsourcing of work to other states. Work would be considered for movement out of the state if there was a cost benefit to the business but to date Executive 1 has not found that to be the case. "Right, if I was putting together a competitive proposal to capture work and there was a more economical way to do that work outside of the State of Oklahoma, it would certainly be considered and looked at given the competitive nature of the business we are in."

It was noted that there is a cost benefit in doing work inside the state of Oklahoma as opposed to outside the state, from your prospective. Specific examples were cited as reasons for bringing jobs to Oklahoma. "So when you look at Oklahoma there are multiple aerospace related incentives that make doing business in Oklahoma extremely attractive. There's the Quality Jobs Incentive, 21st Century Quality Jobs Incentive, and the Engineering Tax Credit incentives that are all available." Executive 1 also included the Prime Win incentive as an additional benefit where as if you subcontract to a supplier in Oklahoma, you receive a two percent rebate based upon the individuals fully burdened labor rate.

For Executive 1 being in a non-union environment is extremely positive. Another important aspect is the state, local and legislative branches of Oklahoma are extremely pro-business. "The Governor is pro-business, so it makes it a very business friendly environment."

"From an individual perspective the cost of living is reasonable and attractive leaving the state of Oklahoma well structured for bringing business into the state."

As far as a formal outsourcing strategy there is no formal written down strategy. Executive 1 did indicate a strong strategic plan to insourcing to the state. That is

bringing jobs into Oklahoma. Capabilities being attracted to the state already exist here. “So it isn’t that the company is bringing a capability to Oklahoma. The capabilities exist in the state.” What is happening is the volume being brought to the state of engineering type positions is increasing significantly. Many new software development, design, avionics, structures, heavy engineering and the support infrastructure type positions that go with that are be insourced. There is a strong aerospace based economy in Oklahoma so attracting the talent to fill positions with technically skilled and educated personnel is relatively common.

In terms of satisfaction results of insourcing from Executive 1’s aspect it is generally very high. “The plan to in-source many hundreds of jobs to Oklahoma are underway. We’re just getting started so it’s going to be interesting.” Resource identification and capture is always a concern as to not negatively impact execution of programs and or adversely affect the customer. Keeping that in mind Executive 1 indicated that between the two major universities, Oklahoma State and Oklahoma, that many of these concerns are eliminated. An additional source of personnel is employed at Tinker Air Force Base and as the “blue-suitors” retire they become available to contractors

to fill requirements. So by and large, I'm not too concerned about it. "Expand the region a little bit outside of Oklahoma; it's even more attractive when you look at opportunities through Texas and the surrounding states."

Executive 1 Interview Question 4

Question four (4) of the interview addressed the point of how often and what criteria of evaluation does the leadership follow related to outsourcing and or insourcing of workload to the state of Oklahoma.

A hypothetical question was presented to Executive 1 to stimulate a comprehensive response. "How often does your leadership team, meaning you and maybe your next level or two, evaluate or look at the overall insourcing and or outsourcing dynamics within Oklahoma or in general a concept that addresses the questions: "I have existing business elsewhere, does it make sense to insource and or out-source?" How often might you evaluation that, in your opinion? Executive 1 indicated that there are two ways to look at it. "With regard to existing business, that evaluation and approach has not been taken on very seriously, at least at this level except for conversations we have twice a year. With every new business proposal

insourcing and or outsourcing is explicitly looked at and evaluated. The criteria involved are work performance location, source of personnel resources to perform the requirements, and affordability. For new business campaigns, I think it's evaluated each and every time at my level."

Executive 1 Interview Question 5

Question five (5) of the interview asks Executive 1 "what are the 'determining' factors in company insourcing and or outsourcing strategy?" "In today's environment cost tends to dominate most discussions." Executive 1's view from within the company is that "historically we look at what our role in any given offering is from a perspective of our value proposition to any work package. The company views historical (ranges) from a position to wanting to do everything to wanting to be the prime integrator thereby outsourcing other capabilities. Another element is your talent pool and what are your core competencies. Determining that there is something outside your core competency that you're going to go buy might be viewed differently outsourcing of the state of Oklahoma."

"In the context of outsourcing, the company evaluates what component internally or subcontractor externally can

provide expertise outside our core competency at the best value. The state incentives mentioned earlier are significant influencers in a cost competitive environment. In the final analysis, it's got to be capability based. You've got to have the right capabilities or the price is meaningless."

Executive 1 Interview Question 6

In the Interview Question 6, Executive 1 was asked to provide a subjective and qualitative response to the following questions; 1) what is your "personal" perception of outsourcing?, 2) has your perception changed from five years ago?, and 3) is your assessment of outsourcing based upon specific metrics or measurements? If so what are they? If not how is your outsourcing success or failure measured?

Executive 1's personal perception of what outsourcing means to people is "giving away work, in a nut-shell." Many time outsourcing looks like the right answer on paper but rarely did it ever end up that way two or three years later. "It did not have the same advantage that it once looked like." Executive 1's view is that business looks at insourcing and or outsourcing to do a piece of work more efficiently. A factor that tends to be overlooked is the

amount of management and compliance oversight that it requires of either insourced and or outsourced activity to make it successful. "It is more challenging then companies recognize and frequently it is more expensive than originally projected. The true measure is if the work being accomplished is more efficient and more effective."

Executive 1 states, "When I look at how much it changed over the last five years, I can tell you five years ago I was involved in some make/buy discussion within the company where we were trying inside the company instead of letting it out because we were losing all our core competencies. Expertise within the company had atrophied to the point we weren't even any good at managing the suppliers that were working on our behalf. One can go to an extreme and find yourself disadvantaged within your business if you're not careful." The pendulum has swung back from five (5) years ago when everyone just wanted to outsource and then just integrate the final product. Today companies are more cautious on how much of our vertical integration that is outsourced."

Executive 1 Interview Question 7

Question 7 of the interview asks Executive 1 if the company has taken advantage of any Oklahoma legislative

incentives: 1) Quality Jobs, 2) Prime Win, 3) 21st Century Jobs, and or 4) Oklahoma Engineering Tax Credit and whether the company plans to use them in the future. The purpose at the center of this question was to inquire about the awareness of these state incentive programs. Have they been evaluated by the company? Are they actively being used or have you discarded them after analyzing them?

So in terms of the Quality Jobs Program, which represents a five percent (5%)rebate for 10 years on jobs of $30,000 per year, are you in fact using them? “We actively use and take advantage of that incentive today. The way we do it is take that money that is provided through that incentive and feed back into our system to help control our rates to help us make sure we’re being cost competitive.” The Executive made a point that the incentive monies were not used to improve the bottom line financial performance. “Indirectly by keeping your overhead rates more competitive, you’re allowed to compete better and win more work.”

The Prime Win Program incentive was not believed to be leveraged as much as could be. “In the work performed in Oklahoma City, there’s not a whole lot of subcontracted

work in the state. However, other divisions of the company may have greater opportunity."

The 21st Century Jobs Program is a very good incentive which requires a very high average salary to be able to qualify. Many jobs being transferred to Oklahoma City will qualify as these are highly technical positions.

The Engineering Tax Credit program is the most recently passed legislation. We are currently assessing it's applicability to our business.

Executive 1 Interview Question 8

Question eight (8) of the interview requested the Executive 1 to address the company's long term vision of insourcing and or outsourcing and to identify both positive and negative aspects. "Success or failure is and would be measured on the three fundamental aspects of most programs; 1) cost, 2) schedule, 3) and quality. Are you getting the quality product that you anticipated, are you getting it on time, and are you getting it within cost." Those are the three metrics and you can measure those in a lot of different ways. "Executive 1 indicated a high priority for the company is protecting the brand name and so the quality aspect is huge. A lot of resources are expended on outsourced work to make sure that the quality element is

provided so that we can continue to protect that brand name. Our vision is to move work to locations that benefit both the company and the customer. With the incentives that are in place the state has made it very predictable they too will benefit from high paying aerospace jobs moving into the state."

Executive 1 Interview Question 9

Question 9 of the interview requested the participant to describe the benefits and detriments of insourcing and or outsourcing in the aerospace industry in the state of Oklahoma. Executive 1 did not see any negatives from the side of the incentives and the offering other than for whatever reason they would be canceled out after you made a decision to move. Some of the positive business economic impact that you were anticipating didn't materialize, that obviously does not help from a business prospective. "Oklahoma has done so well in today's economy weathering the highs and lows over the last several years. The state has produced a very balanced economy with very slow but steady growth." A cautionary note from the participant "is don't try to do too much too quick or you may have a negative impact." "Transferring approximately five hundred to one thousand (500 to 1,000) jobs to Oklahoma from other

areas will be interesting to see how it plays out over a two-year period. They're not all showing up overnight so that gives some time to ramp up." The prediction is that insourcing these jobs to Oklahoma will be very positive but the "proof is in the pudding." In summary the two concerns were: that the incentives get cancelled early and growing too fast. "It's one thing for the company to bring in five hundred to one thousand (500 to 1,000) jobs, but what if the Air Force hired two thousand (2,000) civil servants, the FAA grew, Northrop grew, ARINC grew, if all your competitors are in that similar mode that would be a significant drain on the available talent pool."

Executive 1 Interview Question 10

The last and final Interview Question 10 was intended to be a general question requesting if there was any other information you would like to share in the context of outsourcing and or insourcing that you believe would be helpful with this study? The participant indicated that the interview had previously "hit all the major points."

A follow on question speaking from an outsider perspective of the perception of Oklahoma was asked. "The view of Oklahoma outside of Oklahoma, from a place to live prospective has some detriment to people's desire to

relocate.” In your option, what could be changed to help that perception from east coast to west coast? “We know that perceptions are reality. If you look at the amount of national news and publication that Oklahoma City has gotten just in 2010 and 2011, you would be amazed at the number of positive reports from everything from Newsweek to Fortune Magazine to Southern Living, some very high ratings and positive things are flagged about Oklahoma. For most people it’s just a matter of getting there and experiencing it a little bit. But if you’re stuck on a picture of a dust bowl and you can’t get past that then it’s tough to get through that. The reality is it’s a good place to live with a good quality of life and a lot of positive aspects that you can get. Short of getting to Oklahoma and experiencing it, it’s tough to overcome. If people did their research they would find a ton of positive publications on the subject.”

The interview concluded with a “thank you for your time and responses” from the interviewer.

Executive #2

Executive 2 Interview Question 1

The interview began with the executive requested to describe his position title and responsibilities within the company. Executive 2 indicated that his formal job title is Vice President of Defense and Government Services; a division of a large fortune 500 aerospace company with significant responsibility in Oklahoma and around the United States.

Executive 2's responsibility encompasses approximately one point five billion dollars ($1.5B) of annual revenue and internal support to other divisions. In terms of labor force responsibility, Executive 2 has approximately 4,500 employees within his divisional responsibilities. Two thousand seven hundred (2,700) are related to prime work with the difference being associated with internal work support.

With major site locations of Oklahoma City, San Diego, California, Chantilly, Virginia, and Richardson, Texas complexity; integration and synergy are always in the fore front of managing this business. In addition to the major sites indicated, Executive 2 has an additional 190 smaller locations conus (domestic) and oconus (international). Executive 2's business is "Services based and generally co-located with the customer if possible."

Executive 2 Interview Question 2

The second question of the interview was designed for Executive 2 to address specifically the company's major capabilities. Executive 2 indicated a wide range of capability responsibility within the division. Executive 2 pointed out for clarity that the Defense and Government Services Division was established in 2009. Four to five (4 to 5) elements of existing and newly acquired business were combined to form the division. Imbedded in the combination were capabilities best summarized as "1) sustainment and maintenance of avionics systems, 2) communication systems, 3) operations of Classified facilities; facilities logistics management, 4) Department of Defense (DOD) aircraft and missile range management and system integration, 5) logistics command and control, (LogC2), 7) supply chain management, and 6) special equipment maintenance for the Army, Navy, and the Marines." Support functions were mentioned as strong capability as well; included were finance and contracting. Little or no hardware manufacturing was contained in Executive 2's portfolio.

Executive 2 Interview Question 3

Interview Question was a three part integrated question addressing if Executive 2's company had an insourcing and/or outsourcing strategy and if so 1) to identify the major factors that influence insourcing and or outsourcing decision, 2) capabilities that are insourced or outsourced, and 3) satisfaction with results.

Executive 2 responded; "In terms of Oklahoma, we are highly motivated to centralize our operations around the customer because of the services business we have. In order to reduce costs, we would like to keep key capability centralized as well too; supply chain, finance, business development, etc." Executive 2 highlighted many of the pluses of insourcing in Oklahoma mainly; there are good facilities, good incentives from the state and a large customer at Tinker Air Force Base and potential large customer in the Federal Aviation Administration (FAA) as well. "In general, whether it's at our San Diego Site, or Oklahoma City, or Richardson, Texas site, our dominance of operations and maintenance folks will co-locate with the customer because we partner with them and we work side-by-side with them. Our outsourcing is really tied back to customer demands, customer needs, more than anything else."

From a capability prospective, “there’s not a capability that it takes to run our business that we can’t find in the state. If there are any drawbacks from Oklahoma City for us (it) is the fact that it doesn’t have as robust a transportation hub like our Texas facility has. (It is) easier to get in and out of Dallas/Ft. Worth than it is to get in and out of Will Rogers International Airport.”

“Our strategy going forward will be customer driven. We’ll insource and outsource work to where the customer is based upon where’s the customer located. Now if the customer is located at three different locations, there’s just as much incentive to keep the work in Oklahoma City verses outsourcing. In all cases if we can co-locate our people next to the customer we’ll do that.”

From a satisfaction point of view, “I think moving a program to get closer to the customer, wherever they may be, is the right answer; and the customer feedback gets the right answer so co-locating is always a good thing. For centralized location activities we have the facility, we have access to the people and we could create an environment and create jobs, and we are incentivized to create the jobs located in Oklahoma makes a lot of sense. I am very satisfied with the insourcing to the state.”

From an economic perspective, “our business in general we are in all low cost, highly competitive capability areas. Oklahoma is a low-cost place to live, real estate is relatively inexpensive. The advantage in Oklahoma City in my opinion is it is a good environment that attracts more and more people and business. If you’re going to centralize something in Oklahoma City versus say San Diego, the cost of that same person is 20-30 percent cheaper and actually keeps the cost to the customer cheaper which is why we drive it. It’s all about customer.”

Insourcing has created a climate of positive economic results for the state of Oklahoma. “There are some draw backs however. The concern of an over extended demand on the people resources within the state limits how fast the volume of insourcing can occur.” Executive 2 clarified that there has been a change to the company’s outsourcing strategy over the last few years. “Initially, outsourcing was a tool to be used to involve a diverse and international supplier market that would ideally be stronger than the stand alone approach. As it turns out, one must be careful to not over stretch or over reach suppliers capabilities and resource. In this case the company was to dramatically reverse their strategy which included bringing work back in-house. Executive 2

cautioned that the lesson learned from this was “core integration, technology development, and customer interface must remain with the company.” Cost is surely a significant factor when evaluating insourcing and outsourcing decisions. A business analysis of many of the factors including customer needs must be made before action can be carried out related to insourcing outsourcing.”

“From an individual perspective the cost of living is reasonable and attractive leaving the state of Oklahoma well structured for bringing business into the state.”

In terms of satisfaction results of insourcing from Executive 2’s aspect was that it is generally fantastic. “The plan to insource hundreds of jobs to Oklahoma is underway.” “Saturation of insourced resources seems to be the only concern in the short term.”

Executive 2 Interview Question 4

Question 4 of the interview addressed the point of how often and what criteria of evaluation do the leadership follow related to outsourcing and or insourcing of work load to the state of Oklahoma. A hypothetical question was presented to Executive 2 to stimulate a comprehensive response. “How often does your leadership team, meaning

you and maybe your next level or two, evaluate or look at the overall insourcing and or outsourcing dynamics within Oklahoma or in general a concept that addresses: 'I have existing business elsewhere; does it make sense to insource and or out-source?' How often might you evaluation that, in your opinion?" Executive 2 indicated, "at the level above me, at the President level, we talk about that probably once a month. The conversations talk in terms of "things that can be done differently, where it can be done, and where do we want it to be done." It is a rare discussion at best once a month but in today's environment of shrinking markets this concept of becoming more affordable has created more and more attention at senior levels."

Executive 2 Interview Question 5

Question 5 of the interview asks Executive 2 "what are the 'determining' factors in company insourcing and or outsourcing strategy?" "In today's environment cost tends to dominate most discussions." In Executive 2's view "significant time and thought up front is carried out attempting to establish the criteria for how we make decisions more decentralized. Our leaders have the ability

to do what you think is the most “customer” focused and cost effective solution for the customer and the organization. The process is customer first and then what’s the most cost effective. The specific criteria are, you know what the right thing is for the customer and then you know where the most cost effective work should be producing the best people solutions.”

“The decision process is decentralized but if there is something that needs to be changed from a base line perspective individual functions and programs can make the decision within the ground rules that we established. Individual leaders have the authority and the autonomy to go make those decisions.”

Executive 2 Interview Question 6

In Interview Question 6, Executive 2 was asked to provide a subjective and qualitative response to the following questions: 1) what is your “personal” perception of outsourcing?, 2) has your perception changed from five years ago?, and 3) is your assessment of outsourcing based upon specific metrics or measurements? If so what are they? If not how is your outsourcing success or failure measured?

“Every organization goes through a process evaluating make or buy decision making. You think about where the core things are at and your market space, what your customers expect a fortune 500 aerospace company to go off and do. Tough decisions have to be made concerning the integrating pieces of the job that have to remain with the company; what has to be core. The customer must have a high level of trust on your commitment versus just writing it up as a statement of work and handing it off to a subcontractor. First, it ought to be capabilities that you find consistent needs to constantly have a staff for. So its periodic, ad hoc type requirements that are not tied back to the core that you see cyclical basically in nature; surge requirements. It is the non-strategic, non-customer facing type activity that is done in the background.” An example would be ‘application development,’ that could possibly be something you would outsource, delivery type work that the customer didn’t see, and potentially some transportation work.”

In general, “I’ll talk in general about the strategy itself and the psychology of outsourcing. You know there’s a core set of things that you’ve got to perform, customer interface, the requirements that the customer and stakeholder community wants you to do; you know what the

customer wants you to deliver. The analysis of how you take those requirements and put it into the product or service being offered is critical. From then on you can outsource the development of the product as far as I'm concerned, or portions of the delivery of the service. Changes to the customer you've got to hang on to as part of the company brand, the company obligation, and the company reputation. So where you might have some behind the scenes people delivering capability and services that make up the total product or service the activity that touches the customer the company must maintain. Validation of how well you are doing, financially, on schedule, technical solutions, meeting the requirements of the contract, that compliance piece too you've got to hang on to as well." So when you think about the aspects of running a product or service to a customer base, requirements, customer interface, contracts, program management. How well did we deliver, kind of that back end piece, there's a lot of stuff in-between, building it, manufacturing it, producing it, polishing it, sustaining it sometimes; I think a lot of that type stuff you can say could be outsourced."

"We look at our business like a factory. Unless you can keep the factory 100 percent busy all the time then that is something that is a candidate list to be

outsourced. If you have to spend a lot of time trying to keep your people engaged in other bits of the business and may also distract them. These activities become ideal to the scenarios of outsourcing. You want to go to outsourcing because you cannot keep your resources one hundred percent (100%) engaged."

"Cost plays a piece in the analysis, but you've got to pass the first hurdles first. It's got to be, even if it is more expensive, you can't out-source the customer interfaces, the customer requirements and the closure activities. The company has to do that itself. You've got to find alternative ways to drive the costs down."

"When the strategy of taking the requirements, taking the designs, and breaking it into pieces and outsourcing bits and pieces of it, my risk sense starts tinkling, because an essential piece, like outsourcing critical path items, that are essential pieces of what is to be delivered."

"I'm still a big fan of getting more and more people involved. I like the idea of bringing in the experts. One of the measures or at least a significant measure of your success or failure obviously is measured by your customer satisfaction. Without that being a positive even if you're saving money, you probably failing in the long run. You

might have a short term solution and a long term problem. Because I think, if you can't manage the suppliers, even if you're saving the money but the performance is degrading, they still hold us responsible. And they should."

Executive 2 Interview Question 7

Question 7 of the interview asks Executive 2 if the company has taken advantage of any Oklahoma legislative incentives: 1) Quality Jobs, 2) Prime Win, 3) 21st Century Jobs, and or 4) Oklahoma Engineering Tax Credit and whether the company plans to in the future. The purpose at the center of this question is to inquire about the awareness of these state incentive programs. Have they been evaluated by the company; are they actively being used or have you discarded them after analyzing them?

From conception to implementation of the division perspective, one of the first things that were started was proposing and/or promoting creative ideas that the state and locals had done to attract size, technology, math type jobs to the Oklahoma City area. Effective use of the incentives available for local suppliers and businesses within Oklahoma was also stressed. Oklahoma has huge customers, a lot of capacity, a lot of local universities and a lot of financial incentives to move business there.

“From a division perspective when we can move work to Oklahoma we do. When we could move work, we factor in that creating a job in Oklahoma City is better than creating a job in any of the other locations if push comes to shove. The thing that we’ve seen be successful at the level above us was when they had to make decisions on how do they get more affordable? We promoted the incentives of the state and actually helped other pieces of the company find out that moving to Oklahoma City they could actually save their customer money.” If you just think in terms of California versus Oklahoma and standard of living and the labor price another great incentive to move.”

There are multiple reasons to move to Oklahoma City before you even get to the Quality Jobs Program Incentive, “but that’s the one that just knock’s it out of the park when you think about it.” If you create new jobs in the state of Oklahoma; 1) it is closer to the customer; 2) for the individuals, it’s a nice place to live; 3) it has a great standard of living, 4) financial incentives from the state in order to create jobs there, and 5) increased tax base for the state and local economies. “It is really a no-brainer. The incentives are a huge play. It also helps us with our sub-contractor strategy as well.”

Executive 2 Interview Question 8

Question 8 of the interview requested the Executive 2 to address the company's long term vision of insourcing and or outsourcing and to identify both positive and negative aspects. Customer satisfaction is the "only" measure of success. There are many components underlying this on measure. Are you responsive to your customer? Do you understand your customer's requirements? Are you a good partner with your customer? Are you delivering at the most advantageous cost to your customer? Are you delivering on the expectations and readiness requirements to your customer? Without a very positive response to these questions no decision on outsourcing or insourcing should be made without coordination with all the stake holders. The company's strategic objectives are improving where possible over both the short term and long term all these customer expectations.

Executive 2 Interview Question 9

Question 9 of the interview requested the participant to describe the benefits and detriments of insourcing and or outsourcing in the aerospace industry in the state of Oklahoma.

“The only detriment that I see is the capacity to keep people in Oklahoma. Around thirty percent (30%) of the students that have graduated through the Science, Technology, and Math specific program return to Oklahoma. Sometimes they come back 10 years after they’ve left but they come back. Question is, are there enough people that want to come back to Oklahoma that are getting educated in or outside of Oklahoma that want to come back and stay?..How do you attract the east-coast, west-coast folks where you have significant diversity? How do you attract somebody who goes to school in Michigan to Oklahoma? How do you recruit from the east-coast or west-coast to Oklahoma? Where does the talent base come from? Attracting resources from around the nation to Oklahoma seems to be a large barrier. Your talent base is limited for how fast and how much you can eventually grow. That is one limiting factor for outsiders to be attracted because on the surface most folks have their opinion of Oklahoma; it is no different that their opinion of Idaho. Oklahoma has an image of a dustbowl. Didn’t they leave Oklahoma during the dustbowl to go to California? So that’s probably one thing that I would say is a detriment. Can you bring enough talent in to continue the growth that is present to date?”

“The second detriment that I hear is it’s a ‘little tough’ to get in and out of the state. That is one thing the state of Oklahoma has to go work on is increasing the hub size, the transportation/logistics port center and make it a little bit easier to get in and out of Oklahoma.”

“A third issue is one of diminishing resources. You probably can find the six hundred (600) qualified new hires but can you on a larger scale if the company was looking for this type of growth; could you attract and retain the necessary volume to sustain the trend?”

Executive 2 Interview Question 10

The final question asked was to make sure from the Executive’s point of view, if there was anything additional that he or she felt compelled to put out that is related to personal views or company views on insourcing or outsourcing.

“In terms of suppliers in the State of Oklahoma, when you outsource to a supplier, you put a whole lot of responsibility and risk on the company brand on those suppliers. At the same time you have a lot invested in them. The way the incentives work in most cases, are based upon the jobs created in the State of Oklahoma. To mitigate company risks with insourcing or outsourcing our

work with suppliers, they also need to mitigate and spread their risk in other industries and outside of other states. In the case of a small business in Oklahoma that the company elects to support, the company intern will encourage them to go outside the state of Oklahoma at the same time so they will reduce the business risk as well. The company already has spread risk throughout the globe and the expectations are that growing these small businesses will likely produce synergic work outside the state of Oklahoma at the same time."

The interview concluded with a "thank you for your time and responses" from the interviewer.

Executive #3

Executive 3 Interview Question 1

The interview began with the executive requested to describe his or her position title and responsibilities within the company. Executive 3's formal job title was Vice President Engineering Services; a division of a large fortune 500 aerospace company , headquartered out of Maryland, with significant responsibility in Oklahoma, Will Rogers Airport, and around the United States.

Executive 3’s responsibility encompasses approximately five hundred million dollars ($500M) of annual revenue. In terms of labor force responsibility, Executive 3 has approximately five hundred (500) employees within divisional responsibilities of the company.

Major site locations include Oklahoma City, Oklahoma, and Will Rodgers Airport.

Executive 3 Interview Question 2

The second) question of the interview was designed for Executive 3 to address specifically the company’s major capabilities. Executive 3 indicated a wide range of capability responsibility within the division. Included in the capability base are: engineering sustainment, aircraft maintenance, aircraft modifications, and communications. Two (2) new modification hangers have recently been built at Will Rodgers Airport.

Executive 3 Interview Question 3

Interview Question 3 was a three part integrated question addressing whether or not Executive 3’s company had an insourcing and/or outsourcing strategy; and if so 1) to identify the major factors that influence insourcing and

or outsourcing decisions, 2) capabilities that are insourced or outsourced, and 3) satisfaction with results.

Executive 3 responded; “In terms of Oklahoma, we are highly motivated to bring jobs in. As recently as a few years ago we looked at outsourcing some aircraft maintenance work to Texas or Arkansas. In the end the decision was to invest with hanger facilities in Oklahoma. Fundamentally we already have a presence here and the State Legislature was willing to work with us concerning incentives.

There is a lot of capability that we can find in the state. Transportation in and out of Oklahoma is a potential barrier. Many lost work days are associated with domestic travel within the United States.

“Our strategy is simple; we will insource and outsource work to locations that make prudent short term and long term business sense. From a satisfaction point of view, we have the facility, we have access to the capabilities, we know Oklahoma, and we are incentivized to create the jobs in Oklahoma. My personal level of satisfaction is high.” Insourcing has created a positive economic result for the state of Oklahoma.

Executive 3 Interview Question 4

Question 4 of the interview addressed the point of how often and what criteria of evaluation do the leadership follow related to outsourcing and or insourcing of work load to the state of Oklahoma. A hypothetical question was presented to Executive 3 to stimulate a comprehensive response. "How often does your leadership team, meaning you and maybe your next level or two, evaluate or look at the overall insourcing and or outsourcing dynamics within Oklahoma or in general a concept that addresses: I have existing business elsewhere, does it make sense to insource and or out-source?" How often might you evaluate that, in your opinion? Executive 3 indicated, "This subject is usually addressed in a serious fashion after a campaign win or a capital investment business analysis is completed." The decision process is most influenced locally centered around talk of cost of living and state incentives conversations.

Executive 3 Interview Question 5

Question 5 of the interview asks Executive 3 what are the "determining" factors in company insourcing and or outsourcing strategy? "In today's environment cost tends to dominate most discussions." From Executive #3's view

“prospective business considerations and customer criteria are the most important criteria for how we make decisions. Without success on either front, long term and most probably short term failure will occur.”

Executive 3 Interview Question 6

In Interview Question 6, Executive 3 was asked to provide a subjective and qualitative response to the following questions: 1) what is your “personal” perception of outsourcing?, 2) has your perception changed from five years ago?, and 3) is your assessment of outsourcing based upon specific metrics or measurements? If so what are they? If not how is your outsourcing success or failure measured?

Organization’s go through a process evaluating how to be most successful in the future. “Hard decisions have to be made concerning where you place work. Customer’s want you to deliver on what you promise and to do that consistently. You must have a process to monitor insourced or outsourced work for quality and delivery commitments. Without such process the company has in essence allowed subcontractors to operate independently which is never a good idea.”

"I am very supportive of finding the best solutions for our company and customer. I like bringing in the capabilities that have been proven to enhance our offerings. The measures or at least a significant measure of your success or failure obviously is measured by your customer and your shareholders."

Executive 3 Interview Question 7

Question 7 of the interview asks Executive 3 if the company has taken advantage of any Oklahoma legislative incentives; 1) Quality Jobs, 2) Prime Win, 3) 21st Century Jobs, and or 4) Oklahoma Engineering Tax Credit and whether the company plans to in the future? The purpose at the center of this question was to inquire about the awareness of these state incentive programs. Have they been evaluated by the company; are they actively being used or have they discarded them after analyzing them?

"We have promoted the incentives of the state upward to our headquarters and have actually presented business cases that indicate moving to Oklahoma City could actually save their customer money. We do and have used the Oklahoma incentives to make decisions that are positive in terms of bring work to the state."

Similar reasons for creating new jobs in the state of Oklahoma as were portrayed by previous executive interviews; 1) proximity to customer, 2) cost of living is reasonable, 3) significant financial incentives, and 4) increased tax base for the state and local economies. It is a “Win, Win, Win” for the state, company and customer!

Executive 3 Interview Question 8

Question 8 of the interview requested the Executive 3 to address the company’s long term vision of insourcing and or outsourcing in addition to identify both positive and negative aspects. “The company will continue to look for the best combination of offerings to our customer. As with the decision to invest in Oklahoma with respect to hanger space; a disciplined process was brought in to provide a fact based decision. With continued assistance from the Oklahoma legislation on incentives along with a valid resource pool, insourcing to the state will continued to be the favored approach”

Executive 3 Interview Question 9

Question 9 of the interview requested the participant to describe the benefits and detriments of insourcing and

or outsourcing in the aerospace industry in the state of Oklahoma.

"A diminishing resource exists in Oklahoma of qualified human resources. It is limited truly by the population of the state and number of centralized cities within the state. Outsiders of Oklahoma have their opinion of what Oklahoma is or is not. Changing that opinion is very difficult and therefore is a resistant factor for people relocating to Oklahoma."

"Transportation efficiency is also a detriment. Traveling within Oklahoma City area where no real effective and efficient transportation method exists creates a limiting factor for the work force. The airport hub is also lacking sophistication and efficiencies. Most air transportation to other major cities is either very limited in terms of available flights and in most cases these flights are connecting to a major hub like Dallas. This further delays the 'in and out' efficiencies of Will Rodgers International Airport connecting to major areas throughout the nation."

Executive 3 Interview Question 10

The final question asked was to make sure from the Executive's point of view if there were additional comments

that he or she felt compelled to put out here that is related to personal views or company views on insourcing or outsourcing.

"The incentives are very significant and cover a variety of applications. Transportation efficiency is a significant issue along with a diminishing resource base that may prevent continued growth.

The interview concluded with a "thank you for your time and responses" from the interviewer.

Summary of Findings

When analyzing the findings and summarizing the different data points the intent of this study was to identify conflicting or agreeing perceptions of insourcing and outsourcing within the state of Oklahoma. Specifically did differing employee levels within the organization have significantly different views. If so a solution could be recommended to increase employee satisfaction and understanding of insourcing and outsourcing and the reasons businesses employ both strategies. The approach taken in this summary is to compare and contrast findings both from the surveys and the executive interviews. As Table 22 indicates nearly sixty percent (60%) of all levels within

the organization are not aware of any strategy the company has related to insourcing and outsourcing. Further, even at mid to executive levels this percentage of awareness is lower than expected at approximately thirty two percent (32%).

Table 22: Summary Organizational Level Awareness of Company Insourcing and Outsourcing Strategy

Organizational Level * Awarness of Strategy Crosstabulation

			Awarness of Strategy			
			Yes	No	Do not know	Total
Organizational Level	Executive	Count	1	2		3
		% within Awarness of Strategy	2.0%	14.3%		1.9%
		% of Total	.6%	1.3%		1.9%
	First Level Manage	Count	1		1	2
		% within Awarness of Strategy	2.0%		1.1%	1.3%
		% of Total	.6%		.6%	1.3%
	Non-Management	Count	49	12	92	153
		% within Awarness of Strategy	96.1%	85.7%	98.9%	96.8%
		% of Total	31.0%	7.6%	58.2%	96.8%
Total		Count	51	14	93	153
		% within Awarness of Strategy	100.0%	100.0%	100.0%	100.0%
		% of Total	32.3%	8.9%	58.9%	100.0%

Table 23 adds additional insight to the perceptions of insourcing and outsourcing from the respondents. This table depicts a further refinement of the data that isolates job classifications to the awareness of insourcing and outsourcing. A significant number of the respondents classifying themselves as technical (29.1%) and support

(27.2%).functions clearly are unaware of any insourcing and outsourcing company strategies.

Table 23: Summary by Job Classification Awareness of Company Insourcing and Outsourcing Strategy

Job Classification * Awarness of Strategy Crosstabulation

			Awarness of Strategy			
			Yes	No	Do not know	Total
Job Classificatior	Program Manageme	Count	7	2	3	12
		% within Awarnes of Strategy	13.7%	14.3%	3.2%	7.6%
		% of Total	4.4%	1.3%	1.9%	7.6%
	Technical	Count	18	8	46	72
		% within Awarnes of Strategy	35.3%	57.1%	49.5%	45.6%
		% of Total	11.4%	5.1%	29.1%	45.6%
	Manufacturing	Count	4		1	5
		% within Awarnes of Strategy	7.8%		1.1%	3.2%
		% of Total	2.5%		.6%	3.2%
	Support	Count	22	4	43	69
		% within Awarnes of Strategy	43.1%	28.6%	46.2%	43.7%
		% of Total	13.9%	2.5%	27.2%	43.7%
Total		Count	51	14	93	158
		% within Awarnes of Strategy	100.0%	100.0%	100.0%	100.0%
		% of Total	32.3%	8.9%	58.9%	100.0%

Table 24 indicates sixty six point three percent (66.3%) of all levels within the organization believe that between twenty five percent (25%) and fifty percent (50%) of their companies work is outsourced. This perception is significant in that it conflicts with Executive interviews

which indicate that insourcing to the state is more prevalent than outsourcing.

Table 24: Summary of Organizational Level Perception of Level of Company Insourcing and Outsourcing Volume

Organizational Level * Percentage Outsourced Crosstabulation

			Percentage Outsourced					
			0%-5%	6%-25%	26%-50%	51%-75%	76%-100%	Total
Organizational Level	Executive	Count	1	1	1			3
		% within Percentage Outsourced	3.3%	1.4%	3.2%			2.0%
		% of Total	.7%	.7%	.7%			2.0%
	First Level Manag	Count		1	1			2
		% within Percentage Outsourced		1.4%	3.2%			1.3%
		% of Total		.7%	.7%			1.3%
	Non-Management	Count	29	67	29	16	5	146
		% within Percentage Outsourced	96.7%	97.1%	93.5%	100%	100%	96.7%
		% of Total	19.2%	44.4%	19.2%	10.6%	3.3%	96.7%
Total		Count	30	69	31	16	5	151
		% within Percentage Outsourced	100.0%	100%	100%	100%	100%	100%
		% of Total	19.9%	45.7%	20.5%	10.6%	3.3%	100%

Table 25 substantiates that there is direct relationship in perceptions between all levels of an organization and also within job classification. This table depicts a further refinement of the data that isolates job classifications to the perceived level of insourcing and outsourcing. Nearly the same percentage, sixty five point two percent (65.2%) by job classification

believe that between twenty five percent (25%) and fifty percent (50%) of their companies work is outsourced.

Table 25: Summary of Job Classification Perception of Level of Company Insourcing and Outsourcing Volume

Job Classification * Percentage Outsourced Crosstabulation

			Percentage Outsourced					
			0%-5%	6%-25%	26%-50%	51%-75%	76%-100%	Total
Job Classification	Program Manageme	Count	3	4	2	3		12
		% within Percentag Outsourced	10.0%	5.8%	6.5%	18.8%		7.9%
		% of Total	2.0%	2.6%	1.3%	2.0%		7.9%
	Technical	Count	17	25	12	9	4	67
		% within Percentag Outsourced	56.7%	36.2%	38.7%	56.3%	80.0%	44.4%
		% of Total	11.3%	16.6%	7.9%	6.0%	2.6%	44.4%
	Manufacturing	Count		2	2	1		5
		% within Percentag Outsourced		2.9%	6.5%	6.3%		3.3%
		% of Total		1.3%	1.3%	.7%		3.3%
	Support	Count	10	38	15	3	1	67
		% within Percentag Outsourced	33.3%	55.1%	48.4%	18.8%	20.0%	44.4%
		% of Total	6.6%	25.2%	9.9%	2.0%	.7%	44.4%
Total		Count	30	69	31	16	5	151
		% within Percentag Outsourced	100%	100%	100%	100%	100%	100%
		% of Total	19.9%	45.7%	20.5%	10.6%	3.3%	100%

Table 26 indicates sixty six point six percent (66.6%) of the non-management respondents had the perception that there is very significant, significant or some adverse effect on the economy from outsourcing. This contrasts the position of management that the adverse effect is marginal or has no effect on the local and state economy. Executive

interviews also indicated a perception that an adverse effect from outsourcing was minimal. This finding is significant in that it points out perceptions that are very different between executives, management and non-management.

Table 26: Summary of Organizational Level Perception of Adverse Effect of Company Outsourcing on the Local and State Economy

Organizational Level * Adverse Effect on State and Local Economy Crosstabulation

			Adverse Effect on State and Local Economy					
			Very Sig.	Sig.	Some	Marginal	None	Total
Organizational Level	Executive	Count				2	1	3
		% within Adverse Effect				6.3%	5.0%	1.9%
		% of Total				1.3%	.6%	1.9%
	First Level Manager	Count		1		1		2
		% within Adverse Effect		2.9%		3.1%		1.3%
		% of Total		.6%		.6%		1.3%
	Non-Mgt.	Count	12	34	55	29	19	149
		% within Adverse Effect	100%	97.1%	100.0%	90.6%	95.0%	96.8%
		% of Total	7.8%	22.1%	35.7%	18.8%	12.3%	96.8%
Total		Count	12	35	55	32	20	154
		% within Adverse Effect	100%	100%	100.0%	100.0%	100%	100%
		% of Total	7.8%	22.7%	35.7%	20.8%	13.0%	100%

Table 27 substantiates that there is direct relationship in perceptions between all levels of an organization and also within job classification. This table depicts a further refinement of the data that

isolates job classifications to the perceived level of insourcing and outsourcing. Nearly the same percentage, sixty five point two percent (65.2%) by job classification believe that between twenty five percent (25%) and fifty percent (50%) of their companies work is outsourced.

Table 27: Summary of Job Classification Perception of Adverse Effect of Company Outsourcing on the Local and State Economy

Job Classification * Adverse Effect on State and Local Economy Crosstabulation

			Adverse Effect on State and Local Economy					
			Very Sig.	Sig.	Some	Marginal	None	Total
Job Classification	Program Mgt.	Count		3	4	2	2	11
		% within Adverse Effect		8.6%	7.3%	6.3%	10.0%	7.1%
		% of Total		1.9%	2.6%	1.3%	1.3%	7.1%
	Technical	Count	6	22	22	9	11	70
		% within Adverse Effect	50.0%	62.9%	40.0%	28.1%	55.0%	45.5%
		% of Total	3.9%	14.3%	14.3%	5.8%	7.1%	45.5%
	Manufacturing	Count		1	2	1	1	5
		% within Adverse Effect		2.9%	3.6%	3.1%	5.0%	3.2%
		% of Total		.6%	1.3%	.6%	.6%	3.2%
	Support	Count	6	9	27	20	6	68
		% within Adverse Effect	50.0%	25.7%	49.1%	62.5%	30.0%	44.2%
		% of Total	3.9%	5.8%	17.5%	13.0%	3.9%	44.2%
Total		Count	12	35	55	32	20	154
		% within Adverse Effect	100.0%	100%	100%	100.0%	100%	100%
		% of Total	7.8%	22.7%	35.7%	20.8%	13.0%	100%

Table 28 also indicates the non-management respondents had the perception that there is a great deal of adverse effects on their work being outsourced. Executives and management were not as concerned. In total fifty eight point five percent (58.5%) had the perception that there was an adverse effect on aerospace capabilities being outsourced; ranging from very significant to some adverse effect on the aerospace capabilities from outsourcing. Similar to the prior analysis, this contrasts the position of management that the adverse effect is marginal or has no effect on the capability base in Oklahoma. Executive interviews also indicated a perception that an adverse effect from outsourcing was minimal on the aerospace capabilities. This finding is also significant in that it points out perceptions that are very different between executives, management and non-management.

Table 28: Summary of Organizational Level Perception of Adverse Effect of Company Outsourcing on Core Capabilities

Organizational Level * Adverse effect on Core Capabilities Crosstabulation

			Adverse effect on Core Capabilities					
			Very Sig.	Sig.	Some	Marginal	None	Total
Organizational Level	Executive	Count				1	2	3
		% within Adverse effect				2.4%	10.0%	2.0%
		% of Total				.7%	1.3%	2.0%
	First Level Manager	Count			1	1		2
		% within Adverse effect			2.0%	2.4%		1.3%
		% of Total			.7%	.7%		1.3%
	Non-Mgt.	Count	12	29	49	40	18	148
		% within Adverse effect	100%	100%	98.0%	95.2%	90.0%	96.7%
		% of Total	7.8%	19.0%	32.0%	26.1%	11.8%	96.7%
Total		Count	12	29	50	42	20	153
		% within Adverse effect	100%	100%	100.0%	100.0%	100.0%	100.0%
		% of Total	7.8%	19.0%	32.7%	27.5%	13.1%	100.0%

Table 29 substantiates that there is direct relationship in perceptions between all levels of an organization and also within job classification on the adverse effect on outsourcing aerospace capabilities. This table depicts a further refinement of the data that isolates job classifications to the perceived adverse effect of insourcing and outsourcing. It is clear that significantly greater than fifty percent (50%) of the technical and support functions believe that there is an adverse effect. One might reasonably attribute this to

these job classifications are the ones that are most commonly involved with outsourcing.

Table 29: Summary Job Classification Perception of Adverse Effect of Company Outsourcing on Core Capabilities

Job Classification * Adverse effect on Core Capabilities Crosstabulation

			Adverse effect on Core Capabilities					
			Very Sig.	Sig.	Some	Marginal	None	Total
Job Classification	Program Mgt.	Count		2	5	2	2	11
		% within Adverse effect		6.9%	10.0%	4.8%	10.0%	7.2%
		% of Total		1.3%	3.3%	1.3%	1.3%	7.2%
	Technical	Count	6	15	24	16	10	71
		% within Adverse effect	50.0%	51.7%	48.0%	38.1%	50.0%	46.4%
		% of Total	3.9%	9.8%	15.7%	10.5%	6.5%	46.4%
	Manufacturing	Count			3		2	5
		% within Adverse effect			6.0%		10.0%	3.3%
		% of Total			2.0%		1.3%	3.3%
	Support	Count	6	12	18	24	6	66
		% within Adverse effect	50.0%	41.4%	36.0%	57.1%	30.0%	43.1%
		% of Total	3.9%	7.8%	11.8%	15.7%	3.9%	43.1%
Total		Count	12	29	50	42	20	153
		% within Adverse effect	100.0%	100%	100%	100.0%	100.0%	100%
		% of Total	7.8%	19.0%	32.7%	27.5%	13.1%	100%

Table 30 indicates that at all levels within an organization seventy point seven percent (70.7%), over two thirds (2/3) of all the respondents have the belief or

perception their company does not have a re-training program for displaced employees.

Table 30: Summary of Organizational Level Perception of a Company Re-Training Program Associated with Insourcing and Outsourcing

Organizational Level * Re-training Program Crosstabulation

			Re-training Program		
			Yes	No	Total
Organizational Level	Executive	Count		3	3
		% within Re-training Program		2.9%	2.0%
		% of Total		2.0%	2.0%
	First Level Manager	Count	1	1	2
		% within Re-training Program	2.3%	1.0%	1.4%
		% of Total	.7%	.7%	1.4%
	Non-Management	Count	42	100	142
		% within Re-training Program	97.7%	96.2%	96.6%
		% of Total	28.6%	68.0%	96.6%
Total		Count	43	104	147
		% within Re-training Program	100.0%	100.0%	100.0%
		% of Total	29.3%	70.7%	100.0%

Table 31 substantiates that there is direct relationship in perceptions between all levels of an organization and also within job classification. This table depicts a further refinement of the data that isolates job classifications to the perception of a re-training program for displaced employees. The largest respondent groups were technical and support functions with

approximately two thirds, (2/3) indicating their company has no formal re-training program.

Table 31: Summary of Job Classification Perception of a Company Re-Training Program Associated with Insourcing and Outsourcing

Job Classification * Re-training Program Crosstabulation

			Re-training Program		
			Yes	No	Total
Job Classification	Program Management	Count	3	8	11
		% within Re-training Program	7.0%	7.7%	7.5%
		% of Total	2.0%	5.4%	7.5%
	Technical	Count	20	46	66
		% within Re-training Program	46.5%	44.2%	44.9%
		% of Total	13.6%	31.3%	44.9%
	Manufacturing	Count	1	4	5
		% within Re-training Program	2.3%	3.8%	3.4%
		% of Total	.7%	2.7%	3.4%
	Support	Count	19	46	65
		% within Re-training Program	44.2%	44.2%	44.2%
		% of Total	12.9%	31.3%	44.2%
Total		Count	43	104	147
		% within Re-training Program	100.0%	100.0%	100.0%
		% of Total	29.3%	70.7%	100.0%

Table 32 addresses the question of current volume of outsourcing and does that level need to be adjusted. Thirty nine point seven percent (39.7%) indicated the current level was approximately right. Nearly fifty percent (50%) of non-management level respondents indicated that less or no outsourcing would be preferred. This

contrasts with approximately eleven percent (11%) of all levels of the organization believing that more outsourcing should be taking place

Table 32: Summary of Organizational Level Perception of the Current Level of Company Insourcing and Outsourcing Volume

Organizational Level * Current Level of Outsourcing Crosstabulation

			Current Level of Outsourcing					
			Sig. more	More	About right	Less	None	Total
Organizational Level	Executive	Count		1	2			3
		% within Current Level of Outsourcing		6.3%	3.3%			2.0%
		% of Total		.7%	1.3%			2.0%
	First Level Manager	Count			1	1		2
		% within Current Level of Outsourcing			1.7%	1.8%		1.3%
		% of Total			.7%	.7%		1.3%
	Non-Mgt.	Count	1	15	57	56	17	146
		% within Current Level of Outsourcing	100.0%	93.8%	95.0%	98.2%	100%	96.7%
		% of Total	.7%	9.9%	37.7%	37.1%	11.3%	96.7%
Total		Count	1	16	60	57	17	151
		% within Current Level of Outsourcing	100%	100%	100%	100%	100%	100%
		% of Total	.7%	10.6%	39.7%	37.7%	11.3%	100%

Table 33 addresses the question of current volume of outsourcing and does that level need to be adjusted as measured by the respondent's job classification. Technical and functional job classifications were more focused on the reduction of outsourcing than was the program management

respondents. The responses clearly indicate some negativity in terms of outsourced capabilities within the support functions and technical positions.

Table 33: Summary of Job Classification Perception of the Current Level of Company Insourcing and Outsourcing Volume

Job Classification * Current Level of Outsourcing Crosstabulation

			Current Level of Outsourcing					
			Sig. more	More	About right	Less	None	Total
Job Classification	Program Mgt.	Count		3	3	4	1	11
		% within Current Level of Outsourcing		18.8%	5.0%	7.0%	5.9%	7.3%
		% of Total		2.0%	2.0%	2.6%	.7%	7.3%
	Technical	Count		2	28	30	8	68
		% within Current Level of Outsourcing		12.5%	46.7%	52.6%	47.1%	45.0%
		% of Total		1.3%	18.5%	19.9%	5.3%	45.0%
	Manufacturing	Count			3	2		5
		% within Current Level of Outsourcing			5.0%	3.5%		3.3%
		% of Total			2.0%	1.3%		3.3%
	Support	Count	1	11	26	21	8	67
		% within Current Level of Outsourcing	100%	68.8%	43.3%	36.8%	47.1%	44.4%
		% of Total	.7%	7.3%	17.2%	13.9%	5.3%	44.4%
Total		Count	1	16	60	57	17	151
		% within Current Level of Outsourcing	100%	100%	100%	100%	100%	100%
		% of Total	.7%	10.6%	39.7%	37.7%	11.3%	100%

One final observation is that the Quality Jobs Incentive Program and the Engineering Tax Credit were perceived to be the most often used incentive programs by both the organizational level and the individual job classification of respondents.

Table 34: Summary of Organizational Level Perception of the Incentive Programs Currently Used

Incentive Program	Cases					
	Valid		Missing		Total	
	N	%	N	%	N	%
Quality Jobs * Organizational Level	47	29.6%	112	70.4%	159	100%
Prime Win * Organizational Level	26	16.4%	133	83.6%	159	100%
21st Century Quality Jobs * Organizational	25	15.7%	134	84.3%	159	100%
Oklahoma Engineer Tax Credit * Organizational	108	67.9%	51	32.1%	159	100%

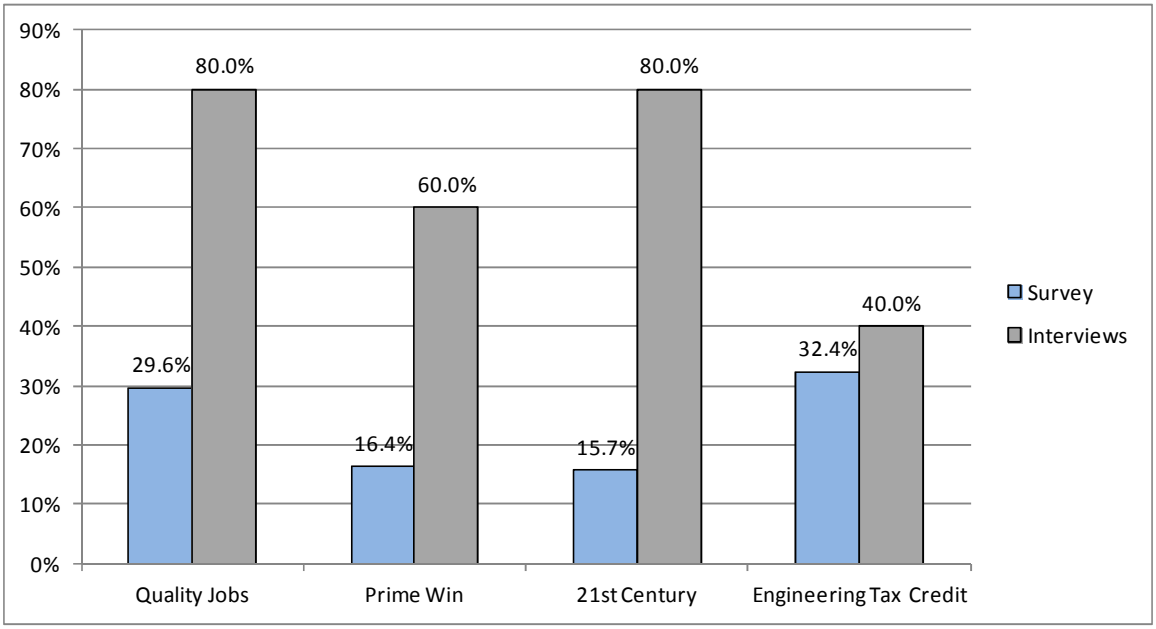
Table 35: Summary of Job Classification Perception of the Incentive Programs Currently Used

Incentive Program	Cases					
	Valid		Missing		Total	
	N	%	N	%	N	%
Quality Jobs * Job Classification	47	30%	112	70%	159	100%
Prime Win * Job Classification	26	16%	133	84%	159	100%
21st Century Quality Jobs * Job Classification	25	16%	134	84%	159	100%
Oklahoma Engineer Tax Credit * Job Classification	108	68%	51	32%	159	100%

Based upon the data obtained in both the interview and surveys, trend data presented below (Reference Figure 2), indicates that there is a much more positive view in the

usage of the incentive programs by executives and management than by non-management respondents, reference Table 34. From a perception perspective it is very evident that executives are much more aware of the company usage of state incentive programs than the respondents to the survey which the vast majority was non-management, reference Table 35.

Figure 2: Comparison of Survey versus Interview on Usage of Oklahoma Incentive Program Usage as a Percentage of Respondents



CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

Introduction

Consistent with the purpose of the study, the findings in this research provided a point of view of Oklahoma aerospace executives, managers, and non-managers related to their perceptions of insourcing and outsourcing within aerospace industry of Oklahoma. There is a significant disconnect between company senior leaders and the work force more closely associated with actual outsourcing perceptions. Generally senior leadership is aware of short term and long term strategies related to Oklahoma incentives and the benefits derived from quality business analysis related to insourcing and outsourcing. Awareness by the general workforce on both the negative and positive aspects are clearly not communicated and or understood

throughout the organizations. Oklahoma is a leader among states with innovative legislative incentive programs to attract aerospace capabilities and work to Oklahoma. Numerous state incentive and assistance programs exist, 1) Quality Jobs, 2) 21st Century Quality Jobs,3) PrimeWin, and 4) Aerospace Engineer Tax Credits, to name a few, with millions of dollars available annually for companies bringing aerospace work to Oklahoma.

Conclusions

The first research question addresses an over arching question that is at the center of this study; “What is the perception of the Oklahoma economic impact directly related to insourcing and or outsourcing in the aerospace industry?” It is clear from both the survey results and the executive interviews that the perception is there is an economic impact associated with insourcing and outsourcing related to the aerospace industry. An adverse economic impact is perceived by non-management which is made up of many support and technical employees, reference Table 26, 27, 28, and 28. A contrary view is represented by management.

Using Table 26 and Table 27 as a reference, the combined response of “very significant”, ((7.8%),

“significant”, ((22.7%) and “some”, (35.7%) indicated over sixty five percent (65%) of respondents of the survey have the perception that there is an adverse effect of outsourcing on the economy of the state. Nearly sixty percent (60%) using Table 28 and Table 29 as a similar reference responded with a combined perception there is a direct loss of aerospace capabilities. Executives on the other hand are more involved with the overall company strategies related to insourcing and outsourcing. A more analytical approach is implemented measuring business statistics, metrics, and business cases as opposed to emotions. This disparity in perception leads to a lack of company understanding, employee productivity, and stability within the organization. All of these outcomes can be very detrimental to the overall business success of the company.

The second research question addressed was “Is outsourcing of the Oklahoma Aerospace capability jeopardizing Oklahoma’s capacity to maintain an aerospace industry?” The executive’s interviewed expressed that Oklahoma may not have an outsourcing capability issue as much as limitations on insourcing which leads to outsourcing issues if not addressed. These issues revolve around limitations of resources, training, and education.

As pointed out in the literature review six out of ten aerospace occupations in the future will require a degree and the four others will require technical certificates. Working with both the educational system and companies to enhance Oklahoma's educational needs through better preparedness and training is a most to retain our aerospace resources. Overcoming the fact only thirty two percent (32%) of the respondents of the survey knew of a company insourcing/outsourcing strategy and nearly sixty percent (60%) had the perception of "some to very significant" adverse effect on capabilities; much work is to be done. Oklahoma has and continues to expend the energy in protecting the anticipating aerospace needs and requirements within the state. Formal Strategic Plans for the Growth of Oklahoma's Aerospace Industry are continually being updated. The primary purpose of this strategic plan is to connect the assets of the aerospace industry in Oklahoma with existing and emerging markets that will help existing companies expand, attract new companies, and build renowned expertise in specific aerospace technical areas. Specific strategic goals such as creating the State's incentives programs; Quality Jobs, Prime WIN, 21st Century, and Engineering Tax credits, are identified to increase the markets and competitiveness of Oklahoma's existing

aerospace companies, to attract new aerospace companies, suppliers and workers to the state, to enhance Oklahoma's reputation as a leader in identified areas of aerospace.

The third research question addressed whether or not there has there been a technology loss in Oklahoma due to outsourcing? Oklahoma's aerospace workforce has historically been recognized for a high skill level and strong work ethic. In the short term, many of Oklahoma's aerospace workers are leaving the industry, discouraged by past instability. Others are being lured to neighboring states for higher wages. There must be a concentrated effort to ensure that the workers who remain have the skills necessary to keep Oklahoma's leading position in all areas of the aerospace industry. The number of aerospace retirees is expected to grow at a rapid rate over the next several years, the number of high school age Oklahomans will be declining over the same time period. Oklahoma needs to find a way to train and retain this potential workforce. With the concerted effort from state legislators, Oklahoma is committing time and money for improving education pointed at the aerospace industry, re-training the existing workforce, and providing financial incentives for publically held companies to re-locate work to Oklahoma. The precise reasons for the loss of existing

technology jobs are numerous as described above. Oklahoma however is attracting adjacent technical markets that have similar skills and capabilities such as information technology and business services.

The fourth research question addressed to what degree has insourcing and outsourcing been an “adverse” effect to the state, and local government’s ability to generate revenue? It is a challenge for the state to balance the cost of incentive programs to attract perspective aerospace work to the state against the loss of revenue if jobs move outside the state. From a company’s position the state incentives in most cases overcomes the investment of a move including the relocation cost. The state legislation has crafted a superior business mix of incentives to attract and retain new aerospace work. According to discussions with the Oklahoma Commerce Department participation in the incentives have been successful in growing the aerospace work force in Oklahoma. It should be pointed out that in order to receive an incentive payment from the state; a net positive increase in work force employment compared to a baseline must be achieved. Tax revenue in the state is up and the multiplier of trickle down benefit on every dollar

provides a strong argument for success of insourcing policy.

The fifth research question addresses what trends are there in terms of corporations re-training the Oklahoma Aerospace workforce? Executive responses to both the survey and the interviews indicate the communication to non-management is lacking or nonexistent related to company re-training programs. Seventy percent (70%) of the survey respondents were unaware of any company retraining program. The general concern is job security as it relates to the work force. Issues of self preservation and willingness to transfer or move to other industries and or aerospace companies are an important concern. The overall cost of re-training employees on the job and the loss of productivity during training are significant. Two situations are occurring. The first is when jobs are outsourced and the company attempts to retain a knowledgeable work force. Re-training of the employee's lost skill usually aligns to a skill that is within the general aerospace business. For example, an employee is familiar with the company's processes and policies with regard to aircraft repair this knowledge has significant transferability to logistics. The second situation relates

to insourcing which has the advantage of screening and attracting specific knowledge during the recruiting process.

Recommendations

As this study developed, it was clear that there were a handful of serious issues within the company's control that need to be addressed if continued business behavior included insourcing and outsourcing strategies. Individual recommendations were put forth below.

Improve Communication Plan

As pointed out in this study, communication of company objectives and how individuals contribute to those objectives is at the heart of a healthy and thriving business. It is clear through this study that major effort is necessary to ensure vertical and horizontal communication throughout the organization about company strategies and the actions to achieve them. Insourcing and outsourcing plans should be included.

Improve Re-training Program

It is critical to establish and support re-training programs when requirements get realigned with differing skill sets. There are significant gaps in re-training that may assist in the “attract and retain” algorithm in the aerospace industry. Noted below are specific recommendations.

- Address the significant gaps that exist between the entry level training needed and training provided on the job.
- Strengthen the re-training programs between the aerospace industry workforce job opportunities and capabilities and the career change training mechanisms that exist both in companies and public schools.
- A gap exists between aerospace industry training job shortages and surpluses and the ever changing technology requirements. Better alignment of programs with labor shortages would shorten the work ready timeline.

Improve Transportation Network

The executives interviewed were very pointed for the aerospace industry in Oklahoma to continue to grow as a national leader; the transportation network must be

improved. The ability to move frequently within the nation and globally, on a comparatively efficient manner as other major cities, is a limiting factor. Improvements with air transportation connections, number of flights, and mass transit systems are essential.

Increase Usage of State Incentives

Increased awareness to the variety of state incentives and the financial attraction should be a priority. Approximately one quarter of those surveyed indicated that there was no participation in any state incentives. Increased understanding of the multiple incentives should be made more directed towards the aerospace industry.

Diminishing Resources within the Aerospace Industry

With the trend of aerospace industry growth over the next few years in Oklahoma, a concern of a diminishing resource of qualified Oklahomans becomes forefront. If all aerospace companies begin to take full advantage of moving to Oklahoma, including the state incentives, the question will there be an available workforce or will this be a limiting factor. To eliminate this potential problem, mitigation plans must be implemented.

Improve Oklahoma's National Prominence Aerospace

Internal to the State of Oklahoma, the aerospace industry is well known to have a robust contribution to the economy and also provides a large job base. In order to attract and retain outside the state aerospace resources, a focused advertising plan should be funded and developed. Particular focus on Oklahoma's aerospace size and current and future opportunities should be emphasized.

Promote Engineering in the Educational Institutions

Academia and the aerospace industry should collaborate and encourage universities to provide corporate development programs to Oklahoma aerospace companies in the area of engineering. Based on industry recommendations, academia institutions should also strive towards hiring educators with aerospace industry experience, as opposed to just an academic background. Hiring aerospace experts to instruct courses not only adds value and credibility to the program, but more importantly, allows students to apply real world application to the curriculum.

Summary Comments

The long-term ability to recruit and retain a professional workforce with the needed skills will determine the viability of the industry for the remainder of this century and beyond. The challenges are real and they are growing. Continued research on the growing challenges is imperative to the aerospace industry.

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APPENDICES

APPENDIX A

IRB APPROVAL FORM

Oklahoma State University Institutional Review Board

Date	Wednesday, June 08, 2011	Protocol Expires:	6/7/2012
IRB Application No:	ED1091		
Proposal Title:	The Regional Impact from Outsourcing on the Aerospace Industry in the State of Oklahoma - A Mixed Method Study		
Reviewed and Processed as:	Exempt **Continuation**		

Status Recommended by Reviewer(s): **Approved**

Principal Investigator(s) :

Robert Evenson
3801 Michael Rd.
Edmond, OK 73025

Mary Kutz
6108 Winfield Dr.
Okla. City, OK 73162

Approvals are valid for one calendar year, after which time a request for continuation must be submitted. Any modifications to the research project approved by the IRB must be submitted for approval with the advisor's signature. The IRB office MUST be notified in writing when a project is complete. Approved projects are subject to monitoring by the IRB. Expedited and exempt projects may be reviewed by the full Institutional Review Board.

☒ The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

Signature :
Shelia M. Kennison

Shelia Kennison, Chair, Institutional Review Board

Wednesday, June 08, 2011
Date

APPENDIX B

PARTICIPANT LETTER

PARTICIPATION LETTER

Dear Mr./Ms._____

I am currently working on my doctoral dissertation in the College of Adult Education,

Applied Studies Aviation and Space Education, Oklahoma State University, where I am conducting research that will use aerospace executives and senior level management perceptions and opinions on outsourcing in the aerospace industry in the State of Oklahoma. You have been selected to participate in the study by virtue of being a key aerospace stakeholder. I will be interviewing a number of stakeholders from government, and the private sector to obtain their unique perspectives on this important issue. I would appreciate the opportunity to interview you in person (or by phone) sometime during the month of _____.

The purpose of this study is to specifically identify problems, economic and social, associated with outsourcing of the Aerospace industry capability in the State of Oklahoma. In addition, the study will study the aerospace industries and governments perceptions of outsourcing. These perceptions will be analyzed in conjuncture with supported facts from both the aerospace industry and State documentation. Because the different segments previously mentioned have unique views, each has the ability to provide valuable insights that will contribute to well to this research with a high degree of practical applicability. Your assistance as a member of the aerospace or legislative sector will aid in the development of a balanced approach to aerospace outsourcing resulting in a better understanding and more effective solution in providing future recommendations.

Attached are samples of the questions that will be used during the interview lasting approximately one hour. With your permission, an audiotape will be made of the interview to aid in the analysis of the data. Transcriptions of the tapes and notes will be identified by number only. The Oklahoma State University Institutional Review Board has the authority to inspect consent records and data files to assure compliance with approved procedures. Once the tapes are transcribed and the data analyzed, all tapes will be destroyed to protect confidentiality of the person being interviewed. A copy of the final report will be presented to you if you so desire, prior to submission to the graduate college. There are no known risks associated with this project that are greater than those ordinarily encountered in daily life.

I will contact you by phone on (date) to answer any questions you may have and obtain permission to interview. In the meantime, if you have any questions about the project or about me, you may contact me at 405.820.9555.

Thank you in advance for your cooperation regarding my request for assistance with this research project.

Sincerely,

Robert M. Evenson

APPENDIX C

CONSENT FORM

CONSENT TO PARTICIPATE IN A RESEARCH STUDY

OKLAHOMA STATE UNIVERSITY

RESEARCH STUDY TITLE: "The Regional Impact from Outsourcing on the Aerospace Industry in the State of Oklahoma - A Mixed Method Study"

INVESTIGATOR: Robert M. Evenson

Affiliation – Oklahoma State University

PURPOSE:

This study will specifically identify problems, economic and social, associated with outsourcing of the Aerospace industry capability in the State of Oklahoma. In addition, the study will recommend solutions by elected and corporate officials on outsourcing that may curtail some of the negative effects within Oklahoma. The pro's and con's to the Oklahoma economy from outsourcing will be summarized and measured in economic terms. This study will eliminate many preconceived misconceptions related to outsourcing.

PROCEDURES:

The questionnaire will be primarily assessing factual straight forward questions related to your particular companies outsourced headcount, capabilities, revenues, and percentage of the overall outsourced efforts. The interviews will be structured to be much more opened ended

measuring perceptions and company strategies. The questionnaire and the interviews will be administered in person at the participants work location or an agreed to alternate. The interview will be audio recorded to accurately transcribe the conversation. The participant may be contacted for a follow-up clarifications or confirmation of statements made during the interviews. The questionnaire is designed to get feedback from a larger Oklahoma Aerospace audience both in the public and private sector. The interviews will be limited to a cross section of senior aerospace executives and legislators. Questions will be standardized with room for individual expansion of the themes.

The interview and questionnaire are designed to last approximately 45-60 minutes respectively.

RISKS OF PARTICIPATION:

There are no risks associated with this project, including stress, psychological, social, physical, or legal risk which is greater, considering probability and magnitude, than those ordinarily encountered in daily life. If, however, you begin to experience discomfort or stress in this project, you may end your participation at any time.

BENEFITS OF PARTICIPATION:

The aerospace industry in Oklahoma is a major economic sector for both growth and sustainment of state revenues. It is essential to understand if and how the aerospace industry within Oklahoma is fairing. Critical infra structure and quality jobs that attract the brightest are essential to preserving the quality of life in Oklahoma future. Behavior that is a negative influence on the state must be understood and measures put in place to counter balance the effects.

CONFIDENTIALITY:

All information about you will be kept confidential and will not be released. Questionnaires and record forms will have identification numbers, rather than names, on them. Research records will be stored securely and only researchers and individuals responsible for research oversight will have access to the records. This information will be saved as long as it is scientifically useful; typically, such information is kept for five years after publication of the results. Results from this study may be presented at professional meetings or in publications. You will not be identified individually; we will be looking at the group as a whole. It is possible that the consent process and data collection will be observed by research oversight staff responsible for safeguarding the rights and wellbeing of people who participate in research.

COMPENSATION:

There will be no compensation for participating in this research.

CONTACTS:

Should you have questions concerning this research, you can contact Robert Evenson, 405-820-9555, rmevens@okstate.edu , Mary Kutz, OSU-OKC, 6420 S.E. 15th St, Tom Steed Bldg, Midwest City, OK 73110, 405-733-7940, or mary.kutz@okstate.edu. If you have questions about your rights as a research volunteer, you may contact Dr. Shelia Kennison, IRB Chair, 219 Cordell North, Stillwater, OK 74078, 405-744-3377 or irb@okstate.edu.

PARTICIPANT RIGHTS:

Your participation in this research is voluntary. There is no penalty for refusal to participate, and that you are free to withdraw your consent and participation in this project at any time, without penalty

CONSENT DOCUMENTATION:

I have been fully informed about the procedures listed here. I am aware of what I will be asked to do and the benefits of my participation. I also understand the following statements:

I affirm that I am 18 years of age or older.

I have read and fully understand this consent form. I sign it freely and voluntarily. A copy of this form will be given to me. I hereby give permission for my participation in the study.

_____
_____

Signature of Participant
Date

I certify that I have personally explained this document before requesting that the participant sign it.

Robert M. Evenson

_____
_____

Signature of Researcher
Date

APPENDIX D

INTERVIEW GUIDE

Aerospace Executive Interview Guide

Purpose of Interview: I am conducting research that will use aerospace executives and senior level management perceptions and opinions on outsourcing in the aerospace industry in the State of Oklahoma. You have been selected to participate in the study by virtue of being a key aerospace stakeholder. I will be interviewing a number of stakeholders from government, and the private sector to obtain their unique perspectives on this important issue. The purpose of this study is to specifically identify problems, economic and social, associated with outsourcing of the Aerospace industry capability in the State of Oklahoma. In addition, the study will study the aerospace industries and governments perceptions of outsourcing. These perceptions will be analyzed in conjuncture with supported facts from both the aerospace industry and State documentation. Because the different segments previously mentioned have unique views, each has the ability to provide valuable insights that will contribute to well to this research with a high degree of practical applicability.

Comment: This interview is strictly voluntary and the information will be utilized in identifying perceptions, issues and concerns. All company and personal identifications will be held confidential and shredded at the conclusion of the study. This interview will be taped; however, the tape will also be destroyed at the end of the study. Thank you in advance for your participation.

Begin Interview

1. Please provide a brief description of your professional reasonability and the scope of your span of control.
    a. Annual Dollars and Staffing
    b. Number of sites and locations
2. Describe your company's major capabilities. Please be specific
3. Does your company have an outsourcing strategy? Please expound.
    a. What are the major factors that influence your decision?
    b. What capabilities are outsourced?
    c. Are you satisfied with results?
4. How often does your leadership evaluate your outsourcing options?

5. What are the determining factors in your outsourcing strategy?
6. What is your personal perception of outsourcing? Please explain?
    a. Has your perception changed from five years ago?
    b. Is your assessment of outsourcing based upon specific metrics or measurements? If so what are they? If not how is your outsourcing success or failure measured?
7. Has your company taken advantage of any legislative off sets? Be specific.
8. Does your company have a vision that includes outsourcing? Please explain whether positive or negative.
9. In your opinion, describe the benefits or detriments to outsourcing you see in the aerospace industry in Oklahoma.
10. Is there any other information you would like to share in the context of outsourcing that you believe would be helpful with this study?

End of Interview

APPENDIX E

AEROSPACE SURVEY

Impact from Outsourcing on the Aerospace Industry in the State of Oklahoma

----You may easily move from one item to the next by pressing the Tab key.----

1. Please indicate which classification best describes your current position.

- Executive
- Middle Manager
- First Level Manager
- Non-Management

2. Please indicate which job classification below most closely represents your current position.

- Program Management
- Technical
- Manufacturing
- Support Function (such as Finance, IT, or HR)

3. Approximately how many employees are in your organization or business unit?

- Less than 300
- 301-600
- 601-1,000
- 1,001-1,500
- 1,501-3,000
- Over 3,000

4. Approximately how much annual revenue does your Division or Business Unit generate? (in house labor, subcontracts, and material)?

- $0-$250M
- $251M-$500M
- $501M-$750M

- ○ $751M-$1,000M
- ○ Over $1,000M

5. Does your company have specific strategic goals and targets related to outsourcing?

- ○ Yes
- ○ No
- ○ Do not know

6. What type skills do you outsource today? **(Check all that are applicable)**

- ☐ Hands on manufacturing/maintenance
- ☐ Supplier (minor components)
- ☐ Supplier (major components)
- ☐ Information Technology (IT)
- ☐ System integration
- ☐ Engineering (Eng)
- ☐ Not applicable

7. What is your best estimate of the approximate percentage of the above skills that your company outsources today?

- ○ 0%-5%
- ○ 6%-25%
- ○ 26%-50%
- ○ 51%-75%
- ○ 76%-100%

8. Please rank your assessment of the "**most**" motivating factor from your company's position related to outsourcing. Rank in order from 1 to 5 with **1 being the most important** and **5 the least important** of the 5 factors.

Your Ranking	Motivating Factor
	Reduced labor costs
	Improved supplier quality
	Strategic partnering for growth
	Concentration on core capabilities

		Improved competitiveness

9. To what degree do you believe that your company's outsourcing strategy has an "**adverse**" effect on the local and state economies?

- Very Significant
- Significant
- Some
- Marginal
- None

10. How much adverse effect do you think your company's outsourcing strategy has on the state of Oklahoma's core aerospace capabilities?

- Very Significant
- Significant
- Some
- Marginal
- None

11. Does your company have a formal re-training program for personnel whose jobs have been outsourced?

- Yes
- No

12. As an employee/leader for your company, how much outsourcing do you you personally believe is critical to the long term success of your company?

- Significantly more
- More
- About right
- Less
- None

13. Has your company taken advantage of any Oklahoma legislative incentives? **If so, please identify all that apply.**

- Quality Jobs
- Prime Win

- [ ] 21st Century Quality Jobs
- [ ] Oklahoma Engineer Tax Credit

Comments: Please use this space for any comments that you would like to share with us concerning this study:

Thank you so much for taking time out of your busy day to assist with this study. Please click on Submit to send your responses.

Submit

VITA

Robert Mark Evenson

Candidate for the Degree of

Doctor of Education

Dissertation: "THE REGIONAL IMPACT FROM INSOURCING and OUTSOURCING ON THE AEROSPACE INDUSTRY OF OKLAHOMA – A MIXED METHOD STUDY"

Major Field: Applied Educational Studies with an Emphasis on Aviation and Space Science

Biographical:

Education:

- Bachelor of Science in accounting from the University of Florida, Gainesville, Florida, in May 1976; received
- Master of Science degree in Aviation Management from Oklahoma State University, Stillwater, Oklahoma in December 2008
- Completed the requirements for the Doctor of Education in Applied Educational Studies with an Emphasis on Aviation and Space Science at Oklahoma State University, Stillwater, Oklahoma, in May 2011, expected graduation Spring 2012.

Experience:

Robert (Rob) M. Evenson is the Chief Financial Officer (CFO) for the Defense and Government Services (D&GS) Division within the IDS Global Support and Services business sector. He is responsible for the Finance functions of the Boeing Aerospace Operations – OKC, Boeing Aerospace Operations – Fort Walton Beach, Boeing Services Company, Richardson, Texas, and Intelligence Surveillance and Reconnaissance Services,

St. Louis. The division provides low cost Engineering, Training, ISR, Range Services, and Logistical support to all the divisions of the Boeing Company. The D&GS Business Unit is a very complex matrixed organization, supporting Maintenance: Modifications and Upgrades (MM&U), Integrated Logistics (IL), Training Systems and Services (TSS), International Support Systems (ISS), and Advanced Logistics (ALS). Major programs include VC-25 (Air Force One), T-43, E-4B (National Airborne Command Post), B-1B, KC-135, B-52, F-14, FA-18, and SH-60, all Field Service Reps, Multiple ID/IQ rapid response contracts, and a variety of training support programs.

Professional Membership:

Member – National Association of Accountants
Member - American Institute of Certified Public Accountants (AICPA)
Member - Florida Institute of Certified Public Accountants (FICPA)
Board of Directors – Boeing Aerospace Operations, Inc.
Board of Directors – Boeing Services Company, Inc.
Board of Directors – Boeing Tapestry Solutions, Inc.
Executive Sponsor – Boeing American Indian Society (BAIS)

Name: Robert M. Evenson Date of Degree: May 2012

Institution: Oklahoma State University Location: Stillwater, Oklahoma

Title of Study: THE IMPACT FROM INSOURCING AND OUTSOURCING ON THE AEROSPACE INDUSTRY OF OKLAHOMA, A MIXED METHOD STUDY

Pages in Study: 174 Candidate for the Degree of Doctor of Education

Major Field: Applied Educational Studies with an Emphasis on Aviation and Space Science

Scope and Method of Study: The purpose of this mixed methods study was to address the perceptions of the impact from insourcing and outsourcing on the Aerospace Industry in Oklahoma. A triangulation mixed methods design was used. A broadly disseminated electronic survey coupled with executive interviews from the Oklahoma aerospace industry was conducted to gather data and social insight. These methods of gathering data were appropriate due to the nature of the study and the precise documentation required for identifying industry perceptions and trends. This study is significant in that it provides insight to Oklahoma aerospace company perceptions of insourcing and outsourcing strategies. It identifies attitudes and perceptions of both the company and aerospace workers understanding business strategies and the need for better communication throughout the organization and industry.

Findings and Conclusions: Consistent with the purpose of the study, the findings in this research provide a point of view of Oklahoma aerospace executives, managers, and non-managers related to their perceptions of insourcing and outsourcing within aerospace industry of Oklahoma. There is a significant disconnect between company senior leaders and the work force more closely associated with actual outsourcing perceptions. Generally senior leadership is aware of short term and long term strategies related to Oklahoma incentives and the benefits derived from quality business analysis related to insourcing and outsourcing. Awareness by the general workforce on both the negative and positive aspects are clearly not communicated and or understood throughout the organizations. It is clear that there are issues within the company's control that need to be addressed if continued business behavior includes an insourcing and outsourcing strategy. The study concludes that to significantly strengthen the aerospace industry in Oklahoma, improvements must be made in the following areas; internal communication plans, re-training programs, state transportation network, increase usage of state incentives, and address the diminishing resource issue within the aerospace industry. Continued research on the growing challenges is imperative to the aerospace industry of Oklahoma.

ADVISER'S APPROVAL: Dr. Mary Kutz