

Supply Chain Management Perspectives, Practices, and Strategies:

A Private and Public Sector Comparative Study

by

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ABSTRACT

This dissertation is an exploratory study that examined the differences in perceptions about supply chain management strategy, topics, tools, and techniques between procurement professionals in public and private sector organizations. This was accomplished through a survey of procurement professionals in a Fortune 500 company and a municipality in Arizona. The data were analyzed to understand how perceptions of supply chain management differed within this sample and whether the differences in perceptions were associated with formal education levels. Key findings indicate that for this or similar samples, public procurement respondents viewed their organizations' approach to supply chain management as a narrow function within purchasing while private sector respondents viewed their organization's approach to supply chain management as a strategic purchasing perspective that requires the coordination of cross functional areas. Second, public procurement respondents reported consistent and statistically significant lower levels of formal education than private sector respondents. Third, the supply chain management topics, tools, and techniques seem to be more important to private sector respondents than the public sector respondents. Finally, Respondents in both sectors recognize the importance of ethics and ethical behavior as an essential part of supply chain management.

DEDICATION

For my beautiful wife Carley and my five wonderful children, Denton, Tyler, Cason, Cooper, and Katy.

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But for the loving support of so many, this project would not have been possible. To Carley, my best friend and our family's foundation, thank you for your unconditional love, support, and determination. Your willingness to tend to the many family responsibilities during my doctoral program kept us all together. To my loving parents, Vic and Andrea, thank you for the unceasing love and encouragement throughout my doctoral program.

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CHAPTER 1

INTRODUCTION

This dissertation examined the differences in perceptions about supply chain management strategy, topics, tools, and techniques between procurement professionals in public and private sector organizations. This was accomplished through a survey of procurement professionals in a Fortune 500 company and a municipality in Arizona. The data were analyzed to understand how perceptions of supply chain management differed and whether the differences in perceptions were associated with formal education levels. In today's global economy of competition in private organizations and ever-shrinking budgets in public organizations, procurement strategy is becoming increasingly important. Financial activities of public organizations are estimated to be as great as 10-30% of the GNP in the US and as much as 14-20% of the GDP in Europe with goods and service costs accounting for more than 60% of the total costs (Callendar & Matthews, 2000; Degraeve, Roodhooft & van Doveren, 2005; Mori & Doni, 2010). Consequently, the selection and successful implementation of sourcing strategy can lead to, among other things, reduced budgetary pressure, increased value for money, significant cost savings, and the overall more effective management of public funds.

Strategy is defined as a course of decisions made by organizations that create and reveal core objectives, purposes, and goals. For purposes of this study, strategy is defined as the creation of a unique and valuable position, involving a different set of activities (Porter, 1996). It is a theory of business based on four basic functions. First, it charts a course of action for the organization through the environment. Strategy promotes coordination and alignment within the organization. Effective strategy provides

mechanisms for people to differentiate the organization and it reduces ambiguity and provides order (Mintzerg, Ahlstrand, and Lample, 2005). Further, an organization's strategy guides the creation of the policies and plans for achieving those goals and enables the definition of the organization's scope and business pursuits (Andrews, 1971).

Strategy determines how organizations engage in and interact with the global market. Optimally, strategy coordinates resources that yield a core and distinct competence, differentiation and ultimately, a competitive advantage. The effect of successful sourcing strategy is a clear framework to coordinate procurement activity resulting in maximum savings for public organizations yielding greater efficiency and effectiveness in procurement activities.

Strategy is required for public organizations to be successful. Supply chain management (SCM) began as a sourcing strategy but quickly gained prominence in the academic literature and in practice and has grown into a business discipline similar to management, marketing, or operations. In fact, supply chain management has become such a popular discipline that it is difficult to pick up a manufacturing, distribution, marketing, customer management or transportation periodical without finding an article about supply chain management or supply chain management related topics (Ross, 1998). Supply chain management represents a significant shift in the way that organizations function, including changes in the integration and coordination of supply, demand, and relationships in order to satisfy customers in an effective and profitable manner both in private and public organizations.

Forester (1958) described a basic tenet of supply chain management decades before it came to prominence as a field of study and practice. To him, management was

on the verge of a major breakthrough in understanding how industrial company success depends on the interactions among the flows of information, materials, money, manpower, and capital equipment. The way these five flow systems interlock to amplify one another and to cause change and fluctuation will form the basis for anticipating the effects of decisions, policies, public organizational forms, and investment choices. (Forrester 1958, p. 37).

Forrester's theory of distribution management preceded supply chain management in that he recognized the need for interwoven organizational relationships across business functions. Forrester (1958) predicted, "there will come general recognition of the advantage enjoyed by the pioneering management who have been the first to improve their understanding of the interrelationships between separate company functions and between the company and its markets, its industry, and the national economy" (p. 52). Forty years before its inception, Forrester's theory identified key management issues and illustrated the dynamics of factors associated with the phenomenon that would eventually be referred to in business literature as supply chain management (Mentzer et al., 2001).

Understanding Supply Chain Management

Private sector purchasing strategy has been redefined as supply chain management, a competitive strategy for integrating suppliers and customers with the objective of improving responsiveness and flexibility of private organizations (Gunasekaran, 2004; McCue and Pitzer, 2005). For purposes of this paper, the vision of the Supply Chain Management function, in public and private organizations, is to efficiently manage the forecast, procurement and delivery of goods and services through

the supply chain in a cost effective manner. Supply chain management has become an effective source of competitive advantage for private sector organizations. Ironically, supply chain management is grounded on a paradigm of strategic management that emphasizes the development of collaborative relationships to gain competitive advantage (Dyer, 2000). Collaboration enables combination of perspectives, skills, and resources between public organizations to enhance strategic differentiation and competitive advantage (Lasker, Weiss & Miller, 2001). Though collaborations may differ in structure or form, scope or objective, or in partnership, they all share a common motivation; the appreciation that in today's environment many objectives related to SCM collaboration are not attainable without a collaborative strategy (Lasker, Weiss & Miller, 2001; Zuckerman, Kaluzny & Ricketts, 1995).

In the private sector, supply chain management drives improved performance by maximizing internal and external capabilities to create a seamlessly coordinated supply chain. Within the collaborative paradigm the performance of all members in the supply chain contribute to the overall success or failure of the entire supply chain. The supply chain management network of interdependent relationships is built through strategic collaboration with the goal of mutual benefits (Ahuja, 2000).

Though a salient governmental function, procurement has been a neglected area of academic research (Thai, 2001). It is through procurement that federal, state, county, and local governments undertake public works, build roads, and provide healthcare, education, and public order and safety (Erridge & McIlroy, 2002). In the public sector, procurement is also utilized as an important tool for achieving economic, political, social, and other objectives (Arrowsmith, 1998). Included are provisions of no or low cost public

goods and services, the development of local contractors and manufacturers by allowing local buyers to build in a margin of preference for local contractors and manufacturers, and advance legislation and conceptions of social justice through market regulation. Finally, public sector procurement serves a broader range of stakeholders, places greater emphasis on accountability and transparency, and allows little or no flexibility for negotiation.

The effect of the layers of additional scope and limited ability to negotiate is the creation of procurement inefficiencies. These inefficiencies often lead to increased spending through increased administrative demands through additional oversight, decentralization of work across multiple suppliers, and time delays given legislative and legal requirements. All of which result in the inefficient delivery of goods and services. Though supply chain management has not been widely incorporated in the public sector, an opportunity exists for public sector organizations to do so as the core supply chain management objective, to effectively and efficiently manage the acquisition of material, the production and distribution of goods or services to customers (or citizens), is the same across sectors. However, consideration must be given to the varying environmental and contextual differences in the public sector before attempting to implement supply chain management strategies in the public sector.

The performance of public organization procurement activities represents a significant part of an historical procurement challenge confronting American public administrators - balancing the demands of effectiveness and equality. Public administrators must balance the achievement of social goals and the need for fiscal efficiency. Pressures on politicians and public administrators for increased efficiency in

the use of public resources and accomplishment of social goals have mounted in recent years, and increasing spending from tax revenue drives this concern. Tax payers expect public administrators to provide ‘a bigger bang for the buck,’ and to enable more efficient spending to provide more with less.

A great potential exists for the public sector in the form of supply chain management and the leveraging, combining, and capitalizing on complementary strengths and capabilities in procurement activities (Alter & Hage, 1993; Zuckerman, Kaluzny & Ricketts, 1995). A number of authors have examined private sector application of supply chain management for application in the public sector (Johnson, Leenders, & McCue, 2003; Murray, 2007; Thai, 2001). They found that the job skill sets and functions of purchasing professionals, specifically job duties and skill sets attributes pointed to more professionalism and broader business skills for purchasing agents in private organizations. Additionally, they found that implementation of supply chain management in the public sector would be challenging given differences in their fundamental goals and practices (Harland, Gibbs and Sutton, 2000; Johnson, Leenders and Fearon, 1998a; Johnson, Leenders, and Fearon, 1998b; Leenders and Johnson, 2000; McCue and Pitzer, 2005; Telgen, Zomer and de Boer, 1997).

Larson (2009) noted that these fundamental differences exist in reporting structure, regulating bodies, funding sources and operating motives. Public organizations’ professional activities are governed by elected executives, legislative bodies, laws, and untold numbers of state and federal regulations. Private organization professionals are guided by boards of directors, managers, business plans and purchasing policies. Funding sources in public organizations carry with them innate implications regarding their use.

They draw revenue from taxes and fees that must be audited and spending decisions must be transparent. Thus, these funds must be used for the public good - to serve the public. Private organizations generate revenue through the sale of goods and procurement success is measured by cost savings and/or profits. They face no external requirements when assessing how procurement funds are used. Professionals in public organizations must consider the aspects of procurement, discussed earlier, which are beyond profit. The scope of SCM is broader than simply procuring required goods and services by the most cost efficient means. SCM Collaborative Strategy Model incorporates a number of other goals, such as the development of its local economy and small business therein, job creation, promotion of open equitable markets, and strict adherence to clear procedures, fair competition, and transparency (Telgen, Zomer & de Boer, 1997).

Notwithstanding the great potential that private sector strategy and practices hold for public procurement, a careful analysis of the differences between public and private sector procurement is essential before implementation (Reed, Bowman & Knipper, 2005). Consequently, the purpose of this research is to compare how practitioners in private and public sector view supply chain management strategy, topics, tools and techniques and the factors that influence them in private and public sector purchasing organizations.

Research Questions

The general aim of this research is to assess the fundamental differences that exist in perceptions of supply chain management strategy, topics, tools, and techniques

between procurement professionals in the public and private sectors. These issues can be combined and addressed by answering the following six research questions.

RQ1: Do public and private procurement professionals have different perceptions of their organizations' approach to SCM?

RQ2: Do public and private procurement professionals have different perspectives regarding the tactical and/or strategic scope of their jobs?

RQ3: Are there differences in the formal education between public and private procurement professionals?

RQ4: Is there a relationship between formal education and the perceptions of the tactical and/or strategic scope of their jobs?

RQ5: Are there differences in the perceptions of the importance of various topics, tools, and techniques for SCM between public and private procurement professionals?

RQ6: Are there differences in the perception of ethical practices between public and private procurement professionals?

This study surveyed procurement professionals from a Fortune 500 company in the southwest United States, and an Arizona municipal government. Invitations to participate in the survey were e-mailed with a hyperlink to the online questionnaire.

Significance of the Study

The findings of this study are important for several reasons and are applicable to several groups. First, SCM is a big business with significant impact to local, state, national, and international economies. Given the global financial challenges confronting

government at all levels during the past decade, the efficient handling of public spending has been a political and managerial concern, as well as a challenge for SCM professionals (Thai, 2005). Greater emphasis is being placed on "how" in addition to "how much" money is being spent. Public sector procurement professionals are beginning to adopt best known supply chain management methods.

Larson (2009) reported that Canadian procurement professionals are streamlining offerings available to procurement agencies, considering quality and other total cost factors beyond purchase price, examining order cycle time for reduction opportunities and eliminating waste in negotiation by using electronic tools. The results of this research will help to identify the requisite expanded skill sets for SCM Collaborative Strategy Model professionals to achieve greater efficiency in public procurement. This research will help SCM Collaborative Strategy Model professionals to move beyond purchasing and into strategic SCM. However, to make this move, public purchasing professionals must understand and apply the tools, techniques, and strategies that are included in SCM strategy (Larson, 2009).

Second, as an exploratory study, the information generated here not only breaks new ground by examining the practicality of prevailing wisdom in the field, but can be used to identify new questions for further research. The findings of this research will present the differences in procurement perceptions between public and private purchasing professionals and will discuss some of the considerations related to the differences. This study will provide direction for future inquiry into the specific skills and strategies from the private organizations that can be adopted by the public organizations as public

administrators shift their procurement focus from tactical procurement to strategic per the SCM Collaborative Model.

Finally, this research will help to determine the differences in the education and training of public and private organizations purchasing professionals. Colleges and universities globally are building new programs in SCM. These programs are almost exclusively found in business schools that target the private organizations. Research indicates that procurement and SCM courses and specializations are largely absent from public administration programs in the United States. This research will help to highlight surface educational needs, differences in education and training between public and private organizations' procurement professionals. As a result, educators in public administration can incorporate procurement and SCM education into their programs to ensure that public administration students receive the education required to enable public organizations' procurement reform and strengthen the push for more strategic purchasing.

Following this introduction, this dissertation is organized into four chapters. Chapter Two reviews the literature and discusses the theoretical and practical foundation of the study. It identifies traditional and theoretical perspectives on public SCM Collaborative Strategy Model and SCM. This chapter also discusses the factors that influence procurement in public and private organizations. Chapter Three describes the methodology, including data collection, measurement of variables, and the development of a scale to measure willingness to purchase or contribute. After data collection and analysis, Chapter Four presents findings from the analysis of data. Chapter Five discusses conclusions and implications of the dissertation. It also outlines limitations of the study and identifies directions for future research.

CHAPTER 2

LITERATURE REVIEW

Strategy

A long standing challenge facing public administrators is balancing the demands of effectiveness and equality in American Government (Okun 1975). Nowhere is this conflict more evident than in public procurement, a field in which public administrators must balance the achievement of social goals and the need for fiscal efficiency. The performance of the public sector in procurement activities and provision of public services represents a significant part of this concern. The relative size of the public sector spending from tax revenue drives this concern. Pressures on the public sector for increased efficiency in the use of public resources have mounted in recent years. This is due in part to rising costs, increasing awareness and demands from citizens and business, and globalization pressures (Vonortas, 2011). Taxpayers expect public sector administrators to provide “a bigger bang for the buck” to enable more efficient spending such that public administrators provide more with less. Public procurement is no longer a tactical endeavor. Rather, it is increasingly becoming a strategic function in which success in equality and efficiency in public procurement are closely tied to organizational strategy.

Strategy is required for organizations to be successful. In a study conducted in the UK, the National Audit Office and the Audit Commission (2010) concluded that the public value for money would be improved if public organizations worked together strategically. The effect would be a clear framework to coordinate public sector

procurement activity resulting in the maximization of savings for the entire public sector, yielding greater efficiency and effectiveness in procurement activities.

Corporate strategy has been defined in the current literature as a course of decisions made by an organization that create and reveal its core objectives, purposes, and goals. An organization's strategy produces the policies and plans for achieving those goals and enables the definition of the organization's scope of business pursuits (Andrews, 1971). Further, strategy determines how an organization engages in and interacts with the global market. Optimally, the corporate strategy coordinates resources that yield a core and distinct competence, differentiation and ultimately, a strategic advantage.

In early academic research, competitive advantage was thought to be a complex concept highly dependent on active, superior leadership (Andrews, 1971; Chandler, 1962; Selznick, 1957). As an academic discipline and subject of scientific inquiry, the study of strategy through the 1960s and 1970s was more or less a study of the actions of executives or "leaders" in organizations. Strategy implementation was founded on the assumption that if leaders took appropriate and requisite actions, it would lead to an economic advantage. Thus, successful strategy was believed to be highly dependent on leadership - organizations with better leaders would make better choices and would ultimately do better than their competitors (Cockburn, Henderson & Stern, 2000). Leadership driven strategy was the prominent paradigm until Porter (1980) published the five forces model (Porter, 1980). Porter shifted the focus of strategy research outward toward the analysis of the organization's microeconomic environment. Porter introduced a new theory of strategy that was based on a set of tools for understanding exactly why

some organizations were likely to be more profitable than others (Porter, 1980). In Porter's model, the five forces that personify the nature of competition in any industry are, the threat of new potential entrants, the treat of substitute product or services, the bargaining power of suppliers, the bargaining power of buyers, and the rivalry among current competitors. Porter (1980) believed that the potential of these forces differs from industry to industry. These forces jointly determine the profitability of industry because they shape the prices that can be charged, the costs that can be borne, and the investment required to compete in the industry. Thus management should incorporate the five factors framework to determine the competitive structure of their industry.

Cockburn, Henderson & Stern (2000) described his 'five forces' analysis model as a “structural map of the underlying economics of an industry: [are the five points clear] a map of the degree to which competitors, entrants, substitutes, and vertical bargaining power exert pressure on the margins of an organization in a particular industry” (p. 1126).

They describe optimal conditions for success or profitability in an industry in which substantial returns to scale exist with multiple opportunities for differentiation. This occurs in a perfectly competitive market that produces a product for which substitutes are very unsatisfactory. Contrast this with an organization operating in an industry with easy entry, and a large number of similarly sized organizations that are reliant on a few large suppliers and that are selling commodity products to a few large buyers (Cockburn, Henderson & Stern, 2000).

Porter's work drove the literature that filled up with 'five force analyses', for creating strategy. These factors were used almost prescriptively; build barriers to entry, structure rivalry along these lines. If done correctly, the enacting organization would

become more profitable. Interestingly, the five forces literature is rooted in the original leadership driven strategy paradigm. Managers who understand the implications of five forces structural analysis and who are competent and able to make the commitments required are likely to outperform those who do not (Ghemawat, 1991; Shapiro and Varian, 1998).

Andrews (1971) described strategy formulation as an assessment of organizational competencies and resources. Organizations whose competencies and resources exceed those of, or are distinct from their competition, may hold a competitive advantage, provided that they are timed appropriately to environmental opportunities (Andrews, 1971; Thompson and Strickland, 1990). Barney (1991) wrote that an organization has a competitive advantage when it is implementing a value creating strategy that is not currently being implemented by any other competitive or potentially competitive organization.

A sustained competitive advantage extends the previous scenario as it is the result of the implementation of a strategy that competing organizations are not implementing, are unable to implement, or have failed to duplicate in pursuit of the benefit of the strategy (Barney, 1991; Rumelt, 1984). This is not to say that the competitive advantage will be sustained indefinitely, rather that it will not be eliminated by the duplication efforts of competing organizations. Environmental factors exist that may make something worthless to an organization that was previously valuable and thus eliminate the competitive advantage (Barney, 1991). This occurs frequently in the technology industry. For example, in 2003 RIM introduced the Blackberry, the first 'smart phone' that gave instant access to email, and by 2005 they owned the market with sales topping ten billion

dollars. In 2007 Apple launched the first iPhone that gave instant access to email and web browsing and countless “apps” that users could download – many for free. The email technology that made RIM so profitable in 2005 was rendered valueless by Apple in 2007 and RIM has yet to recover the lost market share.

Supply Chain Management

Supply chain management is the increasingly popular terminology used to describe the purchasing function in the private sector. The term supply chain management (SCM) was originally introduced by consultants in the early 1980s. Since then supply chain management theory has gained significant attention both in academic literature and private sector firms (Chen & Paulraj, 2004). Supply chain management (SCM) has gained significance as a manufacturing paradigm for improving organizational competitiveness and has emerged as a new business discipline in the academic world and as a legitimate source of competitive advantage in the global market. Supply chain management theory and research is rooted in a number of fields such as purchasing and supply, logistics and transportation, operations management, marketing, organizational theory, management information systems, and strategic management. Further, it has been used to help describe and explain the planning and control of the flow of material and information as well as the logistics activities within and between organizations (Fisher, 1997).

Supply chain management was inspired by many concepts including (1) the quality revolution, (2) notions of materials management and integrated logistics, (3) a growing interest in industrial markets and networks, (4) the notion of increased focus,

and (5) influential industry-specific studies. Supply chain management has become such a popular concept that it is difficult to pick up a manufacturing, distribution, marketing, customer management or transportation periodical without finding an article about supply chain management or supply chain management related topics (Ross, 1998).

Supply chain management and collaborative advantage.

Supply chain management theory is grounded on a paradigm of strategic management theory that emphasizes the development of “collaborative advantage” as opposed to “competitive advantage” (Dyer, 2000). Within the collaborative paradigm, the private sector is composed of a network of interdependent relationships built through strategic collaboration with the goal of mutual benefits (Ahuja, 2000). Among the significant components of supply chain management theory is the buyer–supplier relationship. The buyer–supplier dyad is of upmost importance to the effective management of the supply chain. Essential aspects of the buyer–supplier relationship include supply base reduction, long-term relationships, communication, cross-functional teams, and supplier involvement (Chen & Paulraj, 2004). The development of strong, long-term relationships between buyer and supplier is often a difficult, though crucial task. Influence on this dyad is exerted by a number of forces including successful management of competing priorities, adoption of strategic initiatives, support or lack thereof from senior management, supply chain strategy and execution, and organizational structure.

Gray (1985) defined collaboration as “a process through which parties who see different aspects of a problem can explore constructively their differences and search for solutions

beyond their own limited vision of what is possible.” Others have described collaboration as a process that enables independent individuals and organizations to combine their human and material resources so they can accomplish objectives that are not otherwise achievable (Kanter, 1994; Zuckerman, Kaluzny & Ricketts 1995). Lasker, Wiess & Miller (2001) described collaboration in terms of the creation of synergy between organizations. They described this phenomenon as the ability to combine the perspectives, resources, and skills of a group of people or organizations. By combining the individual perspectives, resources and skills of the collaborating entities, the group creates something new and valuable together – a whole that is greater than the sum of its parts (Shannon, 1998; Taylor-Powell, Rossing & Geran, 1998). Collaboration may also empower comprehensive thinking. Separately, when dealing with challenges, organizations may see only part of the problem; however, when organizations collaborate, they can construct a more holistic view – one that enhances the quality of solutions by identifying and promoting broader analyses of problems and opportunities (Gray, 1986).

Collaboration is the result of entities engaging in shared work when the organizations realize that the efforts of each working alone is not sufficient to resolve common problems (Barratt and Oliveira, 2001; Corbeti et al., 1999; Huxham, 1996; Matopoulos et al., 2007; Wagner et al., 2002). To the extent that supply chain partners integrate and act as a homogenous entity, there is the possibility for an improvement in the flow of goods and services, finances and information ultimately creating improved performance (Simatupang and Sridharan, 2004). Simatupang and Sridharan (2002, 2005) wrote that the key dimensions of collaborative relationships are information sharing,

incentive alignment and decision synchronization. Information sharing involves obtaining and disseminating timely and appropriate information to supply chain members in order to enable informed decision making. The focus of decision synchronization is on decisions shared between organizations including decisions in supply chain activities and operations. Incentive alignment refers to the extent to which members of supply chain share costs, risks and benefits. Theoretically, incentive alignment will entice organizations to participate such that costs, risks, and benefits are shared between the participating members in the collaborative relationships along the supply chain (Simatupang and Sridharan, 2002). In this way each organization shares in the benefits and costs and organization supply chain performance improves.

Huxam (1993) also discussed collaborative advantage in terms of the creation of synergy between collaborating organizations. Collaborative advantage is created when organizations achieve a goal or an objective through collaboration that neither organization could have produced on its own. Collaboration can be a source of strategic advantage because it does not occur automatically — far from it. Indeed, several barriers impede collaboration within complex multiunit organizations. And in order to overcome those barriers, organizations will have to develop distinct organizing capabilities that cannot be easily imitated and be wary of four common pitfalls. These pitfalls to collaborative advantage are repetition, omission, divergence and counter production (Huxam, 1993).

Avoidance of repetition has to do with the efficient use of resources. Collaborating organizations are often involved in partially overlapping activities and may be concerned with similar strategic or tactical activities or functions. If such repetition is

unavoidable, effective collaboration requires that the organizations work together to coordinate and build upon collective contributions rather than working in isolation. The second pitfall collaborating organizations must avoid is omission. Avoidance of omission is centered on ensuring that key activities are not overlooked by collaborating organizations. Omission is likely to occur if the activity has not been identified as important, or it could be the responsibility of more than one organization so that each assumes the other is doing it (Huxam, 1993).

Huxam (1993) wrote that while avoidance of repetition has to do with the efficient use of resources, avoidance of divergence is focused on the effective use of resources. Avoiding this pitfall is accomplished when resources are effectively used toward the accomplishment of specific, common goals rather than diluted across a range of activities. Similarly, counter production is concerned with the use of resources – though the focus is on the coordination of activities. Organizations working in isolation may mistakenly undertake activities which conflict with those taken by others. The result of this error may have a cancelling effect on the efforts of the collaborating organizations, or worse, may actually negate the efforts of each, leaving both worse off than they were in the first place.

In practice, if organizations are not strategic in their collaborations, they run the risk of falling into one or more of these traps. Thus it is clear that the avoidance of these pitfalls is important in the creation of collaborative advantage. Collaborations done without strategic guidance are likely to weaken the value of each individual organization's efforts and reduce the benefits derived by both organizations. However, if

these pitfalls are avoided, strategic collaborative efforts may create the conditions that lead to attainment of collaborative advantage (Huxam 1993).

Defining supply chain management.

Stock and Boyer (2008) argued that defining supply chain management is significant for researchers and practitioners. First, without an inclusive or encompassing definition, it will be difficult for researchers to develop continuity in supply chain theory research, including the definition of and testing of relationships between components of SCM, and the development of a coherent stream of research that “builds” on its past (Stock & Boyer, 2008). Second, Stock and Boyer (2008) argued that supply chain management research will diverge and extend in various directions rather than build upon itself without the adoption of an agreed upon unchanging definition. For supply chain management practitioners, the variation in definition creates difficulty to create the appropriate combination of functions and processes. Rather, research and practice alike are confounded if there are no agreed upon criteria that defines what business practices, processes and activities are included in the definition of supply chain management. For example, there is relative agreement that purchasing and logistics are within the supply chain management umbrella, but there is less certainty about whether or not accounting and finance are linked to supply chain management. Further, the practice of benchmarking across companies and industries is more difficult without a common definition given the differences that exist (Stock & Boyer, 2008).

For the purposes of this dissertation, supply chain management strategy is defined as the management of a network of relationships within an organization and between

interdependent organizations and business units consisting of material suppliers, purchasing, production facilities, logistics, marketing, and related systems that facilitate the forward and reverse flow of materials, services, finances and information from the original producer to the final customer with the benefits of adding value, maximizing profitability through efficiencies, and achieving customer satisfaction (Stock & Boyer, 2008).

Supply chain management (SCM) represents a significant shift in the way that organizations function including changes in the integration and coordination of supply, demand and relationships in order to satisfy customers in an effective and profitable manner both in the private and public sectors. Forrester (1958) described a basic tenet of supply chain management decades before it came to prominence as a field of study and practice.

Management is on the verge of a major breakthrough in understanding how industrial company success depends on the interactions between the flows of information, materials, money, manpower, and capital equipment. The way these five flow systems interlock to amplify one another and to cause change and fluctuation will form the basis for anticipating the effects of decisions, policies, organizational forms, and investment choices. (Forrester 1958, p. 37).

Since the introduction of Forrester's theory, much has been written about supply chain management strategy. Specifically, what it is and how it relates to similar concepts such as purchasing, procurement, and sourcing as well as materials management and logistics. The definitions of purchasing, procurement, sourcing, and supply chain management are frequently differentiated by operational activities. Purchasing often

includes operational activities executed by a single department. Tempelmeier (1995) defined purchasing as a contract centered without any concern for logistical activity or the movement of goods. Activities begin with needs identification and end with some form of tracking purchasing activities. This is perhaps the oldest, most traditional “purchasing” role (Kaufmann, 2002).

Tempelmeier (1995) defined procurement as all activities aiming at supplying the company with needed inputs for use in manufacturing or production. Procurement is traditionally considered broader in scope and includes activities with greater strategic relevance. Rather, procurement includes all purchasing activities and tasks that are more strategic in nature (Kaufmann, 2002). These terms are often used interchangeably and are commonly defined as the functional activities that refer to the day-to-day management of material flows and information.

Sourcing was defined by Monczka, Trent & Handfield (1998) as “a cross functional process that involves members of the organization other than those who work in the purchasing department. The sourcing management team may include members from engineering, quality, design, manufacturing, marketing, accounting, strategic planning and other departments (p. 4). Similarly, Kaufmann (1995) defined sourcing as “an integrative management approach to designing all supplier relations in the sense of a total relationship management” (p 277).

Organizations must understand the differences between these distinct yet related functions, both in definition and in operation. Supply chain management is the overarching strategy incorporated to manage all of the activities described in the various functions above. It includes both strategic and operational activities and incorporates all

processes of supplying an organization with direct and indirect materials, services, rights and capital equipment from sources external to the organization. It is a foundation for collaborative procurement efforts between organizations and an enabler of competitive differentiation and advantage.

Supply Chain Management and Public Procurement

Public procurement is the acquisition of goods and services for consumption in the public sector (Erridge, 2002; Weiss, 1993). Public procurement is the vehicle through which governments of all sizes function. Public procurement fuels public works, drives capital infrastructure projects such as creation and maintenance of roads and cares for health, and education and ensures public order. It incorporates a diversity of other goals such as the development of a sound local supply base, stimulating new concepts and developments such as electronic tendering and open markets and setting examples on clear procedures, fair competition, and environmental issues (Telgen, Zomer & de Boer, 1997). A core principle governing public procurement is effectiveness – value for money. At the core of the value for money concept are the principles of efficiency, competition, accountability and transparency, ethics, and industry development. Consideration of issues such as client satisfaction, the public interest, fair play, honesty, justice, and equity allow public service agencies to maximize overall "value for money" for citizens (Raymond, 2008).

Public procurement importance.

The importance of the procurement function in government has been steadily increasing as the relative size of the government sector as a percentage of gross national product has increased (Erridge & McLlroy, 2002). Research indicates that the total financial activities of the public sector may be as great as 10-30% of the GNP in the US and as much as 14-20% of the GDP in Europe (Callendar & Matthews 2000; Mori & Doni, 2010). Consequently, the selection of effective procurement strategies can lead to, among other things, significant cost savings.

Thai (2005) argued that public procurement is an important function of government for several reasons. First, he argued that the sheer magnitude of procurement outlays has a great impact on the economy and needs to be well managed (Thai, 2005). Scoping the amount is difficult, but research has shown that estimates of the financial activities of the public sector are believed to be in the order of 10% – 30% of GNP (Callender & Mathews, 2000). Clearly, the efficient handling of this amount of spending has been a policy and management concern as well as a challenge for public procurement practitioners (Thai, 2005).

Second, the public procurement scope extends beyond the acquisition of goods and services and in fact has been utilized as an important tool for achieving economic, social, and other objectives (Arrowsmith, 1998; Thai, 2001). Third, public procurement has been perceived as an area of waste and corruption. Corruption and bribes are widespread in government contracts. Finally, public procurement cannot be perceived as merely a "clerical routine" given the aforementioned challenges and many others. To effectively face the challenges above and others, including rapid developments in

technology, procurement practitioners must be involved in strategic procurement planning (Hinson & McCue, 2004).

Seemingly irreconcilable competing priorities create a dilemma for public procurement. For most public procurement purchases, a key consideration is the perceived commercial value to taxpayers., Like consumers, tax payers want more publically provided goods and services for less. This is combined with greater demands on public expenditure, making cost reductions along with quality improvement the stated aims of public procurement (Raymond, 2008). This dilemma creates the requirements for reform to the procurement strategies in public procurement discussed below.

Public procurement evolution.

Public procurement continues to evolve conceptually and organizationally. The evolution has accelerated over the last twenty years as governments at all levels face tremendous pressure to “do more with less” (Thai, 2006). Governments of municipalities and nations of all socio economic levels are forced to deal with ever increasing budget constraints, government downsizing, increased transparency demands from the public procurement activities and increasing concerns regarding procurement efficiency, fairness and equity (Thai, 2005). Further complicating this already demanding environment, public procurement professionals face an increasingly complex environment laden with rapidly emerging technologies, limitless product choice, environmental or green procurement concerns, and bodies regulating the complexities of international and local trading agreements. Finally, and perhaps most relevant to this work is the struggle between the use of public procurement as a vehicle to achieve social

goals and deliver more for less and maintain the highest levels of efficiency in spending (Thai, 2005). Public and private procurement professionals are tasked with maximum efficiency in their purchasing activities. However, private procurement professionals are not obligated to ensure that small businesses in their geographic area are healthy. No concern exists for under-represented small business owners nor are they concerned with providing services to the general public through procurement activities. Thus, public procurement professionals strive to do the most with their procurement activities while also helping to maintain the health of small businesses in their area.

Public administrators face a seemingly irreconcilable dilemma in deciding between competing priorities for public consumption. Transparency and accountability to taxpaying consumers, who want more for less, are key commercial aspects in public procurement. Further complicating the field is the growing requirement in public procurement, as in private procurement, for a simultaneous increase in quality and a decrease in cost. A second challenge facing public administrators is to use public procurement as a vehicle to support local economic development while simultaneously ensuring efficiency savings through open competition and compliance to transparency regulations.

Not surprisingly, this environment has driven complexity in public procurement activities that has not been experienced previously. Public procurement professionals are forced to navigate this broad range of issues, including managing the tension between competing socioeconomic objectives, navigating the requirements of fairness, equity and transparency, maintaining an ongoing competition and adopting and utilizing technology advances to increase procurement efficiency (Thai, 2005). In the face of these demands a

new strategic collaborative approach is growing in popularity. Supporters argue that a more strategic collaborative approach is the most effective way of achieving efficiency and effectiveness (Lamming, 1993; Macbeth and Ferguson, 1994).

Public procurement policy has traditionally approached purchasing from the competitive approach. HM Treasury guidance in the UK requires that "goods and services should be acquired by competition unless there are convincing reasons to the contrary" (Treasury, 1988) and that "competition is the best guarantee of quality and value for money" (Chancellor of the Exchequer, 1991). From the "more for less" and accountability to the taxpayer paradigm, The European Commission (1996) stated that "the objective of the Union's public procurement policy is to achieve fair and open competition ... to achieve value for money for taxpayers." Economic efficiency is the driver of these types of policies. For decades, supporters of the competitive purchasing paradigm have argued that the creation of competition in purchasing is the best way to achieve greater economic efficiency through reductions in costs. To trace the strategy to finality, the cost savings yield savings and thus maximize operating efficiency and the result is fair and equitable use of taxpayers' money. Anecdotal evidence of successful competitive contracting and recent work in auction theory suggest that theoretically, competitive purchasing leads to increased economic efficiency (Domberger and Jensen, 1997; Meyer, 1998).

Notwithstanding the aforementioned regarding competitive purchasing strategy, a dilemma exists for policy makers. Success reported from private sector models support nontraditional procurement strategies such as the use of pro-active contract management, total cost of ownership and the strategy for optimal combination of competition and co-

operation resulting in a more collaborative approach with suppliers and public procurement (Erridge & McLroy, 2002). Proponents of collaborative procurement believe that the adoption of supply chain management strategy will lead to improved supply networks and changed perceptions on the performance of public procurement. From this perspective, collaboration between buyer and supplier will reduce direct procurement costs, identify inefficiencies in the supply chain, and lead to improved supply market intelligence and a better use of resources. All of which will lead to commercial gains without competition.

Supply Chain Management and the Private Sector

Private sector procurement has evolved from the acquisition of goods and services to an indepth and complicated management philosophy referred to as supply chain management. Supply chain management incorporates all aspects of the production process, or the supply chain, from the acquisition of raw goods to the delivery of finished products or services. The supply chain encompasses all activities associated with the flow and transformation of goods from raw materials stage through to the end user, as well as the associated information flows. Material and information flow both up and down the supply chain. Supply chain management (SCM) is the integration of these activities through improved supply chain relationships to achieve a sustainable competitive advantage (Seuring & Muller, 2008).

Practitioners and academics alike have addressed the concept of supply chain management (SCM) as an extension of logistics, the same as logistics, or as an all-encompassing approach to business integration. The current literature demonstrates that

these conceptualizations are inadequate and clearly identify the need for some level of strategic coordination of activities and processes within and between organizations in the supply chain that extends beyond logistics (Cooper, Lambert & Pagh, 1997). Over the last two decades, academics and practitioners have developed a number of strategies for effective supply chain management. These are discussed in detail below.

Public and Private Supply Chain Management Topics, Tools and Techniques

The trend of looking to the private sector for procurement strategy and practices by which public sector agencies might transform procurement processes is becoming pervasive in the current literature. However, a number of authors have argued that despite the interest in organizational issues in procurement, the extant literature has failed to identify meaningful differences between the two groups. Specifically, they argued that absent from the literature is research that identifies similarities and differences in organizational procurement strategy and practices between public and private sector organizations (Hawkin, Gravier & Powley, 2011; Johnson, Leenders & McCue, 2003; McCue & Pitzer, 2008; Muller, 1991; Zhang, Viswanathan & Henke, 2010). Even though a great potential exists in the application of private sector supply chain management strategy and practices in public procurement, it is necessary to explore, understand, and comprehend the differences in application between the public and private sectors before implementation (Reed, Bowman & Knipper, 2005).

McCue and Pitzer (2005) argued that the public and private procurement professions “are essentially different in their fundamental goals and practices (p 8).” While public sector practitioners are governed by legislative bodies, laws, and

regulations, private sector practitioners are guided by boards of directors and business plans. Public agencies draw revenues from taxes and fees, and use these funds to serve the public. On the other hand, unlike their public sector counterparts, these private firms have profit-making motives and generate revenue through sales of goods and services. McCue and Pitzer (2005) also suggested that private sector purchasing has been redefined in terms of strategic SCM. However, constrained by rules and regulations, the public sector remains unable to develop strategic supply chain partnerships. Larson (2009) argued that there are fundamental differences in how public and private procurement professionals view supply chain management tools, techniques, and practices. He concluded that to effect change, procurement professionals for the Government of Canada need more knowledge about SCM, an expanded set of skills in negotiation, developing partnerships and using inter-organizational information systems to successfully incorporate supply chain management strategy. Enhancing these skills will promote change and eliminate historic problems such as inadequate planning and forecasting, poor communication between departments involved in procurement of materials equipment and poor control of performance measurement (Degraeve, Roodhooft & van Doveren, 2005). A need exists to combine these two research areas as public procurement has yet to embrace the developments within supply management which, in turn, is not fully compatible with public sector rules and ideology (Erridge & McIlroy, 2002).

Despite these issues, the mission of the procurement function, in public and private sector organizations, is to efficiently manage the forecast, procurement and delivery of goods and services through the supply chain in a cost effective manner.

Despite this overlap in supply function, it is well recognized that a number of unique aspects impact public sector procurement.

Profit versus public good.

Public procurement differs from private procurement in scope. In the private sector, procurement strategy is driven and aligned with corporate revenue and profits goals - the bottom line. Government is frequently viewed as a market regulator, sometimes encouraging markets through competition law, or restraining them through minimum wage laws. However, governments also increasingly play a role as active participants in the market itself, purchasing public works, supplies, and services (McCrudden, 2004).

In the public sector, public procurement has been utilized as an important tool for achieving economic, social and other objectives (Arrowsmith, 1998). These objectives include the provision of no- or low-cost public goods and services, the development of local contractors and manufacturers by allowing local buyers to build in a margin of preference for local contractors and manufacturers, and advance legislation and conceptions of social justice through market regulation. Finally, public sector procurement serves a broader range of stakeholders, places greater emphasis on accountability and transparency, and allows little or no flexibility for negotiation.

The effect of the layers of additional scope and limited ability to negotiate is the creation of procurement inefficiencies. These inefficiencies often lead to increased spending through increased administrative demands thorough additional oversight,

decentralization of work across multiple suppliers and time delays given legislative and legal requirements. All result in the inefficient delivery of goods and services.

Transparency.

The function of transparency is critical in public procurement. It is referent to openness and is therefore an essential aspect of ensuring accountability and minimizing corruption. Hunja (2003) asserted that a strong and well-functioning procurement system would be one that is governed by a clear legal framework establishing the rules for transparency, efficiency and mechanisms of enforcement, coupled with an institutional arrangement that ensures consistency in overall policy formulation and implementation. A successfully transparent procurement process is one that is characterized by clear rules and accountability to ensure that the rules surrounding the procurement process were followed (Arrowsmith, 1998).

Transparency in government procurement provides an assurance for both domestic and foreign investors that contracts will be awarded in a fair and equitable manner. Procurement is transparent if the rules that govern the procurement process and information for procurement opportunities are clearly communicated and visible to the affected parties and the public (Arrowsmith, 1998). Transparency in public procurement exerts a number of effects. Perhaps the most significant effect of the transparency concept is to ensure that procurement decisions maintain the required ethical standards and are based only on legitimate considerations within the system. Transparency also supports the prevention of discrimination by making it more difficult to conceal prohibited discriminatory decisions (Arrowsmith, 1998).

Transparency supports procurement goals in a number of ways as it encourages and facilitates participation of suppliers in the bid process. First, transparent procurement opportunities are well publicized with clear and accessible rules and the assurance that the rules of the bid process will be followed and enforced with equal consideration across all suppliers. Thus, the risk of wasteful participation for suppliers is decreased as there is an assurance that procurement decisions are not made according to irrelevant and unexpected criteria that lie outside of the system or simply because the rules of the game are not clear (Arrowsmith, 1998).

In comparing transparency requirements between private and public organizations, Newman (2003) said,

I spent the first twenty years of my purchasing career in private industry...My entry in public procurement was somewhat of a culture shock...accountability and transparency took on much higher priorities, to a much larger group of stakeholders... Gaining consensus...tends to be the management style... Working cooperatively, not competitively...is a way of life in the broader public sector (p. 10).

In all markets, a lack of transparency, the absence of information on rules and practices, could operate as a barrier to trade and may affect foreign suppliers more than local ones (Arrowsmith, 2003). Transparency, the existence of these rules would ensure that goods and services are obtained at the most economic prices and thus lead to a reduction in costs. Transparency in public procurement promotes trust by allowing stakeholders to see and judge the quality of government actions and decisions (Smith-Deighton, 2004).

Supply chain management approach.

Popular belief among practitioners and researchers is that decentralized purchasing structures are required in order to accomplish a number of procurement goals. These goals include provision of more responsive support to end users, elimination of bureaucratic obstacles improved inter-departmental procurement coordination, and empowerment of purchasing agents and service delivery managers to facilitate required procurement with the bureaucracy frequently associated with a centralized purchasing structure (Thai, 2001).

Despite the aforementioned beliefs about decentralized procurement structures, public sector purchasing, especially at the federal level, often maintains a highly centralized purchasing structure. This may be the result of the implementation of numerous central purchasing regulations and guidelines. Reed, Bowman and Knipper (2005) found that though procurement policy has been largely considered a characteristic of federal procurement, the supporting centralized policy has focused on the guidelines for decentralized execution of procurement. Thus, procurement professionals use the regulations to conduct business at the local or unit level, rather than leveraging the tremendous buying power of federal agencies. The local customer focus of procurement agents has slowed the rate at which the public sector has adopted strategic sourcing techniques (Reed, Bowman & Knipper, 2005).

Formal education.

Public procurement has a reputation of being tactical, even clerical with strict adherence to "stringent policies and guidelines" without requirement for highly educated professionals (Matthews, 2005). However, public sector procurement is shifting from tactical to more strategic-and a focus on alliances, global sourcing, life cycle costing, empowerment, and tools such as procurement cards. According to Baily, Farmer, Jessop, and Jones (2005), "professional training and education of those personnel responsible for the strategic direction and practical application of procurement action" is needed in the public sector.

Procurement professionals are beginning to recognize that new skills and abilities are increasingly required for success within both the public and private procurement sectors. The role of the public procurement professional is shifting from what was a clerical position into strategic function within organizations. With this shift, it is likely that public purchasing will become more important to both researcher direction and practitioner training and education (McCue and Hinson, 2004).

Recent literature indicates that public procurement training and education has not received appropriate amounts of attention in American Universities. In fact, in 2001 no member of the National Association of Schools of Public Affairs and Administration offered a public procurement program. Contrarily, over 103 colleges and universities offer courses, certificate programs, bachelors, masters and Ph.D.s in business programs with emphasis in purchasing, materials management, logistics, supply management, or related areas (Thai, 2001, 2005). This trend has not changed in the last ten years. In a study of 169 NASPAA accredited Masters programs, Snider and Rendon (2012) observed

that only four had Public Procurement related concentrations. Further, only one program, including the four mentioned above, had a public procurement required core course and only six offered a public procurement related elective.

Findings from research with private organizations in Malaysia suggest that supply chain management training is highly correlated with the development of competitive advantages. Agus, Hassan & Noor (2010) found that training in SCM has significant correlations with competitive advantage as defined by determinants such as product differentiation, employee differentiation, service differentiation and price differentiation. Overall study findings revealed that training in SCM exhibit direct impacts on competitiveness and demonstrate the importance of SCM training.

Public procurement as a profession has relied on certification programs offered by a number of professional organizations. Each association offers, supports, recognizes, or delivers training and professional purchasing certification. The common link across the varying purchasing and related programs available is the goal to promote professionalism within the purchasing field (Callendar & Matthews, 2000). These certification programs support professional purchasing associations drive for credibility and acceptance with accreditation.

Total cost of ownership.

Sometimes called the total cost of ownership or life cycle costing, the total cost concept has become an increasingly visible subject of study in business school supply chain curricula (Elram & Siferd, 1993). Discussions regarding the necessity of considering cost related issues beyond price in choosing a supplier have been ongoing to

some degree for several decades (Elram & Siferd, 1993). In the 1980's many American organizations made procurement decisions based solely on the bottom line. The criterion of focus for supplier selection was choosing the supplier with the lowest bid. Not surprisingly, this practice frequently led organizations to settle for lowest cost over quality choices in organizations (Elram & Siferd, 1993). This practice increased costs and created other supply chain issues with organizations. Organizations were forced to carry excessive inventory to counter resultant relatively high defect rate from lowest cost suppliers (Elram & Siferd, 1993). Organizations eventually realized that the evolving business environment requires high quality and no longer supports the low-cost, high-defect practices (Elram, 1995).

Elram (1995) explained that the Total Cost of Ownership (TCO) is “a purchasing tool and philosophy which is aimed at understanding the true cost of buying a particular good or service from a particular supplier” (p. 4). The total cost of ownership methodology is applicable for capital and materials purchases alike. It is important to recognize though, that the cost factors considered for each procurement application may vary by item or type of purchase (Elram, 1995). The TCO methodology requires that buyers assess and rank cost factors from the acquisition, possession, and use to the subsequent disposal, resale or disposition of a good or service. Thus, in addition to the purchase price, the TCO methodology emphasizes the consideration of including, but not limited to, order placement cost, research and qualification of suppliers, transportation, receiving, inspection, rejection, replacement, downtime caused by failure, end of life or disposal costs (Hurkens, van der Valk & Wynstra, 2006).

As suggested by the TCO concept it is requisite that supply managers adopt a long-term strategic perspective, instead of a short-term, lowest cost perspective, to effectively make decisions. The strategic perspective dictates that organizations examine elements in addition to purchase price (Ferrin & Plank, 2002). Effective total cost of ownership modeling requires examination and use of activity-based costing methodologies (Ellram, 1995). Rather, supply managers must consider the impact of other business functions on the valuation of a specific purchase and a supply manager must understand and measure the cost impact of all the activities associated with the purchase (Ferrin & Plank, 2002). Incorporation of the total cost of ownership concept allows purchasing managers to understand and measure the cost impact of all the activities associated with the procurement of goods and services.

Supplier selection.

Research and practice in operations management has emphasized the optimization of supply chain costs through an integrated supply chain. This requires long term relationships between suppliers and buyers (Chen, Roundy, Zhang & Janakiraman, 2005). Ramakrishnan (2007) argued that appropriate supplier selection is a fundamental strategy for enhancing the quality of output of any organization (Ramakrishnan, 2007). Sarkis & Talluri (2002) argued that supplier selection is also one of the most significant challenges faced by purchasing managers as effective selection of strategic partners will help maintain a competitive advantage by furnishing organizations with the necessary products, components, and materials in a timely and effective manner. Suppliers are an essential link in the supply chain of an organization, and management of suppliers

requires specialized negotiating skills, though they are an external part of the purchasing organization. Heizer and Render (2006) wrote that defective material represent a majority of quality problems in organization output and carefully selected, competitive suppliers can go a long way in minimizing adverse impacts and in fact in enhancing positive impacts on the quality of output of an organization. Given the potential positive or adverse impact suppliers can have on the overall performance of an organization, the selection process should be careful and deliberate. Thus, supplier selection is a crucial part of the functioning of an organization.

Strategic supplier selection, when done effectively, benefits both parties and helps to maintain advantages in competitive business environments. Monczka, Handfield, Guinipero, & Patterson (2009) argued the criticality of purchasing given its contributions to manufacturing, marketing, or engineering and to the pursuit of a firm's strategic objectives. Progressive organizations understand purchasing's impact on total quality, cost, delivery, technology, and responsiveness to the needs of external customers. Further, they recognize that one of the most important processes that they perform is supplier evaluation, selection, and measurement.

The selection of the "right" supplier establishes the foundation required for collaborative relationships and is a key component of supply chain management. Supply chain management involves the management of transaction flows among players in a supply chain so as to maximize total supply chain profitability and the "right" supplier helps facilitate this process (Ha & Krishnan, 2008). Cost reduction across the supply chain and maximization of revenue generated from the customer in cooperation with business partners are two key results of effective supplier selection and supply chain

management. Strategic supplier selection practices within a supply chain facilitate sustainable competitive advantages as closer working relationships develop between the buyer and supplier. These relationships may significantly reduce manufacturing and development time and costs. In a competitive environment, successful supplier and supply chain management strengthens the competitive edge for both organizations (Kumar, Vrat, & Shankar, 2004).

Once established, buyer–supplier relationships enable mutually beneficial work and when required, performance improvement (Ha & Krishnan, 2008). Ha and Krishnan (2008) described the essential role of suppliers in the overall practice of supply chain management. In order to gain competitive advantages in markets, manufacturers must collaborate with component or raw material suppliers in order to fulfill customer requests and to stay competitive, must practice the principles of continuous improvement.

Supply Chain Management Perceptions

Supply chain management has emerged as the discipline that guides procurement strategy in the private sector. Some have suggested that public sector procurement would benefit through the adoption of best known methods and strategies as implemented in private sector supply chain management. However, notwithstanding the great potential that private sector strategy and practices hold for public procurement, the factors examined herein must be addressed in the creation and successful implementation of public procurement strategy. This dissertation investigated the differences in the importance of supply chain management topics, tools, and techniques between public and private procurement professionals. Understanding the importance of these concepts for

supply chain management application in the public sector will help public procurement administrators better recognize, understand, and efficiently and effectively supply chain topics, tools, and techniques that are common in the private sector.

CHAPTER 3

METHODS

The purpose of this chapter is to present the process by which information will be generated to answer the research questions posed in Chapter 1. Because the research questions address differences of individual perceptions about supply chain management perspectives, topics, tools and techniques based on the participants' employment affiliation with the public or private sector, the basic character of the study is that of an empirical comparison research design. This chapter begins with a discussion of measurement, particularly the scales that were incorporated to assess organization supply chain management perspectives and to rate the importance of various supply chain management topic, tools, and techniques. This is followed by discussion of the comparative study design, the composition of public and private sector participants and the statistical analysis used to complete the comparisons. This chapter closes with a brief discussion of limitations of the study.

Measurement

Two comparison variables, sector and education were incorporated into this dissertation research. As the main goal of this research was to understand the perceived differences of organizational approach to supply chain management, and differences in perception of the importance of supply chain management topics, tools and techniques by sector, individuals within each sector are the focus for this dissertation research.

The comparison variables that measure perception can also be used to indicate the extent to which supply chain management principles are incorporated into and relied upon as essential elements in daily work activity by public and private procurement professionals. That is, the importance rating assigned by each participant may indicate the degree to which the supply chain management topics, tools, and techniques are incorporated into their work. The second comparison variable is education and is included to answer research question four, is there a relationship between formal education and the perceptions of the tactical and/or strategic scope of their jobs? This five level variable was recoded into two levels to understand differences in the participants' perceptions of the tactical or strategic nature of their work based on their level of education.

Study Design

Survey research is quite common in social science research and is used primarily for explanatory, and descriptive purposes (Singleton & Straits, 1999). Survey research offers the most effective means of social description and can provide highly detailed and precise information about large populations.

Survey research has three general features. First, a predetermined number of participants are selected to represent the target population. Second, systematic questionnaire procedures are used to ask scripted questions and have participants record their responses. This systematic approach serves to enhance the reliability of the data. Finally, answers are coded and analyzed with JMP statistical software (Singleton &

Straits, 1999). Empirical comparisons were incorporated to answer the research questions presented in Chapter 1.

Participants

The focus of this study is the importance that public and private procurement professionals place on a number of Supply Chain Management topics, tools, and techniques. The research is exploratory in the sense that only anecdotal data from a limited sample population currently exists on this issue. Hence the primary concern here is theoretical and focuses on answering the research questions posed above. As is the case with most survey research, the subjects studied are an availability sample (non-probability sample) and consequently statistical generalizations cannot be made to any particular population. In the strictest interpretation, the results apply only to the research participants themselves. In this dissertation research, interest focuses upon the differences in perceived importance of supply chain management practices and strategies between public and private procurement professionals.

The current study included procurement professionals from a Fortune 500 company a large city in the greater southwest area of the United States. The private sector corporation has annual revenue of > \$40B+ and is rated as among the top 25 supply chain companies over the last 3 years. The Top 25 represent the best global performers as judged by three different financial performance metrics (i.e., 50% total score, comprised of return on assets, inventory turns and revenue growth) and industry peer opinions. Participants from the public sector are purchasing professionals from a large metropolitan

city with an annual operating budget of \$3.5B. In the last three years the city's Environmentally Preferable Purchasing (EPP) program was featured as an example of how government is getting green and for excellence in identification and utilization of minority suppliers to fulfill corporate purchasing goals.

Invitations to participate in the survey were emailed to key contacts within each of the organizations for their distribution to procurement professionals within their organizations. Entry points to the municipalities were at the assistant/deputy city manager level in hopes that the invitation sent from higher level management would encourage participation. A hyperlink to the online questionnaire was embedded in the invitation. Recipients were informed that the survey responses would be treated as strictly confidential. Further, recipients who submitted their email address after they completed the survey were entered in a drawing for the chance to win one of three \$100 gift cards. A response rate of about 25% was anticipated.

Data Collection Instrument

The data collection instrument incorporated a mix of questions from existing questionnaires and questions developed by the current author. This study incorporated two independent variables, sector affiliation and education level. The first, sector affiliation, identified whether they worked for an organization in the public or private sector. The second, education level, required participants to indicate their highest completed level of education by selecting one of the response categories: high school degree, associate's degree, bachelor's degree, master's degree or doctoral degree. The

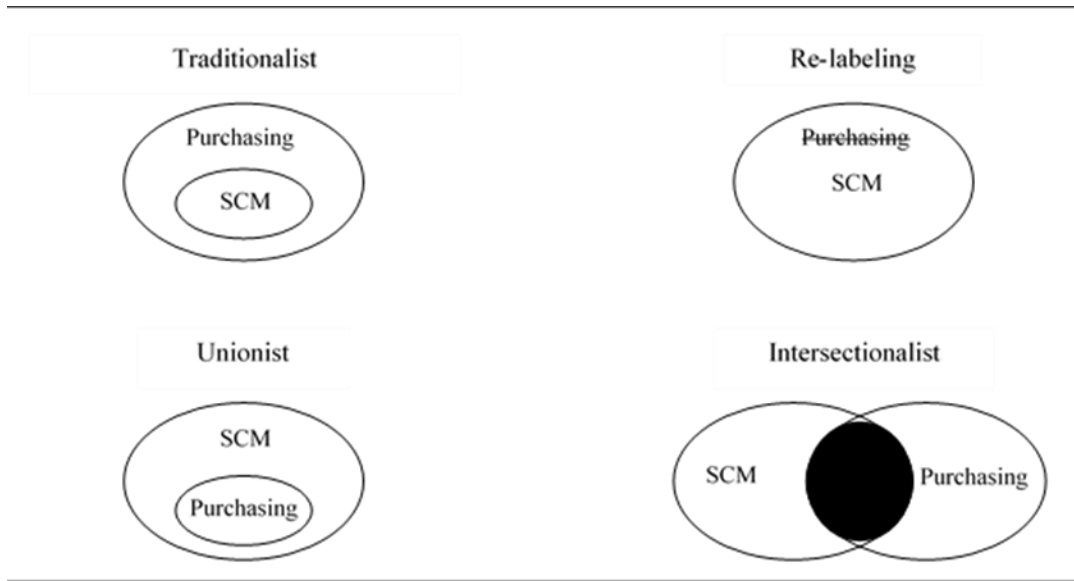
education level variable was recoded into graduate degree or no graduate degree to perform the Fisher Exact Test. Data were collected on 32 unique dependent variables including 30 supply chain management topics, tools, and techniques and two variables that were included to assess the participants strategic or tactical scope of their work (Work Scope) and their organization's approach to Supply Chain Management (SCM Approach).

As the main objective of this study was to understand differences in perception between sectors, five of the six research questions incorporated sector affiliation as the independent variable. Two questions were incorporated in the survey to address research question five. Participants reported the importance of 30 different supply chain management topics, tools and techniques. Differences were assessed incorporating the sector affiliation variable. The remaining question assessed differences in perceptions of job scope based on the second independent variable, education level.

The blank questionnaire is included here as Appendix A. The first section of the survey consisted of a series of questions that required the participants to report their perceptions of their organizations' perspective on supply chain management and the strategic or tactical nature of their job roles and responsibilities. It is based on work by Larson & Halldórsson (2002) and included the following descriptions about each participants' perception of their organizations' approach to supply chain management. See Figure 1 below.

- Organizational Perspective A – Traditionalist. In Organizational Perspective A, supply chain management is positioned as a function within purchasing and supply chain analysts report to the Head of Purchasing.
- Organizational Perspective B – Re-labeling, simply entails a name change; purchasing is now SCM. “Purchasing managers” are re-titled to become “supply chain managers” with little or no change in job description.
- Organizational Perspective C – Unionist, positions purchasing as a function within SCM. SCM also subsumes other functional areas, such as logistics. An organization may appoint a “V.P. of SCM” or similar position and adjusts reporting relationships and the organizational chart.
- Organizational Perspective D - Intersectionalist, SCM consists of strategic, integrative elements across several functional areas, including purchasing. SCM coordinates cross-functional efforts involving multiple organizations. A consultative SCM group, working in a staff (rather than a line) capacity, is created.

Figure 1: Purchasing vs. SCM Perspectives



Participants were also asked to select those functions within their organizations that are involved in Supply Chain Management in the first section of the survey. The response set included a wide range of functional areas including purchasing, marketing, accounting, logistics, management information systems, finance, and human resources.

Finally, participants were asked to estimate the extent to which their current position in purchasing/SCM is tactical and/or strategic in terms of the issues they consider, duties they perform, and decisions they make. The response format for this question ranged from 100% strategic to 100% tactical with variant combinations at 25% intervals.

The second section of the survey was comprised of a list of 30 topics, tools, and techniques related to supply chain management (Larson, 2009). Participants were asked to respond to these items using a Likert scale from 0 to 5, based on their assessment of the importance of each item in the context of their current professional position. The descriptors on the different levels of each scale conform to the methodological principle that all measurement levels should have unambiguous meaning for the subject (Blalock, 1979). This series of descriptors approximates those used by other researchers (Sujan and Dekleva, 1987), and form at least an ordinal scale measure. Furthermore, they are comparable one to the other and each uses the same response format.

Figure 2: Importance Scale for SCM Topics, Tools, and Techniques

	Importance for Your Job					
	0 - no importance	1 - very low importance	2 - low importance	3 - medium importance	4 - high importance	5 - very high importance
Item						

The final section of the survey was comprised of a series of descriptive and demographic items. Variables measured in this study are principally background variables. To account for basic comparability of subjects, participants reported on their work experience, organization size, education and training, years of purchasing/SCM experience, and business sector.

The finalized questionnaire was implemented on a web page with the link sent to participants in an email format and administered to all participants at one point in time. Results were sent to a Microsoft Excel Spreadsheet housed on the same server. Because the participants are 200 career procurement professionals, there was no difficulty with respondent computer literacy. To maximize the number of completed questionnaires, two follow-up reminder messages (with a questionnaire) were sent via the email system. Where needed, a third follow-up was made for those who did not respond to email by the researcher in person and a printed version of the questionnaire delivered with a request to return it via mail. This process yielded a total of 124 (of 200 possible) completed questionnaires for analysis.

Statistical Analyses

Research questions one through five test for differences in the response sets for a number of variables. The initial analysis for each question was completed by creation of confidence intervals (.95) for each response category by participant sector. If the rate calculated percentage of the categorical response was contained in the confidence interval of the same category in the other sector, it was concluded that no significant statistical difference existed between the sectors for that category. Statistically significant differences existed when the rate calculated percentage of the categorical response was not contained in the confidence interval of the same category for the other comparison sector. Further analysis was completed to explore and better understand the statistically significant results revealed in confidence interval analysis.

The first step was to recode and reclassify the data. The Likert scale response options were collapsed. The three response options that indicated that categorical importance—Very High Importance, High Importance, and Medium Importance—were merged to create a consolidated response relabeled “Important.” The two response options that indicated low or no importance were collapsed into a single response relabeled “Low to No Importance.” After the data were recoded, Fisher’s Exact Test, a comparative two-sample binary test was completed. Fisher’s Exact Test was selected as it is a statistical test used to determine if there are nonrandom associations between two categorical variables and is well suited for smaller sample sizes. This test is used when comparing percentages of categories in a contingency table, generally 2x2.

Research question four explored the possible relation between formal education and the perceptions of the tactical and/or strategic scope of participants’ jobs. As was the case with research questions one through five, the first step was to establish the confidence intervals (.95). Again, significant results were subjected to the same process as described above. The categorical variable that measured strategic/tactical perception of work was recoded to “Tactical,” “Strategic” or “Split” and the level of formal education variable, in this case, the independent variable, was recoded as “Graduate School” and “No Graduate” school and were subjected to Fisher’s Exact Test.

Limitations

Like most research, limitations exist regarding how the results of this dissertation research can be interpreted and applied. Most limitations flow from the nature of the

research design and the composition of the subject pool. Comparison research can be limited in its ability to describe incidence and prevalence in populations. In this research, the results cannot be statistically generalized beyond those individuals studied. A strong likelihood exists that the results would apply to other people with similar jobs, histories, and backgrounds.

CHAPTER 4

RESULTS

The purpose of this chapter is to present the results from the analysis of the research questions presented in Chapter 3. The first research question was designed to detect differences in the participants' perception of their organization's approach to supply chain management. The second research question explored participants' perceptions of the strategic or tactical nature of their job roles and responsibilities. The third and fourth concerns were related to the participants' highest level formal education and the potential relation between participants' formal education and their perceptions of the strategic or tactical nature of their job roles and responsibilities. The fifth research question was designed to detect differences in perception of a range of supply chain management topics, tools, and techniques across procurement professionals in the public and private sectors. The last research question addressed differences in importance of ethical practices between public and private procurement professionals.

The first section of this chapter reports on the characteristics of the participants in the research. This presentation is followed by the analyses associated with each of the research questions in the order presented in Chapter One. The objective is to report the findings briefly in this chapter. Findings and results will receive further elaboration and more extensive explanation in Chapter Five.

Characteristics of Study Participants

As indicated in Chapter 3, a total of 124 public and private procurement professionals from a Fortune 500 company and a large municipality in the Southwest United States completed the survey. The number of participants from the public sector (n=66) was slightly larger than the number of participants from the private sector (n=58).

Overall, the procurement professionals who participated in the study were relatively new to procurement or supply chain management activities with their current organization. Across the study sample slightly more than one-third (n=48; 39%) of the participants reported involvement with purchasing or supply chain management activities in their organization for less than five years. This was relatively evenly distributed between the comparison groups in that about approximately 40% (n=23) of the participants in the private sector and 38% (n=25) of the participants in the public sector reported involvement with purchasing or supply chain management activities in their organization for less than five years. An additional 26% (n=15) private sector participants and 38% (n=25) public sector participants reported involvement with purchasing or supply chain management activities in their organization for five to ten years. Participants with 5 to 10 years of experience accounted for approximately one-third (n=40, 32.3%) of the total sample population. Across the study sample approximately 75% (n=88) of the participants report involvement with purchasing or supply chain management activities in their organization for 10 years or less. Table 1 presents the years of involvement in purchasing or supply chain management activities with the participants' current organization for the total study sample.

Table 1:
Participant Years of Purchasing or Supply Chain Management Activity (*Percentage of Sector Total in Parentheses*)

Experience (Years)	Public Sector (n=66)	Private Sector (n=58)
Less than 5	25 (37.9)	23 (39.7)
5-10	25 (37.9)	15 (25.9)
11-15	10 (15.2)	9 (15.5)
16-25	4 (6.1)	10 (17.2)
More than 25	2 (3.1)	1 (1.7)

Approximately half of the participants (n=60, 48%) across the study sample reported a bachelor’s degree as their highest level of formal education. Participants from the public sector represented approximately half of the total participants reporting a bachelor’s degree (n=41, 68%) as the highest level of formal education. Fifty-one participants, or about 40% reported completion of a master’s or doctoral degree. Participants employed in the private sector represented the majority (n=37, 72%) of the total graduate degree holding procurement professionals. Only two participants in the private sector reported less than a bachelor’s degree and none reported high school as the highest attained education. In the public sector, 11 (16%) participants reported less than a bachelor’s degree. Eight of the 11 (72%) reported an associate’s degree as the highest level of formal education.

A greater percentage of study participants (n=93, 74%) across the sample reported that the issues that they consider, the duties that they perform, and the decisions that they make in their current jobs are 50% or more tactical. This was distributed approximately

equally across the private (n=44, 47%) and public (n=49, 52%) sectors. Complete education and job scope data are presented in Table 2 below.

Table 2
Participant Formal Education and Perception of Job Scope (Percentage of Sector Total in Parentheses)

	Public Sector (n=66)	Private Sector (n=58)
Education		
High School Diploma	3 (4.5)	0 (0)
Associate's Degree	8 (12.1)	2 (3.4)
Bachelor's Degree	41 (62.1)	19 (32.8)
Master's Degree	13 (19.6)	30 (51.7)
Doctoral Degree	1 (1.5)	7 (12.1)
Scope of Job		
100% Tactical	3 (4.5)	2 (3.4)
75% Tactical	21 (31.8)	19 (32.7)
50% Tactical	25 (37.8)	23 (39.6)
25% Tactical	16 (24.2)	12 (20.6)
100% Strategic	1 (1.5)	2 (3.4)

Generally, the sample study is college educated and has fewer than 10 years in purchasing or supply chain management activities in their organizations and report that their job roles and responsibilities are primarily tactical.

Comparison of Perception

Confidence interval analysis was incorporated to answer research questions one through four. A confidence interval is used to describe the amount of uncertainty

associated with a sample estimate of a population parameter. Confidence intervals provide a best point estimate of the population parameter of interest and an interval to reflect likely error rather, the precision of the estimate (Cumming & Finch, 2001). Confidence intervals for studies comparing two groups are preferred to analyses that yield a single number, such as the difference in mean (P value). Reporting a point estimate and the confidence surrounding it informs on the size of the difference observed, its statistical significance, and the likely range possible between group differences. Confidence intervals are interpreted as follows. If a 95% confidence interval is reported, it indicates that a 95% confidence exists that the real value is within the calculated interval. Rather, if a 95% confidence interval includes the null value, then there is no statistically meaningful or statistically significant difference between the groups. If the confidence interval does not include the null value, then it is concluded that there is a statistically significant difference between the groups.

The first research question addresses participants' perceptions about their organization's approach to supply chain management and was included to understand differences between public and private sector participants' perceptions about their organization's approach to supply chain management. As described in Chapter 3, the response choices for research question one incorporate four different approaches to supply chain management (Traditionalist, Re-labeling, Unionist and Intersectionalist). Larson (2009) described the main differentiating features of these perspectives in terms of breadth (single function versus multiple functions) and depth (strategic-only versus strategic and tactical). Two of these perspectives are broad in approach, the Unionist and Intersectionist perspectives, as both approaches view supply chain management as a

multi-function concept (Larson, 2009). The Traditionalist and Re-labeling approaches are considered narrower views as both align supply chain management with the purchasing function only (Larson, 2009). The Intersectionist and Traditionalist perspectives generally have a strategic-only focus, the Unionist and Re-labeling views are considered “deep,” as these approaches focus on both strategic and tactical aspects of supply chain management. (Larson, 2009).

The first research question was “Do Public and private procurement professionals have different perceptions of their organizations’ approach to supply chain management?” Table 3 below reveals participants’ perceptions of their organizations’ approaches to supply chain management. Statistically significant differences between the public and private sectors were found across three of the four perspectives. Confidence intervals revealed statistically significant differences between the public and private sector in the Intersectionist, Traditionalist, and Unionist perspectives ($p=.05$). Only the Re-labeling perspective did not reveal statistically significant differences between the public and private sectors $p=.05$, 95% CI [.03, .16], and [.009, .011] respectively. This non-significant may have been due be attributable to the low number of respondents who selected this perspective across the public ($N=5$) and private ($N=2$) sectors.

Confidence intervals for the Intersectionist perspective indicated statistically significant differences between the public $p=.05$, 95% CI [.25-.28] and private sectors [.71-.90]. Similarly, confidence intervals indicated statistically significant differences between the public sector $p=.05$, 95% CI [.13, .32] and the private sector [.003, .09] for the Traditionalist perspective. Statistically significant results for the Unionist perspective

were also found between the public $p=.05$, 95% CI [.24, .46] and the private [.05, .22] sectors. Based on these data, the null hypothesis, that there is no difference in the perception of organizational approach to supply chain management between sectors, is rejected as the data indicate with 95% confidence that the real value for each is not included in the calculated interval for the other. However, these results do not support the expected findings for Research Question 1, that private sector participants are more likely to view their organization's approach to supply chain management as a strategic purchasing perspective that requires the coordination of cross functional areas, while public procurement participants would be more likely to view their organizations' approach to supply chain management as a narrow function within purchasing.

Table 3:
Approach to Supply Chain Management by Sector - Number, (Proportions) and [95% Confidence Intervals]

Perspective	<u>Public Sector</u>		<u>Private Sector</u>	
	(n=66)	95% CI	(n=58)	95% CI
Intersectionist	24 (.36)*	[.25 - .28]	48 (.82)	[.71 - .90]
Re-labeling	5 (.07)	[.03 - .16]	2 (.03)	[.009 - .11]
Traditionalist	14 (.21)*	[.13 - .32]	1 (.01)	[.003 - .09]
Unionist	23 (.34)*	[.24 - .46]	7 (.12)	[.05 - .22]

*denotes statistical significance at $p=.05$.

Research Question two addressed whether or not public and private sector participants had different perceptions regarding the tactical and/or strategic scope of the issues they consider, duties they perform, and decisions they make in their daily work. It was expected that public sector participants would report the nature of their work and job scope as more tactical than strategic while private sector participants would report the nature of their work and job scope as more strategic than tactical. Statistically significant differences between the public and private sector were not present in 95% confidence intervals for the scope of work comparison data at any level of the response set. Based on findings for research question two presented in Table 4 below the null hypothesis, that there are no differences in the perception of the scope of daily work, is not rejected and thus the expected findings that differences in perception of the scope of daily work would exist between public and private sector respondents was not supported.

Table 4
Scope of Daily Work by Sector - Number, (Proportions) and [95% Confidence Intervals]

Work Scope	<u>Public Sector</u>		<u>Private Sector</u>	
	(n=66)	95% CI	(n=58)	95% CI
100% Tactical	1 (.04)	[.01 - .12]	2 (.03)	[.009 - .11]
75% Tactical	21 (.31)	[.21 - .49]	19 (.32)	[.22 - .45]
50% Tactical	25 (.37)	[.27 - .49]	23 (.39)	[.28 - .52]
25% Tactical	16 (.24)	[.15 - .35]	12 (.20)	[.12 - .32]
100% Strategic	3 (.01)	[.002 - .08]	2 (.03)	[.009 - .11]

Statistical significance at p=.05.

Differences in formal education between public and private sector participants was the concern in research question three: “Are there differences in the formal education between public and private procurement professionals?” Statistical differences were expected with public sector participants reporting lower levels of formal education completed. As was expected, statistically significant differences were found between the public and private sector in the formal education variable across all response categories. However, two of the five, Bachelor’s and Master’s degree account for greater than half of the total responses in both the public (n=54) and private (n=49) sector. As most of the sample selected one of these two levels as the highest level of formal education, the confidence intervals for the remaining three are small for both the public (PU) and private (PR) sectors. High School, 95% PU CI [.01, .16] and PR CI [.00, .00], Associate PU CI [.05, .26] and PR CI [.01, .11], and Doctoral PU CI [.001, .11] and PR CI [.05, .22]. As the confidence intervals are small, the detection of significant differences when significant differences are not present is more likely. Rather, the risk of Type 1 error, the rejection of a true null hypothesis is higher. Given this limitation, it is more difficult to conclude that statistically significant differences actually exist in the data for High School, Associate and Doctoral Degrees and are not the result of Type one error.

Differences in formal education between public and private sector participants was the concern in research question three: “Are there differences in the formal education between public and private procurement professionals?” Statistical differences were expected with public sector participants reporting lower levels of formal education completed. As was expected statistically significant differences were found between the public and private sector in the formal education variable across all response categories.

Table 5:
Formal Education by Sector

Formal Education	<u>Public Sector</u>		<u>Private Sector</u>	
	(n=66)	95% CI	(n=58)	95% CI
High School*	3 (.04)	[.01 - .16]	0 (.00)	[.00 - .00]
Associate*	8 (.12)	[.05 - .26]	2 (.03)	[.01 - .11]
Bachelor*	41 (.62)	[.46 - .75]	19 (.32)	[.22 - .45]
Master*	13 (.19)	[.10 - .34]	30 (.51)	[.39 - .64]
Doctoral*	1 (.01)	[.001 - .11]	7 (.12)	[.05 - .22]

*denotes statistical difference at $p < .0001$.

Fisher's Exact Test, a two sample binary test, was selected to further explore the difference in formal education between sectors. Before running Fisher's Exact Test, three education categories, high school, associate, and bachelor categories, were combined to form a new category – No Graduate Degree, and two categories, Masters and PhDs were combined to form a second new category - Graduate Degree. Statistically significant results for the Fisher Exact Test indicated that a higher percentage of participants in the private sector (63.7) hold graduate degrees than their counterparts in the public sector (21.2), $p < .0001$.

The fourth research question was a comparison of formal education and perceptions of the tactical and/or strategic scope of work for public and private participants. This research question explored scope of work and highest level of education completed across the study sample (n=124). The recoded education categories,

Graduate Degree and No Graduate Degree were compared with the recoded Job Scope variable that included Strategic, Split and Tactical categories. This was accomplished as the 100% Strategic and 75% Strategic / 25% Tactical categories were combined to form a new category labeled Strategic. The 50% Strategic / 50% Tactical categories were relabeled Split and the 100% Tactical and 75% Tactical / 25% Strategic categories were combined to form a new category labeled Tactical.

Confidence intervals were completed at 95% as reported in Table 6 below. Results indicated that a statistically significant higher proportion of the participants with graduate degrees (39%) consider the duties they perform, and decisions they make in their daily work as strategic as the participants with no graduate degree (11%). Not surprisingly, a higher proportion of the participants with no graduate degree (41%) reported that the duties they perform, and decisions they make in their daily work as tactical as the participants with graduate degrees (15%). Finally, a statistically significantly higher percentage of participants with no graduate degree (43%) reported that the duties they perform and the decisions that they make in their daily work as split (50% Strategic / 50% tactical compared to the participants with graduate degrees (29%).

Table 6
Job Scope by Degree - Number, (Proportions) and [95% Confidence Intervals]

Job Scope	<u>Graduate Degree</u>		<u>No Graduate Degree</u>	
	(n=51)	95% CI	(n=73)	95% CI
Strategic	20 (.39)	[.39 - .27]	11 (.15)	[.08 - .25]
Split	16 (.31)	[.20 - .45]	32 (.43)	[.33 - .55]
Tactical	15 (.29)	[.46 - .75]	30 (.41)	[.30 - .52]

Research question five was concerned with public and private sector participants' perceptions of importance for 30 different supply chain management topics, tools and techniques. Based on average importance ratings, Table 7 reports public and private sector top ten lists of SCM topics, tools and techniques. The following eight items are on both top 10 lists: Ethical Issues, Legal Considerations, Purchasing and Supply Management, Risk Management, Contract Management, Relationship Building, Price and Cost Analysis, and Supply Chain Mapping. Significant overlap existed in the top 10, as was expected, and statistically significant differences were detected as explained below.

Appendix A reports mean ratings by group, and t-test results, for all 30 topics, tools and techniques on the questionnaire. To test for possible sector differences in respondents' ratings, independent sample t-tests were conducted on all 30 items, with public versus private sector as the grouping variable. The items are ordered by descending t-statistic. While a positive t-statistic implies an item is perceived more important by public sector professionals, a negative t-statistic implies an item is more

important for the private sector. A higher t-statistic absolute value implies a greater difference between public and private sector perceptions. A p-value less than .05 (the alpha level) implies a significant difference between the public and private sector average ratings on an item.

The first six items in Appendix B (Procurement Cards, Price and Cost Analysis, Vendor Certification, Outsourcing, Partnerships / Alliances, and Transparency) were rated significantly more important by the public procurement professionals, compared to their private sector counterparts. The item with greatest significant difference was procurement cards. On average, public sector participants rated this item 3.36 (out of 5), and private sector respondents rated the item 1.95. Group differences on the next eighteen items (from conflict management to logistics and transportation) were not significant. Rather, public and private participants rated these topics, tools, and techniques as equally important.

The remaining nine items Appendix B (Risk Management, Purchasing and Supply Management, Supplier Development, Cycle Time Reduction, Single v. Multiple Supplier Sourcing, Forecasting, Supplier Selection and Evaluation, Supply Chain Management, and Negotiation) were rated significantly more important by private sector participants, compared to their public sector counterparts. Four of these items—inventory management, logistics and transportation, production/operations management and supply chain management—confirm the lack of public procurement involvement in certain SCM functional areas, such as transportation and materials planning (Johnson, Leenders & McCue, 2003).

Table 7:
Top Ten Lists of Supply Chain Management Topics, Tools, and Techniques by Sector

<u>Private Sector</u>		<u>Public Sector</u>	
Topic, Tools & Techniques	Mean	Topic, Tools & Techniques	Mean
Ethical Issues	4.48	Ethical Issues	4.41
Legal Considerations	4.47	Legal Considerations	4.26
Supplier Selection / Evaluation	4.33	Price and Cost Analysis	4.22
Purchasing & Supply Management	4.29	Relationship Building	4.11
Risk Management	4.24	Contract Management	4.03
Contract Management	4.21	Transparency	4.00
Relationship Building	4.16	Risk Management	3.98
Price and Cost Analysis	4.03	Purchasing and Supply Management	3.98
Supply Chain Mapping	4.00	Supply Chain Mapping	3.98
Cycle Time Reduction	3.98	Request for Quote	3.88

Table 8
*Statistically Significant T-test Results for Supply Chain Management Topics, Tools,
and Techniques*

	t-statistic	P-value
Request for Quote	6.96	<.0001
Procurement Cards	7.73	.000
Supplier Selection / Evaluation	6.38	<.0001
Forecasting	4.07	<.0001
Negotiation	7.45	<.0001

Figure 3
 T-test Box Plots for Statistically Significant Topics, Tools, and Techniques

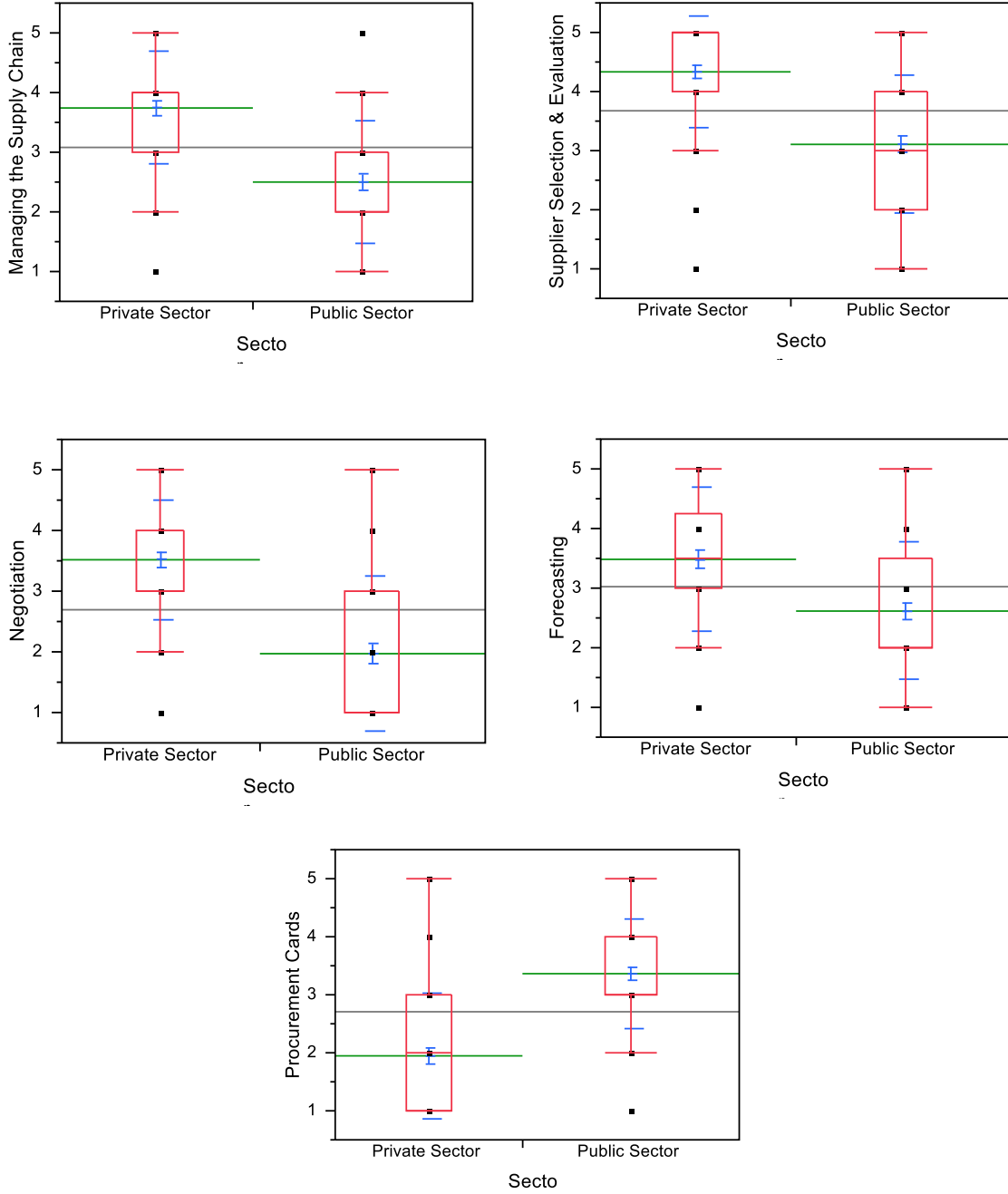
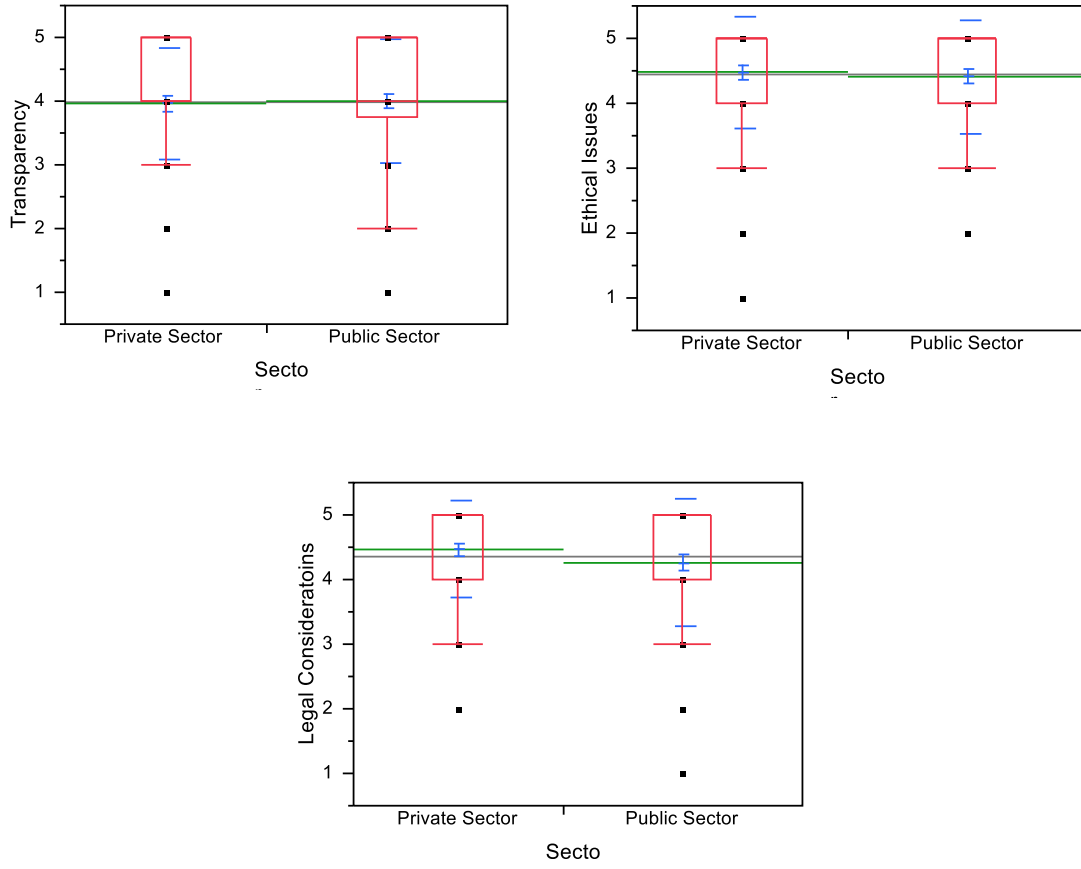


Table 9
Non-Significant T-test Results for Topics, Tools, and Techniques

	t-statistic	P-value
Request for Quote	.307	.375
Transparency	.213	.584
Legal Considerations	1.30	.096
Ethical Issues	.470	.319
Inventory Management	.596	.276

Figure 4

T-test Box Plots for Ethics Related Topics, Tools, and Techniques



The final research question “Are there differences in the perception of ethical practices between public and private procurement professionals?” was addressed by the examination of three of the 30 topics, tools, and techniques. These three items were, Transparency, Ethical Issues and Social Responsibility. Only Transparency was reported as more important in the public sector ($t=.213$) while Ethical Issues ($-.470$) and Social Responsibility ($-.170$) were rated as more important by private sector participants. However, statistically significant results were not found for any of the three. All three of these items were in the top 10 for the public sector and two of the three were in the top 10 for the private sector when ranked by mean as shown in Table 9 above. Box plots are shown for all three items in Figure 4 above.

Box plots are used to show overall patterns of response for a group or groups. They provide a useful way to visualize the range and other characteristics of responses for a large group and are useful when assessing the distributional characteristics of a group of scores as well as the level of the scores. Box plots are created as scores are sorted, distributed, and grouped. These groups are created based on the ordered score, with each grouping composed of 25% of the scores. The lines dividing the groups are called quartiles, and the groups are referred to as quartile groups. Groups are commonly labeled 1 to 4 starting with the bottom quartile group.

Each box plot presents several relevant pieces of information. First, the median (middle quartile) divides the second and third quartiles and marks the mid-point of the data with a line that divides the box containing the second and third quartile into two parts. Half the scores are greater than or equal to this value and half are less. The second

is the inter-quartile range. The inter-quartile is the graphical depiction of the middle two quartiles and thus represents 50% of scores for the group. Third are the upper and lower quartiles. Seventy-five percent of the scores fall below the upper quartile while 25% of the scores fall below the lower quartile. Finally, the box plot may present a number of other pieces of information with lines called whiskers. The upper and lower whiskers represent scores outside the middle 50%. Whiskers often, but not always, depict a wider range of scores than the middle quartile groups. Also included in the box plots presented is the mean of the scores. Box plots with mean lines that are close in proximity indicate that significant differences were not found in the responses from participants in the public and private sector. This is presented in Figure 4, T-test Box Plots for Ethics Related Topics, Tools, and Techniques. Contrarily, as depicted in Figure 3: T-test Box Plots for Statistically Significant Topics, Tools, and Techniques, mean lines that are far apart on the box plots indicate significant differences in the mean response scores between public and private participants.

In Figure 4: T-test Box Plots for Ethics Related Topics, Tools, and Techniques, the box plots are relatively short for the three variables, Transparency, Ethical Issues, and Legal Considerations. This indicates that a high level of agreement exists between respondents within each group about the importance of each topic. Further, the box plots for Public and Private Sector respondents are relatively level in terms at the top and bottom of the middle quartile groups. Rather, they are similarly positioned, one is not much higher or lower than the other in the box plot. This indicates that a relatively high level of agreement between groups on the importance of the three items. This is also evidence based on the relatively equal level plot of the mean lines for each of the three

variables in Figure 3 between the two sectors. Further, the box plots for each of these variables appear high on the plot indicating that the respondents believe that the variable is important. Based on the box plots in Figure 3 it is safe to conclude that a high level of agreement exists both within each sector and across sectors that ethical considerations are important topics in supply chain management.

More variation exists in the box plots in Figure 3: T-test Box Plots for Statistically Significant Topics, Tools, and Techniques. The box plots for Supplier Selection and Evaluation, Negotiation, and Procurement Cards reflect considerable variation between groups and to a lesser extent variation within each group. The Negotiation variable shows a tall box plot for the public sector respondents positioned low on the plot relative to the private sector box plot which is a shorter box plot higher on the plot. This indicates that strong agreement does not exist between the public sector respondents and, based on box plot location, strong agreement does not exist between sectors either. The same is true for Supplier Selection and Evaluation as well as Procurement Cards. However, the sectors are reversed for the Procurement Card variable. It appears higher on the plot for the public sector, indicating greater importance relative to the lower position of the private sector box plot. Further, there is greater within group variation in terms of importance for private sector as indicated by the taller box plot.

Finally, box plots for two variables, Managing the Supply Chain and Forecasting, demonstrate agreement about the importance of each variable within groups, but differences between groups. Evidence on the box plots is seen by relatively short box

plots with height differences in placement on the plots for public and private sectors for both variables.

CHAPTER 5

CONCLUSION

Public procurement is an extremely complicated function of government. The scope of the public procurement system is extremely broad and is subject to a number of variables. This complexity makes public procurement especially difficult to manage. As a result, it is among the least understood and more vulnerable areas of public administration. Effective public purchasing requires increased understanding of supply chain management theory and adept incorporation of private sector supply chain strategies into public procurement. This is most effectively done if public procurement managers recognize and successfully navigate the many variables that complicate the incorporation of private sector procurement strategies and practices.

Key Findings and Implications

The basic character of the study is that of an empirical comparison research design. The research questions address differences, based on the respondents' employment affiliation with the public or private sector, of individual perceptions about supply chain management perspectives including scope of work, education attainment and 30 topics, tools, and techniques. Chapter 4 contains the basic statistical analysis of the respondents' assessments. The purpose here is to consider, in retrospect, the key findings of the study.

The first key finding addresses the respondents' perceptions of the strategic scope of their organizations approach to supply chain management. In this study respondents

were asked to identify one of four supply chain management perspectives that best described the approach of their organization. Within these four perspectives, two, unionist and Intersectionist, perspectives are considered broad in application as they both involve a multiple function supply chain management concept. Contrarily, the traditionalist and re-labeling perspectives are considered narrow in application as both align supply chain management within a single purchasing function (Larson, 2009).

Within this context, the first key finding is:

1. Public procurement respondents viewed their organizations' approach to supply chain management as a narrow function within purchasing while private sector respondents viewed their organization's approach to supply chain management as a strategic purchasing perspective that requires the coordination of cross functional areas.

As expected, this finding leads to the conclusion that supply chain management strategy and strategic sourcing techniques are more advanced and visible in the private sector. Additionally, private sector supply chain management includes multiple business functions from across the organization. The narrow perspectives reported by public sector respondents indicate a silo approach to purchasing in the public sector that may hinder the implementation of sophisticated strategic sourcing strategies within supply chain management. As many of the supply chain management tools and techniques require engagement from multiple business functions, successful implementation in the public sector could take significant time, effort, and, in some cases organizational restructuring of the purchasing function. Popular private sector trends suggest that public sector purchasing organizations adopt a decentralized purchasing structure such that the

functional goals of purchasing, the provision of more responsive support to end users, the elimination of bureaucratic obstacles, the improvement of inter-departmental procurement coordination, and the empowerment of purchasing agents to facilitate required procurement, can be realized (Thai, 2001).

Surprisingly, though significant differences exist regarding organizational approach, respondents within the public sector did not report significant differences in the issues they consider, duties they perform, and decisions they make in their daily work when compared with their private sector counterparts. Public sector respondents did not report different perceptions regarding the tactical and/or strategic scope of the issues they consider. Across all five levels of the strategic/tactical variable, public and private sector respondent reports were not significantly different. Moreover, the majority of respondents across both sectors reported that 50-75% of daily activities were tactical. This finding indicates that a gap may exist between organizational approach to purchasing (strategic) and actual implementation (tactical) in the private sector. This finding confirms the assertion that public procurement is tactical and even clerical with strict adherence to "stringent policies and guidelines" (Matthews, 2005) and further suggests that the same may be true in the private sector.

The second key finding is related to education. Differences in formal education between public and private sector participants was the concern in research question three: "Are there differences in the formal education between public and private procurement professionals?" Statistical differences were expected and reported, within all levels of formal education completed between sectors. The second key finding of this study is:

2. Public procurement respondents reported consistent and statistically significant lower levels of formal education across all levels of the education variable and in the recoded Graduate/No Graduate degree variable.

There are two important aspects of this finding. First, it highlights the statistically significant imbalance between respondents in the public and private sectors in terms of completed formal education, with the deficiency in collegiate education residing in the public sector. Differences were exacerbated after recoding education into a binary variable, Graduate/No Graduate degree. Statistically significant results indicated that less than one quarter (21.2%) of the public sector respondents have graduate degrees, compared to nearly two-thirds (63.7%) of respondents in the private sector. This finding leads to the conclusion that public sector respondents may lack the necessary skills and knowledge to effectively design and implement supply chain management, strategic sourcing, and many other essential purchasing strategies given their lack of exposure to the aforementioned as they are traditionally included in graduate level programs.

Second, closely related to the first, it underscores the need for procurement training in graduate level public administration programs across the United States and globally. Moreover, it challenges the assertion that public procurement does not have a requirement for highly educated professionals (Matthews, 2005). In contrast, a higher level of education and proficiency with increasingly complex supply chain management strategy will be required of tomorrow's public administrators as public sector procurement shifts from tactical to more strategic-and a focus on alliances, global sourcing, life cycle costing, empowerment, and tools such as procurement cards. This finding confirms the statement by Baily, Farmer, Jessop, and Jones (2005), that

"professional training and education of those personnel responsible for the strategic direction and practical application of procurement action" is needed in the public sector.

Key finding number three is concerned with the differences and similarities in reporting between public and private respondents on the importance of 30 supply chain management topics, tools, and techniques. Key finding three is that:

3. Though more similarities than differences existed in the top ten supply chain management topics, tools, and techniques, as seven of these items appeared on the top ten for both sectors, more than twice the number of supply chain topics, tools and techniques were rated more important by private sector respondents than their public sector counterparts.

As expected, this finding could lead to the conclusion that supply chain management in theory, strategy and application is more highly developed and installed in the private sector than in the public sector. Certainly, it confirms that supply chain management is more important in the private sector as a governing strategy for purchasing activities. Further, it affirms the claims in the current literature that supply chain management has emerged as the discipline that guides procurement strategy in the private sector and that public procurement professionals have different perceptions on the importance of various topics, tools and techniques for SCM, compared to their counterparts in the private sector (Larson, 2009).

Thai (2004) argued that public administrators are facing "increasing calls for procurement reform" (Thai 2004, p. 312). Larson (2009) asserted that Canadian Procurement officials have embraced the need for reform and is are adopting a variety of

best practices from the private sector including: reduction of models and configurations available to requisitioning agencies; consideration of quality and other total cost factors, beyond just purchase price; order cycle time reduction; and use of electronic tools to facilitate negotiation as a response to this call for procurement reform. This finding provides a baseline of sorts and can be used as a roadmap for public procurement organizations as they respond to this call for procurement reform.

Consistent with previous work, a final conclusion that can be drawn from this finding is that public procurement professionals will need an expanded set of skills to effectively implement strategic sourcing practices and supply chain management strategy (Larson, 2009). This conclusion is based on the assumption that those items rated as unimportant in the duties performed, and decisions made in daily work are not practiced and may be perceived as unnecessary. As these supply chain management topics, tools, and techniques take a stronger guiding position in the public sector, as they have in the private sector, public procurement officials will need more knowledge about SCM, and enhanced skills in negotiation, developing partnerships, and using inter-organizational information systems. These results highlight those topics, tools, and techniques rated as most important by the private sector for effective supply chain management.

The final key finding has to do with attitudes regarding Ethical Issues, Transparency and Social Responsibility in the public and private sectors. The ethics discussion in the public sector frequently focuses on transparency and in the private sector on social responsibility. Transparency in the public sector assures that contracts will be awarded in a fair and equitable manner, that the rules that govern the

procurement process and information for procurement opportunities are clearly communicated and visible to the affected parties and the public (Arrowsmith, 1998). Perhaps the most salient aspect of transparency is that it ensures that procurement decisions maintain the required ethical standards and are based only on legitimate considerations within the system and that those decisions are visible to the general public.

In the last 20 years social responsibility has become a hot topic in the private sector. The trend of corporations talking to the public about social responsibility over the years has apparently produced an expectation with the public that organizations not only develop environmentally friendly, sustainable and socially responsible manufacturing processes, but procurement practices as well.

Though it would be difficult to disentangle ethics or ethical behavior from many of the 30 topics, tools, and techniques, the fourth key finding is concerned with ethical behavior ratings for three supply chain management variables, Transparency, Ethical Issues and Social Responsibility. The fourth key finding is:

4. Respondents in both sectors recognize the importance of ethics and ethical behavior as an essential part of supply chain management.

Across both sectors respondents indicated that “Ethical Issues” was the most important of the 30 items in terms of the issues they consider, duties they perform, and decisions they make in their daily work. Further, in both sectors, Transparency and Social Responsibility were rated in the top 15 in terms of importance. This key finding supports Heller’s assertion that public and private sector organizations alike understand that there

is an expectation that organizations act in an honest, and socially responsible manner (2005).

There is apparently the risk that those who do not attend to this issue will be deemed socially irresponsible. Consequently, organizations in the private sector that demonstrate irresponsible procurement practices open themselves up to public scrutiny and the product of that scrutiny is the determination that business practices produce socially undesirable outcomes or dishonesty. The trend of corporations talking to the public about social responsibility over the years has apparently produced an expectation in the minds of consumers that they develop such a conscience and honesty appears to be an equally important part of this expected behavior (Heller, 2008).

Clearly now, in the shadow of the BP oil spill and in the post-Enron world with the passage of the Sarbanes-Oxley Act (openness in accounting), there is much greater awareness and acknowledgement on the part of both private and public sector organizations to act in a more ethical and socially responsible way. Statistically significant differences did not exist between sectors for any of the three items. These results indicate that respondents across sectors not only recognize that an obligation exists for organizations in both sectors to meet similar standards for ethical behavior and social responsibility but that they also believe it is important that they behave accordingly.

Study Significance

This dissertation research is important for several communities including public administrators, researchers, and educators. First, it is important to public administrators at the local, state, national, and international levels. Thai, (2004) reported that public procurement officials are facing “increasing calls for procurement reform” (p. 312). Considering the recent and persistent global economic struggles, the efficient handling of public spending has been a policy and management concern as well as a challenge for public procurement professionals (Thai, 2005). Public administrators are incorporating strategic sourcing practices from the private sector. Larson (2009) reported that Canadian procurement professionals are streamlining offerings available to procurement agencies, considering quality and other total cost factors beyond purchase price, examining order cycle time for reduction opportunities, and eliminating waste in negotiation by using electronic tools. Consistent with previous research (Larson, 2009), the results of this dissertation research suggest that public administrators will need an expanded set of skills to achieve the goals of “procurement transformation.” This research identified the requisite expanded skill sets for public procurement professionals to achieve greater efficiency in public procurement including increased knowledge of supply chain management, and among others, more extensive negotiation skills, and an increased ability to develop strategic partnerships within the supply base.

Second, this dissertation study is important for researchers. As an exploratory study, the information generated here not only breaks new ground by examining the reasonableness of prevailing wisdom in the field, it can be used to identify new questions for further research. It would be interesting to investigate differences in perceptions and

SCM perspectives across municipal governments of varying sizes. A discussion of potential future work follows this section.

Finally, this research is important for educators as it will help to determine the differences in the education and training of public and private sector purchasing professionals. Colleges and universities globally are building new programs in supply chain management. These programs are almost exclusively found in business schools that target the private sector (Larson, 2009). Research indicates that procurement and SCM courses and specializations are largely absent from public administration programs in the United States (Bailey, Farmer, Jessop, and Jones, 2005, Thai, 2001; 2005). This research helped to surface differences in education levels between public and private respondents. As a result, educators in public administration can incorporate procurement and SCM education into their programs to ensure public administration students receive the education required to enable public sector procurement reform and strengthen the push for more strategic purchasing.

Future Research

Understanding and navigating the myriad elements interwoven in public procurement will help public administrators to better recognize, understand and implement supply chain strategies, common in the private sector, efficiently and effectively in the public sector. Future research could investigate the differences in education between the public and private sectors and explore how education may be related to procurement effectiveness. Further, results from such research could reveal

gaps in graduate and public procurement certification training for public administrators and help direct the future of procurement education in public administration programs.

Another area for exploration is analysis of the differences in structure and function of public and private sector procurement. Public procurement has a reputation of being tactical, even clerical, adhering to “stringent policies and guidelines,” not requiring highly educated professionals and stifling innovation. Quite contrarily, private sector procurement is considered highly strategic and more receptive to entrepreneurship and innovation. The public sector seems to favor the decentralized purchasing structure, while private sector purchasing structures are generally centralized. Investigating the effects of structure and function in public and private procurement would enable public procurement managers to recognize opportunities that will enable their organizations to adopt best practices from the private sector to improve their function and perhaps adopt a centralized purchasing structure that would allow them to eliminate some of the stringent policies and guidelines required for the management of a decentralized purchasing structure.

Public procurement administrators must also understand the influence of transparency and accountability as regulators in public procurement and their relation to successful procurement indicators. An advantage that exists in the private sector but not in the public sector is that transparency is not a criterion for purchasing. Private sector firms use this “privacy” to their advantage in negotiations with their supply base. Though public procurement administrators are not afforded this advantage, understanding the relation between transparency and accountability and the value and collaborative

advantage of a single source supply strategy will allow for the adoption of modified supply chain strategy.

Procurement performance standards or mutually agreed upon criteria that identify the best procurement strategies and considerations for the management of public procurement are another possibility for additional research. Little evidence exists that identifies or measures successful public procurement. Until such indicators and criteria are established, it will be difficult for even the most seasoned public administrator to adopt strategy and practice from the private sector to improve the public procurement function at the local, state, and federal levels.

Conclusion

Supply chain management has emerged as the discipline that guides procurement strategy in the private sector. Some have suggested that public sector procurement would benefit through the adoption of best known methods and strategies as implemented in private sector supply chain management (Larson, 2009). However, notwithstanding the great potential that private sector strategy and practices hold for public procurement, the factors examined herein must be addressed in the creation and successful implementation of public procurement strategy. In this dissertation, the current public procurement literature was reviewed and the differences between public and private procurement, both in strategy and considerations for implementation were identified and explored.

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APPENDIX A

INDEPENDENT SAMPLE T-TESTS: PUBLIC VS. PRIVATE SECTOR

INDEPENDENT SAMPLE T-TESTS: PUBLIC VS. PRIVATE SECTOR

	Mean		T	P
	PR	PU		
Procurement Cards	1.95	3.36	7.733	< .0001*
Price and Cost Analysis	4.03	4.22	1.168	0.8775
Vendor Certification	3.63	3.51	0.657	0.2562
Outsourcing	2.76	2.89	0.624	0.7332
Partnerships / Alliances	3.50	3.62	0.598	0.7247
Transparency	3.96	4.00	0.213	0.5842
Conflict Management	3.88	3.86	-0.083	0.4669
Social Responsibility	3.78	3.76	-0.100	0.4603
Supply Chain Mapping	4.00	3.98	-0.145	0.4424
Relationship Building	4.16	4.11	-0.290	0.3816
Request for Quote	3.93	3.88	-0.307	0.3795
Ecommerce	3.18	3.11	-0.320	0.3749
Activity-based Costing	2.67	2.59	-0.413	0.3402
Sustainability	3.90	3.82	-0.428	0.3346
Ethical Issues	4.48	4.41	-0.470	0.3195
Inventory Management	3.62	3.50	-0.596	0.2761
Total Cost of Ownership	2.09	1.95	-0.627	0.266
Third-party Logistics	3.12	2.98	-0.670	0.2522
Total Quality Management	3.78	3.61	-0.846	0.1997
Contract Management	4.21	4.03	-1.055	0.1467
Just in Time	3.54	3.30	-1.234	0.1096
Enterprise Resource Planning	3.28	3.02	-1.295	0.0988
Legal Considerations	4.47	4.26	-1.308	0.0965
Logistics and Transportation	2.72	2.42	-1.504	0.0676
Risk Management	4.24	3.98	-1.702	.0457*
Purchasing and Supply Management	4.29	3.98	-1.846	.0336*
Supplier Development	3.91	3.49	-2.050	.0212*
Cycle Time Reduction	3.98	3.61	-2.075	.0201*
Single v. Multiple Supplier Sourcing	2.90	2.42	-2.128	.0177*
Forecasting	3.48	2.62	-4.076	< .0001*
Supplier Selection and Evaluation	4.33	3.11	-6.380	< .0001*
Supply Chain Management	3.74	2.50	-6.960	< .0001*
Negotiation	3.52	1.97	-7.452	< .0001*

APPENDIX B

SUPPLY CHAIN MANAGEMENT SURVEY

SUPPLY CHAIN MANAGEMENT SURVEY

1. Your organization is in the:

- Public Sector
- Private Sector

2. Select the response that best describes your organization's approach to supply chain management.

- Supply Chain Management is positioned as a function within purchasing. Supply chain analysts report to the Head of Purchasing.
- Purchasing was renamed Supply Chain Management. "Purchasing managers" were re-titled to become "supply chain managers" with little or no change in job description.
- Purchasing is a function within or a part of Supply Chain Management.
- Supply Chain Management consists of strategic, integrative elements across several functional areas, including purchasing. SCM coordinates cross-functional efforts involving multiple organizations.

3. Which of the following functional areas are involved in SCM at your organization? (Select all that apply).

- Purchasing
- Marketing
- Accounting
- Logistics
- Management Information Systems
- Finance
- Human Resources

4. Estimate the extent to which your current position in purchasing/ SCM is tactical and/or strategic, in terms of the issues you consider, duties you perform, and decisions you make.

- 100% Tactical
- 75% Tactical / 25% Strategic
- 50% Tactical / 50% Strategic

- 25% Tactical / 75% Strategic
- 100% Strategic

5. Estimate the total number of employees working in your organization.

- 1-99
- 100-499
- 500-999
- 1,000-4,999
- 5,000-9,999
- 10,000 or more

6. How long have you been engaged in purchasing / supply chain management activities in your organization? (Held a purchasing card or made purchases for your organization?)

- Less than one year
- 1-5 years
- 6-10 years
- 11-15 years
- 16-25 years
- 26 years or more

7. What is your highest level of education?

- High School Degree
- Procurement Certification
- Associate's Degree
- Bachelor's Degree
- Master's Degree
- Doctoral Degree

8. Rate each of the following in terms of their significance to your work.

No Importance Very Low Importance Medium Importance High Importance Very High Importance

	No Importance	Very Low Importance	Medium Importance	High Importance	Very High Importance
Public Sector Procurement					
Request for Quote / Request for Information					
Legal Considerations					
Transparency					
Procurement Cards					
Social Responsibility					
Contract Management					
Ethical Issues					
Ecommerce					
Risk Management					
Sustainability					
Conflict Management					
Relationship Building					
Purchasing and Supply Management					
Supplier Selection and Evaluation					
Single v. Multiple Supplier Sourcing					

9. Rate each of the, in terms of their importance for you in your current professional position.

	No Importance	Very Low Importance	Medium Importance	High Importance	Very High Importance
Total Cost of Ownership					

	No Importance	Very Low Importance	Medium Importance	High Importance	Very High Importance
Price and Cost Analysis					
Negotiation					
Vendor Certification					
Enterprise Resource Planning					
Partnerships / Alliances					
Supply Chain Mapping					
Total Quality Management					
Third-party Logistics					
Supplier Development					
Activity-based Costing					
Supply Chain Management					
Outsourcing					
Logistics and Transportation					
Forecasting					
Cycle Time Reduction					
Inventory Management					
Just in time (JIT)					

10. If you wish to be entered in the drawing for 1 of 6 \$50 Visa Gift Cards, please provide your name (first and last) and email address.