

THE PERSPECTIVES OF SUPPLY CHAIN MANAGEMENT IN THE PUBLIC SECTOR

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Abstract: This article provides a perspective on supply chain management in the public sector. The concept of supply chain management has evoked interest in organisations, including those in the public sector. In spite of the interest and employment of supply chain management in the public sector, little has been done compared with what has been achieved in the private sector, and the concept is not fully understood by many public sector practitioners. The article adopts a theoretical analytical approach and provides a discussion of the differences between supply chain management in the public and private sectors.

Key phrases: perspectives; public sector; supply chain management

1 INTRODUCTION

Supply chain management (SCM) forms an integral part of prudent financial management in the public sector (Republic of South Africa [RSA] 2005:9). It introduces internationally accepted best practice principles, at the same time addressing government's procurement policy objectives (Office of Government of Commerce [OGC] 2005:11). According to RSA (2005:14), SCM represents a significant change in the way organisations view themselves. It seeks to breach the gap between traditional methods of procuring goods and services and the balance of the supply chain, at the same time addressing procurement-related matters that are of strategic importance. The aim of SCM is to add value at each stage of the process – from the demand for goods or services to their acquisition, management of the logistics process, and finally, after use, to their disposal. It has witnessed values created through 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.

SCM has evoked interest in organisations, including those in the public sector (Ambe 2006:5; Ambe 2009:428; Essig & Dorobek 2006:1; Gansler, Luby & Kornberg 2004:8; Matthee 2006:1; Migiro & Ambe 2008:231; OGC 2005:11). As a result, a number of studies have been undertaken in many different industries and sectors. However, the majority of these related studies recognise that effective SCM is a powerful tool to achieve a cost advantage and a more profitable outcome for all

parties within and beyond any organisation (Davis 2008:310). It is for this reason that the concept has attracted interest in the public sector in recent years (Ambe 2009:427; Blanchard, Comm & Mathaisel 2008:166; DeGroot & Choe 2008:601; Kumar, Pan & Pokharel 2007:195; Migiro & Ambe 2008:232; RSA 2005:9). For example, countries such as the UK, USA and Canada have employed SCM in the management of their procurement and logistics for a considerable period of time (OCG 2005:12), as has South Africa (Ambe 2009:428) and a number of other countries.

Notwithstanding the interest in and employment of SCM in public institutions, Humphries and Wilding (2004:99) assert that little has actually been done compared with activities in the private sector. According to Korosec (2003:92), most SCM literature that does exist focuses primarily on private sector transactions owing to the fact that SCM has been used in both of these areas for almost two decades. Many professional government organisations have indicated that SCM could hold a great deal of promise for enhancing public procurement systems. Essig and Dorobek (2006:1) argue that the management of the public supply chain raises various research questions that demand answers.

In the light of the challenge relating to public sector SCM, the purpose of this article is therefore to provide a perspective on SCM in the public sector. The article is based on an analysis of related literature and examines issues such as the definition of SCM; the drivers of SCM; challenges of public sector supply chains; the features of public sector supply chains; and evaluating public sector SCM performance. The article provides a discussion of the differences between SCM in the public and private sectors.

2 DISTINGUISHING SCM IN THE PUBLIC AND PRIVATE SECTORS

2.1 SUPPLY CHAIN DEFINED

The basic function of SCM is to manage and coordinate all the supply chain activities necessary to support the organisation's strategy of delivering the right quantity of the product to the right place at the right time (Lambert 2006:12). It involves the management of upstream and downstream relationships with suppliers and

customers to deliver superior customer value at less cost to the supply chain as a whole (Christopher 2005:5). SCM also includes coordination and collaboration with channel partners, which may be funders, suppliers, intermediaries, third-party service providers and customers. It usually includes supply chain planning and the process of analysing, evaluating and defining the supply chain strategies, including network design, sourcing, transportation and inventory policy. SCM exists in all organisational types and can be classified into the following three categories: a management philosophy, the implementation of a management philosophy and a set of management processes (Klemencic 2006:13; Lambert 2006:13).

In essence, SCM integrates supply and demand management within and across organisations. These functions include but are not limited to new product selection, procurement, marketing, operations, distribution, finance and customer service. A supply chain, as opposed to SCM, is a set of organisations directly linked by one or more of the upstream and downstream flows of products, services, finances and information from a source to a customer. The whole process of managing a supply chain is referred to as SCM (Mentzer, DeWitt, Keebler, Min, Nix, Smith & Zacharia 2001:3). Each stage in a supply chain is connected through the flow of products, information and funds.

In the public sector, SCM is concerned with the coordination of all parties involved in delivering the combination of inputs, outputs or outcomes that will meet a specified public sector requirement. These parties include external suppliers, partner organisations and internal corporate service units both inside and outside the organisation. The supply chain may be inbound in the public sector. In other words, it may be an operational requirement for internal customers or it may be outbound from the public sector – that is, in place to achieve wider organisational objectives to provide services for delivery to citizens, or a combination of both. Supply chains in the public sector address different focus areas. The focus of SCM may differ from government sector to sector and from industry sector to sector. An example of a government sector-to-sector focus area could be in the health sector, where the focus may be more on logistics and the effective movement of goods and services in and out of hospitals, whereas SCM in the education sector may focus on

streamlining the chain through which teaching materials are delivered to students. The shape of the supply chain and the SCM processes employed will vary considerably, depending on a range of different considerations (OGC 2005:12).

SCM offers a reference framework for the composition of public sector supply chains and multilevel networks (Migiro & Ambe 2008:232). Actors in public sector supply chains comprise (1) private firms which receive orders from public sector agents, (2) accounting officers, and (3) policy-makers. SCM in the public sector not only focuses on the question of what institutions cooperate in goods and services, but also how these enterprises are involved with enterprises operating at other levels. Hence analyses of intranetwork relationships and of internetwork relationships are essential elements of the concept.

2.2 PUBLIC VERSUS PRIVATE SECTOR SUPPLY CHAINS

To be able to understand and make comparisons between public versus private sectors SCM, it is necessary to understand the concept of public procurement.

2.2.1 SCM vs procurement

According to Larson (2009:224), public procurement is big business. In public works and government services, billions are spent on goods and services annually to support the activities of agencies and departments. Public procurement often constitutes the largest domestic market in developing countries. Depending on how it is managed, the public procurement system can thus contribute to the economic development of these countries (Akech 2005:1).

In the last 20 years, various academics and seasoned industry professionals have made a definite distinction between SCM and procurement (McCue & Pitzer 2005:8). SCM involves the management of all the interlinked activities in a value-adding chain. These include, but are not limited to, planning, procurement, manufacturing or production distribution and customer service. Also included are all the value-adding linkages outside an organisation. Procurement management, on the other hand, is one of the elements within a supply chain primarily focusing on the sourcing and purchasing of goods and services within the supply value chain (Boateng 2008:Internet; Larson, 2009:223).

In the public sector context, SCM is a procurement tool that strategically integrates the whole procurement process, thus, SCM is thought to be narrow in a functional sense, an element of procurement rather than spanning multiple functional areas (Korosec 2003:93). By contrast, in the private sector context, procurement is a crucial central element of SCM and SCM covers all functions throughout organisations, from marketing and production to procurement. Lambert (2006:13) describes SCM as the integration of the following eight business processes: (1) customer relationship management; (2) customer service management; (3) demand management; (4) order fulfilment; (5) manufacturing flow management; (6) supplier relationship management; (7) product development and commercialisation; and (8) returns management. These eight processes subsume much of logistics, procurement, operations management and marketing.

According to Mentzer et al. (2001:17), SCM consists of all the traditional intrabusiness functions. These traditional business functions are marketing, sales, research and development, forecasting, production, purchasing, logistics, information systems, finance and customer service. The South African public sector addresses six key elements, namely demand management, acquisition management, logistics management, disposal management, risk management and performance management (Ambe 2009:429). Proper implementation of these elements ensures value for money, open and effective competition, ethics and fair dealings, accountability and reporting and equity, thus creating uniformity in procurement practices and good governance in order to enhance economic development.

2.2.2 Public vs private procurement

Public and private procurement professions are essentially different in their fundamental goals and practices (McCue & Pitzer 2005:8). 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 revenue from taxes and fees, and use these funds to serve the public. Private firms, however, generate revenue through sales of goods and services. Unlike their public sector counterparts, these private firms have profit-making motives. McCue and Pitzer (2005:8) also suggest that private sector purchasing has been redefined

in terms of strategic SCM. However, constrained by rules and regulations, the public sector remains unable to forge strategic supply chain partnerships. In the South African public sector, the head of the SCM unit is the National Treasury, which is responsible for formulating the laws, policies and regulations governing SCM implementation (RSA 2005:18).

While private sector procurement is more receptive to entrepreneurship and innovation, public procurement is based on legislation, policy and process. Public sector procurement serves a broader range of stakeholders, places greater emphasis on accountability and transparency and allows little or no flexibility for negotiating with bidders/responders to a request for proposal (RFP). McGuinness and Bauld (2004:28) concur that the skills set of the public sector purchasing manager is geared more towards supervising the procurement process and preparing reports than negotiating the best deal. However, they suggest that flexibility as opposed to formality is the key to improving public procurement performance.

According to Gragan (2005:19), the public procurement task is to help user agencies obtain the goods and services needed to do their job, while controlling the process that spends large amounts of public funds. Although public sector procurement operates in a rule-bound environment, many of its tasks can in fact be automated. Gragan (2005:19) advises public procurement professionals to promote communication with vendors and users and to explain the strategic role of purchasing in public sector operations to their requisitioners or users, in particular. He also argues that training should be mandatory for anyone charged with spending public funds. Public procurement has a reputation for being tactical, even clerical; adhering to stringent policies and guidelines; not requiring highly educated professionals; and stifling innovation. However, public sector procurement is moving from a tactical to more strategic function, with the focus on alliances, global sourcing, life cycle costing, empowerment and tools such as procurement cards.

2.2.3 Professional development

The public sector requires professional training and education of those personnel responsible for the strategic direction and practical application of procurement

actions. In South Africa, training has been ongoing since 2005 on the implementation of SCM involving actors such as municipal entities, departments and stakeholders (Ambe 2009:434). Several initiatives are being considered by the government to dramatically increase efficiencies and service delivery countrywide. These include rolling out strategic sourcing objectives and transversal contracts.

Based on the review indicated above, it is obvious that there is a difference in the application of SCM in the public and private sectors. This is because the two sectors have diverse goals and objectives. While the key goal in the public sector is delivering value service to the public, the private sector goal is to maximise value and profitability in its supply chain. The major difference between the public and private sector SCM is their main goals. The private sector is profit oriented while the public sector is oriented towards quality service delivery.

Furthermore, the enablers of SCM (which include integration, collaboration, coordination and information systems) are applicable both to the private and public sectors. However, the rate of application in the public sector is constrained by complex rules and procedures. Despite the comprehensive legislation and measures implemented by the public sector, there are always challenges to manage the risk of fraud and corruption in the supply chain (Zeller 2005: 26). A system of continuously monitoring and improving the supply chain is therefore critical for the success of the public sector. Table 1 shows the differences between public versus private sector supply chains.

TABLE 1: PUBLIC VERSUS PRIVATE SECTOR SUPPLY CHAINS

Feature	Private sector SCM	Public sector SCM
Goal	Profit making from customers	Quality service delivery to citizens
View of SCM	Procurement is viewed as an element of SCM	SCM is viewed as a procurement tool
Sources of revenue	Sales of goods and services	Taxes and fees
Governance	Guided by board of directors and business plans	Legislative bodies, laws and regulations
Skills	Have highly skilled actors	Have less skilled actors
Receptiveness	Emphasis on innovation and entrepreneurship	Emphasis on accountability and transparency
Organisational structures	Firms of many sizes with room for new entrants (less complex)	Highly complex system of organisations with various tasks
Competencies	Very high	Low

Feature	Private sector SCM	Public sector SCM
Confidentiality	Very high	Low
Degree of collaboration	Very high	Low
Degree of integration	Very high	Low
Strategic partnership	High level	Low
Degree of implementation	High	Low
Technological application	High application	Low application

Source: Author

As indicated in the table above, the major difference between public and private sector SCM is their main goals.

2.3 FEATURES OF PUBLIC SECTOR SUPPLY CHAINS

Public sector SCM focuses on a network of institutions, which are interlinked both vertically and horizontally to add value (Essig & Dorobek 2006:3). Characteristically, SCM occurs in the context of a multi-level network. Departing from established private SCMs, this approach includes in its focus both the (network) level of political governance and the (network) level of public administration. Public sector SCM involves the distinction between supply chain efficiency and supply chain effectiveness. This distinction stems from the assumption that public spending is subject to the criterion of efficiency. Efficiency is a characteristic trait of public management. Public SCM supports this target by adding to the reorganisation and optimisation of entire public supply chains. Efficiency in terms of public sector supply chains is targeted towards the demands of the end customer, that is, the citizen.

Public sector SCM is considerably more complex than in the private sector (Larson 2009:222). Citizens are the customers in a public supply chain network according to the methodological individualism approach. In this way, it becomes possible to analyse the flows of services, information and finance. Customer demands are conceptualised as the public's (citizens'), interest in public goods, for instance, domestic order or national security (OGC 2005:11). Essig and Dorobek (2006:4) contend, however, that it is difficult to calculate customers' demands through payment reserves owing to the characteristic peculiarities of public goods. Instead, the demands are articulated according to the democratic principle through elected representatives (level of analysis: political network). Payment flows occur by way of taxes and duties. Thus delivered goods and services affect citizens' individual utility

ratio, say, by meeting their demand for peace. Which public goods and services a public supply chain delivers depends on the citizens' aggregate payment reserves.

Furthermore, the public sector supply chains' network-centred perspective requires an account of the management level that accomplishes inclusive coordination of public SCM. The government as head of the executive branch represents the political network level in an organisational sense, even at the same level; parliaments (legislative branch) provide checks and balances in terms of control and criticism of governmental activities. SCM assumes the role of a strategic planner. This includes, for instance, the consideration of long-term effects (outcome of the multilevel network) and strategic objectives of public action and legislature (Thom & Ritz 2000:72).

Administrative agencies, representing the subordinate levels of the executive branch, are commissioned to implement the actions and legislature passed by the political network level. This administrative network level is responsible for outcomes that are within the limits of both the output demands and the budgetary restrictions imposed by the political network level (Thom & Ritz 2000:72). The administrative level therefore serves as the intersection between the public sector and the network level of private enterprises. Because of the question of social responsibility, it is irrelevant whether implementation is reached through administrative action or commercial (private) suppliers' service. Table 2 summarises the features of public sector supply chains.

TABLE 2: IMPORTANT FEATURES OF PUBLIC SECTOR SUPPLY CHAINS

Feature	Description of feature
Network	Network composed of the institution (both vertically and horizontally)
Target	Key target is to achieve efficiency and effectiveness in public management
Flows	Have complex flows of information, services and finance
Management	Headed by government and guided by legislation, laws and regulations

Source: Adapted from Essig and Dorobek (2006); Larson (2009); OGC (2005)

2.4 BENEFITS OF SCM

Generally, governments have traditionally focused on the contracting process with first-tier suppliers, the supply chain members with whom the procuring organisation

contracts directly. According to the OGC (2005:10), the 2004 Public Accounts Committee Report in the United Kingdom noted that only 17% of departments, agencies and nondepartmental public bodies analyse their suppliers' supply chains as part of their criteria for selecting suppliers. Also, a survey conducted in the local government sector by IdeA in 2004 revealed that only 39% track suppliers' use of the supply chain in contract management (OGC 2005:7).

Furthermore, a survey conducted by the House of Commons Public Accounts Committee in 2009, 41% of contract managers did not test the value for money of new services purchased under an existing contract (Kaye 2009:8). An RSA report on Opportunities for Reform of Government Procurement and Joint Country Assessment Review (CPAR) conducted by the World Bank during 2001/2002 indicated that there were divergent interpretations of government's objectives and strategies. One of the difficulties highlighted was the inadequate provision for capacity building for disadvantaged enterprises to successfully compete for government contracts (RSA 2005:18).

According to Essig and Dorobek (2006:3), the integration of SCM in the public sector is playing a critical role in optimising logistics support and improving the management of secondary inventory. All governments attempt to promote efficiency in the public sector. Citizens want to see efficient financial management. One of the ways governments in several jurisdictions are attempting to significantly improve efficiency in the delivery of public sector services is through SCM.

If vital amounts are spent needlessly on back office processes, fewer amounts are left to be spent on classrooms, hospital wards and lecture halls. It therefore makes sense that if there are better ways for the public sector to plan, source, move and pay for goods and services, these should be examined and implemented. Hence streamlining and modernising government supply chains can result in substantial cost savings and improvements to delivery times (Gansler et al. 2004:8).

There are obvious benefits emanating from an effective implementation of SCM. These include the following:

- **Better risk allocation.** Effective risk allocation is a critical consideration in procurement. Risk should always be allocated according to the party best placed to manage it, and this should promote in a better understanding of the way in which the requirement can be delivered.
- **Greater visibility.** Visibility creates subcontracting opportunities for a diverse range of organisations that can bring increased competition, dynamism and particular skills or strengths to the public sector. This can increase competition and allow organisations with particular skills or strengths to become involved in the public sector marketplace.
- **Greater opportunities for innovation.** Supplier innovation in the supply chain can contribute to better quality, faster delivery and reduced whole life costs. Effective SCM has huge potential for innovation throughout the supply chain.
- **Better-defined requirements.** Early supply chain involvement shapes business needs through market sounding.
- **Improved ability to identify risks or bottlenecks.** In contract delivery, greater authority creates awareness of exactly how the contract is going to be implemented and the key supply chain dependencies.
- **Better quality.** Solutions offered by suppliers as opportunities can be more easily identified in their supply chains to improve quality, increase delivery times and reduce costs.

2.5 DIFFICULTIES IN MANAGING AND CONTROLLING PUBLIC SECTOR SUPPLY CHAINS

There enormous challenges in managing and controlling public sector SCM. These challenges make it difficult to control the parties in the supply chain (Essig & Dorobek 2006:4). The challenges that hinder successful management and controlling of public sector supply chains include: tension between citizen and customer requirements; cost pressure in public supply chains and the complexity of multidimensional supply chains as reasons for a need to control public supply chains as discussed below:

2.5.1 Tension between citizen and customer requirements

In the private sector, SCM as a concept, points to increasing demands for customer proximity as a key objective to be achieved through controlling (Jehle, Stüllenbergh & Schulze 2002:19). In the public sector, the need for controlling is derived from the complex relationship between citizens' general demand for public goods and the individual citizen's willingness to pay for the provision of goods. Citizens have multiple divergent interests, some of which are trade-offs against others. Citizens as taxpayers demand economic utilisation of public resources. This creates serious tensions between citizens and the assumptions of the established SCM (Essig & Dorobek 2006:4).

2.5.2 Cost pressure in the supply chain

Another major challenge to SCM in the public sector is the mounting pressure to reduce costs. Well-devised control of the supply chain can yield both cost reduction and economisation effects (Jehle et al. 2002:20). Cost pressure in the public sector results from legal regulations prescribing economic utilisation of resources. The frequent failure of administrative agencies to integrate single policies into coherent strategies instead of resorting to an indiscriminate distribution of means results in inefficiency and waste of resources (Essig & Dorobek 2006:5).

2.5.3 Complexity of multidimensional supply chains

Public sector SCM is challenged by the level of political governance and public administration. This multidimensionality adds a further level of complexity to the already existing problems of coordination at the network level of private enterprises that correspond to those established by the private sector. Deficits in strategic considerateness at the level of political governance may produce suboptimal and/or unintended outcomes at the administrative level (Essig & Dorobek 2006:5).

3 DRIVERS OF SCM IN THE PUBLIC SECTOR

SCM is a procurement tool that was born out of necessity and includes four main drivers. These drivers include: capitalising on the newest and best forms of information technology; encouraging decentralised decision making; using a collaborative model

of partnership with both internal and external agents; and focusing on integrated project management chains (Korosec 2003:92).

3.1 INFORMATION TECHNOLOGY (IT)

Technology is an enabler of SCM for helping supply chain members to establish partnerships for better supply chain performance (Shukla, Garg & Agarwal 2011: 2060). IT has become extremely important in procurement operations. According to Korosec (2003:94), IT is a major element in the process of selecting and achieving most objectives. Using IT throughout the procurement supply chain can help re-engineer existing work processes so that there are fewer breakdowns, bottlenecks and redundancies.

Davila, Gupta and Palmer (2003:11) and Presutti (2003:219) have indicated that the significance of IT in SCM transactions is the real-time flow of information that results in enhanced customer service, lower costs and improved supplier relationships. Sundarraj (2003:339) and Talluri (2002:10) likewise suggest that IT is the catalyst for sharing and coordinating information across the increasingly large and complex supply chains and that it can significantly enhance the long-term performance for the public sector. Information exchanges and collaborative planning (via IT) are essential for heightened efficiency between business partners in the supply chain, as governments are compelled to become more competitive with outside providers and suppliers.

3.2 DECENTRALISATION

SCM in the public sector ensures that departments are decentralised. Decentralised departments are given maximum feasible authority to make decisions along the supply chain with only minimum restraints (Korosec 2003:95). This allows procurement professionals to better understand the big pictures of the agencies they serve and perform strategically to drive results that achieve client agencies' missions. The result is a proactive arrangement in which procurement staff and client agencies have relatively equal status in and access to teams that can develop the best acquisition strategies. The aim of these strategies is to procure for "end-users" what they need when they need it, forecast these needs in advance and track this

performance as it happens (Choy & Lee 2003:140). Effective, strategic planning in this manner will enable procurement staff to spend less time fixing problems and more time developing and delivering solutions. This is the main aim of supply chain systems. The willingness to be accountable for performance is a prerequisite of efforts to decentralise, but not all governments are open to this challenge (Gianakis 2002:435).

3.3 INTEGRATED (INTERNAL) PROJECT MANAGEMENT

SCM requires projects to be viewed comprehensively from start to finish. In order for this to work, there must be a prior and enduring commitment from all parties that there will be an integrated investment of efforts. According to Croom (2001:504), greater information transparency between SCM partners is a crucial element in improving procurement efficiency. Without this clarity, the goals, objectives, strategies and expectations of the procurement may be misrepresented or misinterpreted.

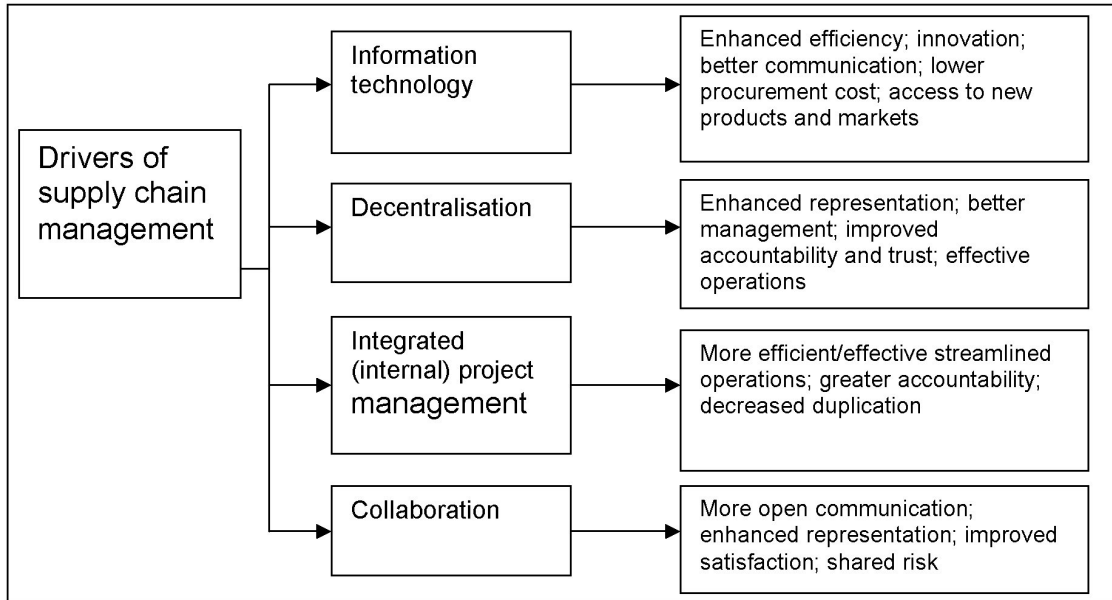
Nissen (2001:289) suggests that even though speed and responsiveness are critical in today's hyper-competitive product and service markets, truly effective SCM managers must take command of the procurement process and work to include all related parties, even if this adds more time to the process. Failure to create and work with partners in the name of saving time may result in an inability to properly capitalise on shared goals and resources (Korosec 2003:96).

3.4 COLLABORATION

Collaboration enablers supply chain members to support each other by leveraging, combining and capitalising on their complementary strengths and capabilities (Sayuti 2011:288). Organisations that are successful in solidifying business solutions partners through supply chains will not only survive, but also thrive and create competitive advantages in the public/private marketplace (Smith & Rupp 2002:64). Most service providers that partner with outside organisations create a "value added" to the organisation's overall competitive strategy and help reduce costs in the value chain (Korosec 2003:96). Hence effective supplier selection is paramount in maintaining a level of quality and performance in any organisation. However, some

governments have avoided partnering with private entities in an effort to discourage favouritism and fraud. Theoretically, a strong, centralised government would be wise to insulate itself (and the public) from the divergent interests of the private sector (Korosec 2003:96). Figure 1 depicts the drivers of SCM and the benefits to the public sector.

FIGURE 1: DRIVERS OF SCM AND THE BENEFITS FOR THE PUBLIC SECTOR



Source: Author

4 CONCLUSION

This article provides a perspective on SCM in the public sector, based on an analysis of related literature. In the course of the article issues such as the definition of SCM; public sector supply chains; the benefits of SCM in the public sector; drivers of SCM; features of public sector supply chains; difficulties in managing and controlling public sector supply chains; evaluating public sector SCM performance. The article suggests that there major differences between SCM in the public and private sectors.

Based on the review, the article indicated that SCM has the potential to enhance public procurement systems. SCM in the public sector is concerned with the coordination of all parties involved in delivering the combination of inputs, outputs

or outcomes that will meet a specified public sector requirement. Proper implementation of SCM in the public sector could streamline and modernised public procurement systems, leading to substantial cost savings and improved delivery time. The key drivers of the SCM process include information technology, decentralisation, integrated project management and collaboration. The article further investigated the challenges and features of public sector supply chains as well as performance management measures.

The article concluded by indicating the differences in the practice of SCM between the private and public sectors. The most crucial difference in the application of the concept is the target goal of each sector. While the private sector is profit oriented, the public sector is oriented towards quality service delivery. In addition, the rate of application in the public sector is restricted because of numerous complex rules and procedures. Despite the comprehensive legislation and measures implemented by the public sector, there are always challenges in managing the risks of fraud and corruption in the supply chain.

REFERENCES

- AKECH JMM. 2005.** Development partners and governance of public procurement in Kenya: enhancing democracy in the Administration of aid. Available from: http://www.iilj.org/GAL/documents/AkechPaper_000.pdf; Accessed on the 15 January 2012.
- AMBE IM. 2006.** Supply chain management implementation in the Central District Municipality and its affiliated municipalities. Master's dissertation. North West University, Mafikeng.
- AMBE IM. 2009.** An exploration of supply chain management practices in the central district municipality. *Educational Research and Review*, 4(9):427-435.
- BLANCHARD C, COMM CL & MATHAISEL DFX. 2008.** Adding value to service providers: benchmarking Wal-Mart. *Benchmarking: An International Journal*, 15(2):166-77.
- BOATENG D. 2008.** Government service delivery lies in supply chain management, not centralised procurement, smart procurement. [Internet: www.smartprocurement.co.za; downloaded on 2011-01-25.]
- BOYNE GA. 2003.** What is public service improvement? *Public Administration Review*, 81(2):211-228.
- CHOY K & LEE W. 2003.** A generic supplier management tool for outsourcing manufacturing. *Supply Chain Management: An International Journal*, 8(2):140-154.
- CHRISTOPHER M. 2005.** Logistics and supply chain management: creating value-adding networks. 3rd edition. Prentice Hall, United Kingdom.
- CROOM S. 2001.** Restructuring supply chains through information channel innovation. *International Journal of*

Operations and Production Management, 3(4):504-515.

DAVILA A. GUPTA M & PALMER R. 2003. Moving procurement systems to the Internet: The adoption and use of e-Procurement technology models", *European Management Journal*, 21(1): 11 – 23.

DAVIS PR. 2008. A relationship approach to construction supply chains. *Industrial Management and Data Systems*, 108(3):310-327.

ESSIG M & DOROBK S. 2006. Adapting the balanced scorecard to public supply chain management. *15th Annual IPSERA Conference*, San Diego, CA.

GANSLER C, LUBY REJR & KORNBERG B. 2004. Supply Chain Management in Government and Business," in Gansler, J. S & Luby, R. E., Jr. Eds. *Transforming Government Supply Chain Management*. Lanham, MD: Rowman & Littlefield: 19-40.

GIANAKIS G. 2002. Planning for strategic planning: what's next? *Public Performance and Management Review*, 25(4):435-445.

GRAGAN DP. 2005. Harnessing procurement transformation in the public sector. *Government Procurement*, 13(1):18-19.

HANDFIELD RB, MONCZKA RM, GIUNIPERO LC & PATTERSON JL. 2009. Sourcing and supply chain management. 4th edition. Southern Western, Canada.

HUMPHRIES AS & WILDING R. 2004. Sustained monopolistic business relationships: a UK defence procurement case. *European Journal of Marketing*, 38(1/2):99-120.

JEHLE E, STÜLLENBERG F & SCHULZE A. 2002. Netzwerk-balanced scorecard als instrument des supply chain controlling. *Supply Chain Management*, IV:19-25.

KLEMENCIC E. 2006. Management of supply chain: case of Danfoss District heating business area. Master's dissertation, Ljubljana University, Ljubljana.

KOROSEC RL. 2003. Assessing the feasibility of supply chain management within purchasing and procurement. *Public Performance and Management Review*, 27(2):92-109.

KUMAR S, DEGROOT RA & CHOE D. 2008. Rx for smart hospital purchasing decisions: the impact of package design within US hospital supply chain, *International Journal of Physical Distribution and Logistics Management*, 38(8):601-615.

LAMBERT DL. 2006. SUPPLY chain management: processes, partnerships, performance. 2nd edition: Hartley Press.

LARSON PD. 2009. Public vs private sector perspectives on supply chain management. *Journal of Public Procurement*, 9(2):222-247.

MATTHEE CA. 2006. The potential of internal audit to enhance supply chain management outcomes. Master's dissertation, University of Stellenbosch, Stellenbosch.

MCADAM R, HAZLETT SA & CASEY C. 2005. Performance management in the UK public sector: addressing multiple stakeholder complexity. *The International Journal of Public Sector Management*, 18(3):256-273.

MCCUE C & PITZER JT. 2005. *Fundamentals of leadership and management in public procurement*. Herndon, VA: National Institute of Governmental Purchasing.

MCGUINNESS K & BAULD S. 2004. Is negotiation underutilized in public procurement? *Summit: Canada's Magazine on Public Sector Purchasing*, 7(3): 28.

MENTZER JT, DEWITT W, KEEBLER JS, MIN S, NIX NW, SMITH CD & ZACHARIA ZG. 2001. Defining supply chain management. *Journal of Business Logistics*, 22(2):1-25.

MIGIRO SO & AMBE IM. 2008. Evaluation of the implementation of public sector supply chain management and challenges: a case study of the central district municipality, North-West province, South Africa. *African Journal of Business Management*, 2(12):230-242.

NISSEN M. 2001. Agent-based supply chain integration. *Information Technology and Management*, 2(2):289-312.

OFFICE OF GOVERNMENT OF COMMERCE (OGC). 2005. *Supply chain management in public sector procurement: a guide version*, 6 June. OGC, vide Office of Government of Commerce.

PAN TZX & POKHAREL S. 2007. Logistics in hospitals: a case study of some Singapore hospitals. *Leadership in Health Services*, 20(3):195-207.

POISTER TH. 2003. *Measuring performance in public and nonprofit organisations*. San Francisco, CA: Jossey-Bass.

PRESUTTI W. 2003. Supply management and e-procurement: creating valued added in the supply chain. *Industrial Marketing Management*, 32(3):219-226.

REPUBLIC OF SOUTH AFRICA (RSA). 2005. Supply chain management: a guide for accounting officers and municipal entities. Pretoria: National Treasury.RSA, vide Republic of South Africa.

SAYUTI NM. 2011. Critical determinants of agile supply chain in buyer and supplier relationship: A literature review and future direction. *International Journal of Business and Management Studies*, Vol.3, No.1, pp. 287298.

SMITH A & RUPP W. 2002. Application service providers (ASP): moving downstream to enhance competitive advantage. *Information Management & Computer Security*, 10(2):64-72.

SHUKLA KR, GARG D & AGARWAL A. 2011. Understanding of supply chain: A literature review. *International Journal of Engineering Science and Technology (IJEST)*, 3(3): 2059-2072.

SUNDARRAJ R. 2003. A multi-period optimization model for the procurement of component based entrepreneurial information technologies. *European Journal of Operational Research*, 146(2):339-351.

TALLURI S. 2002. Enhancing supply decisions through the use of efficient marginal costs models. *Journal of Supply Chain Management: A Global Review of Purchasing and Supply*, 38(4):10.

THOM N & RITZ A. 2000. *Public management: innovative konzepte zur führung im öffentlichen sektor*. Wiesbaden.

WISNER JD, TAN K-C & LEONG GK. 2008. *Principles of supply chain management: a balanced approach*. Mason, OH: South-Western Cengage Learning.

WONG WP & WONG KY. 2008. A review on benchmarking of supply chain performance measures. *Benchmarking: An international journal*, 15(1):25-51.

ZELLER S. 2005. Face-off over fraud. *Government Executive*. Washington: 37(12): 26-27.

Kaye D. 2009. Public sector supply chain: risks, myths and opportunities – a new world of risk. Zurich Municipality.