The Journal of Contemporary Issues in Business and Government
2006 Volume 12, Number 1, pp 75-91

An Emergent Approach to Public Procurement

Jo Fletcher
Curtin University of Technology

Abstract

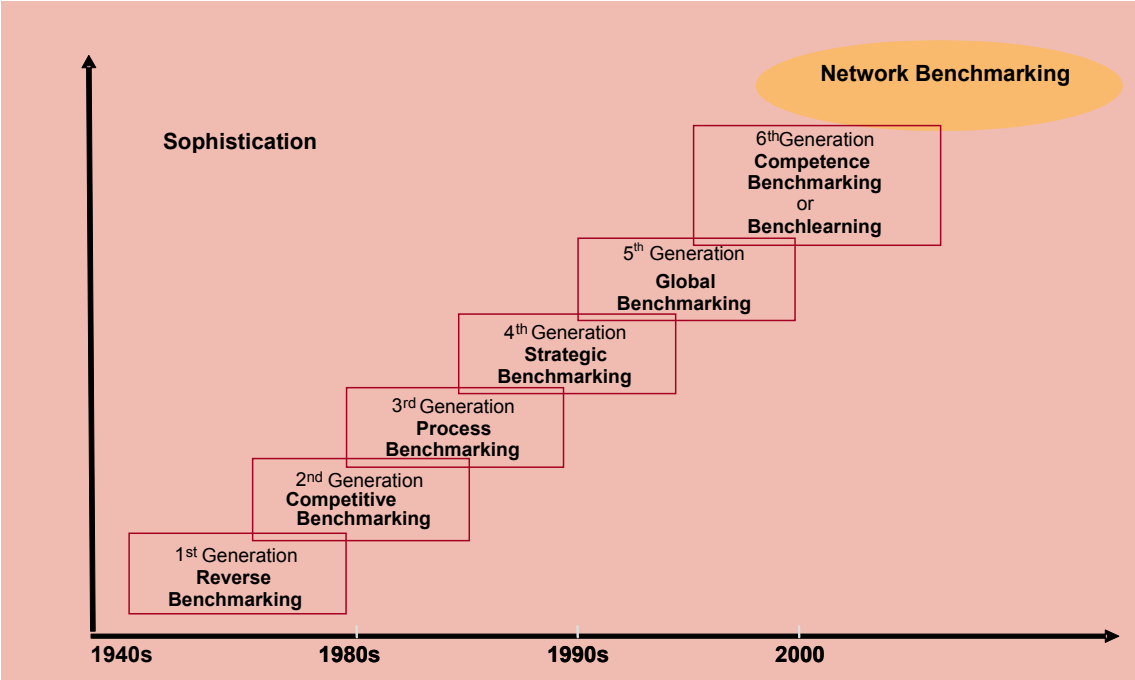
This paper considers the design of a dynamic measurement framework for public procurement from an emergent system's perspective. In order to continue into sustainable excellence, an adaptable and reliable measurement system is needed to measure procurement's current performance and make well-informed sustainable decisions into the future in the context of a changing political environment. Measurements would need to include: public confidence (with ethical accountability and transparency), efficiency and effectiveness (as measured in value for money and the delivery of procurement outcomes) and policy compliance and consistency. These measures would need to be nested in a larger measurement system (as reflected in a sustainable generic public management system that would reflect quality of life as opposed to simply material wealth). In terms of design principals for such a measurement system, three main themes have emerged in the literature. First, organisations are complex multidimensional nested systems, second the integrity of the whole system needs to be maintained and third, in order to improve complex social systems, such as large public procurement entities, performance management systems need to function as an ethical learning tool. The actual design of an integrated measurement system to gauge procurement performance within public procurement is potentially a research area for the future.

Introduction

Mechanistic thinking and its methods of analysis and synthesis has limitations in relation to its view and understanding of a living system. Reducing organisations and social constructs into various parts, examining their functioning separately and then reconstructing the whole can be seen to limit our ability to understand complex systems. For this reason, a more complex adaptive systems approach has been taken to view measurement in public procurement. A more emergent systems approach respects the ethics of the whole system. Emergence emphasises multidisciplinary collaboration in pursuit of understanding the common themes that arise in natural, artificial and social systems. From an emergent or complexity perspective, performance management means managing the interaction of the systems parts, rather than optimising their performance in isolation.

Literature reviews into benchmarking in the public sector concluded that there were no advanced models that integrate the many facets of organisational benchmarking, neither was there a unifying theory to guide its advancement (Yasin, 2002). However, using the work of Kyro (2003) as a framework, the evolution of benchmarking between 1940 and 2006 reveals a paradigmal shift from a mechanistic to an emergent ecological view of the world (Figure 1). The first generation benchmarking, *reverse benchmarking*, compared products and product offerings with competitors. This was demonstrated by Xerox's highly comparative approach to competitors seen at the turn of the 1980s. The second generation, *competitive benchmarking*, compared processes with these competitors within industries and the third generation, *process benchmarking*, compared processes outside the industry thereby suggesting that learning could be made from the wider environment. Fourth generation, *strategic benchmarking*, introduced the multidimensional aspect to performance measurement. Benchmarking became more than comparing prices or processes. In the 1990s, the approach included the development of more integrative management systems incorporating both traditional quantitative and abstract qualitative performance measures (Kyro, 2003). Examples of these new frameworks were Kaplan and Norton's Balanced Scorecard (1996) and Neely and Adams' performance prism (2001).

Figure 1: Evolution of the Benchmarking Concept, 1940s to 2006



Source: Kyro, 2003.

While the first three generations of benchmarking can be considered to fall within the mechanistic view of performance measurement, fourth generation strategic benchmarking began a more comprehensive and encompassing view of benchmarking.

This generation included the strategic aspect to benchmarking which paid attention to the quality of benchmarking in relation to the goals of the organisation as a whole. All factors contributing to the strategic direction of the organisation became recognised and efforts were made to measure these either quantitatively or qualitatively. Furthermore, the fifth generation's *global benchmarking* perspective introduced the concept of the organisation as a subsystem to larger systems. Performance measurement as a learning instrument was key to the sixth generation of *competence benchmarking* whereas the seventh generation highlighted networking or the emergence of social discourse as a dynamic component to a performance measurement system.

According to a Renaissance Solutions/Harvard Business School/Business Intelligence survey of over 200 organisations conducted in 1995 (Kaplan & Norton, 1996), five common features of out-dated performance measurement systems that could be attributed to the first three generations of benchmarking were determined. They were: dominant financial or other backward-looking indicators; failure to measure all the factors that create value; little account being taken of asset creation and growth; poor measurement of innovation, learning and change; and a concentration on immediate rather than long-term goals.

Value and Sustainability

Gross Domestic Product (GDP)-based measures are currently being used by governments on a global level as both a measure of economic growth and as a measure of progress. However, activities that degrade our quality of life such as crime, pollution and addictive gambling all add to our GDP. The Genuine Progress Index (GPI), developed in 1995, presents a better way to measure our societal progress and wellbeing. It includes both the development of indicators and measures of progress and assessments of the economic value of non-market social and environmental assets not valued in the conventional economic statistics. That takes into account things like the health of the people, the value of natural resources, the safety of communities or value of unpaid work (Lawn, 2005).

The Nature of Complex Dynamic Systems

Recent physics research in the areas of non-linear dynamical systems represents a revival of the scientific study of emergence and self-organisation in complex dynamical systems in order to predict their behaviour. Emergence is a strand of systems thinking and the complexity paradigm, which arose from the emphasis of multidisciplinary collaboration in pursuit of understanding the common themes that arise in natural, artificial and social systems. These studies include the areas of chaos theory, self-organisation and artificial life. Complexity is 'a new paradigm of knowing, or rather a new way of conceptualising knowledge' (Tasaka, 1999: 115) with radical implications for performance management. This paradigm has also been recently applied to management studies in organisations. This view applies to all living systems from planets and galaxies to organisations and cells.

Three fundamental principles apply to all living systems. First is the principle of interdependence, whereby a system maintains a network of processes to pursue a hierarchy of goals with survival at the top (Johnson & Broms, cited in Dervitsiotis, 2004). Second is the concept of emergence which explains endless new forms from the same components. 'A system exhibits emergence when there are coherent emergents at the macro-level that dynamically arise from the interactions between the parts at the micro-level. Such emergents are novel with respect to the individual parts of the system' (De Wolf & Holvoet, 2003: 3). In other words, interactions at the micro level of a system results in the creation of a new emergent (be it a property, behaviour or structure) at the macro-level. Furthermore, global behaviour that arises from the interactions of the local parts cannot be traced back to the individual parts (De Wolf & Holvoet, 2003). Third is the concept of self-organisation, whereby a system adapts to change without loss of identity from within by means of a flexible boundary. 'Self-organisation is [a] dynamical and adaptive process where systems acquire and maintain structure themselves, without external control' (De Wolf & Holvoet, 2003: 7).

Similarly, the implications for a performance measurement system from an emergent perspective appear to be three-fold. First, the system needs to be a complex multidimensional nested system. Second, it needs to maintain the integrity of the whole system. Third, it needs to be an adaptive learning instrument that responds timorously to changes in the environment.

Public Procurement as a Complex Multidimensional Nested System

Public procurement tends to vacillate between regulation and compliance and managerialism and performance and the scope of public procurement includes the political/community expectations inherent to public procurement, such as compliance, transparency and accountability as well as value for money outcomes (Schapper, Malta & Gilbert, 2006). Additionally, public procurement is associated with broader reforms and policy issues such as business and regional development, open and effective competition, integrity, ethics and probity, and 'buy local' (State Supply Commission, 2005).

Measures in Public Procurement

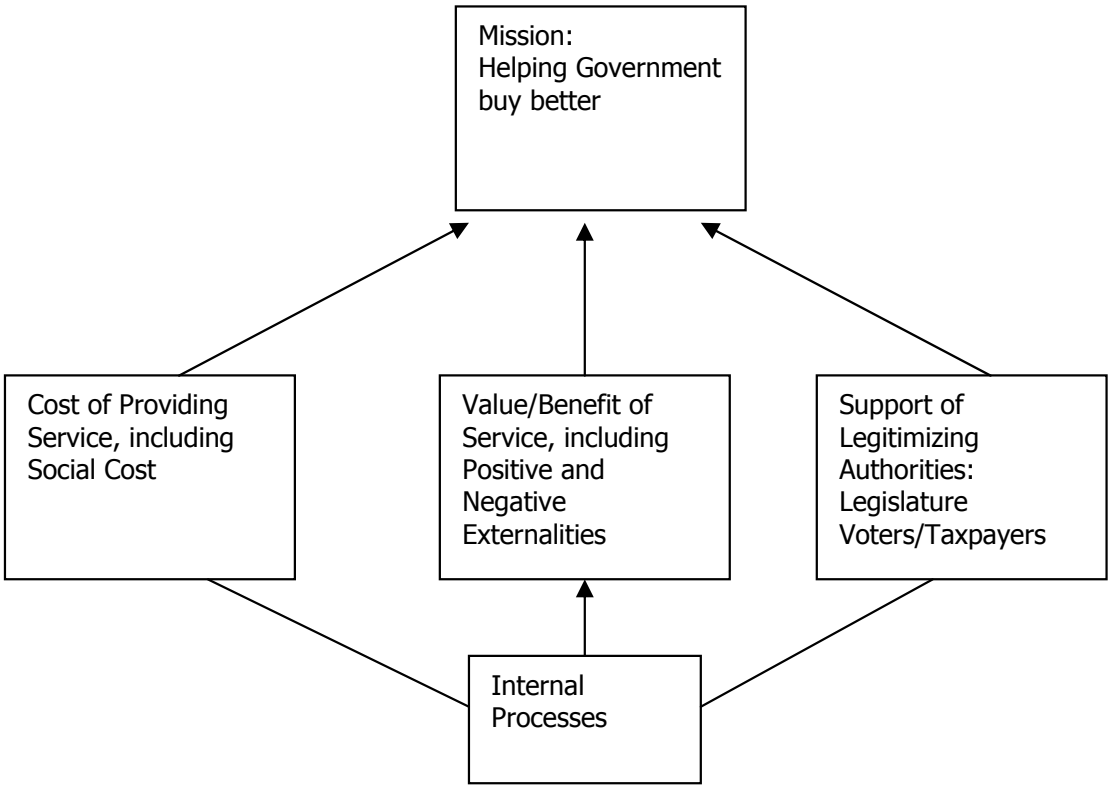
Public sector benchmarking is an inherently political process. Any function chosen to benchmark may still be politically motivated, with political discretion and subjectivity likely to play a part (Keehley & MacBride, 1997). Benchmarking in the public sector may also feature the comparison of performance statistics in one's organisation to appropriate external pegs. Such pegs might be professional standards, state or national statistics or the performance targets and results of selected counterparts (Ammons, 1999).

Public procurement as viewed from a systems approach is multidimensional with savings as only one of a suite of measurements needing measuring and improving on. The next obvious question, therefore, is what exactly in public procurement needs measuring in order to diagnose its current status and signal areas of needed change?

As a starting point, a Balanced Scorecard approach including the following diagnostic measures is suggested. This framework has three high level perspectives and

objectives - cost incurred, value created and legitimising support - and is Norton and Kaplan's adaptation of their classical Balanced Scorecard for public sector agencies (Figure 2).

Figure 2: Balanced Scorecard for Government Procurement DTF



Source: Kaplan and Norton, 2001: 136 (adapted from Norton and Kaplan's Scorecard for public Sector Agencies).

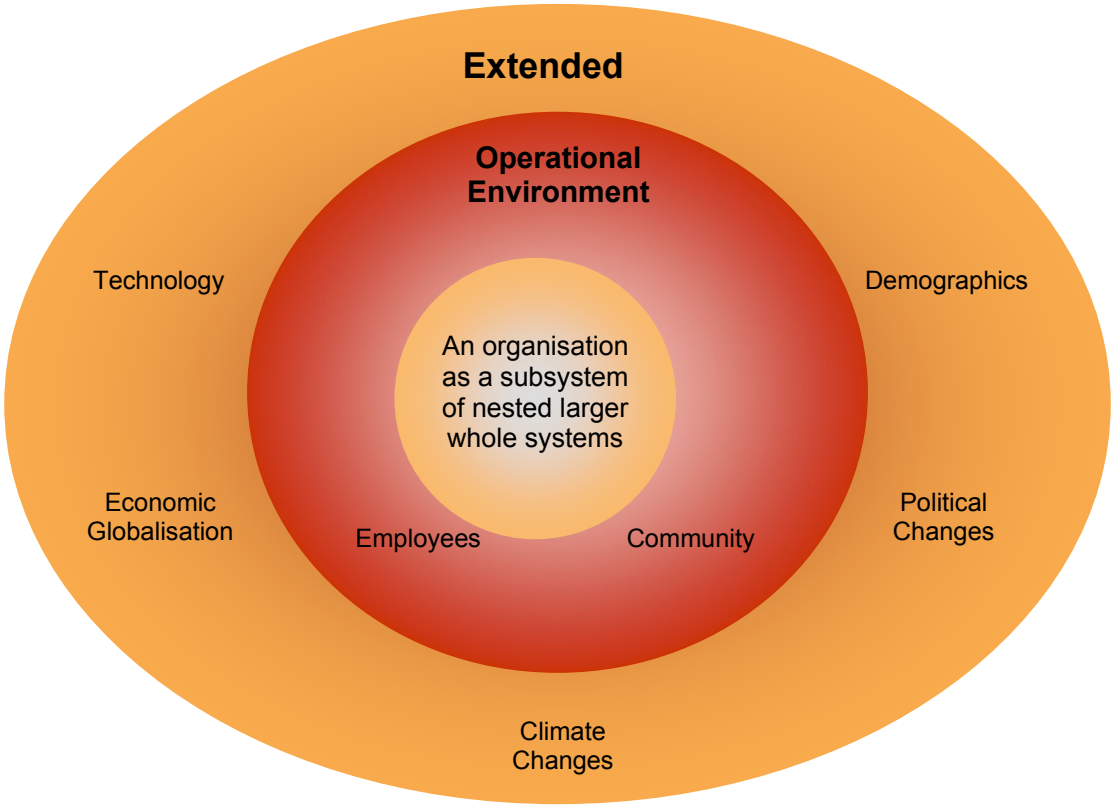
The following major areas of measures would need to be included in a performance management system for public procurement. Firstly, a challenge function would be required as a diagnostic to determine whether the procurement would be approved, amended or disapproved, challenging the necessity and value of any goods or services procured. Secondly, service delivery of cost of goods and services (volume changes and cost savings), throughput time to acquire goods and services, and internal procurement costs including staff and overhead costs would be needed. Additionally, compliance would need to be sufficiently measured. Issue management measures which consist of the identification, analysis and resolution of strategic issues that can impede the functioning of procurement operations when dealing with clients or suppliers (including internal organisational issues, client satisfaction and supplier performance) would need to be monitored. Measures pertaining to client education (communicating the latest procurement policies, strategies, new approaches or success stories to clients in an attempt

to forestall non-compliance by increasing awareness, understanding and effective use of existing and new procurement regulations) would need to be included. Furthermore, an overarching overall effectiveness measure making a judgement as to its overall effectiveness on the procurement function at any point in time is essential (Shane & Lafferty, 2006). The focus of measurement in government procurement at this overarching level needs to include the innovation and resources delivered through supply bases, the reduction of risks from supply failure and the facilitation of agencies in achieving their strategic goals and objectives through better buying (Evans, 2003).

The Organisation as a Hierarchy of Nested Systems

From an emergent perspective, it is important to view public procurement as a subsystem of nested larger whole systems. Performance measurement systems are inextricably a subsystem of larger systems and consequently public procurement is a subsystem of larger systems including national and global economic, political, environmental and social systems (Figure 3).

Figure 3: Viewing the Organisation in a Hierarchy of Nested Systems



Source: Dervitsiotis, 2004: 461.

Maintaining the Integrity of the Whole System

The concept of maintaining the integrity of the whole system is fundamental to an emergent perspective. Setting goals in an ecological system needs to optimise the overall results without leading to sub-optimisation elsewhere. Goals need to be all-inclusive so as to avoid exclusion of some activities and focus on only selected ones, and also need to be maintainable as modules in order to adapt to changing conditions. Additionally, goals measured need to be economic (that is, the value for achieving them exceeding the cost of using them in the measurement system). It is important that the goals set are understandable and suitably legitimate and perceived as beneficial at both the local system level and other levels (Figure 4). Goals need to be applicable with good fit to existing conditions and adaptable to new ones and furthermore, need to be both attainable and equitable (Dervitsiotis, 2004).

Figure 4: Performance Indicators at Different Levels of Nested Systems

LEVEL	CATEGORY	EXAMPLES
Global	**Political**	Degree of democracy
	Economic	Degree of income inequality
	Environmental	Strategic natural resources depletion
	Social	Quality of education and health
National	**Economic**	GPI, National deficits, inflation
	Environmental	Existing levels of pollution
	Financial	Economic Value Added (EVA)
Organisation	**Competitive**	Level of procurement activity in the market, Level of core competencies
	People	Employment stability level and empowerment
	Environmental	Environmental policies (IS0-14000)
Process / Operational	**Quality**	Develop Procurement Solutions Procurement Outcomes (Savings) Customer Satisfaction
Teams & Individuals	**Cohesiveness**	Commitment to team spirit
	Employee Satisfaction	Degree of coaching and skill training
	Loyalty	Employee turnover

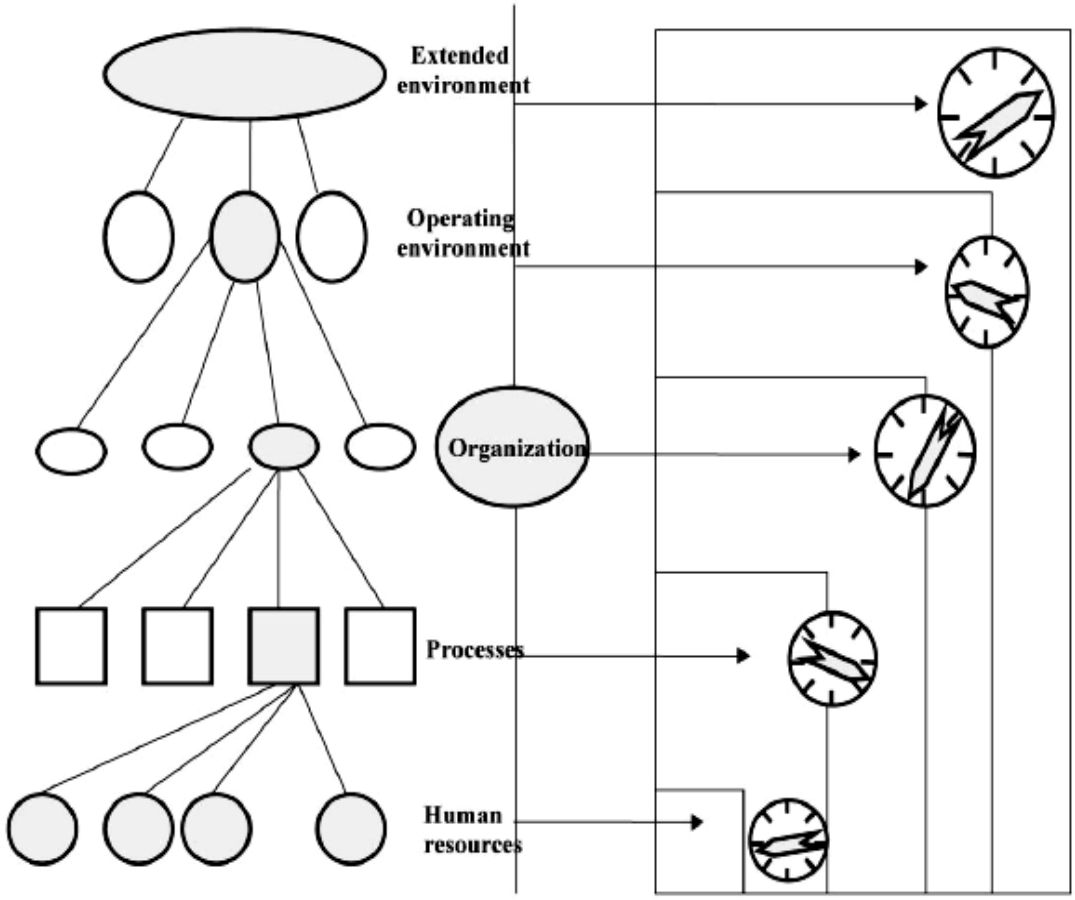
Source: Dervitsiotis, 2004 (adapted by Fletcher, 2006).

For an intervention on any system part to lead to a genuine improvement to the whole, there are performance system requirements for both correspondence and compatibility.

Correspondence is the unambiguous correlation of specific variables monitored at each level to other key aspects of that level in the system. When moving from lower to higher levels in the hierarchy of large social systems, indicators change from concrete measures (e.g., units per hour) to more indirect measures such as effectiveness and efficiency

(Figure 5). At the level of organisation, the measurements need to focus on the strategic variables that reflect the viability of the organisation. This also suggests that the higher the level in the system the less predictable the outcomes and the more likely they are to be manifestations of the emergence of phenomena.

Figure 5: Performance Measurement Systems for Management Learning



Source: Dervitsiotis, 2004 ('Assuring correspondence between components and measurement indicators along with horizontal, vertical, and time compatibility', [p. 469]).

Compatibility needs to occur on a horizontal, vertical and time axis. Horizontal compatibility describes organisational processes at the same level of the system (Figure 5). In public procurement, a measure selected to assess the performance of the process function, such as cost for the development of a Common Use Arrangement, must be compatible with indicators for other peer functions, such as business development or research and analysis.

Vertical compatibility is the need for indicators to relate to the level directly above and directly below the one being assessed (Figure 5). At the process level of procurement contract development, a variable selected to determine its effectiveness may be the ease of use of the contract. This indicator must be compatible with indicators used for the entire

organisation on levels above and below it, such as the percentage of customer satisfaction (level above) and the variables applicable to individual workers that are part of this process, such as the degree or multi-skilling (level below).

Time compatibility means that an improvement is a genuine improvement only if its consequences are also beneficial in future periods - that is, the impacts are distributed across time periods in order to maintain the 'ethics of the whole system'. From a public procurement perspective, this would mean that financial gains through contracts do not have a negative impact on local business in the long run, or that suppliers are those that pass the cost of environmental pollution from their facilities to outsiders and future generations (Dervitsiotis, 2004).

The Performance Measurement System as a Learning Tool

Logic is the beginning of wisdom, not the end (Spock in Cavaleri & Fearon, 1996: 13).

A primary law in ecology states that L ≥ C where L = learning and C = rate of change. In other words, for any organism (or organisation) to survive, its rate of learning must be at least equal to the rate of change in its environment. Organisation learning is not an option but an imperative (Garratt, 1990).

Globalisation and the international integration of economic activity has added further complexities in the environment of organisations. As a response, organisations have had to become highly adaptive in their learning in order to successfully survive these conditions (Clarke & Clegg, 1998). Organisational learning requires teamwork and organisations with an installed program of measurement typically fare better (Lingle & Shieman, 1996). From a systems perspective, measurement of performance in public procurement needs to facilitate genuine learning and increased wisdom. This means gaining a better understanding of the system we are part of. We are then able to measure where we are currently, in order to make good sustainable decisions for the future.

Organisation learning is not based purely on raw information, no matter how highly sophisticated and processed. Information can only become knowledge through some transformation process of learning that makes it useful. Organisation knowledge needs both the information processing capacity of information technologies and the creative capacity of human beings (Malhotra, cited in Raisinghani, 2000: 107).

Additionally, wisdom is the capacity to put into action the most appropriate behaviour, taking into account what is known (knowledge) and what does the most good (ethical and social considerations) (Rowley, 2006). Avery and Baker (1990) further make the point that learning is the process by which potential to change or a permanent change in behaviour results and which develops through experience. It is reasonable therefore, to assume procurement as a public service would require 'wise learning' in a way that leads to a relatively permanent change in buying behaviour and that takes into account ethical and social considerations

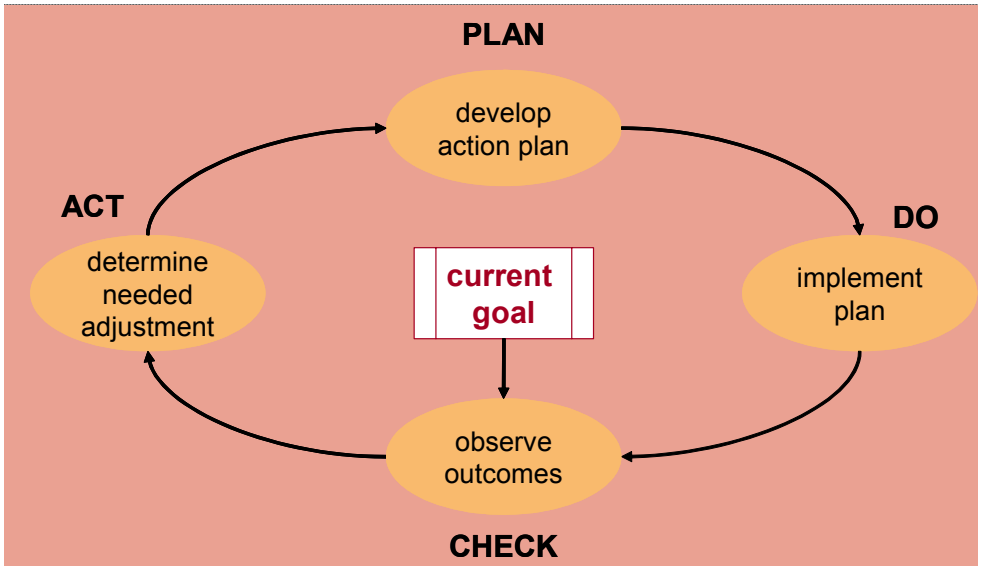
This change in behaviour by individuals or organisations can be facilitated by means of single, double or triple loop learning (Argyris, 1977). It is from a performance management system for public procurement perspective that single, double and triple

loop learning will now be viewed. Learning in the public sector would need to facilitate both the process of ongoing learning and a process of ongoing transformation where inherent ethical considerations are continuously addressed. A critical systems approach would suggest we be ethically alert, critically reflective, appreciating issues and dilemmas that we face and exploring possible choices for action (Flood, 1999).

Single Loop Learning

Individuals of single loop learning organisations receive feedback and adjust accordingly, simply correcting the problems as they occur (Figure 6). This learning is characterised by simple adaptive responses. Single loop learning is incremental learning, which involves doing something better without necessarily examining or challenging underlying beliefs and assumptions. Single loop learning is best described by analogy. The classic example of single loop learning is the thermostat. Upon discovery of a deviation away from a prescribed temperature, the thermostat triggers the pre-programmed action of heating or cooling. As shown in Figure 6, it is the Plan, Do, Check and Act cycle. This is also the basis of benchmarking as a learning tool (Argyris, 1998).

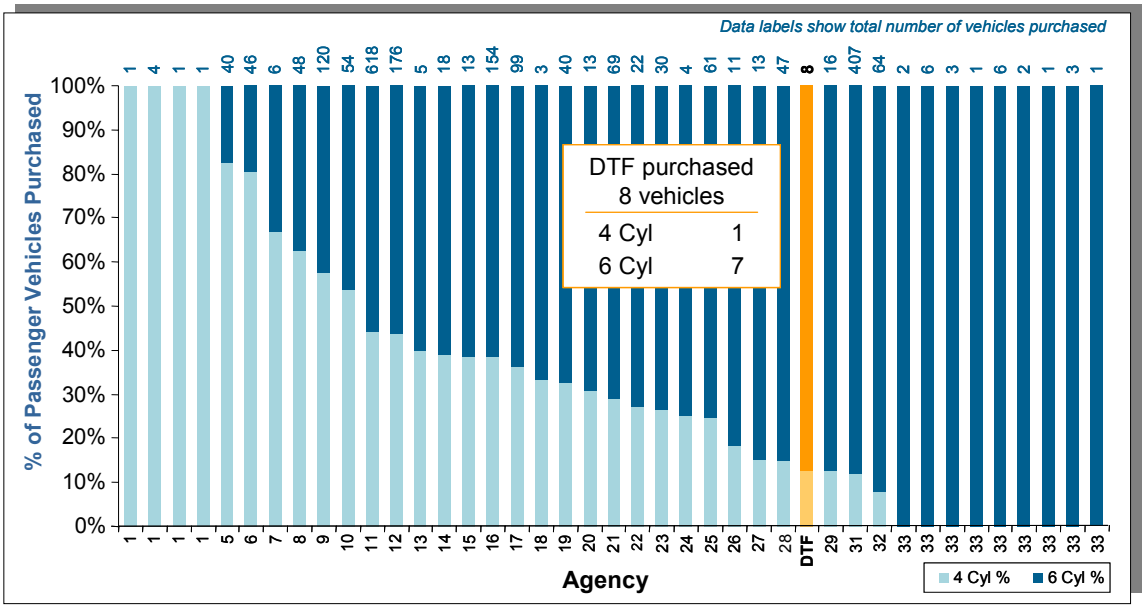
Figure 6: A Measurement System for Single Loop Learning



Source: Dervitsiotis, 2004.

Single loop learning and mechanistic benchmarking are currently being used effectively by the Office of Government Procurement DTF, with the deployment of buying behaviour reports which measure the effectiveness of agency buying on whole of government common use arrangements. As illustrated below (Figure 7), the purchasing of 4 and 6 cylinder passenger vehicles mapped by Agency compares their buying behaviour to other agencies buying on the government contract. Agencies use this visually effective and direct feedback and then adjust their buying patterns accordingly to achieve goals. A simple adaptive response encourages incremental learning on how to buy best within the contract.

Figure 7: 4 & 6 Cylinder Passenger Vehicles Purchased – by Agency (1 July 2004 – 30 June 2006)



Source: Office of Government Procurement DTF.

Double Loop Learning

Organisations need to devise ways in which managers and employees reason about their behaviour by means of double loop learning (Figure 8). Double loop learning in an organisation involves questioning and reframing problems and adjusting the underlying policies and objectives that shape the way in which organisations operate as well as periodic examination of assumptions behind the strategic goals (Argyris, 1998). This is because causes of problems may in fact relate to changes in the external environment or improper assumptions by managers or employees as to how to achieve the desired objective, or both. Returning to the previous analogy, if the thermostat were capable of the wisdom of its programming and adjust it accordingly, it would be capable of double loop learning.

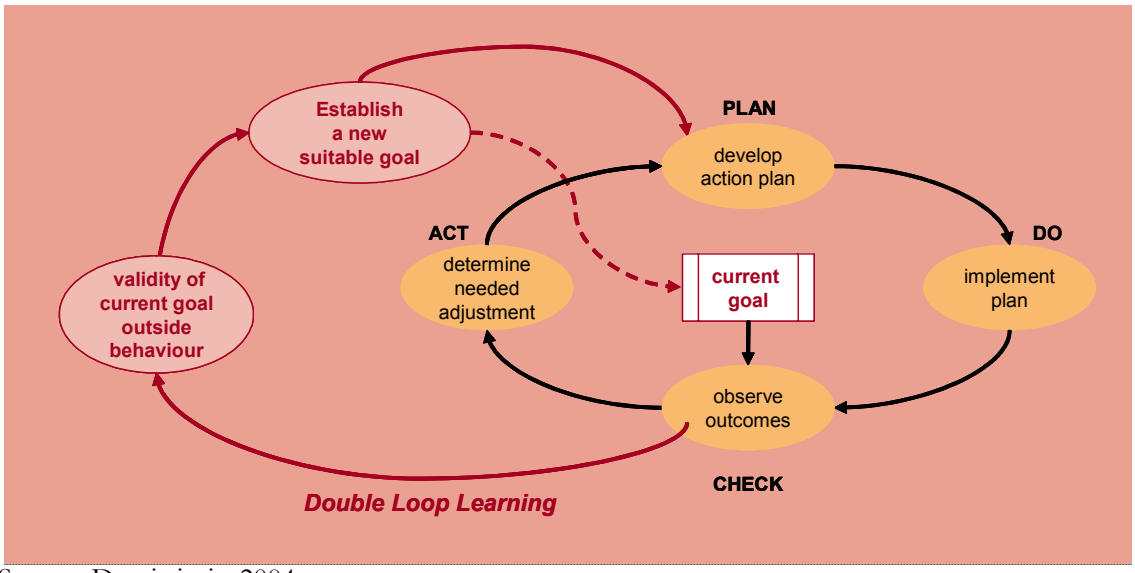
In the procurement environment, this relates to the ability to develop procurement solutions that are a direct response to changes in the environment. Single loop learning involves better buying by obtaining the best price available on what is being promoted on a current contract. Double loop learning involves responding to the environment and developing new and reviewed contracts to reflect changes in the environment.

Triple Loop Learning

Triple loop learning is the continual reflection on the learning process and on the context within which learning occurs. Like double loop learning, this learning also reflects on the assumptions and values that are motivating the learning and influencing its outcomes. These learning activities promote a perspective beyond a narrow focus on the

superficial revisions of existing structures conducted in an ad hoc manner in the pursuit of an unexamined set of goals and priorities (Yuthas, Dilard & Rogers, 2004).

Figure 8: A Measurement System for Double Loop Learning



Source: Dervitsiotis, 2004.

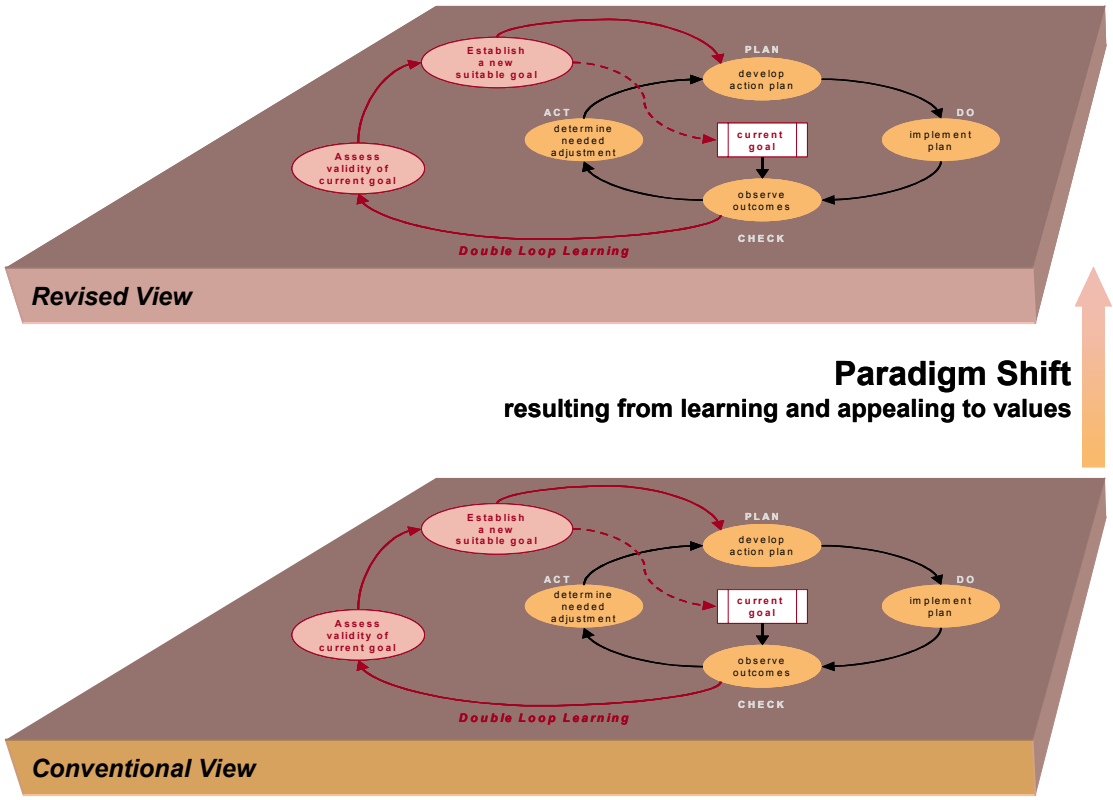
Triple loop learning involves 'learning how to learn' by reflecting on how we learn in the first place. This form of learning challenges our underlying beliefs and perceptions. It may also be described as double loop learning about double loop learning (Figure 9). One level of learning is like climbing a ladder, but a higher level of learning involves questioning whether or not the ladder is leaning against the right wall. This leads to the examination of why we do what we do while taking onto account our underlying beliefs and understandings as to how the world operates. To illustrate this point and continue with the example of vehicle purchasing for government procurement, triple loop learning would question the reasonableness of using fuel vehicles in the long term. With triple loop learning we would be able to explore the use of alternative transportation in the light of the negative impact fossil fuels are having on our environment, and come to a creative long-term solution to the issue.

Organisations develop and make progress through two levels of organisational change: adaptive and generative. The adaptive changes are incremental, evolutionary and transactional in nature, whereas generative change is more likely to entail a quantum breakthrough or a transformational change, which is essentially a paradigm shift or a new way of doing things. Between paradigm shifts exist relatively stable periods that are closer to equilibrium, during which incremental changes are made within the context of the current paradigm.

In order to maximise their progress, organisations must be capable of managing both types of learning and change and need to be 'dynamically stable'. In other words, an organisation needs to be dynamic enough to cope with the triple loop learning and

paradigm shifts but stable enough to make steady progress through single-loop and double-loop learning during the periods of relative equilibrium (Miller, 1998).

Figure 9: Challenges for World Wide Paradigm Level Learning

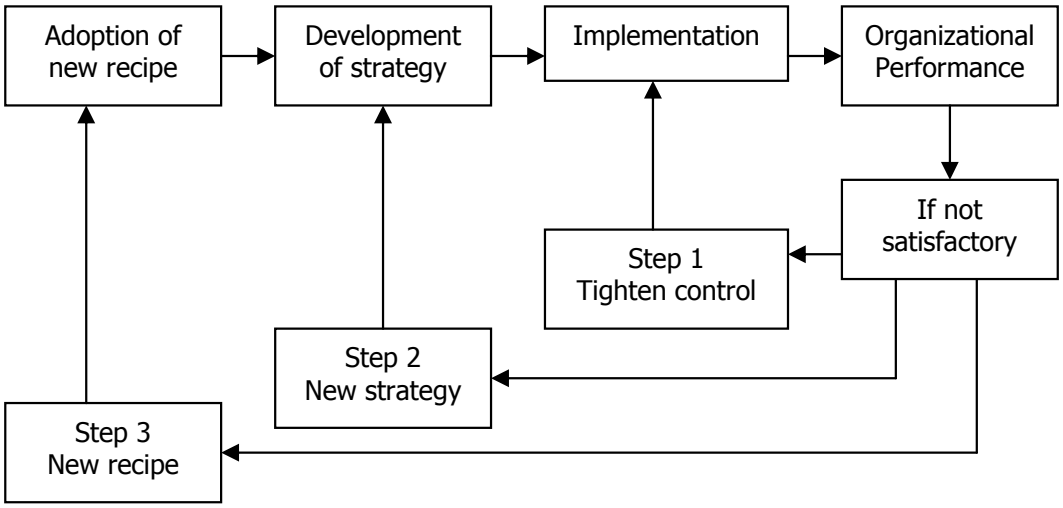


Source: Dervitsiotis, 2004.

A summarised view of all three loops of learning is demonstrated as an adoption of a new recipe. Single loop learning is when controls are tightened where implementation of organisational performance does not achieve the required results. Double loop learning occurs when a new strategy is developed as a response and triple loop learning is signified as the adoption of new recipe (or paradigm shift) (Figure 10).

As the process of evolution itself evolves, it is no longer possible to succeed by learning the rules and following them as the rules themselves can be changed (Stacey, 1992). Since human organisations are dynamic non-linear feedback systems, it is impossible for managers to plan or envision the long-term future of an innovative organisation. Managers can at best create and discover an unfolding future using their ability to learn together in groups and to interact politically in a spontaneous, self-organising manner (Stacey, 1993).

Figure 10: Adoption of New Recipe



Source: Grinyer and Spender, 1979: 122.

Personal Learning and Transformation in Organisations

An organisation's intellectual capital, or knowledge base, is the complex and ever-changing mix of information resources and the workers themselves and workers are continually discovering how they create their reality (Senge, 1990; Seivert *et al.*, 1999). Senge's disciplines in mastering one's own art and practice of management imply a shift in outlook on managing from an objective external activity to an internal subjective one. Objectifying reality as a hard systems thinking concept, to manage discrete mechanical systems, is substituted for the soft systems thinking of learning as a human process (Cavaleri & Fearon, 1996.) Furthermore, systems thinking helps us sense and appreciate our connection to the whole and reminds us that the whole can exceed the sum of its parts (Senge, 1990).

Conclusion

On reviewing the literature, benchmarking is a dynamic and changing phenomenon. It has undergone several significant changes over the last 50 years, from its simplest first generation form of comparing products and offering with competitors to its contemporary form as an emergent form of social discourse. For public procurement the use of Kaplan and Nortons's adapted scorecard for public sector agencies is recommended. Measures that need to be included in this model are the innovation and resources delivered through supply bases, the reduction of risks from supply failure and the facilitation of agencies to achieve their strategic goals and objectives through better buying. The complex adaptive systems approach has been used to characterise systems as understood today. Systems from solar systems to cells and large social organisations pursue a hierarchy of goals with survival at the top, create endless new forms that cannot

be traced back to individual parts and adapt to change from within. Similarly, the implications for a performance measurement system from a complex adaptive perspective appear to be three-fold. First, the system needs to be a complex multidimensional nested system. Second, the design system needs to maintain the integrity of the whole system by assuring horizontal, vertical and time compatibility. Third, it needs to be a learning instrument that adapts to the environment. A public procurement measurement model needs to be a tool that facilitates all three learning cycles within the political procurement environment. This model needs to facilitate triple loop learning that relates to wisdom and the examination of those values and beliefs that may be outdated in terms of understanding our current world and our responsibilities to sustaining the planet for ourselves and future generations. These learning tools need to become part of a subjective, personal and ethical learning experience with the potential for subjective transformation for the individuals involved. The current literature appears to hold the following tenet to the future: in order to improve complex social systems we need to design comprehensive measurement systems as ethical learning instruments. The actual design of an integrated measurement system to gauge procurement performance within public procurement is potentially a research area for the future.

References

Ammons, D. (1999) A proper mentality for benchmarking. *Public Administration Review*. 59 (2) pp 105-110.

Argyris, C. (1998) Double loop learning in organisations. *Harvard Business Review*, 55 (5) p 115.

Argyris, C. (1998) Teaching smart people how to learn. In Drucker, P., Garvin, D., Leonard, D., Strauss, S. and Brown, J. (Eds) *Harvard Business Review on Knowledge Management*. President and Fellows of Harvard College, Boston, MA. 81-108.

Avery, G. and Baker, E. (1990) *Psychology at Work (2nd Ed)*. Prentice-Hall. Sydney.

Bryan, S. and Lafferty, P. (2006) Building blocks to better procurement. *Summit*, 9 (1) pp 16-18.

Capra, F. (2002) *The Hidden Connections*. Double Day, New York, NY.

Cavaleri, S. and Fearon, D. (1996) Managing in and through the knowledge ecology. In Cavaleri, S. and Fearon, D. (Eds) *Managing in Organisations that Learn*. Blackwell, Cambridge, MA. 12-36.

Clarke, T. and Clegg, S. (1998) *Changing Paradigms: The Transformation of Management Knowledge for the 21st Century*. Harper Collins Publishers, London.

De Wolf, T. and Holvoet, T. (2004) *Emergence and Self-Organisation: A Statement of Similarities and Differences*. Department of Computer Science, K U Leuven, Belgium. (Retrieved: 2 February 2007 from www.cs.kuleuven.ac.be/cwis/research/distrinet/resources/publications/41364.pdf.)

Dervitsiotis, K. (2004) The design of performance measurement systems for management learning. *Total Quality Management*, 15 (4) p 457.

Darsch, J.J. and Yasin, M.M. (1998) A framework for benchmarking in the public sector literature review and directions for future research. *International Journal of Product Technology*, 10 (1/2).

Flood, R. (1999) Knowing of the unknowable. *Systemic Practice and Action Research*, 12 (3) p 247.

Evans, E. (2003) Beyond savings. *Supply Management*, 8 (3) p 17.

Garratt, B. (1990) *Creating a Learning Organisation*. Director Books, Cambridge.

Grinyer, P. and Spender, J. (1999) Organisational renewal. *International Studies of Management & Organisation,* 26 (1) pp 17-41.

Kaplan, R. and Norton, D. (1996) *The Balanced Scorecard*. Harvard Business School Press, Boston, MA.

Kaplan, R. and Norton, D. (2001) *The Strategy-Focused Organisation: How Balanced Scorecard Companies Thrive in the New Business Environment*. Harvard Business School Press, Boston, MA.

Keehley, P. and MacBride, S. (1997) Can benchmarking for best practices work for government? *Quality Progress*, 30 (3) pp 75-81.

Kyro, P. (2003) Revising the concepts and forms of benchmarking. *Benchmarking,* 10 (3) pp 210-255.

Lawn, P. (2005) An assessment of the valuation methods used to calculate the index of sustainable economic welfare (ISEW), genuine progress indicator (GPI), and sustainable net benefit index (SNBI). *Environment, Development and Sustainability*, 7 pp 185-208.

Lingle, J. and Shieman, W. (1996) From Balanced Scorecards to strategic gauges: Is measurement worth it?' *Management Review*, pp 56-62.

Miller, A. (1998) *Strategic Management (3rd Ed)*. McGraw Hill, New York, NY.

Neely, A., Adams, C. and Crowe, P. (2001) The performance prism in practice. *Measuring Business Excellence*, 5 (2) p 6-12.

Raisinghani, S. (2000) A cognitive perspective on business and education. *American Business Review*, 18 pp 105-112.

Schapper, P., Malta J. and Gilbert, D. (2006) An analytical framework for the management and reform of public procurement. *Journal of Public Procurement*, 6 (1/2) p 1-27.

Shane, B. and Lafferty, P. (2006) Building blocks to better procurement. *Summit*, 9 (1) pp 16-18.

Seivert, S., Pattakos, A., Reed, F. and Cavaleri, S. (1996) Learning from the core: The heroic leader and conscious organisation. In Cavaleri, S. and Fearon, D. (Eds) *Managing in Organisations that Learn*. Blackwell, Cambridge, MA.

Senge, P. (1990) *The Fifth Discipline: The Art and Practice of the Learning Organisation.* Random House. Sydney.

Stacey, R.D. (1992) *Managing the Unknowable: Strategic Boundaries Between Order and Chaos in Organisations*. Jossey Bass, San Fransciso, CA.

Stacey, R. (1993) Strategy as order emerging from chaos. In *Long Range Planning*, 26 (1) pp 10-18.

Stacey, R. (1996) Emerging strategies for a chaotic environment. *Long Range Planning*, 29 (2) pp 182-190.

State Supply Commission (2005) *Procurement Policy*. Retrieved: 30 May 2006 from www.ssc.wa.gov.au/procurment02asp.

Tasaka, H. (1999) Twenty-first century management and the complexity paradigm. *Emergence*, 1 (4) pp 115-123.

Yasin, M. (2002) Theory and practice of benchmarking: Then and now. *Benchmarking: An International Journal*, 9 (3).

Yuthas, K., Dillard, J. and Rogers, R.K. (2004) Beyond agency and structure: Triple loop learning. *Journal of Business Ethics*, 51 (2) p 229.

Acknowledgements

Many thanks to Prof Guy Callender for his supervision of this paper.