Leadership and Change for Energy Efficiency in Accounting and Management

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Abstract

For nearly 40 years academic literature has recognised key deficits in the skill sets of accounting and business management professionals in relation to sustainability. In an increasingly challenging and competitive globalised market, new entrants to these professions find that the skills that are most sought after are outside the disciplinary confines of their formal technical skills. There is broad understanding and agreement on the nature of the skills and attributes that are in relative short supply, but fostering their development has proven to be problematic. The desultory progress that has been made over the years in addressing these skill shortages suggests that more active intervention – more leadership – may be called for. This paper seeks to identify leadership styles that might best be employed in seeking to accelerate change in addressing this problem, using the specific case of energy efficiency.

Recent financial and management accounting literature identifies some of the challenges that call for a broadened skills base for accounting and management professionals. Concerns centre on what can be categorised as technical and conceptual uncertainties that are now a feature of a more complex business world. The core skills of accountants in regard to definition, recognition, measurement, disclosure and assurance are confronted by tasks that require, for example, evaluation, treatment and assessment of non-monetary measures and intangibles, and the development of recognised standards for reporting to wider audiences for a range of novel purposes that include strategic management, risk and change management and new forms of regulatory compliance. But the development of systems and processes for rational decision making and accountability in the face of increased complexity and uncertainty is not something that is exclusive to accounting and management practice.

In analyses related to the promotion of sustainable practice, theoretical frameworks of risk governance and complexity theory address issues associated with making sense of uncertainty. At a highly practical level, ‘adaptive management’ has been long adopted as a means of addressing scientific uncertainty in the management of bounded ecosystems and recognised as appropriate in the academic field of environmental governance. These theoretical and practical approaches point to the proposition that addressing current sustainability issues such as energy efficiency and carbon management in accounting and management practice requires the adoption of leadership paradigms that focus on enabling the learning and adaptive capacity of complex adaptive systems within a framework of knowledge-producing organisations. The fostering of skill sets that need to be developed – related to problem-solving, expert and interpersonal communications, teamwork skills and adaptability – call for leadership roles that reflect a dynamic relationship between the administrative functions of organisations and the informal processes and operations of complex adaptive systems.
Why Energy Efficiency?

The impact of the carbon economy on business is going to be significant and the investment required enormous. New products and services taking advantage of the new conditions will be developed, and will lead to a competitive advantage. It’s critical that public and private sector businesses equip themselves with the services and skills they need to become compliant with the new environment reporting legislation (Finance Services Institute of Australia (FINSIA), 2009) quoting Tony Rose of PKP Chartered Accountants).

Reducing the amount of energy we use is widely believed to be the quickest, simplest and most cost-effective way to reduce Australia’s greenhouse gas emissions, but quite aside from issues associated with global warming, the adoption of energy efficient practices has been recognised, at least since the end of the 1980s, as essential to sustainability and to improving efficiency and productivity, and represents a sound management strategy that, by addressing issues of energy security and rising energy costs, has the potential to build competitive advantage. Low Carbon Australia's 2010 Report (Australian Carbon Trust & Climate Works Australia, 2010) found that there is potential to save as much as 23,000 Gigawatt/hours per year through energy-efficiency retrofits in commercial buildings by 2020. While this would require an investment of around $13 billion, it is calculated to result in a net cost saving of $75 per Megawatt/hour.

Engineers Australia notes on its website:

Several patterns of energy supply and use currently exist; none of them sustainable. ... Because energy has been cheap and plentiful, use is often wasteful, creating both environmental damage and increased costs. More efficient equipment, buildings, cars, and processes are not only possible, but are keys to improving productivity and competitiveness. Engineers are finding many new ways to improve performance of products, processes and activities that use energy (Engineers Australia, c2011).

The adoption of energy efficient practices however, involves more than just the consideration of optimal technical solutions. To the extent that a decision to adopt energy efficient practice involves change, such change is almost inevitably attended with costs – costs that need to be justified and explained. Moreover, such a decision will often be based on or partly based on strategic, rather than solely short term financial considerations, presenting challenges for justification in terms of traditional cost-benefit analysis. For nearly 40 years however, concerns have been expressed that the skill sets required to address these sorts of challenges may be in short supply. Leadership leading to change across the accounting profession is clearly necessary. This paper seeks to identify approaches to leadership that might address this problem, relevant to sustainability in general and energy efficiency in particular in the accounting profession.

Skill Shortages

There is a long history of attempts to introduce a greater focus on issues associated with sustainability (including, of course, energy efficiency) in accounting curricula (Bebbington, 1997; Gray, 2001; Mathews, 1997). Academic literature as early as the 1970s identified the need for graduates to develop ‘soft’ or ‘generic’ skills and the importance of integrating a critical approach to accounting education (Bennett, Bouma, & Ciccozzi, 2004; Boyce, 2004; Boyce, Williams, Kelly, & Yee, 2001; Gordon, 2001; Gray & Collison, 2002; Howieson, 2003; Mathews, 2001; Saravanamuthu & Tinker, 2002; Ullmann, 1976). Significant problems of a similar nature in regard to accounting education were identified in the United States of America in the 1980s (Bedford et al., 1986), and at the end of the 20th century (Albrecht & Sack, 2000) although the attention of the profession there has been largely drawn to a more general shortage of accountants. Concerns about a future shortage of accountants have also
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been expressed in Australia (Birrell, 2006; Institute of Chartered Accountants in Australia, 2008; Rout, 2007). Extensive literature on such issues as they related to educational aspects of accounting education was published in the 1990s (Gray, Walters, Bebbington, & Thompson, 1995; Macnaghten & Jacobs, 1997; Mathews, 1997; Milne, 1996; Willmott, Puxty, & Sikka, 1993). In a broader context Australian academic reform reports have emphasised the need to develop ‘key competencies’ described in similar terms to the ‘soft’ or ‘generic’ skills referred to above (Australian Education Council - Mayer Committee, 1992:5).

Utilising the key competencies defined in the Mayer report as a starting point, Blazey et al found that:

*Several employers noted that intellectual and interpersonal skills are very difficult to teach whereas self-management, communication and technical skills can often be acquired in the workplace. The skills most mentioned by employers were teamwork, communication and planning and organising skills (Blazey, Ashiabor, & Janu, 2008:6).*

The work of the universities involved in the Accounting for the Future Report provides a useful bibliography of the literature on the need for accountants to develop skills that are more appropriate to a changing world. The report notes that need for these sorts of skills has been recognised world-wide, though the terminology used to describe them varies considerably (Hancock et al., 2009:28). Certainly, accountants require ‘core skills’ of definition, recognition, measurement, disclosure and assurance. Professional associations describe ‘key technical skills’ as including audit and assurance; management accounting; tax; financial accounting; financial planning; forensic accounting; insolvency; corporate governance and finance and financial risk management. But the Accounting for the Future Report also notes the need to develop non-technical skills:

*Common themes that emerged across the country were:*

1. The technical skills required of graduates were essentially basic accounting skills, like debits and credits, although this varied by size of employers.

2. Non-technical skills were deemed to be very important in accounting graduates, particularly by employers in large organisations; communication, teamwork and self-management were regarded as the most desirable;

3. Graduates’ skills deemed by stakeholders to be the most inadequate were communication and problem solving; their deficiency was also seen to be the most restricting to graduates in their career development.

(Hancock et al., 2009:5)

The non-technical skills identified in the report include:

1. communication and presentation;
2. teamwork and interpersonal skills;
3. self-management;
4. initiative and enterprise;
5. problem-solving skills and
6. the ability to plan and organise. (Hancock et al., 2009:35-44)
Interestingly, the Australian Chamber of Commerce and the Industry & Business Council of Australia identify skills they regard as being in significantly short supply in almost exactly the same terms, adding one additional category – that of learning skills (Australian Chamber of Commerce and Industry & Business Council of Australia, 2002:58).

Hancock et al suggest the reason these skills are needed is that:

... in an unpredictable and intensively competitive global market ... new entrants to the profession find that the role of the accountant has expanded beyond narrow disciplinary knowledge to include, for example, strategic management, risk and change management ... In this environment, accountants require an ever broadening range of personal and interpersonal attributes or skills, including adaptability ... proactivity and expert communication and people-management skills (Hancock et al., 2009:14).

As was the case with the study conducted by Blazey et al, and studies in other countries (Gray & Collison, 2002:802), the Accounting for the Future Report found that in recruitment, non-technical skills were used as a discriminator when evaluating graduates with similar grades (Hancock et al., 2009:46).

US reports and studies suggest that the declining popularity of accounting courses there is largely attributable to the fact that these courses present business and accounting as it ‘used to be’ rather than how it ‘is and will be’ (Albrecht & Sack, 2000:35,39,44). Alarming, most of the accounting educators and accounting practitioners with undergraduate degrees in accounting who responded to surveys conducted by Albrecht & Sack stated that they would not get an accounting degree if completing their education over again. MBA degrees, for example, were perceived as leading to more lucrative, more satisfying and fulfilling careers (Albrecht & Sack, 2000:32).

While the lack of demand for change is significantly associated with student ignorance, misinformation and negative perceptions, systematic barriers to change in course content and presentation also play a key role (Taylor Research and Consulting Group Inc., 2000:3-7). Academic resistance to, and lack of student demand for change are evident at varying degrees in studies conducted in Britain, the US and Australia, (Gray & Collison, 2002:808,816) and resistance to change is frequently associated with a desire to present ‘traditional’ courses that are perceived as attractive to overseas, high fee-paying students.

Implicit in these findings is that we may be producing business graduates who lack core technical skills in accounting, and accounting graduates who lack key non-technical skills. For nearly 40 years we have been aware of the combination of technical and non-technical skills that business requires, and which are sought by prospective employers, yet there has been little advance in integrating the development of that combination of skills in accounting and management degrees or even in continuing professional development courses.

This should not be taken as suggesting that either academics or professional associations are unaware of the potential problem. But the desultory progress that has been made over the years in addressing these skill shortages suggests that more active intervention – more leadership – may be called for and that consideration may need to be given to the nature of appropriate leadership styles that might foster change. An appropriate starting point for that exercise involves a consideration of factors that call for the expansion of accountancy training skills to encompass ‘soft’ skills such as those described above, and in particular to consider the nature of the uncertainties facing businesses in the information-rich, highly
connected, intensively competitive, yet in many respects unpredictable, global market of the 21st century.

**Technical and Conceptual Uncertainties**
In 1960 Ronald Coase alerted the world of economics and law to the problems of determination of the social costs of business (Coase, 1960). While economists have argued about the terms and meaning of the ‘Coase Theorem’ ever since, the only ‘theory’ that emerges from his famous article on *The Problem of Social Cost* is a proposition that since we do not live in an optimal world, since transaction costs are never zero, and since rights (particularly social rights) are rarely perfectly defined, policy (law, regulation etc) is necessary to determine priorities in regard to externalities (the social costs) of business – the market is not capable nor suited to such determinations (McCloskey, 1997:240,241; Medema & Zerbe Jr., 2000:836,837).

Accountants stand in a pivotal role in regard to communication of the significance, in terms of costs and benefits, of decisions made by organisations, including decisions that take, or that fail to take account of matters involving social cost. In some circumstances, because of the existence of policy (e.g. regulatory) frameworks, explanations are easily provided – e.g. ‘this is a cost of compliance’. The communication problem becomes more challenging if, for example, an organisation seeks to go beyond compliance. Yet such a step may be justified on rational strategic grounds which may have significant financial ramifications – e.g. ‘we need to anticipate more stringent regulation’; ‘by changing our production processes/addressing inefficiencies in our supply chain we reduce/eliminate further compliance costs’; ‘by going beyond compliance we can obtain a competitive advantage and boost market share’. Here, the challenges of quantification of anticipated benefits in purely financial terms become evident.

Issues in regard to the assessment of social cost (which is at the core of sustainability issues) have not become simpler since 1960. If anything, they have become more complex. We take, as an example, recent literature (2005-2012) that appears of relevance to issues of accounting in regard to energy-saving. Such literature could be categorised as referring to factors of technical uncertainty and conceptual uncertainty.

In the category of technical uncertainty can be included issues associated with valuation – particularly of environmental assets (Herbohn, 2005); taking account of non-monetary measures and accounting for intangibles (Ratnatunga, 2007; Ratnatunga & Jones, 2008); assessment of intangibles for communication to a different and wider range of stakeholders (Cooper & Owen, 2007); the difficulties of separating sustainability costs from other costs (Kelly & Alam, 2008); the accounting invisibility of carbon (MacKenzie, 2009) and the importance of measurement of key environmental progress indicators (Henri & Journeault, 2008) and the lack of a standard set of metrics for social accounting (Unerman, 2008).

Conceptual uncertainties are highlighted in literature recognising issues associated with globalisation (Matten & Crane, 2005); pressures to adopt sustainable practice as a competitive strategy (Burnett & Hansen, 2008; White, 2005); the demands of different audiences and the problems with defining shareholder benefit (Cooper & Owen, 2007; O’Dwyer, Owen, & Unerman, 2011); the running together of probability and uncertainty such as in the conflation of reductions and offsets in carbon accounting (Lohmann, 2009); difficulties associated with uneven reporting and factors that influence the adequacy of
reporting (Cho, Guidry, Hageman, & Patten, 2012; Clarkson, Li, Richardson, & Vasvari, 2008; Cooper & Owen, 2007) and factors that make for attractive government policy but create difficulties for adapting accounting practice (Cook, 2009).

The fact that there is close interrelationship between these sorts of technical and conceptual uncertainties adds a further dimension of complexity to the equation. In an increasingly interconnected world (both in terms of trade and in terms of communication) globalisation exposes businesses to public review over shorter time frames and longer distances and introduces new audiences of business and sustainability performance. Accounting for intangibles is influenced by factors such as uneven reporting, the need to separate sustainability costs from other costs and by the nature of the audiences that are to receive the resultant information and the potential politicisation of issues associated with such reporting. Under Australia’s new carbon ‘tax’ legislation failure to adequately report externalities such as carbon release may result in failure to predict, and therefore failure to offset, carbon release, which in turn is likely to produce significant adverse financial consequences.

**Reformulating the problems of Technical and Conceptual uncertainties**

Recent literature emphasises the need for practical, rather than theoretical approaches to change (Birnberg, 2009). From a management accounting perspective many of the perceived limitations in regard to financial accounting as it relates to sustainability practice are not as significant a constraint on management accountants, suggesting that all accountants should develop skills in management accounting (Ratnatunga, 2007). Others point to the need to expand communication to develop practical solutions through combining and sharing advice and experience over time (Braun, 2009; Engels, 2009). Best practice techniques it is argued, are appropriately conceived of as combinations of best practice (Bréchet & Tulkens, 2009), and legitimation pressures call for the opening of dialogue (O’Dwyer et al., 2011). Opening of dialogue is seen as the first step in establishing ‘dynamic links’ and an appropriate ‘dynamic equilibrium’ (Li & Colombier, 2009; Smith & Lewis, 2011). Each of these approaches suggests a consideration of a need to reformulate the problem that is being addressed:

1. Firstly, the nature of what is being addressed is a range of technical and conceptual uncertainties. Attendant on these uncertainties is a high degree of complexity arising in part from the interrelationship between those technical and conceptual uncertainties. In such circumstances, decision making is associated with risk. Any decision produces consequences but it may produce contingencies which introduce new uncertainties, new complexities and new risks.

2. Secondly, there are now wider consequences to decision making, as there is a wider ‘audience’ claiming the right to oversee decision making. Now, not just shareholders, but also the government, stakeholders who might be directly or adversely affected, and an even more diverse group of bodies, including the media and various non-government organisations lay claim to the right to critical appraisal of decision making.

3. Thirdly, even the most well-informed may fall into error when advising on, or making decisions in regard to areas of uncertainty, complexity and risk. The task then becomes to guard against error, to allow for errors to be exposed, to provide for appropriate adaptation and to establish processes that demonstrate that such a ‘safety net’ is in place.
Thus formulated, the problem is one that is not at all unfamiliar to those working in areas of scientific and social uncertainty – areas such as environmental and risk governance. An examination of how those problems are addressed in those fields provides a pointer to the form of leadership styles that may be required to facilitate reforms appropriate in accounting and management practice.

**Adaptive Management, Adaptive Governance and Risk Governance**

Expressed in its simplest form, adaptive management is a common sense application of a recursive approach to the scientific method of controlled experimentation, implemented to address complexities associated with management of bounded eco-systems. Lee says adaptive management ‘... embodies a simple imperative: policies are experiments; learn from them’ (Lee, 1993 – emphasis from the original). To summarise the views of one of its earliest proponents, Crawford (‘Buzz’) Holling, adaptive management explicitly recognises the need for management decisions to consider economic, social and environmental values in an integrated and decentralised fashion, the presence of diverse stakeholders in environmental management issues and the inherent uncertainty of environmental processes (Holling, 1978).

Since the 1970s, the application of a process that involves a cycle of ‘plan–do–review–re-plan’ has been recognised as something that can be pertinent to management of more extensive eco-systems than those first considered (Bormann, Cunningham, Brookes, Manning, & Collropy, 1993; Ewing, Grayson, & Argent, 2000; Holling, 2000; Lee, 1993; Lee & Lawrence, 1986; Ludwig, Hilborn, & Walters, 1993; Scientific Panel for Sustainable Forest Practices in Clayoquot Sound, 1995; Walters & Holling, 1990). More recent formulations perceive the adaptive management approach as appropriate within a broader context of policy formulation: ‘... an approach to managing natural resources which actively seeks to learn from implementation of policies and strategies’ (Allan & Curtis, 2002). Governance theorists suggest that organisations that employ such techniques enhance their longevity and legitimacy through their own ‘self-reflexive self-organisation’ (Jessop, 2006). Others suggest this potential militates in favour of establishing systems of adaptive governance:

> the specification of public policy objectives, the allocation of government revenue, the imposition of regulatory controls, and the allocation of gains and losses necessary to achieve political equilibrium regarding [natural resource management] .... Adaptive management can exist without adaptive governance, but adaptive governance cannot exist without adaptive management (Susskind, 2005).

What might be considered the most radical aspect of the adaptive management approach - the concept of engagement of stakeholders in decision-making - received endorsement in the *Statement on Water and Sustainable Development*, (the Dublin principles) adopted by the International Conference on Water and the Environment, in 1992. The Dublin Conference was not an intergovernmental conference. It was the last technical preparatory meeting before the UN Conference on Environment and Development at Rio de Janeiro – a conference for experts in environmental and water management. The engagement of stakeholders it was agreed could be crucial to scientific decision making. Just as it would be scientifically reckless to attempt management of natural resources without consideration of physical, geographical, biological and other features, such as population density and land use, so too would it be folly to consider management of those resources without taking into
account human demands on the resources. Ascertaining what those demands are and how they change, is as critical to science-based decision-making as an understanding of geography and ecology. The system requires adaptive capacity.

Here, the problem formulation (uncertainty/complexity-risk-adaptive capacity) is similar to that outlined above in relation the issues facing accounting for matters involving social cost. Scientific uncertainty arises from the complex interconnectedness of environmental systems. Further complexity arises from competing human demands on those resources. Risks are associated with decision making in regard to governance of the resource because the consequences of decisions may be unknowable, or relatively unpredictable, but also because decisions may involve favouring one set of human demands above another. Engagement of relevant stakeholders allows for transparency in decision making but it also allows for consideration or of ‘local knowledge’ that may provide insight into areas of uncertainty. Transparent processes of consultation and review legitimate decision making but also provide a safety net by allowing for adaptation in the face of unintended or dysfunctional outcomes.

Further complexity arises in regard to the selection of stakeholders who need to be considered. For example, in regard to the governance of a water resource at a local level in a rural community, appropriate stakeholders at one level might comprise a small number of farmers with fairly homogenous claims for use of the resource. However, as level and scale change, groups that compete for the same resource might include town water utilities, agricultural and irrigation interests, mining and manufacturing businesses, electricity generation companies, commercial and fishing industries, recreational and environmental interest groups and indigenous groups. Often the interests of local, regional, state and federal government may need to be recognised and in urban contexts, the range of stakeholders might multiply dramatically. The interests of all these groups might be presumed to conflict in many instances.

The features of the approach of the ‘plan–do–review–re-plan’ are mirrored to a substantial degree in the analogous process for risk governance espoused by Otwin Renn. Renn’s formulation of the problem he is addressing involves the same elements (uncertainty/complexity-risk-adaptive capacity) outlined above, but considered in different order. Firstly he addresses the concept of ‘risk, adopting a definition offered by Kates, Hohenemer and Kaspersion (1985:21):

If the contingent nature of our actions is taken for granted, the term ‘risk’ denotes the possibility that an undesirable state of reality (adverse effects) may occur as a result of natural events or human activities.

Such a definition, he says, implies humans can, and will, make causal connection between actions (or events) and will extrapolate that outcomes can be altered by modifying, or mitigating the impacts of these actions or events:

The definition of risk therefore contains three elements: outcomes that have an impact upon what humans value; the possibility of occurrence (uncertainty); and a formula to combine both elements. Outcomes can, in principle, be positive or negative, depending upon the values that people associate with them (Renn, 2008:2-3)

The framework for risk governance, he argues, consists of four consecutive phases: pre-assessment; appraisal; characterisation/evaluation and management. Importantly, risk communication accompanies all four phases (Renn, 2008:47).
Risk governance and adaptive management (or adaptive governance) described above have in common an approach that seeks to address issues of uncertainty complexity and risk by providing a safety net through processes that allow for adaptation. The effective operation of such a process is dependent on being able to apply appropriate skills in regard to precisely the sort of skills that are said to be short supply in the accounting profession:

- expert and interpersonal communication;
- teamwork;
- problem-solving; and
- adaptation.

What links the approaches of adaptive and risk governance with the problem of accounting for matters involving social cost has been explained this way by Costanza and Patten:

A nested hierarchy of systems over a range of time and space scales must be considered (the metasystem). Within the socioeconomic subsystem, a social consensus on desired characteristics which are consistent with the relationship of these subsystems with other subsystems in the hierarchy (notably ecosystems) must be arrived at. These characteristics also function as predictors of what kind of system will actually be sustainable (Costanza & Patten, 1995:196).

Applying those concepts to the situation of the sorts of organisations that require the services of accountants and managers, it is to be recognised that organisations operate within a context of a metasystem that includes not just human, but also natural subsystems. Reactions of organisations to a range of actions (the global financial crisis, the tsunami in Japan, prospects of democratic reform in the middle-east) need not be rational nor predictable. Further, organisations are not to be regarded as stable. They are not monolithic in nature but composed of many individuals who interact with other individuals from other organisations in an unpredictable fashion. They are to be regarded as complex adaptive systems:

Some of the characteristics of complex adaptive systems include: (1) they are made up of many agents who act and interact with each other in unpredictable ways, (2) they are sensitive to changes in initial conditions, (3) they adjust their behavior in the aggregate to their environment in unpredictable ways, (4) they oscillate between stability and instability, and (5) they produce emergent actions when approaching disequilibrium. Additionally, complex systems are dynamic and non-linear, and rarely explained by simple cause–effect relationships (Plowman et al., 2007:342-343).

The processes of adaptive and risk governance operate in the milieu of complex adaptive systems by stabilising expectations, developing new networks for communication which allow for adjustment to unpredictable outcomes, and limiting circumstances that produce disequilibrium. The skills described are needed in order to address the realities of complex adaptive systems, minimising the disadvantages (apparent chaos) and maximising the advantages (emergent and innovative capacities).

If we return to our question of what leadership styles are required to bring about change in the accounting profession, we need to look at the literature analysing the relevance of different leadership styles in dealing with complex adaptive systems to envisage how such leadership styles might provide the normative pressure that would foster the development and use of such skills for these purposes.
Leadership Styles
The wide literature on leadership styles has largely focussed on those qualities claimed to be important in generating influence within business organisations. Empirical work (eg Ptatje, 2008; Preuss, 2005) has lent support to the suggestions of institutional theorists that professional networks can exert normative pressures influencing the take up of environmental initiatives (Campbell, 2007). This paper is concerned with the leadership styles that might promote these normative pressures in professions such as accounting and hence influence standards of professional practice around sustainability and energy efficiency in particular. As our interest is therefore in leadership involving multiple internal and external stakeholders to the profession, we draw on Angus-Leppan et al’s (2010) understanding of leadership as a complex social process involving dynamic interactions that lead to a collaborative change involving new meanings.

To address our need for leadership from professional networks that would be effective in generating qualities of communication, teamwork, problem solving and adaptive capacity we look to Shin and Zhou’s (2003) findings from a sample of 290 employees from 46 Korean companies. This study showed that transformational leadership is positively related to follower creativity. Indeed, Waldman et al (2006) suggest that the effectiveness of transformational leadership may relate to a capacity to capture the foresight that exists in an organisation and thus a cognitive functionality, rather than any charismatic quality. Other work shows that we cannot rely on the charismatic leader to generate the innovation, resilience and adaptation needed if our professions are to work with the terms of a sustainable future. Benn et al’s (2010) study, for example, shows that more distributed forms leadership appear to be associated with implementation of social responsibility and sustainability. In Angus-Leppan et al’s study of a major Australian bank (2010) it was found that implicit or values-based approaches to corporate responsibility and sustainability are more linked with authentic and emergent styles of leadership. Yet if we are to distinguish energy efficiency from sustainability more generally, energy efficiency is arguably also associated with a transactional leadership – ie ‘pragmatic managerial styles that focus on reward and follower self-interest’ (Benn et al, 2010:404). The picture derived from the literature of appropriate leadership style for change towards sustainability is ambiguous, associated with paradox and revealing tensions between leadership styles and approaches.

Our review is thus pointed in the direction of recent research on complexity leadership. Proponents (eg Uhl-Bien et al, 2007) claim that many leadership models are those of the past, not equipping managers and in this case professions, to deal with the ambiguous and uncertainty of current issues, such as sustainability-related concerns. Particularly they argue, they are not suited as we need leadership towards a more knowledge-oriented economy where organisations of all types, including the professions, need to consider themselves as operating as complex adaptive systems, incorporating networks of autonomous agents, interacting through feedback mechanisms, with the interactions resulting in emergent properties of the system (Metcalf & Benn, 2012). According to Uhl-Bien et al (2007: 305) a suitable framework for leadership style would involve three overlapping and intertwined leadership styles: (adaptive leadership, administrative leadership, and enabling leadership) that reflect ‘a dynamic relationship between the bureaucratic, administrative functions of the organisation and the emergent, informal dynamics of complex adaptive systems’. In effect, there is a dynamic and interdependent relationship between the hierarchy and control
mechanisms of bureaucratic organisation and the adaptive emergent forces of the networks that are supported by enabling leadership.

**Networks and learning**

In one such network we studied, participant perceptions concerning the leadership provided by a government-sponsored environmental program were explored. The program aimed at building capability across a network of interconnected yet independently operating organisations. Improvement in energy efficiency was a key aspect of the program. The research involved 60 interviews and two surveys conducted over two years between 2006-2008 (Benn, 2012; Benn & Martin 2008).

Key findings included that perceived program success was seen to derive from its operations as a ‘learning network’ that involved informal dialogue rather than top-down or hierarchical leadership styles or structures. The program was perceived as involving informal ‘collaborative’ processes rather than the more formal processes. Hence it was not the structure of the program, but its processes and associated interpersonal relationships that were associated with effectiveness (Benn & Martin, 2008). A key finding from the interviews and focus groups was the importance for this development of shared understandings and mutual trust, of a high level of interpersonal skills on the part of program participants, as well as the facilitation of informal communication. In both surveys the commitment of personnel was seen as the most important factor in delivering positive outcomes from the relationships. Rated only slightly lower than items related to commitment in both surveys, were items involving possession of shared values, and trusting relationships between organisations.

This research supports the work of other scholars who argue that the value of partnerships and networks as a means of adaptive governance rests on their ability to generate systems of dialogue and exchange that will enable and embed mutual respect and shared learning (Stoker 2009). We also note the paradox that despite the success of the program arising from its emphasis on informal meetings, networking and ad hoc discussions, many participants perceived a more structured form of governance was needed for more concrete outcomes (Benn & Martin, 2008).

**Conclusion**

Our literature review and example drawn from previous research shows the importance of giving consideration to allowing for the interaction of different forms of leadership. It highlights the importance of understanding the tensions and paradoxes associated with building our key capabilities of communication, teamwork, problem solving and adaptive capacity. To conclude on a quote from a recent review:

*What is the outcome of a virtuous cycle of managing tensions? Paradox research points to possibilities. Effectively attending to contradictory demands simultaneously has been associated with career success (O’Mahony & Bechky, 2006), exceptional leadership capabilities (Denison et al., 1995), high-performing groups (Murnighan & Conlon, 1991), and organisational performance (Cameron & Lavine, 2006; Tushman, Smith, Wood, Westerman, & O’Reilly, 2010). We expand on such studies, proposing that a dynamic equilibrium unleashes the power of paradox to foster sustainability. Individuals, groups, and firms achieve short-term excellence while ensuring that such performance fuels adaptation and growth enabling long-term success (Cameron & Lavine, 2006). More specifically, a dynamic equilibrium enables sustainability through three mechanisms: (1) enabling learning and creativity, (2) fostering flexibility and resilience, and (3) unleashing human potential (Smith & Lewis, 2011:393).*
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In future work we intend to explore these tensions in the context of a major research project being conducted on building adaptive capability around energy efficiency for accountants and business managers. Given our understanding of professional networks as operating as, and within, complex adaptive systems, our approach is informed by principles of participative inquiry (Reason and Bradbury, 2006). Although focussed on energy efficiency in professional networks, when analysed through the lens of the theoretical frameworks discussed above, we expect this project to deliver important wider findings around leadership and change for sustainability.

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